

# Multilayer Ceramic Chip Capacitors

## General use

### C series

|       |                    |
|-------|--------------------|
| Type: | C0402[EIA CC01005] |
|       | C0603[EIA CC0201]  |
|       | C1005[EIA CC0402]  |
|       | C1608[EIA CC0603]  |
|       | C2012[EIA CC0805]  |
|       | C3216[EIA CC1206]  |
|       | C3225[EIA CC1210]  |
|       | C4532[EIA CC1812]  |
|       | C5750[EIA CC2220]  |

Issue date: September 2011

- All specifications are subject to change without notice.
  - Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.
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# REMINDERS

Please read this before using the product.

## SAFETY REMINDERS

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1. If you intend to use a product listed in this catalog for a purpose that may cause loss of life or other damage, you must contact our company's sales window.
2. We may modify products or discontinue production of a product listed in this catalog without prior notification.
3. We provide "Delivery Specification" that explain precautions for the specifications and safety of each product listed in this catalog. We strongly recommend that you exchange these delivery specifications with customers that use one of these products.
4. If you plan to export a product listed in this catalog, keep in mind that it may be a restricted item according to the "Foreign Exchange and Foreign Trade Control Law". In such cases, it is necessary to acquire export permission in harmony with this law.
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8. The descriptions in this catalog apply as of September, 2011.

# Multilayer Ceramic Chip Capacitors

## General Use

Conformity to RoHS Directive

### C Series

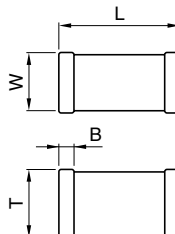
#### FEATURES

- An electrostatic capacity has been obtained that reaches the electrolytic capacitor range through precision technology that enables the use of multiple thinner ceramic dielectric layers.
- Since these capacitors are composed of only ceramics and metals and have a monolithic structure, they offer a long service life and high reliability.
- Low ESL and excellent frequency characteristics allow for a circuit design that closely conforms to theoretical values.
- Low self-heating and high ripple resistance due to low ESR.

#### APPLICATION EXAMPLES

- Decoupling and ripple filters for general electronic devices
- Time constant circuits, resonance circuits, coupling circuits (Products with CH or C0G temperature characteristics are recommended. Use as a replacement for film capacitors is also possible.)

#### SHAPES AND DIMENSIONS



#### DIMENSIONS

The dimensions of each product are described within the product name.

##### Dimensions L×W

The 4-digit number in the product name corresponds to the dimensions of L×W.

Refer to the table below for specific values.

| Dimensions in mm |          |          |          |
|------------------|----------|----------|----------|
| Dimension code   | L        | W        | B        |
| 0402             | 0.4±0.02 | 0.2±0.02 | 0.07min. |
| 0603             | 0.6±0.03 | 0.3±0.03 | 0.1min.  |
| 1005             | 1.0±0.05 | 0.5±0.05 | 0.1min.  |
| 1608             | 1.6±0.1  | 0.8±0.1  | 0.2min.  |
| 2012             | 2.0±0.2  | 1.25±0.2 | 0.2min.  |
| 3216             | 3.2±0.2  | 1.6±0.2  | 0.2min.  |
| 3225             | 3.2±0.4  | 2.5±0.3  | 0.2min.  |
| 4532             | 4.5±0.4  | 3.2±0.4  | 0.2min.  |
| 5750             | 5.7±0.4  | 5.0±0.4  | 0.2min.  |

- Dimension tolerances are typical values.

##### Product's Thickness T

The value in parentheses at the end of the product name corresponds to thickness T.

Refer to the table of "CAPACITANCE RANGES" for specific values.

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## PRODUCT IDENTIFICATION

| C   | 1005 | CH  | 1H  | 100 | C   | (   | 050 | B   | A | ) |
|-----|------|-----|-----|-----|-----|-----|-----|-----|---|---|
| (1) | (2)  | (3) | (4) | (5) | (6) | (7) | (8) | (9) |   |   |

### (1) Series name

### (2) Dimensions L×W

|      |            |
|------|------------|
| 0402 | 0.4×0.2mm  |
| 0603 | 0.6×0.3mm  |
| 1005 | 1.0×0.5mm  |
| 1608 | 1.6×0.8mm  |
| 2012 | 2.0×1.25mm |
| 3216 | 3.2×1.6mm  |
| 3225 | 3.2×2.5mm  |
| 4532 | 4.5×3.2mm  |
| 5750 | 5.7×5.0mm  |

### (3) Capacitance temperature characteristics

#### Class 1 (Temperature compensation)

| Temperature characteristics | Capacitance change | Temperature range |
|-----------------------------|--------------------|-------------------|
| C0G                         | 0±30ppm/°C         | −55 to +125°C     |
| CH                          | 0±60ppm/°C         | −25 to +85°C      |

#### Class 2 (Temperature stable and general purpose)

| Temperature characteristics | Capacitance change | Temperature range |
|-----------------------------|--------------------|-------------------|
| X5R                         | ±15%               | −55 to +85°C      |
| X6S                         | ±22%               | −55 to +105°C     |
| X7R                         | ±15%               | −55 to +125°C     |
| JB                          | ±10%               | −25 to +85°C      |
| Y5V                         | +22, −82%          | −30 to +85°C      |
| JF                          | +30, −80%          | −25 to +85°C      |

### (4) Rated voltage E<sub>dc</sub>

|    |      |
|----|------|
| 0G | 4V   |
| 0J | 6.3V |
| 1A | 10V  |
| 1C | 16V  |
| 1E | 25V  |
| 1V | 35V  |
| 1H | 50V  |

### (5) Nominal capacitance

The capacitance is expressed in three digit codes and in units of pico farads (pF).

The first and second digits identify the first and second significant figures of the capacitance.

The third digit identifies the multiplier.

R designates a decimal point.

|     |                     |
|-----|---------------------|
| 0R5 | 0.5pF               |
| R75 | 0.75pF              |
| 010 | 1pF                 |
| 100 | 10pF                |
| 471 | 470pF               |
| 102 | 1,000pF             |
| 333 | 33,000pF            |
| 474 | 470,000pF           |
| 225 | 2,200,000pF (2.2μF) |

### (6) Capacitance tolerance

| Symbol | Tolerance | Applicable capacitance range |
|--------|-----------|------------------------------|
| B      | ±0.1pF    | 10pF or less                 |
| C      | ±0.25pF   |                              |
| D      | ±0.5pF    |                              |
| J      | ±5%       | Over 10pF                    |
| K      | ±10%      |                              |
| M      | ±20%      |                              |
| Z      | +80, −20% |                              |

### (7) Dimensions T

Expressed by a three-digit number in mm units.

The second and third digits denote the first and second decimal places, respectively.

|     |        |
|-----|--------|
| 050 | 0.50mm |
| 085 | 0.85mm |
| 125 | 1.25mm |

### (8) Packaging style

|   |                            |
|---|----------------------------|
| A | ø178mm reel with 4mm-pitch |
| B | ø178mm reel with 2mm-pitch |
| C | ø178mm reel with 1mm-pitch |
| D | ø330mm reel with 4mm-pitch |
| E | ø330mm reel with 2mm-pitch |
| F | ø330mm reel with 1mm-pitch |
| H | Bulk(bag)                  |
| J | ø330mm reel with 8mm-pitch |
| K | ø178mm reel with 8mm-pitch |

### (9) TDK internal code

In brochures issued in August, 2011 and later, the product thickness and packing specifications are described at the end of the ordering name [the product name described in brochures] in parentheses.

Since the existing ordering name could not clearly express the product thickness and packing specifications, it has been changed to a new product description method that solves this inconvenience.

Please be aware that the last five digits of the ordering name on the delivery label and those in the brochure differ.

No changes have been made to the delivery name.

(Example)

| Brochure issued date  | Ordering name (description in the brochure) | Delivery name (description on the delivery label) |
|-----------------------|---------------------------------------------|---------------------------------------------------|
| Prior to July, 2011   | C1608X5R1C105K                              | C1608X5R1C105KT000N                               |
| August, 2011 or later | C1608X5R1C105K(080AA)                       | C1608X5R1C105KT000N                               |

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**CAPACITANCE RANGES: CLASS 1 (TEMPERATURE COMPENSATION)**
**TEMPERATURE CHARACTERISTICS: C0G(0±30ppm/°C)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 50V | Rated voltage Edc: 35V | Rated voltage Edc: 25V | Rated voltage Edc: 16V |
|-------------|------------------|--------------------|--------------------------|------------------------------------|------------------------|------------------------|------------------------|
| 0.5pF       | 0402             | 0.20±0.02          | ±0.25pF                  |                                    |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±0.25pF                  | C0603C0G1H0R5C(030BA)              |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±0.1pF                   | C1005C0G1H0R5B(050BA)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF                  | C1608C0G1H0R5C(080AA)              |                        |                        |                        |
| 0.75pF      | 0402             | 0.20±0.02          | ±0.25pF                  |                                    |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±0.25pF                  | C0603C0G1HR75C(030BA)              |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±0.1pF                   | C1005C0G1HR75B(050BA)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF                  | C1608C0G1HR75C(080AA)              |                        |                        |                        |
| 1pF         | 0402             | 0.20±0.02          | ±0.25pF                  |                                    |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±0.25pF                  | C0603C0G1H010C(030BA)              |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±0.1pF                   | C1005C0G1H010B(050BA)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF                  | C1608C0G1H010C(080AA)              |                        |                        |                        |
| 1.5pF       | 0402             | 0.20±0.02          | ±0.25pF                  |                                    |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±0.25pF                  | C0603C0G1H1R5C(030BA)              |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±0.1pF                   | C1005C0G1H1R5B(050BA)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF                  | C1608C0G1H1R5C(080AA)              |                        |                        |                        |
| 2pF         | 0402             | 0.20±0.02          | ±0.25pF                  |                                    |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±0.25pF                  | C0603C0G1H020C(030BA)              |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±0.1pF                   | C1005C0G1H020B(050BA)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF                  | C1608C0G1H020C(080AA)              |                        |                        |                        |
| 3pF         | 0402             | 0.20±0.02          | ±0.25pF                  |                                    |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±0.25pF                  | C0603C0G1H030C(030BA)              |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±0.1pF                   | C1005C0G1H030B(050BA)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF                  | C1608C0G1H030C(080AA)              |                        |                        |                        |
| 4pF         | 0402             | 0.20±0.02          | ±0.25pF                  |                                    |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±0.25pF                  | C0603C0G1H040C(030BA)              |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±0.1pF                   | C1005C0G1H040B(050BA)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF                  | C1608C0G1H040C(080AA)              |                        |                        |                        |
| 5pF         | 0402             | 0.20±0.02          | ±0.25pF                  |                                    |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±0.25pF                  | C0603C0G1H050C(030BA)              |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±0.1pF                   | C1005C0G1H050B(050BA)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF                  | C1608C0G1H050C(080AA)              |                        |                        |                        |
| 6pF         | 0402             | 0.20±0.02          | ±0.5pF                   |                                    |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±0.5pF                   | C0603C0G1H060D(030BA)              |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±0.25pF                  | C1005C0G1H060C(050BA)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF                  | C1608C0G1H060C(080AA)              |                        |                        |                        |
| 7pF         | 0402             | 0.20±0.02          | ±0.5pF                   |                                    |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±0.5pF                   | C0603C0G1H070D(030BA)              |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±0.25pF                  | C1005C0G1H070C(050BA)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF                  | C1608C0G1H070C(080AA)              |                        |                        |                        |
| 8pF         | 0402             | 0.20±0.02          | ±0.5pF                   |                                    |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±0.5pF                   | C0603C0G1H080D(030BA)              |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±0.25pF                  | C1005C0G1H080C(050BA)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF                  | C1608C0G1H080C(080AA)              |                        |                        |                        |
| 9pF         | 0402             | 0.20±0.02          | ±0.5pF                   |                                    |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±0.5pF                   | C0603C0G1H090D(030BA)              |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±0.25pF                  | C1005C0G1H090C(050BA)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF                  | C1608C0G1H090C(080AA)              |                        |                        |                        |

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**CAPACITANCE RANGES: CLASS 1 (TEMPERATURE COMPENSATION)**
**TEMPERATURE CHARACTERISTICS: C0G(0±30ppm/°C)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 50V             | Rated voltage Edc: 35V | Rated voltage Edc: 25V | Rated voltage Edc: 16V |
|-------------|------------------|--------------------|--------------------------|------------------------------------------------|------------------------|------------------------|------------------------|
| 10pF        | 0402             | 0.20±0.02          | ±0.5pF                   |                                                |                        |                        | C0402C0G1C100D(020BA)  |
|             | 0603             | 0.30±0.03          | ±0.5pF                   | C0603C0G1H100D(030BA)                          |                        | C0603C0G1E100D(030BA)  |                        |
|             | 1005             | 0.50±0.05          | ±0.25pF<br>±0.5pF        | C1005C0G1H100C(050BA)<br>C1005C0G1H100D(050BA) |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF<br>±0.5pF        | C1608C0G1H100C(080AA)<br>C1608C0G1H100D(080AA) |                        |                        |                        |
| 12pF        | 0402             | 0.20±0.02          | ±5%                      |                                                |                        |                        | C0402C0G1C120J(020BA)  |
|             | 0603             | 0.30±0.03          | ±5%                      | C0603C0G1H120J(030BA)                          |                        | C0603C0G1E120J(030BA)  |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H120J(050BA)                          |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H120J(080AA)                          |                        |                        |                        |
| 15pF        | 0402             | 0.20±0.02          | ±5%                      |                                                |                        |                        | C0402C0G1C150J(020BA)  |
|             | 0603             | 0.30±0.03          | ±5%                      | C0603C0G1H150J(030BA)                          |                        | C0603C0G1E150J(030BA)  |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H150J(050BA)                          |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H150J(080AA)                          |                        |                        |                        |
| 18pF        | 0603             | 0.30±0.03          | ±5%                      | C0603C0G1H180J(030BA)                          |                        | C0603C0G1E180J(030BA)  |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H180J(050BA)                          |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H180J(080AA)                          |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±5%                      | C0603C0G1H220J(030BA)                          |                        | C0603C0G1E220J(030BA)  |                        |
| 22pF        | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H220J(050BA)                          |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H220J(080AA)                          |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±5%                      | C0603C0G1H270J(030BA)                          |                        | C0603C0G1E270J(030BA)  |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H270J(050BA)                          |                        |                        |                        |
| 27pF        | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H270J(080AA)                          |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±5%                      | C0603C0G1H330J(030BA)                          |                        | C0603C0G1E330J(030BA)  |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H330J(050BA)                          |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H330J(080AA)                          |                        |                        |                        |
| 33pF        | 0603             | 0.30±0.03          | ±5%                      | C0603C0G1H390J(030BA)                          |                        | C0603C0G1E390J(030BA)  |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H390J(050BA)                          |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H390J(080AA)                          |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±5%                      | C0603C0G1H470J(030BA)                          |                        | C0603C0G1E470J(030BA)  |                        |
| 47pF        | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H470J(050BA)                          |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H470J(080AA)                          |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±5%                      | C0603C0G1H560J(030BA)                          |                        | C0603C0G1E560J(030BA)  |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H560J(050BA)                          |                        |                        |                        |
| 56pF        | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H560J(080AA)                          |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±5%                      | C0603C0G1H680J(030BA)                          |                        | C0603C0G1E680J(030BA)  |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H680J(050BA)                          |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H680J(080AA)                          |                        |                        |                        |
| 68pF        | 0603             | 0.30±0.03          | ±5%                      | C0603C0G1H820J(030BA)                          |                        | C0603C0G1E820J(030BA)  |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H820J(050BA)                          |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H820J(080AA)                          |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±5%                      | C0603C0G1H101J(030BA)                          |                        | C0603C0G1E101J(030BA)  |                        |
| 100pF       | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H101J(050BA)                          |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H101J(080AA)                          |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H121J(050BA)                          |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H121J(080AA)                          |                        |                        |                        |
| 120pF       | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H151J(050BA)                          |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H151J(080AA)                          |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H181J(050BA)                          |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H181J(080AA)                          |                        |                        |                        |
| 180pF       | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H221J(050BA)                          |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H221J(080AA)                          |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H271J(050BA)                          |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H271J(080AA)                          |                        |                        |                        |
| 220pF       | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H331J(050BA)                          |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H331J(080AA)                          |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H391J(050BA)                          |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H391J(080AA)                          |                        |                        |                        |
| 330pF       | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H471J(050BA)                          |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H471J(080AA)                          |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H561J(050BA)                          |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H561J(080AA)                          |                        |                        |                        |
| 560pF       | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H681J(050BA)                          |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H681J(080AA)                          |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H821J(050BA)                          |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H821J(080AA)                          |                        |                        |                        |
| 820pF       | 1005             | 0.50±0.05          | ±5%                      |                                                |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      |                                                |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±5%                      |                                                |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      |                                                |                        |                        |                        |

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**CAPACITANCE RANGES: CLASS 1 (TEMPERATURE COMPENSATION)**
**TEMPERATURE CHARACTERISTICS: C0G(0±30ppm/°C)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 50V | Rated voltage Edc: 35V | Rated voltage Edc: 25V | Rated voltage Edc: 16V |
|-------------|------------------|--------------------|--------------------------|------------------------------------|------------------------|------------------------|------------------------|
| 1nF         | 1005             | 0.50±0.05          | ±5%                      | C1005C0G1H102J(050BA)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H102J(080AA)              |                        |                        |                        |
|             | 2012             | 0.60±0.10          | ±5%                      | C2012C0G1H102J(060AA)              |                        |                        |                        |
| 1.2nF       | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H122J(080AA)              |                        |                        |                        |
|             | 2012             | 0.60±0.10          | ±5%                      | C2012C0G1H122J(060AA)              |                        |                        |                        |
| 1.5nF       | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H152J(080AA)              |                        |                        |                        |
|             | 2012             | 0.60±0.10          | ±5%                      | C2012C0G1H152J(060AA)              |                        |                        |                        |
| 1.8nF       | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H182J(080AA)              |                        |                        |                        |
|             | 2012             | 0.60±0.10          | ±5%                      | C2012C0G1H182J(060AA)              |                        |                        |                        |
| 2.2nF       | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H222J(080AA)              |                        |                        |                        |
|             |                  | 0.60±0.10          | ±5%                      | C2012C0G1H222J(060AA)              |                        |                        |                        |
|             | 2012             | 0.85±0.10          | ±5%                      | C2012C0G1H222J(085AA)              |                        |                        |                        |
| 2.7nF       |                  | 1.25±0.10          | ±5%                      | C2012C0G1H222J(125AA)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H272J(080AA)              |                        |                        |                        |
|             | 2012             | 0.60±0.10          | ±5%                      | C2012C0G1H272J(060AA)              |                        |                        |                        |
| 3.3nF       | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H332J(080AA)              |                        |                        |                        |
|             |                  | 0.60±0.10          | ±5%                      | C2012C0G1H332J(060AA)              |                        |                        |                        |
|             | 2012             | 0.85±0.10          | ±5%                      | C2012C0G1H332J(085AA)              |                        |                        |                        |
| 3.9nF       |                  | 1.25±0.10          | ±5%                      | C2012C0G1H332J(125AA)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H392J(080AA)              |                        |                        |                        |
|             |                  | 0.60±0.10          | ±5%                      | C2012C0G1H392J(060AA)              |                        |                        |                        |
| 4.7nF       | 2012             | 0.85±0.10          | ±5%                      | C2012C0G1H392J(085AA)              |                        |                        |                        |
|             |                  | 1.25±0.10          | ±5%                      | C2012C0G1H392J(125AA)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H472J(080AA)              |                        |                        |                        |
| 5.6nF       |                  | 0.60±0.10          | ±5%                      | C2012C0G1H472J(060AA)              |                        |                        |                        |
|             | 2012             | 0.85±0.10          | ±5%                      | C2012C0G1H472J(085AA)              |                        |                        |                        |
|             |                  | 1.25±0.10          | ±5%                      | C2012C0G1H472J(125AA)              |                        |                        |                        |
| 6.8nF       | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H562J(080AA)              |                        |                        |                        |
|             |                  | 0.60±0.10          | ±5%                      | C2012C0G1H562J(060AA)              |                        |                        |                        |
|             | 2012             | 0.85±0.10          | ±5%                      | C2012C0G1H562J(085AA)              |                        |                        |                        |
| 8.2nF       |                  | 1.25±0.10          | ±5%                      | C2012C0G1H562J(125AA)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608C0G1H682J(080AA)              |                        |                        |                        |
|             | 2012             | 0.60±0.10          | ±5%                      | C2012C0G1H682J(060AA)              |                        |                        |                        |
| 10nF        |                  | 1.25±0.10          | ±5%                      | C2012C0G1H682J(125AA)              |                        |                        |                        |
|             | 2012             | 0.60±0.10          | ±5%                      | C2012C0G1H103J(060AA)              |                        |                        |                        |
|             | 3216             | 0.60±0.10/-0.20    | ±5%                      | C3216C0G1H103J(060AA)              |                        |                        |                        |
| 15nF        | 2012             | 0.85±0.10          | ±5%                      | C2012C0G1H153J(085AA)              |                        |                        |                        |
|             | 3216             | 0.60±0.10/-0.20    | ±5%                      | C3216C0G1H153J(060AA)              |                        |                        |                        |
| 22nF        | 2012             | 1.25±0.10          | ±5%                      | C2012C0G1H223J(125AA)              |                        |                        |                        |
|             | 3216             | 0.60±0.10/-0.20    | ±5%                      | C3216C0G1H223J(060AA)              |                        |                        |                        |
| 33nF        | 2012             | 1.25±0.10          | ±5%                      | C2012C0G1H333J(125AA)              |                        |                        |                        |
|             | 3216             | 0.85±0.10          | ±5%                      | C3216C0G1H333J(085AA)              |                        |                        |                        |
| 47nF        | 3216             | 1.15±0.10          | ±5%                      | C3216C0G1H473J(115AA)              |                        |                        |                        |
|             | 3225             | 2.00±0.20          | ±5%                      | C3225C0G1H473J(200AA)              |                        |                        |                        |
|             | 4532             | 1.60±0.15          | ±5%                      | C4532C0G1H473J(160KA)              |                        |                        |                        |
| 68nF        | 3216             | 1.60±0.10          | ±5%                      | C3216C0G1H683J(160AA)              |                        |                        |                        |
|             | 3225             | 2.00±0.20          | ±5%                      | C3225C0G1H683J(200AA)              |                        |                        |                        |
|             | 4532             | 1.60±0.15          | ±5%                      | C4532C0G1H683J(160KA)              |                        |                        |                        |
| 100nF       | 3216             | 1.60±0.20          | ±5%                      | C3216C0G1H104J(160AA)              |                        |                        |                        |
|             | 3225             | 2.50±0.30          | ±5%                      | C3225C0G1H104J(250AA)              |                        |                        |                        |
| 150nF       | 4532             | 2.00±0.20          | ±5%                      | C4532C0G1H104J(200KA)              |                        |                        |                        |
| 220nF       | 4532             | 2.50±0.30          | ±5%                      | C4532C0G1H154J(250KA)              |                        |                        |                        |
|             |                  |                    |                          | C4532C0G1H224J(320KA)              |                        |                        |                        |

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**CAPACITANCE RANGES: CLASS 1 (TEMPERATURE COMPENSATION)**
**TEMPERATURE CHARACTERISTICS: CH(0±60ppm/°C)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 50V           | Rated voltage Edc: 35V | Rated voltage Edc: 25V | Rated voltage Edc: 16V |
|-------------|------------------|--------------------|--------------------------|----------------------------------------------|------------------------|------------------------|------------------------|
| 0.5pF       | 0402             | 0.20±0.02          | ±0.25pF                  |                                              |                        |                        | C0402CH1C0R5C(020BA)   |
|             | 0603             | 0.30±0.03          | ±0.25pF                  | C0603CH1H0R5C(030BA)                         |                        | C0603CH1E0R5C(030BA)   |                        |
|             | 1005             | 0.50±0.05          | ±0.1pF<br>±0.25pF        | C1005CH1H0R5B(050BA)<br>C1005CH1H0R5C(050BA) |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF                  | C1608CH1H0R5C(080AA)                         |                        |                        |                        |
| 0.75pF      | 0402             | 0.20±0.02          | ±0.25pF                  |                                              |                        |                        | C0402CH1CR75C(020BA)   |
|             | 0603             | 0.30±0.03          | ±0.25pF                  | C0603CH1HR75C(030BA)                         |                        | C0603CH1ER75C(030BA)   |                        |
|             | 1005             | 0.50±0.05          | ±0.1pF<br>±0.25pF        | C1005CH1HR75B(050BA)<br>C1005CH1HR75C(050BA) |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF                  | C1608CH1HR75C(080AA)                         |                        |                        |                        |
| 1pF         | 0402             | 0.20±0.02          | ±0.25pF                  |                                              |                        |                        | C0402CH1C010C(020BA)   |
|             | 0603             | 0.30±0.03          | ±0.25pF                  | C0603CH1H010C(030BA)                         |                        | C0603CH1E010C(030BA)   |                        |
|             | 1005             | 0.50±0.05          | ±0.1pF<br>±0.25pF        | C1005CH1H010B(050BA)<br>C1005CH1H010C(050BA) |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF                  | C1608CH1H010C(080AA)                         |                        |                        |                        |
| 1.5pF       | 0402             | 0.20±0.02          | ±0.25pF                  |                                              |                        |                        | C0402CH1C1R5C(020BA)   |
|             | 0603             | 0.30±0.03          | ±0.25pF                  | C0603CH1H1R5C(030BA)                         |                        | C0603CH1E1R5C(030BA)   |                        |
|             | 1005             | 0.50±0.05          | ±0.1pF<br>±0.25pF        | C1005CH1H1R5B(050BA)<br>C1005CH1H1R5C(050BA) |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF                  | C1608CH1H1R5C(080AA)                         |                        |                        |                        |
| 2pF         | 0402             | 0.20±0.02          | ±0.25pF                  |                                              |                        |                        | C0402CH1C020C(020BA)   |
|             | 0603             | 0.30±0.03          | ±0.25pF                  | C0603CH1H020C(030BA)                         |                        | C0603CH1E020C(030BA)   |                        |
|             | 1005             | 0.50±0.05          | ±0.1pF<br>±0.25pF        | C1005CH1H020B(050BA)<br>C1005CH1H020C(050BA) |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF                  | C1608CH1H020C(080AA)                         |                        |                        |                        |
| 3pF         | 0402             | 0.20±0.02          | ±0.25pF                  |                                              |                        |                        | C0402CH1C030C(020BA)   |
|             | 0603             | 0.30±0.03          | ±0.25pF                  | C0603CH1H030C(030BA)                         |                        | C0603CH1E030C(030BA)   |                        |
|             | 1005             | 0.50±0.05          | ±0.1pF<br>±0.25pF        | C1005CH1H030B(050BA)<br>C1005CH1H030C(050BA) |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF                  | C1608CH1H030C(080AA)                         |                        |                        |                        |
| 4pF         | 0402             | 0.20±0.02          | ±0.25pF                  |                                              |                        |                        | C0402CH1C040C(020BA)   |
|             | 0603             | 0.30±0.03          | ±0.25pF                  | C0603CH1H040C(030BA)                         |                        | C0603CH1E040C(030BA)   |                        |
|             | 1005             | 0.50±0.05          | ±0.1pF<br>±0.25pF        | C1005CH1H040B(050BA)<br>C1005CH1H040C(050BA) |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF                  | C1608CH1H040C(080AA)                         |                        |                        |                        |
| 5pF         | 0402             | 0.20±0.02          | ±0.25pF                  |                                              |                        |                        | C0402CH1C050C(020BA)   |
|             | 0603             | 0.30±0.03          | ±0.25pF                  | C0603CH1H050C(030BA)                         |                        | C0603CH1E050C(030BA)   |                        |
|             | 1005             | 0.50±0.05          | ±0.1pF<br>±0.25pF        | C1005CH1H050B(050BA)<br>C1005CH1H050C(050BA) |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF                  | C1608CH1H050C(080AA)                         |                        |                        |                        |
| 6pF         | 0402             | 0.20±0.02          | ±0.5pF                   |                                              |                        |                        | C0402CH1C060D(020BA)   |
|             | 0603             | 0.30±0.03          | ±0.5pF                   | C0603CH1H060D(030BA)                         |                        | C0603CH1E060D(030BA)   |                        |
|             | 1005             | 0.50±0.05          | ±0.25pF<br>±0.5pF        | C1005CH1H060C(050BA)<br>C1005CH1H060D(050BA) |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF<br>±0.5pF        | C1608CH1H060C(080AA)<br>C1608CH1H060D(080AA) |                        |                        |                        |
| 7pF         | 0402             | 0.20±0.02          | ±0.5pF                   |                                              |                        |                        | C0402CH1C070D(020BA)   |
|             | 0603             | 0.30±0.03          | ±0.5pF                   | C0603CH1H070D(030BA)                         |                        | C0603CH1E070D(030BA)   |                        |
|             | 1005             | 0.50±0.05          | ±0.25pF<br>±0.5pF        | C1005CH1H070C(050BA)<br>C1005CH1H070D(050BA) |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF<br>±0.5pF        | C1608CH1H070C(080AA)<br>C1608CH1H070D(080AA) |                        |                        |                        |
| 8pF         | 0402             | 0.20±0.02          | ±0.5pF                   |                                              |                        |                        | C0402CH1C080D(020BA)   |
|             | 0603             | 0.30±0.03          | ±0.5pF                   | C0603CH1H080D(030BA)                         |                        | C0603CH1E080D(030BA)   |                        |
|             | 1005             | 0.50±0.05          | ±0.25pF<br>±0.5pF        | C1005CH1H080C(050BA)<br>C1005CH1H080D(050BA) |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF<br>±0.5pF        | C1608CH1H080C(080AA)<br>C1608CH1H080D(080AA) |                        |                        |                        |
| 9pF         | 0402             | 0.20±0.02          | ±0.5pF                   |                                              |                        |                        | C0402CH1C090D(020BA)   |
|             | 0603             | 0.30±0.03          | ±0.5pF                   | C0603CH1H090D(030BA)                         |                        | C0603CH1E090D(030BA)   |                        |
|             | 1005             | 0.50±0.05          | ±0.25pF<br>±0.5pF        | C1005CH1H090C(050BA)<br>C1005CH1H090D(050BA) |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF<br>±0.5pF        | C1608CH1H090C(080AA)<br>C1608CH1H090D(080AA) |                        |                        |                        |

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**CAPACITANCE RANGES: CLASS 1 (TEMPERATURE COMPENSATION)**
**TEMPERATURE CHARACTERISTICS: CH(0±60ppm/°C)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 50V | Rated voltage Edc: 35V | Rated voltage Edc: 25V | Rated voltage Edc: 16V |
|-------------|------------------|--------------------|--------------------------|------------------------------------|------------------------|------------------------|------------------------|
| 10pF        | 0402             | 0.20±0.02          | ±0.5pF                   |                                    |                        |                        | C0402CH1C100D(020BA)   |
|             | 0603             | 0.30±0.03          | ±0.5pF                   | C0603CH1H100D(030BA)               |                        | C0603CH1E100D(030BA)   |                        |
|             | 1005             | 0.50±0.05          | ±0.25pF                  | C1005CH1H100C(050BA)               |                        |                        |                        |
|             |                  |                    | ±0.5pF                   | C1005CH1H100D(050BA)               |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±0.25pF                  | C1608CH1H100C(080AA)               |                        |                        |                        |
|             |                  |                    | ±0.5pF                   | C1608CH1H100D(080AA)               |                        |                        |                        |
| 12pF        | 0402             | 0.20±0.02          | ±5%                      |                                    |                        |                        | C0402CH1C120J(020BA)   |
|             | 0603             | 0.30±0.03          | ±5%                      | C0603CH1H120J(030BA)               |                        | C0603CH1E120J(030BA)   |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H120J(050BA)               |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H120J(080AA)               |                        |                        |                        |
| 15pF        | 0402             | 0.20±0.02          | ±5%                      |                                    |                        |                        | C0402CH1C150J(020BA)   |
|             | 0603             | 0.30±0.03          | ±5%                      | C0603CH1H150J(030BA)               |                        | C0603CH1E150J(030BA)   |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H150J(050BA)               |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H150J(080AA)               |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±5%                      | C0603CH1H180J(030BA)               |                        | C0603CH1E180J(030BA)   |                        |
| 18pF        | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H180J(050BA)               |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H180J(080AA)               |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±5%                      | C0603CH1H220J(030BA)               |                        | C0603CH1E220J(030BA)   |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H220J(050BA)               |                        |                        |                        |
| 22pF        | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H220J(080AA)               |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±5%                      | C0603CH1H270J(030BA)               |                        | C0603CH1E270J(030BA)   |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H270J(050BA)               |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H270J(080AA)               |                        |                        |                        |
| 27pF        | 0603             | 0.30±0.03          | ±5%                      | C0603CH1H330J(030BA)               |                        | C0603CH1E330J(030BA)   |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H330J(050BA)               |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H330J(080AA)               |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±5%                      | C0603CH1H390J(030BA)               |                        | C0603CH1E390J(030BA)   |                        |
| 39pF        | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H390J(050BA)               |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H390J(080AA)               |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±5%                      | C0603CH1H470J(030BA)               |                        | C0603CH1E470J(030BA)   |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H470J(050BA)               |                        |                        |                        |
| 47pF        | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H470J(080AA)               |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±5%                      | C0603CH1H560J(030BA)               |                        | C0603CH1E560J(030BA)   |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H560J(050BA)               |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H560J(080AA)               |                        |                        |                        |
| 56pF        | 0603             | 0.30±0.03          | ±5%                      | C0603CH1H680J(030BA)               |                        | C0603CH1E680J(030BA)   |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H680J(050BA)               |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H680J(080AA)               |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±5%                      | C0603CH1H820J(030BA)               |                        | C0603CH1E820J(030BA)   |                        |
| 82pF        | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H820J(050BA)               |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H820J(080AA)               |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±5%                      | C0603CH1H101J(030BA)               |                        | C0603CH1E101J(030BA)   |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H101J(050BA)               |                        |                        |                        |
| 100pF       | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H101J(080AA)               |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H121J(050BA)               |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H121J(080AA)               |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H151J(050BA)               |                        |                        |                        |
| 150pF       | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H151J(080AA)               |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H181J(050BA)               |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H181J(080AA)               |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H221J(050BA)               |                        |                        |                        |
| 220pF       | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H221J(080AA)               |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H271J(050BA)               |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H271J(080AA)               |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H331J(050BA)               |                        |                        |                        |
| 330pF       | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H331J(080AA)               |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H391J(050BA)               |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H391J(080AA)               |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H471J(050BA)               |                        |                        |                        |
| 470pF       | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H471J(080AA)               |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H561J(050BA)               |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H561J(080AA)               |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H681J(050BA)               |                        |                        |                        |
| 680pF       | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H681J(080AA)               |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H821J(050BA)               |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H821J(080AA)               |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H821J(080AA)               |                        |                        |                        |

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**CAPACITANCE RANGES: CLASS 1 (TEMPERATURE COMPENSATION)**
**TEMPERATURE CHARACTERISTICS: CH(0±60ppm/°C)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 50V | Rated voltage Edc: 35V | Rated voltage Edc: 25V | Rated voltage Edc: 16V |
|-------------|------------------|--------------------|--------------------------|------------------------------------|------------------------|------------------------|------------------------|
| 1nF         | 1005             | 0.50±0.05          | ±5%                      | C1005CH1H102J(050BA)               |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H102J(080AA)               |                        |                        |                        |
|             | 2012             | 0.60±0.10          | ±5%                      | C2012CH1H102J(060AA)               |                        |                        |                        |
| 1.2nF       | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H122J(080AA)               |                        |                        |                        |
|             | 2012             | 0.60±0.10          | ±5%                      | C2012CH1H122J(060AA)               |                        |                        |                        |
| 1.5nF       | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H152J(080AA)               |                        |                        |                        |
|             | 2012             | 0.60±0.10          | ±5%                      | C2012CH1H152J(060AA)               |                        |                        |                        |
| 1.8nF       | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H182J(080AA)               |                        |                        |                        |
|             | 2012             | 0.60±0.10          | ±5%                      | C2012CH1H182J(060AA)               |                        |                        |                        |
| 2.2nF       | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H222J(080AA)               |                        |                        |                        |
|             |                  | 0.60±0.10          | ±5%                      | C2012CH1H222J(060AA)               |                        |                        |                        |
|             | 2012             | 0.85±0.10          | ±5%                      | C2012CH1H222J(085AA)               |                        |                        |                        |
|             |                  | 1.25±0.10          | ±5%                      | C2012CH1H222J(125AA)               |                        |                        |                        |
| 2.7nF       | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H272J(080AA)               |                        |                        |                        |
|             | 2012             | 0.60±0.10          | ±5%                      | C2012CH1H272J(060AA)               |                        |                        |                        |
| 3.3nF       | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H332J(080AA)               |                        |                        |                        |
|             | 2012             | 0.60±0.10          | ±5%                      | C2012CH1H332J(060AA)               |                        |                        |                        |
|             |                  | 1.25±0.10          | ±5%                      | C2012CH1H332J(125AA)               |                        |                        |                        |
| 3.9nF       | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H392J(080AA)               |                        |                        |                        |
|             |                  | 0.60±0.10          | ±5%                      | C2012CH1H392J(060AA)               |                        |                        |                        |
|             | 2012             | 0.85±0.10          | ±5%                      | C2012CH1H392J(085AA)               |                        |                        |                        |
|             |                  | 1.25±0.10          | ±5%                      | C2012CH1H392J(125AA)               |                        |                        |                        |
| 4.7nF       | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H472J(080AA)               |                        |                        |                        |
|             |                  | 0.60±0.10          | ±5%                      | C2012CH1H472J(060AA)               |                        |                        |                        |
|             | 2012             | 0.85±0.10          | ±5%                      | C2012CH1H472J(085AA)               |                        |                        |                        |
|             |                  | 1.25±0.10          | ±5%                      | C2012CH1H472J(125AA)               |                        |                        |                        |
| 5.6nF       | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H562J(080AA)               |                        |                        |                        |
|             |                  | 0.60±0.10          | ±5%                      | C2012CH1H562J(060AA)               |                        |                        |                        |
|             | 2012             | 0.85±0.10          | ±5%                      | C2012CH1H562J(085AA)               |                        |                        |                        |
|             |                  | 1.25±0.10          | ±5%                      | C2012CH1H562J(125AA)               |                        |                        |                        |
| 6.8nF       | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H682J(080AA)               |                        |                        |                        |
|             | 2012             | 0.60±0.10          | ±5%                      | C2012CH1H682J(060AA)               |                        |                        |                        |
|             |                  | 1.25±0.10          | ±5%                      | C2012CH1H682J(125AA)               |                        |                        |                        |
| 8.2nF       | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H822J(080AA)               |                        |                        |                        |
|             | 2012             | 0.60±0.10          | ±5%                      | C2012CH1H822J(060AA)               |                        |                        |                        |
|             |                  | 1.25±0.10          | ±5%                      | C2012CH1H822J(125AA)               |                        |                        |                        |
| 10nF        | 1608             | 0.80±0.10          | ±5%                      | C1608CH1H103J(080AA)               |                        |                        |                        |
|             | 2012             | 0.60±0.10          | ±5%                      | C2012CH1H103J(060AA)               |                        |                        |                        |
|             | 3216             | 0.60±0.10/-0.20    | ±5%                      | C3216CH1H103J(060AA)               |                        |                        |                        |
| 15nF        | 2012             | 0.85±0.10          | ±5%                      | C2012CH1H153J(085AA)               |                        |                        |                        |
|             | 3216             | 0.60±0.10/-0.20    | ±5%                      | C3216CH1H153J(060AA)               |                        |                        |                        |
| 22nF        | 2012             | 1.25±0.10          | ±5%                      | C2012CH1H223J(125AA)               |                        |                        |                        |
|             | 3216             | 0.60±0.10/-0.20    | ±5%                      | C3216CH1H223J(060AA)               |                        |                        |                        |
| 33nF        | 2012             | 1.25±0.20          | ±5%                      | C2012CH1H333J(125AA)               |                        |                        |                        |
|             | 3216             | 0.85±0.10          | ±5%                      | C3216CH1H333J(085AA)               |                        |                        |                        |
| 47nF        | 3216             | 1.15±0.10          | ±5%                      | C3216CH1H473J(115AA)               |                        |                        |                        |
|             | 3225             | 2.00±0.20          | ±5%                      | C3225CH1H473J(200AA)               |                        |                        |                        |
|             | 4532             | 1.60±0.15          | ±5%                      | C4532CH1H473J(160KA)               |                        |                        |                        |
| 68nF        | 3216             | 1.60±0.10          | ±5%                      | C3216CH1H683J(160AA)               |                        |                        |                        |
|             | 3225             | 2.00±0.20          | ±5%                      | C3225CH1H683J(200AA)               |                        |                        |                        |
|             | 4532             | 1.60±0.15          | ±5%                      | C4532CH1H683J(160KA)               |                        |                        |                        |
| 100nF       | 3216             | 1.60±0.20          | ±5%                      | C3216CH1H104J(160AA)               |                        |                        |                        |
|             | 3225             | 2.50±0.30          | ±5%                      | C3225CH1H104J(250AA)               |                        |                        |                        |
|             | 4532             | 2.00±0.20          | ±5%                      | C4532CH1H104J(200KA)               |                        |                        |                        |
| 150nF       | 4532             | 2.50±0.30          | ±5%                      | C4532CH1H154J(250KA)               |                        |                        |                        |
| 220nF       | 4532             | 3.20±0.30          | ±5%                      | C4532CH1H224J(320KA)               |                        |                        |                        |

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**CAPACITANCE RANGES: CLASS 2**
**TEMPERATURE CHARACTERISTICS: X5R(±15%)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 50V | Rated voltage Edc: 35V | Rated voltage Edc: 25V | Rated voltage Edc: 16V |
|-------------|------------------|--------------------|--------------------------|------------------------------------|------------------------|------------------------|------------------------|
| 100pF       | 0402             | 0.20±0.02          | ±10%                     |                                    |                        |                        | C0402X5R1C101K(020BA)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C0402X5R1C101M(020BA)  |
|             | 0603             | 0.30±0.03          | ±10%                     |                                    |                        | C0603X5R1E101K(030BA)  |                        |
|             |                  |                    | ±20%                     |                                    |                        | C0603X5R1E101M(030BA)  |                        |
| 150pF       | 0402             | 0.20±0.02          | ±10%                     |                                    |                        |                        | C0402X5R1C151K(020BA)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C0402X5R1C151M(020BA)  |
|             | 0603             | 0.30±0.03          | ±10%                     |                                    |                        | C0603X5R1E151K(030BA)  |                        |
|             |                  |                    | ±20%                     |                                    |                        | C0603X5R1E151M(030BA)  |                        |
| 220pF       | 0402             | 0.20±0.02          | ±10%                     |                                    |                        |                        | C0402X5R1C221K(020BA)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C0402X5R1C221M(020BA)  |
|             | 0603             | 0.30±0.03          | ±10%                     |                                    |                        | C0603X5R1E221K(030BA)  |                        |
|             |                  |                    | ±20%                     |                                    |                        | C0603X5R1E221M(030BA)  |                        |
| 330pF       | 0402             | 0.20±0.02          | ±10%                     | C1005X5R1H221K(050BA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005X5R1H221M(050BA)              |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±10%                     |                                    |                        | C0603X5R1E331K(030BA)  |                        |
|             |                  |                    | ±20%                     |                                    |                        | C0603X5R1E331M(030BA)  |                        |
| 470pF       | 0402             | 0.20±0.02          | ±10%                     | C1005X5R1H331K(050BA)              |                        |                        | C0402X5R1C331K(020BA)  |
|             |                  |                    | ±20%                     | C1005X5R1H331M(050BA)              |                        |                        | C0402X5R1C331M(020BA)  |
|             | 0603             | 0.30±0.03          | ±10%                     |                                    |                        | C0603X5R1E471K(030BA)  |                        |
|             |                  |                    | ±20%                     |                                    |                        | C0603X5R1E471M(030BA)  |                        |
| 680pF       | 0402             | 0.20±0.02          | ±10%                     | C1005X5R1H471K(050BA)              |                        |                        | C0402X5R1C471K(020BA)  |
|             |                  |                    | ±20%                     | C1005X5R1H471M(050BA)              |                        |                        | C0402X5R1C471M(020BA)  |
|             | 0603             | 0.30±0.03          | ±10%                     |                                    |                        | C0603X5R1E681K(030BA)  |                        |
|             |                  |                    | ±20%                     |                                    |                        | C0603X5R1E681M(030BA)  |                        |
| 1nF         | 0402             | 0.20±0.02          | ±10%                     | C1005X5R1H681K(050BA)              |                        |                        | C0402X5R1C681K(020BA)  |
|             |                  |                    | ±20%                     | C1005X5R1H681M(050BA)              |                        |                        | C0402X5R1C681M(020BA)  |
|             | 0603             | 0.30±0.03          | ±10%                     |                                    |                        | C0603X5R1E102K(030BA)  |                        |
|             |                  |                    | ±20%                     |                                    |                        | C0603X5R1E102M(030BA)  |                        |
| 1.5nF       | 0603             | 0.30±0.03          | ±10%                     |                                    |                        | C0603X5R1E152K(030BA)  |                        |
|             |                  |                    | ±20%                     |                                    |                        | C0603X5R1E152M(030BA)  |                        |
|             | 1005             | 0.50±0.05          | ±10%                     | C1005X5R1H152K(050BA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005X5R1H152M(050BA)              |                        |                        |                        |
| 2.2nF       | 0603             | 0.30±0.03          | ±10%                     |                                    |                        | C0603X5R1E222K(030BA)  |                        |
|             |                  |                    | ±20%                     |                                    |                        | C0603X5R1E222M(030BA)  |                        |
|             | 1005             | 0.50±0.05          | ±10%                     | C1005X5R1H222K(050BA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005X5R1H222M(050BA)              |                        |                        |                        |
| 3.3nF       | 0603             | 0.30±0.03          | ±10%                     |                                    |                        | C0603X5R1E332K(030BA)  |                        |
|             |                  |                    | ±20%                     |                                    |                        | C0603X5R1E332M(030BA)  |                        |
|             | 1005             | 0.50±0.05          | ±10%                     | C1005X5R1H332K(050BA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005X5R1H332M(050BA)              |                        |                        |                        |
| 4.7nF       | 0603             | 0.30±0.03          | ±10%                     |                                    |                        |                        | C0603X5R1C472K(030BA)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C0603X5R1C472M(030BA)  |
|             | 1005             | 0.50±0.05          | ±10%                     | C1005X5R1H472K(050BA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005X5R1H472M(050BA)              |                        |                        |                        |
| 6.8nF       | 1005             | 0.50±0.05          | ±10%                     | C1005X5R1H682K(050BA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005X5R1H682M(050BA)              |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±10%                     | C1005X5R1H103K(050BB)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005X5R1H103M(050BB)              |                        |                        |                        |
| 10nF        | 1608             | 0.80±0.10          | ±10%                     | C1608X5R1H103K(080AA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C1608X5R1H103M(080AA)              |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±10%                     | C1005X5R1H153K(050BB)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005X5R1H153M(050BB)              |                        |                        |                        |
| 15nF        | 1608             | 0.80±0.10          | ±10%                     | C1608X5R1H153K(080AA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C1608X5R1H153M(080AA)              |                        |                        |                        |

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**CAPACITANCE RANGES: CLASS 2**
**TEMPERATURE CHARACTERISTICS: X5R(±15%)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 50V | Rated voltage Edc: 35V | Rated voltage Edc: 25V | Rated voltage Edc: 16V |
|-------------|------------------|--------------------|--------------------------|------------------------------------|------------------------|------------------------|------------------------|
| 22nF        | 1005             | 0.50±0.05          | ±10%                     | C1005X5R1H223K(050BB)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005X5R1H223M(050BB)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±10%                     | C1608X5R1H223K(080AA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C1608X5R1H223M(080AA)              |                        |                        |                        |
| 33nF        | 1005             | 0.50±0.05          | ±10%                     | C1005X5R1H333K(050BB)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005X5R1H333M(050BB)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±10%                     | C1608X5R1H333K(080AA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C1608X5R1H333M(080AA)              |                        |                        |                        |
| 47nF        | 1005             | 0.50±0.05          | ±10%                     | C1005X5R1H473K(050BB)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005X5R1H473M(050BB)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±10%                     | C1608X5R1H473K(080AA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C1608X5R1H473M(080AA)              |                        |                        |                        |
| 68nF        | 1005             | 0.50±0.05          | ±10%                     | C1005X5R1H683K(050BB)              | C1005X5R1V683K(050BB)  | C1005X5R1E683K(050BB)  |                        |
|             |                  |                    | ±20%                     | C1005X5R1H683M(050BB)              | C1005X5R1V683M(050BB)  | C1005X5R1E683M(050BB)  |                        |
|             | 1608             | 0.80±0.10          | ±10%                     | C1608X5R1H683K(080AA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C1608X5R1H683M(080AA)              |                        |                        |                        |
| 100nF       | 0603             | 0.30±0.03          | ±10%                     |                                    |                        |                        | C0603X5R1C104K(030BC)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C0603X5R1C104M(030BC)  |
|             | 1005             | 0.50±0.05          | ±10%                     | C1005X5R1H104K(050BB)              | C1005X5R1V104K(050BB)  | C1005X5R1E104K(050BB)  | C1005X5R1C104K(050BA)  |
|             |                  |                    | ±20%                     | C1005X5R1H104M(050BB)              | C1005X5R1V104M(050BB)  | C1005X5R1E104M(050BB)  | C1005X5R1C104M(050BA)  |
|             | 1608             | 0.80±0.10          | ±10%                     | C1608X5R1H104K(080AA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C1608X5R1H104M(080AA)              |                        |                        |                        |
|             | 2012             | 0.85±0.10          | ±10%                     | C2012X5R1H104K(085AA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C2012X5R1H104M(085AA)              |                        |                        |                        |
| 150nF       | 1005             | 0.50±0.05          | ±10%                     |                                    |                        | C1005X5R1E154K(050BC)  | C1005X5R1C154K(050BB)  |
|             |                  |                    | ±20%                     |                                    |                        | C1005X5R1E154M(050BC)  | C1005X5R1C154M(050BB)  |
|             | 1608             | 0.80±0.10          | ±10%                     | C1608X5R1H154K(080AB)              | C1608X5R1V154K(080AB)  | C1608X5R1E154K(080AA)  |                        |
|             |                  |                    | ±20%                     | C1608X5R1H154M(080AB)              | C1608X5R1V154M(080AB)  | C1608X5R1E154M(080AA)  |                        |
|             | 2012             | 0.85±0.10          | ±10%                     | C2012X5R1H154K(085AA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C2012X5R1H154M(085AA)              |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±10%                     |                                    |                        |                        | C0603X5R1C224K(030BC)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C0603X5R1C224M(030BC)  |
| 220nF       | 1005             | 0.50±0.05          | ±10%                     |                                    |                        | C1005X5R1E224K(050BC)  | C1005X5R1C224K(050BB)  |
|             |                  |                    | ±20%                     |                                    |                        | C1005X5R1E224M(050BC)  | C1005X5R1C224M(050BB)  |
|             | 1608             | 0.80±0.10          | ±10%                     | C1608X5R1H224K(080AB)              | C1608X5R1V224K(080AB)  | C1608X5R1E224K(080AA)  |                        |
|             |                  |                    | ±20%                     | C1608X5R1H224M(080AB)              | C1608X5R1V224M(080AB)  | C1608X5R1E224M(080AA)  |                        |
|             | 2012             | 1.25±0.10          | ±10%                     | C2012X5R1H224K(125AA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C2012X5R1H224M(125AA)              |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±10%                     |                                    |                        |                        | C1005X5R1C334K(050BC)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C1005X5R1C334M(050BC)  |
| 330nF       | 1608             | 0.80±0.10          | ±10%                     | C1608X5R1H334K(080AB)              | C1608X5R1V334K(080AB)  | C1608X5R1E334K(080AB)  |                        |
|             |                  |                    | ±20%                     | C1608X5R1H334M(080AB)              | C1608X5R1V334M(080AB)  | C1608X5R1E334M(080AB)  |                        |
|             | 2012             | 1.25±0.20          | ±10%                     | C2012X5R1H334K(125AA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C2012X5R1H334M(125AA)              |                        |                        |                        |
| 470nF       | 1005             | 0.50±0.05          | ±10%                     |                                    | C1005X5R1V474K(050BC)  | C1005X5R1E474K(050BB)  |                        |
|             |                  |                    | ±20%                     |                                    | C1005X5R1V474M(050BC)  | C1005X5R1E474M(050BB)  |                        |
|             | 1608             | 0.80±0.10          | ±10%                     | C1608X5R1H474K(080AB)              | C1608X5R1V474K(080AB)  | C1608X5R1E474K(080AB)  | C1608X5R1C474K(080AA)  |
|             |                  |                    | ±20%                     | C1608X5R1H474M(080AB)              | C1608X5R1V474M(080AB)  | C1608X5R1E474M(080AB)  | C1608X5R1C474M(080AA)  |
| 680nF       | 2012             | 1.25±0.10          | ±10%                     | C2012X5R1H474K(125AB)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C2012X5R1H474M(125AB)              |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±10%                     |                                    |                        |                        | C1005X5R1C684K(050BC)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C1005X5R1C684M(050BC)  |
| 680nF       | 1608             | 0.80±0.10          | ±10%                     | C1608X5R1H684K(080AB)              | C1608X5R1V684K(080AB)  | C1608X5R1E684K(080AB)  | C1608X5R1C684K(080AA)  |
|             |                  |                    | ±20%                     | C1608X5R1H684M(080AB)              | C1608X5R1V684M(080AB)  | C1608X5R1E684M(080AB)  | C1608X5R1C684M(080AA)  |
|             | 2012             | 1.25±0.10          | ±10%                     | C2012X5R1H684K(125AB)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C2012X5R1H684M(125AB)              |                        |                        |                        |

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**CAPACITANCE RANGES: CLASS 2**
**TEMPERATURE CHARACTERISTICS: X5R(±15%)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 50V | Rated voltage Edc: 35V | Rated voltage Edc: 25V | Rated voltage Edc: 16V |
|-------------|------------------|--------------------|--------------------------|------------------------------------|------------------------|------------------------|------------------------|
| 1μF         | 1005             | 0.50±0.05          | ±10%                     |                                    |                        |                        | C1005X5R1C105K(050BC)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C1005X5R1C105M(050BC)  |
|             | 1608             | 0.80±0.10          | ±10%                     | C1608X5R1H105K(080AB)              | C1608X5R1V105K(080AB)  | C1608X5R1E105K(080AB)  | C1608X5R1C105K(080AA)  |
|             |                  |                    | ±20%                     | C1608X5R1H105M(080AB)              | C1608X5R1V105M(080AB)  | C1608X5R1E105M(080AB)  | C1608X5R1C105M(080AA)  |
|             | 2012             | 0.85±0.10          | ±10%                     | C2012X5R1H105K(085AB)              | C2012X5R1V105K(085AB)  |                        |                        |
|             |                  |                    | ±20%                     | C2012X5R1H105M(085AB)              | C2012X5R1V105M(085AB)  |                        |                        |
|             |                  | 1.25±0.10          | ±10%                     | C2012X5R1H105K(125AB)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C2012X5R1H105M(125AB)              |                        |                        |                        |
|             |                  | 1.25±0.20          | ±10%                     |                                    |                        | C2012X5R1E105K(125AA)  |                        |
|             |                  |                    | ±20%                     |                                    |                        | C2012X5R1E105M(125AA)  |                        |
| 1.5μF       | 3216             | 1.60±0.10          | ±10%                     | C3216X5R1H105K(160AA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C3216X5R1H105M(160AA)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±10%                     |                                    |                        | C1608X5R1E155K(080AC)  | C1608X5R1C155K(080AB)  |
|             |                  |                    | ±20%                     |                                    |                        | C1608X5R1E155M(080AC)  | C1608X5R1C155M(080AB)  |
|             |                  | 0.85±0.10          | ±10%                     |                                    |                        | C2012X5R1E155K(085AC)  |                        |
|             |                  |                    | ±20%                     |                                    |                        | C2012X5R1E155M(085AC)  |                        |
|             | 2012             | 1.25±0.10          | ±10%                     | C2012X5R1H155K(125AB)              | C2012X5R1V155K(125AB)  |                        |                        |
|             |                  |                    | ±20%                     | C2012X5R1H155M(125AB)              | C2012X5R1V155M(125AB)  |                        |                        |
|             |                  | 1.25±0.20          | ±10%                     |                                    |                        | C2012X5R1E155K(125AA)  | C2012X5R1C155K(125AA)  |
|             |                  |                    | ±20%                     |                                    |                        | C2012X5R1E155M(125AA)  | C2012X5R1C155M(125AA)  |
| 2.2μF       | 3216             | 1.60±0.10          | ±10%                     | C3216X5R1H155K(160AB)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C3216X5R1H155M(160AB)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±10%                     |                                    | C1608X5R1V225K(080AC)  | C1608X5R1E225K(080AC)  | C1608X5R1C225K(080AB)  |
|             |                  |                    | ±20%                     |                                    | C1608X5R1V225M(080AC)  | C1608X5R1E225M(080AC)  | C1608X5R1C225M(080AB)  |
|             |                  | 0.85±0.10          | ±10%                     | C2012X5R1H225K(085AB)              | C2012X5R1V225K(085AB)  |                        |                        |
|             |                  |                    | ±20%                     | C2012X5R1H225M(085AB)              | C2012X5R1V225M(085AB)  |                        |                        |
|             | 2012             | 1.25±0.20          | ±10%                     | C2012X5R1H225K(125AB)              | C2012X5R1V225K(125AB)  | C2012X5R1E225K(125AC)  | C2012X5R1C225K(125AA)  |
|             |                  |                    | ±20%                     | C2012X5R1H225M(125AB)              | C2012X5R1V225M(125AB)  | C2012X5R1E225M(125AC)  | C2012X5R1C225M(125AA)  |
|             |                  | 1.60±0.20          | ±10%                     | C3216X5R1H225K(160AB)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C3216X5R1H225M(160AB)              |                        |                        |                        |
| 3.3μF       | 1608             | 0.80±0.10          | ±10%                     |                                    |                        |                        | C1608X5R1C335K(080AC)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C1608X5R1C335M(080AC)  |
|             |                  | 0.60±0.10          | ±10%                     |                                    |                        |                        | C2012X5R1C335K(060AC)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C2012X5R1C335M(060AC)  |
|             | 2012             | 0.85±0.10          | ±10%                     |                                    |                        | C2012X5R1E335K(085AC)  | C2012X5R1C335K(085AB)  |
|             |                  |                    | ±20%                     |                                    |                        | C2012X5R1E335M(085AC)  | C2012X5R1C335M(085AB)  |
|             |                  | 1.25±0.10          | ±10%                     |                                    |                        | C2012X5R1E335K(125AB)  | C2012X5R1C335K(125AB)  |
|             |                  |                    | ±20%                     |                                    |                        | C2012X5R1E335M(125AB)  | C2012X5R1C335M(125AB)  |
|             | 3216             | 1.60±0.10          | ±10%                     | C2012X5R1H335K(125AB)              | C2012X5R1V335K(125AB)  |                        |                        |
|             |                  |                    | ±20%                     | C2012X5R1H335M(125AB)              | C2012X5R1V335M(125AB)  |                        |                        |
| 4.7μF       | 1608             | 0.80±0.10          | ±10%                     |                                    |                        |                        | C1608X5R1C475K(080AC)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C1608X5R1C475M(080AC)  |
|             |                  | 0.60±0.10          | ±10%                     |                                    |                        |                        | C2012X5R1C475K(060AC)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C2012X5R1C475M(060AC)  |
|             | 2012             | 0.85±0.10          | ±10%                     |                                    |                        | C2012X5R1E475K(085AC)  | C2012X5R1C475K(085AB)  |
|             |                  |                    | ±20%                     |                                    |                        | C2012X5R1E475M(085AC)  | C2012X5R1C475M(085AB)  |
|             |                  | 1.25±0.10          | ±10%                     |                                    |                        | C2012X5R1E475K(125AB)  | C2012X5R1C475K(125AB)  |
|             |                  |                    | ±20%                     |                                    |                        | C2012X5R1E475M(125AB)  | C2012X5R1C475M(125AB)  |
|             | 3216             | 1.25±0.20          | ±10%                     | C2012X5R1H475K(125AB)              | C2012X5R1V475K(125AB)  |                        |                        |
|             |                  |                    | ±20%                     | C2012X5R1H475M(125AB)              | C2012X5R1V475M(125AB)  |                        |                        |
| 6.8μF       | 3216             | 0.85±0.10          | ±10%                     | C3216X5R1H475K(085AB)              | C3216X5R1V475K(085AB)  |                        |                        |
|             |                  |                    | ±20%                     | C3216X5R1H475M(085AB)              | C3216X5R1V475M(085AB)  |                        |                        |
|             |                  | 1.15±0.10          | ±10%                     |                                    |                        | C3216X5R1E475K(115AB)  |                        |
|             |                  |                    | ±20%                     |                                    |                        | C3216X5R1E475M(115AB)  |                        |
|             | 3225             | 1.60±0.10          | ±10%                     |                                    |                        | C3216X5R1E475K(160AA)  |                        |
|             |                  |                    | ±20%                     |                                    |                        | C3216X5R1E475M(160AA)  |                        |
|             |                  | 1.60±0.20          | ±10%                     | C3216X5R1H475K(160AB)              | C3216X5R1V475K(160AB)  |                        |                        |
|             |                  |                    | ±20%                     | C3216X5R1H475M(160AB)              | C3216X5R1V475M(160AB)  |                        |                        |
|             | 2012             | 2.50±0.20          | ±10%                     | C3225X5R1H475K(250AB)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C3225X5R1H475M(250AB)              |                        |                        |                        |
| 6.8μF       | 3216             | 0.85±0.10          | ±10%                     |                                    |                        |                        | C2012X5R1C685K(085AC)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C2012X5R1C685M(085AC)  |
|             |                  | 1.25±0.10          | ±10%                     |                                    |                        | C2012X5R1E685K(125AC)  | C2012X5R1C685K(125AB)  |
|             |                  |                    | ±20%                     |                                    |                        | C2012X5R1E685M(125AC)  | C2012X5R1C685M(125AB)  |
|             | 4532             | 1.60±0.10          | ±10%                     | C3216X5R1H685K(160AB)              | C3216X5R1V685K(160AB)  | C3216X5R1E685K(160AB)  |                        |
|             |                  |                    | ±20%                     | C3216X5R1H685M(160AB)              | C3216X5R1V685M(160AB)  | C3216X5R1E685M(160AB)  |                        |
|             |                  | 2.50±0.30          | ±10%                     | C4532X5R1H685K(250KA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C4532X5R1H685M(250KA)              |                        |                        |                        |

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**CAPACITANCE RANGES: CLASS 2**
**TEMPERATURE CHARACTERISTICS: X5R(±15%)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 50V | Rated voltage Edc: 35V | Rated voltage Edc: 25V | Rated voltage Edc: 16V |
|-------------|------------------|--------------------|--------------------------|------------------------------------|------------------------|------------------------|------------------------|
| 10μF        | 2012             | 0.85±0.10          | ±10%                     |                                    |                        |                        | C2012X5R1C106K(085AC)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C2012X5R1C106M(085AC)  |
|             |                  | 1.25±0.10          | ±10%                     |                                    |                        | C2012X5R1E106K(125AC)  | C2012X5R1C106K(125AB)  |
|             |                  |                    | ±20%                     |                                    |                        | C2012X5R1E106M(125AC)  | C2012X5R1C106M(125AB)  |
|             | 3216             | 0.85±0.10          | ±10%                     |                                    |                        | C3216X5R1E106K(085AC)  | C3216X5R1C106K(085AB)  |
|             |                  |                    | ±20%                     |                                    |                        | C3216X5R1E106M(085AC)  | C3216X5R1C106M(085AB)  |
|             |                  | 1.60±0.10          | ±10%                     |                                    |                        |                        | C3216X5R1C106K(160AA)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C3216X5R1C106M(160AA)  |
|             | 3225             | 1.60±0.20          | ±10%                     | C3216X5R1H106K(160AB)              | C3216X5R1V106K(160AB)  | C3216X5R1E106K(160AB)  |                        |
|             |                  |                    | ±20%                     | C3216X5R1H106M(160AB)              | C3216X5R1V106M(160AB)  | C3216X5R1E106M(160AB)  |                        |
|             |                  | 2.50±0.20          | ±10%                     |                                    |                        | C3225X5R1E106K(250AA)  |                        |
|             |                  |                    | ±20%                     |                                    |                        | C3225X5R1E106M(250AA)  |                        |
| 15μF        | 4532             | 2.50±0.30          | ±10%                     |                                    |                        | C4532X5R1E106K(250KA)  |                        |
|             |                  |                    | ±20%                     |                                    |                        | C4532X5R1E106M(250KA)  |                        |
|             | 5750             | 2.30±0.20          | ±10%                     | C5750X5R1H106K(230KA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C5750X5R1H106M(230KA)              |                        |                        |                        |
|             | 2012             | 1.25±0.10          | ±20%                     |                                    |                        |                        | C2012X5R1C156M(125AC)  |
|             |                  |                    |                          |                                    |                        | C3216X5R1E156M(160AC)  | C3216X5R1C156M(160AB)  |
|             |                  | 1.60±0.20          | ±20%                     |                                    |                        |                        | C3225X5R1C156M(250AA)  |
|             |                  |                    |                          |                                    |                        | C4532X5R1E156M(250KA)  |                        |
|             | 3216             | 1.60±0.20          | ±20%                     |                                    |                        |                        | C2012X5R1C226M(125AC)  |
|             |                  |                    |                          |                                    |                        | C3216X5R1E226M(160AC)  | C3216X5R1C226M(160AB)  |
|             |                  | 2.50±0.30          | ±20%                     |                                    |                        |                        | C3225X5R1C226M(250AA)  |
|             |                  |                    |                          |                                    |                        | C4532X5R1E226M(250KA)  | C4532X5R1C226M(200KA)  |
| 22μF        | 4532             | 2.50±0.30          | ±20%                     |                                    |                        |                        |                        |
|             |                  |                    |                          |                                    |                        | C5750X5R1E226M(250KA)  |                        |
|             | 5750             | 2.50±0.30          | ±20%                     |                                    |                        |                        |                        |
|             |                  |                    |                          |                                    |                        |                        |                        |
|             | 3216             | 1.60±0.20          | ±20%                     |                                    |                        |                        | C3216X5R1C336M(160AB)  |
|             |                  |                    |                          |                                    |                        |                        | C4532X5R1C336M(250KA)  |
|             | 4532             | 2.50±0.30          | ±20%                     |                                    |                        |                        | C5750X5R1C336M(200KA)  |
|             |                  |                    |                          |                                    |                        |                        |                        |
| 33μF        | 3216             | 1.60±0.20          | ±20%                     |                                    |                        |                        | C3216X5R1C476M(160AB)  |
|             |                  |                    |                          |                                    |                        |                        | C5750X5R1C476M(230KA)  |
|             | 4750             | 2.30±0.20          | ±20%                     |                                    |                        |                        |                        |
|             |                  |                    |                          |                                    |                        |                        |                        |

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**CAPACITANCE RANGES: CLASS 2**
**TEMPERATURE CHARACTERISTICS: X5R(±15%)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 10V             | Rated voltage Edc: 6.3V                        | Rated voltage Edc: 4V                          |
|-------------|------------------|--------------------|--------------------------|------------------------------------------------|------------------------------------------------|------------------------------------------------|
| 1nF         | 0402             | 0.20±0.02          | ±10%<br>±20%             | C0402X5R1A102K(020BA)<br>C0402X5R1A102M(020BA) |                                                |                                                |
| 1.5nF       | 0402             | 0.20±0.02          | ±10%<br>±20%             | C0402X5R1A152K(020BA)<br>C0402X5R1A152M(020BA) |                                                |                                                |
| 2.2nF       | 0402             | 0.20±0.02          | ±10%<br>±20%             | C0402X5R1A222K(020BA)<br>C0402X5R1A222M(020BA) |                                                |                                                |
| 3.3nF       | 0402             | 0.20±0.02          | ±10%<br>±20%             |                                                | C0402X5R0J332K(020BA)<br>C0402X5R0J332M(020BA) |                                                |
| 4.7nF       | 0402             | 0.20±0.02          | ±10%<br>±20%             |                                                | C0402X5R0J472K(020BB)<br>C0402X5R0J472M(020BB) |                                                |
| 6.8nF       | 0402             | 0.20±0.02          | ±10%<br>±20%             |                                                | C0402X5R0J682K(020BB)<br>C0402X5R0J682M(020BB) |                                                |
|             | 0603             | 0.30±0.03          | ±10%<br>±20%             | C0603X5R1A682K(030BA)<br>C0603X5R1A682M(030BA) |                                                |                                                |
| 10nF        | 0402             | 0.20±0.02          | ±10%<br>±20%             |                                                | C0402X5R0J103K(020BB)<br>C0402X5R0J103M(020BB) |                                                |
|             | 0603             | 0.30±0.03          | ±10%<br>±20%             | C0603X5R1A103K(030BA)<br>C0603X5R1A103M(030BA) |                                                |                                                |
| 15nF        | 0603             | 0.30±0.03          | ±10%<br>±20%             |                                                | C0603X5R0J153K(030BA)<br>C0603X5R0J153M(030BA) |                                                |
| 22nF        | 0603             | 0.30±0.03          | ±10%<br>±20%             |                                                | C0603X5R0J223K(030BC)<br>C0603X5R0J223M(030BC) |                                                |
| 33nF        | 0603             | 0.30±0.03          | ±10%<br>±20%             |                                                | C0603X5R0J333K(030BC)<br>C0603X5R0J333M(030BC) |                                                |
| 47nF        | 0603             | 0.30±0.03          | ±10%<br>±20%             |                                                | C0603X5R0J473K(030BC)<br>C0603X5R0J473M(030BC) |                                                |
| 68nF        | 0603             | 0.30±0.03          | ±10%<br>±20%             |                                                | C0603X5R0J683K(030BC)<br>C0603X5R0J683M(030BC) |                                                |
| 100nF       | 0603             | 0.30±0.03          | ±10%<br>±20%             |                                                | C0603X5R0J104K(030BC)<br>C0603X5R0J104M(030BC) |                                                |
| 150nF       | 0603             | 0.30±0.03          | ±10%<br>±20%             |                                                | C0603X5R0J154K(030BA)<br>C0603X5R0J154M(030BA) |                                                |
| 220nF       | 0603             | 0.30±0.03          | ±10%<br>±20%             |                                                | C0603X5R0J224K(030BA)<br>C0603X5R0J224M(030BA) |                                                |
| 330nF       | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X5R1A334K(050BC)<br>C1005X5R1A334M(050BC) |                                                |                                                |
| 470nF       | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X5R1A474K(050BC)<br>C1005X5R1A474M(050BC) |                                                |                                                |
| 680nF       | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X5R1A684K(050BB)<br>C1005X5R1A684M(050BB) |                                                |                                                |
| 1μF         | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X5R1A105K(050BB)<br>C1005X5R1A105M(050BB) | C1005X5R0J105K(050BC)<br>C1005X5R0J105M(050BC) |                                                |
| 1.5μF       | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X5R1A155K(050BC)<br>C1005X5R1A155M(050BC) | C1005X5R0J155K(050BB)<br>C1005X5R0J155M(050BB) |                                                |
| 2.2μF       | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X5R1A225K(050BC)<br>C1005X5R1A225M(050BC) | C1005X5R0J225K(050BC)<br>C1005X5R0J225M(050BB) | C1005X5R0G225K(050BB)<br>C1005X5R0G225M(050BB) |
|             | 1608             | 0.80±0.10          | ±10%<br>±20%             | C1608X5R1A225K(080AC)<br>C1608X5R1A225M(080AC) | C1608X5R0J225K(080AB)<br>C1608X5R0J225M(080AB) |                                                |
| 3.3μF       | 1005             | 0.50±0.10          | ±20%                     |                                                | C1005X5R0J335M(050BC)                          | C1005X5R0G335M(050BB)                          |
|             | 1608             | 0.80±0.15/-0.10    | ±10%<br>±20%             |                                                | C1608X5R0J335K(080AB)<br>C1608X5R0J335M(080AB) |                                                |
|             |                  | 0.80±0.10          | ±10%<br>±20%             | C1608X5R1A335K(080AB)<br>C1608X5R1A335M(080AB) |                                                |                                                |
| 4.7μF       | 1005             | 0.50±0.15/-0.10    | ±20%                     |                                                | C1005X5R0J475M(050BC)                          | C1005X5R0G475M(050BB)                          |
|             | 1608             | 0.80±0.10          | ±10%<br>±20%             | C1608X5R1A475K(080AB)<br>C1608X5R1A475M(080AB) | C1608X5R0J475K(080AB)<br>C1608X5R0J475M(080AB) |                                                |
|             | 2012             | 0.60±0.10          | ±10%<br>±20%             | C2012X5R1A475K(060AB)<br>C2012X5R1A475M(060AB) |                                                |                                                |
|             |                  | 1.25±0.10          | ±10%<br>±20%             | C2012X5R1A475K(125AA)<br>C2012X5R1A475M(125AA) |                                                |                                                |
| 6.8μF       | 1608             | 0.80±0.10          | ±10%<br>±20%             | C1608X5R1A685K(080AC)<br>C1608X5R1A685M(080AC) | C1608X5R0J685K(080AB)<br>C1608X5R0J685M(080AB) |                                                |
|             | 2012             | 0.60±0.10          | ±10%<br>±20%             | C2012X5R1A685K(060AC)<br>C2012X5R1A685M(060AC) |                                                |                                                |
|             |                  | 1.25±0.10          | ±10%<br>±20%             | C2012X5R1A685K(125AC)<br>C2012X5R1A685M(125AC) |                                                |                                                |

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**CAPACITANCE RANGES: CLASS 2**
**TEMPERATURE CHARACTERISTICS: X5R(±15%)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 10V | Rated voltage Edc: 6.3V | Rated voltage Edc: 4V |
|-------------|------------------|--------------------|--------------------------|------------------------------------|-------------------------|-----------------------|
| 10μF        | 1608             | 0.80±0.10          | ±10%                     | C1608X5R1A106K(080AC)              | C1608X5R0J106K(080AB)   |                       |
|             |                  |                    | ±20%                     | C1608X5R1A106M(080AC)              | C1608X5R0J106M(080AB)   |                       |
|             | 2012             | 0.85±0.10          | ±10%                     | C2012X5R1A106K(085AB)              |                         |                       |
|             |                  |                    | ±20%                     | C2012X5R1A106M(085AB)              |                         |                       |
|             |                  | 1.25±0.20          | ±10%                     | C2012X5R1A106K(125AC)              |                         |                       |
|             |                  |                    | ±20%                     | C2012X5R1A106M(125AC)              |                         |                       |
| 15μF        | 2012             | 0.85±0.10          | ±20%                     | C2012X5R1A156M(085AC)              |                         |                       |
|             |                  | 1.25±0.10          | ±20%                     | C2012X5R1A156M(125AB)              |                         |                       |
|             |                  | 0.85±0.10          | ±20%                     | C2012X5R1A226M(085AC)              | C2012X5R0J226M(085AB)   |                       |
| 22μF        | 2012             | 1.25±0.10          | ±10%                     |                                    | C2012X5R0J226K(125AB)   |                       |
|             |                  |                    | ±20%                     | C2012X5R1A226M(125AB)              | C2012X5R0J226M(125AB)   |                       |
|             |                  |                    | ±20%                     | C3216X5R1A226M(160AC)              |                         |                       |
| 33μF        | 2012             | 1.25±0.20          | ±20%                     |                                    | C2012X5R0J336M(125AC)   |                       |
|             |                  | 1.60±0.20          | ±20%                     | C3216X5R1A336M(160AB)              |                         |                       |
|             |                  | 1.25±0.20          | ±20%                     |                                    | C2012X5R0J476M(125AC)   |                       |
| 47μF        | 2012             | 1.60±0.20          | ±20%                     | C3216X5R1A476M(160AB)              | C3216X5R0J476M(160AC)   |                       |
|             |                  | 3225               | ±20%                     | C3225X5R1A476M(250AC)              | C3225X5R0J476M(250AA)   |                       |
|             |                  | 3216               | ±20%                     | C3216X5R1A686M(160AC)              | C3216X5R0J686M(160AB)   |                       |
| 68μF        | 2012             | 2.00±0.20          | ±20%                     |                                    | C3225X5R0J686M(200AC)   |                       |
|             |                  | 5750               | ±20%                     | C5750X5R1A686M(230KA)              |                         |                       |
|             |                  | 3216               | ±20%                     | C3216X5R1A107M(160AC)              | C3216X5R0J107M(160AB)   |                       |
| 100μF       | 2012             | 2.50±0.30          | ±20%                     |                                    | C3225X5R0J107M(250AC)   |                       |
|             |                  | 4532               | ±20%                     | C4532X5R1A107M(280KC)              | C4532X5R0J107M(280KA)   |                       |
|             |                  | 5750               | ±20%                     | C5750X5R1A107M(280KC)              | C5750X5R0J107M(280KA)   |                       |

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**CAPACITANCE RANGES: CLASS 2**
**TEMPERATURE CHARACTERISTICS: X6S(±22%)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 50V             | Rated voltage Edc: 35V                         | Rated voltage Edc: 25V                         | Rated voltage Edc: 16V                         |
|-------------|------------------|--------------------|--------------------------|------------------------------------------------|------------------------------------------------|------------------------------------------------|------------------------------------------------|
| 10nF        | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X6S1H103K(050BB)<br>C1005X6S1H103M(050BB) |                                                |                                                |                                                |
| 15nF        | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X6S1H153K(050BB)<br>C1005X6S1H153M(050BB) |                                                |                                                |                                                |
| 22nF        | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X6S1H223K(050BB)<br>C1005X6S1H223M(050BB) |                                                |                                                |                                                |
| 33nF        | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X6S1H333K(050BB)<br>C1005X6S1H333M(050BB) |                                                |                                                |                                                |
| 47nF        | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X6S1H473K(050BB)<br>C1005X6S1H473M(050BB) |                                                |                                                |                                                |
| 68nF        | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X6S1H683K(050BB)<br>C1005X6S1H683M(050BB) | C1005X6S1V683K(050BB)<br>C1005X6S1V683M(050BB) | C1005X6S1E683K(050BB)<br>C1005X6S1E683M(050BB) |                                                |
| 100nF       | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X6S1H104K(050BB)<br>C1005X6S1H104M(050BB) | C1005X6S1V104K(050BB)<br>C1005X6S1V104M(050BB) | C1005X6S1E104K(050BB)<br>C1005X6S1E104M(050BB) |                                                |
| 150nF       | 1005             | 0.50±0.05          | ±10%<br>±20%             |                                                |                                                | C1005X6S1E154K(050BC)<br>C1005X6S1E154M(050BC) | C1005X6S1C154K(050BB)<br>C1005X6S1C154M(050BB) |
|             | 1608             | 0.80±0.10          | ±10%<br>±20%             | C1608X6S1H154K(080AB)<br>C1608X6S1H154M(080AB) | C1608X6S1V154K(080AB)<br>C1608X6S1V154M(080AB) |                                                |                                                |
| 220nF       | 1005             | 0.50±0.05          | ±10%<br>±20%             |                                                |                                                | C1005X6S1E224K(050BC)<br>C1005X6S1E224M(050BC) | C1005X6S1C224K(050BB)<br>C1005X6S1C224M(050BB) |
|             | 1608             | 0.80±0.10          | ±10%<br>±20%             | C1608X6S1H224K(080AB)<br>C1608X6S1H224M(080AB) | C1608X6S1V224K(080AB)<br>C1608X6S1V224M(080AB) |                                                |                                                |
| 330nF       | 1608             | 0.80±0.10          | ±10%<br>±20%             | C1608X6S1H334K(080AB)<br>C1608X6S1H334M(080AB) | C1608X6S1V334K(080AB)<br>C1608X6S1V334M(080AB) | C1608X6S1E334K(080AB)<br>C1608X6S1E334M(080AB) |                                                |
|             | 1005             | 0.50±0.05          | ±10%<br>±20%             |                                                |                                                |                                                | C1005X6S1C474K(050BC)<br>C1005X6S1C474M(050BC) |
| 470nF       | 1608             | 0.80±0.10          | ±10%<br>±20%             | C1608X6S1H474K(080AB)<br>C1608X6S1H474M(080AB) | C1608X6S1V474K(080AB)<br>C1608X6S1V474M(080AB) | C1608X6S1E474K(080AB)<br>C1608X6S1E474M(080AB) |                                                |
|             | 2012             | 1.25±0.10          | ±10%<br>±20%             | C2012X6S1H474K(125AB)<br>C2012X6S1H474M(125AB) |                                                |                                                |                                                |
| 680nF       | 1608             | 0.80±0.10          | ±10%<br>±20%             | C1608X6S1H684K(080AC)<br>C1608X6S1H684M(080AC) | C1608X6S1V684K(080AB)<br>C1608X6S1V684M(080AB) | C1608X6S1E684K(080AB)<br>C1608X6S1E684M(080AB) | C1608X6S1C684K(080AB)<br>C1608X6S1C684M(080AB) |
|             | 2012             | 1.25±0.10          | ±10%<br>±20%             | C2012X6S1H684K(125AB)<br>C2012X6S1H684M(125AB) |                                                |                                                |                                                |
|             | 1608             | 0.80±0.10          | ±10%<br>±20%             | C1608X6S1H105K(080AC)<br>C1608X6S1H105M(080AC) | C1608X6S1V105K(080AB)<br>C1608X6S1V105M(080AB) | C1608X6S1E105K(080AB)<br>C1608X6S1E105M(080AB) | C1608X6S1C105K(080AC)<br>C1608X6S1C105M(080AC) |
| 1µF         | 2012             | 0.85±0.10          | ±10%<br>±20%             | C2012X6S1H105K(085AB)<br>C2012X6S1H105M(085AB) | C2012X6S1V105K(085AB)<br>C2012X6S1V105M(085AB) | C2012X6S1E105K(085AB)<br>C2012X6S1E105M(085AB) |                                                |
|             |                  | 1.25±0.10          | ±10%<br>±20%             | C2012X6S1H105K(125AB)<br>C2012X6S1H105M(125AB) |                                                |                                                |                                                |
|             | 1608             | 0.80±0.10          | ±10%<br>±20%             |                                                |                                                |                                                | C1608X6S1C155K(080AC)<br>C1608X6S1C155M(080AC) |
| 1.5µF       | 2012             | 1.25±0.10          | ±10%<br>±20%             | C2012X6S1H155K(125AB)<br>C2012X6S1H155M(125AB) | C2012X6S1V155K(125AB)<br>C2012X6S1V155M(125AB) |                                                |                                                |
|             | 3216             | 1.60±0.10          | ±10%<br>±20%             | C3216X6S1H155K(160AB)<br>C3216X6S1H155M(160AB) |                                                |                                                |                                                |
|             | 1608             | 0.80±0.10          | ±10%<br>±20%             |                                                |                                                |                                                | C1608X6S1C225K(080AC)<br>C1608X6S1C225M(080AC) |
| 2.2µF       | 2012             | 0.85±0.10          | ±10%<br>±20%             | C2012X6S1H225K(085AC)<br>C2012X6S1H225M(085AC) | C2012X6S1V225K(085AB)<br>C2012X6S1V225M(085AB) | C2012X6S1E225K(085AB)<br>C2012X6S1E225M(085AB) | C2012X6S1C225K(085AB)<br>C2012X6S1C225M(085AB) |
|             |                  | 1.25±0.20          | ±10%<br>±20%             | C2012X6S1H225K(125AB)<br>C2012X6S1H225M(125AB) | C2012X6S1V225K(125AB)<br>C2012X6S1V225M(125AB) | C2012X6S1E225K(125AB)<br>C2012X6S1E225M(125AB) |                                                |
|             | 3216             | 1.60±0.20          | ±10%<br>±20%             | C3216X6S1H225K(160AB)<br>C3216X6S1H225M(160AB) |                                                |                                                |                                                |
|             | 2012             | 1.25±0.10          | ±10%<br>±20%             |                                                |                                                |                                                | C2012X6S1C335K(125AB)<br>C2012X6S1C335M(125AB) |
| 3.3µF       |                  | 1.25±0.20          | ±10%<br>±20%             | C2012X6S1H335K(125AC)<br>C2012X6S1H335M(125AC) | C2012X6S1V335K(125AB)<br>C2012X6S1V335M(125AB) | C2012X6S1E335K(125AB)<br>C2012X6S1E335M(125AB) |                                                |
|             | 3216             | 1.60±0.10          | ±10%<br>±20%             | C3216X6S1H335K(160AB)<br>C3216X6S1H335M(160AB) | C3216X6S1V335K(160AB)<br>C3216X6S1V335M(160AB) |                                                |                                                |

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**CAPACITANCE RANGES: CLASS 2****TEMPERATURE CHARACTERISTICS: X6S(±22%)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 50V | Rated voltage Edc: 35V | Rated voltage Edc: 25V | Rated voltage Edc: 16V |
|-------------|------------------|--------------------|--------------------------|------------------------------------|------------------------|------------------------|------------------------|
| 4.7μF       | 2012             | 0.85±0.10          | ±10%                     |                                    |                        |                        | C2012X6S1C475K(085AC)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C2012X6S1C475M(085AC)  |
|             |                  | 1.25±0.10          | ±10%                     |                                    |                        |                        | C2012X6S1C475K(125AB)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C2012X6S1C475M(125AB)  |
|             | 3216             | 1.25±0.20          | ±10%                     | C2012X6S1H475K(125AC)              | C2012X6S1V475K(125AB)  | C2012X6S1E475K(125AB)  |                        |
|             |                  |                    | ±20%                     | C2012X6S1H475M(125AC)              | C2012X6S1V475M(125AB)  | C2012X6S1E475M(125AB)  |                        |
|             |                  | 0.85±0.10          | ±10%                     |                                    | C3216X6S1V475K(085AC)  | C3216X6S1E475K(085AB)  |                        |
|             |                  |                    | ±20%                     |                                    | C3216X6S1V475M(085AC)  | C3216X6S1E475M(085AB)  |                        |
|             |                  | 1.60±0.20          | ±10%                     | C3216X6S1H475K(160AB)              | C3216X6S1V475K(160AB)  | C3216X6S1E475K(160AB)  |                        |
|             |                  |                    | ±20%                     | C3216X6S1H475M(160AB)              | C3216X6S1V475M(160AB)  | C3216X6S1E475M(160AB)  |                        |
|             | 3225             | 2.50±0.20          | ±10%                     | C3225X6S1H475K(250AB)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C3225X6S1H475M(250AB)              |                        |                        |                        |
| 6.8μF       | 2012             | 1.25±0.10          | ±10%                     |                                    |                        |                        | C2012X6S1C685K(125AC)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C2012X6S1C685M(125AC)  |
|             | 3216             | 1.60±0.10          | ±10%                     |                                    | C3216X6S1V685K(160AC)  | C3216X6S1E685K(160AB)  | C3216X6S1C685K(160AB)  |
|             |                  |                    | ±20%                     |                                    | C3216X6S1V685M(160AC)  | C3216X6S1E685M(160AB)  | C3216X6S1C685M(160AB)  |
| 10μF        | 2012             | 1.25±0.10          | ±10%                     |                                    |                        |                        | C2012X6S1C106K(125AC)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C2012X6S1C106M(125AC)  |
|             | 3216             | 0.85±0.10          | ±10%                     |                                    |                        |                        | C3216X6S1C106K(085AC)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C3216X6S1C106M(085AC)  |
|             |                  | 1.60±0.10          | ±10%                     |                                    |                        |                        | C3216X6S1C106K(160AC)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C3216X6S1C106M(160AC)  |
|             |                  | 1.60±0.20          | ±10%                     |                                    | C3216X6S1V106K(160AC)  | C3216X6S1E106K(160AB)  |                        |
|             |                  |                    | ±20%                     |                                    | C3216X6S1V106M(160AC)  | C3216X6S1E106M(160AB)  |                        |
| 15μF        | 3216             | 1.60±0.20          | ±20%                     |                                    |                        |                        | C3216X6S1C156M(160AC)  |
| 22μF        | 3216             | 1.60±0.20          | ±20%                     |                                    |                        |                        | C3216X6S1C226M(160AC)  |
|             | 3225             | 2.50±0.30          | ±20%                     |                                    |                        |                        | C3225X6S1C226M(250AC)  |

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**CAPACITANCE RANGES: CLASS 2**
**TEMPERATURE CHARACTERISTICS: X6S(±22%)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm)           | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 10V             | Rated voltage Edc: 6.3V                        | Rated voltage Edc: 4V                          |
|-------------|------------------|------------------------------|--------------------------|------------------------------------------------|------------------------------------------------|------------------------------------------------|
| 100nF       | 0603             | 0.30±0.03                    | ±10%<br>±20%             |                                                | C0603X6S0J104K(030BC)<br>C0603X6S0J104M(030BC) | C0603X6S0G104K(030BB)<br>C0603X6S0G104M(030BB) |
| 220nF       | 0603             | 0.30±0.03                    | ±10%<br>±20%             |                                                | C0603X6S0J224K(030BC)<br>C0603X6S0J224M(030BC) | C0603X6S0G224K(030BB)<br>C0603X6S0G224M(030BB) |
| 330nF       | 1005             | 0.50±0.05                    | ±10%<br>±20%             | C1005X6S1A334K(050BB)<br>C1005X6S1A334M(050BB) | C1005X6S0J334K(050BB)<br>C1005X6S0J334M(050BB) |                                                |
| 470nF       | 1005             | 0.50±0.05                    | ±10%<br>±20%             | C1005X6S1A474K(050BB)<br>C1005X6S1A474M(050BB) | C1005X6S0J474K(050BC)<br>C1005X6S0J474M(050BC) |                                                |
| 680nF       | 1005             | 0.50±0.05                    | ±10%<br>±20%             | C1005X6S1A684K(050BC)<br>C1005X6S1A684M(050BC) | C1005X6S0J684K(050BB)<br>C1005X6S0J684M(050BB) |                                                |
| 1µF         | 1005             | 0.50±0.05                    | ±10%<br>±20%             | C1005X6S1A105K(050BC)<br>C1005X6S1A105M(050BC) | C1005X6S0J105K(050BB)<br>C1005X6S0J105M(050BB) | C1005X6S0G105K(050BC)<br>C1005X6S0G105M(050BC) |
| 1.5µF       | 1005             | 0.50±0.05                    | ±10%<br>±20%             |                                                |                                                | C1005X6S0G155K(050BC)<br>C1005X6S0G155M(050BC) |
|             | 1005             | 0.50±0.05                    | ±20%                     |                                                |                                                | C1005X6S0G225M(050BC)                          |
| 2.2µF       | 1608             | 0.80±0.10                    | ±10%<br>±20%             | C1608X6S1A225K(080AB)<br>C1608X6S1A225M(080AB) | C1608X6S0J225K(080AB)<br>C1608X6S0J225M(080AB) |                                                |
| 3.3µF       | 1608             | 0.80±0.10                    | ±10%<br>±20%             | C1608X6S1A335K(080AC)<br>C1608X6S1A335M(080AC) | C1608X6S0J335K(080AB)<br>C1608X6S0J335M(080AB) |                                                |
| 4.7µF       | 1608             | 0.80±0.10                    | ±10%<br>±20%             | C1608X6S1A475K(080AC)<br>C1608X6S1A475M(080AC) | C1608X6S0J475K(080AB)<br>C1608X6S0J475M(080AB) |                                                |
|             | 2012             | 0.85±0.10                    | ±10%<br>±20%             | C2012X6S1A475K(085AB)<br>C2012X6S1A475M(085AB) |                                                |                                                |
|             | 1608             | 0.80±0.10                    | ±10%<br>±20%             |                                                |                                                | C1608X6S0G685K(080AC)<br>C1608X6S0G685M(080AC) |
| 6.8µF       |                  | 0.85±0.10                    | ±10%<br>±20%             | C2012X6S1A685K(085AC)<br>C2012X6S1A685M(085AC) | C2012X6S0J685K(085AB)<br>C2012X6S0J685M(085AB) |                                                |
|             |                  | 1.25±0.10                    | ±10%<br>±20%             | C2012X6S1A685K(125AB)<br>C2012X6S1A685M(125AB) |                                                |                                                |
|             | 3216             | 0.85±0.10                    | ±10%<br>±20%             | C3216X6S1A685K(085AB)<br>C3216X6S1A685M(085AB) |                                                |                                                |
|             | 1608             | 0.80±0.20/-0.10<br>0.80±0.10 | ±20%<br>±10%             |                                                |                                                | C1608X6S0G106M(080AC)<br>C1608X6S0G106K(080AC) |
| 10µF        |                  | 0.85±0.10                    | ±10%<br>±20%             | C2012X6S1A106K(085AC)<br>C2012X6S1A106M(085AC) | C2012X6S0J106K(085AB)<br>C2012X6S0J106M(085AB) |                                                |
|             | 2012             |                              | ±10%<br>±20%             | C2012X6S1A106K(125AB)<br>C2012X6S1A106M(125AB) | C2012X6S0J106K(125AB)<br>C2012X6S0J106M(125AB) |                                                |
|             | 3216             | 0.85±0.10                    | ±10%<br>±20%             | C3216X6S1A106K(085AB)<br>C3216X6S1A106M(085AB) |                                                |                                                |
| 15µF        | 2012             | 1.25±0.10                    | ±20%                     | C2012X6S1A156M(125AC)                          | C2012X6S0J156M(125AB)                          |                                                |
|             | 3216             | 1.60±0.20                    | ±20%                     | C3216X6S1A156M(160AB)                          |                                                |                                                |
| 22µF        | 2012             | 1.25±0.10                    | ±20%                     | C2012X6S1A226M(125AC)                          | C2012X6S0J226M(125AB)                          |                                                |
|             | 3216             | 1.60±0.20                    | ±20%                     | C3216X6S1A226M(160AB)                          | C3216X6S0J226M(160AC)                          |                                                |
| 33µF        | 3216             | 1.60±0.20                    | ±20%                     | C3216X6S1A336M(160AC)                          | C3216X6S0J336M(160AB)                          |                                                |
| 47µF        | 3216             | 1.60±0.20                    | ±20%                     | C3216X6S1A476M(160AC)                          | C3216X6S0J476M(160AB)                          | C3216X6S0G476M(160AC)                          |
|             | 3225             | 2.50±0.30                    | ±20%                     |                                                | C3225X6S0J476M(250AC)                          |                                                |
| 68µF        | 3216             | 1.60±0.20                    | ±20%                     |                                                |                                                | C3216X6S0G686M(160AB)                          |
|             | 3216             | 1.60±0.30/-0.10              | ±20%                     |                                                |                                                | C3216X6S0G107M(160AB)                          |
| 100µF       | 3225             | 2.50±0.30                    | ±20%                     |                                                | C3225X6S0J107M(250AC)                          | C3225X6S0G107M(250AC)                          |
|             | 4532             | 2.80±0.30                    | ±20%                     |                                                | C4532X6S0J107M(280KC)                          |                                                |

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**CAPACITANCE RANGES: CLASS 2**
**TEMPERATURE CHARACTERISTICS: X7R(±15%)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 50V             | Rated voltage Edc: 35V                         | Rated voltage Edc: 25V                         | Rated voltage Edc: 16V                         |
|-------------|------------------|--------------------|--------------------------|------------------------------------------------|------------------------------------------------|------------------------------------------------|------------------------------------------------|
| 100pF       | 0603             | 0.30±0.03          | ±10%<br>±20%             |                                                |                                                | C0603X7R1E101K(030BA)<br>C0603X7R1E101M(030BA) |                                                |
| 150pF       | 0603             | 0.30±0.03          | ±10%<br>±20%             |                                                |                                                | C0603X7R1E151K(030BA)<br>C0603X7R1E151M(030BA) |                                                |
| 220pF       | 0603             | 0.30±0.03          | ±10%<br>±20%             |                                                |                                                | C0603X7R1E221K(030BA)<br>C0603X7R1E221M(030BA) |                                                |
|             | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X7R1H221K(050BA)<br>C1005X7R1H221M(050BA) |                                                |                                                |                                                |
| 330pF       | 0603             | 0.30±0.03          | ±10%<br>±20%             |                                                |                                                | C0603X7R1E331K(030BA)<br>C0603X7R1E331M(030BA) |                                                |
|             | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X7R1H331K(050BA)<br>C1005X7R1H331M(050BA) |                                                |                                                |                                                |
| 470pF       | 0603             | 0.30±0.03          | ±10%<br>±20%             |                                                |                                                | C0603X7R1E471K(030BA)<br>C0603X7R1E471M(030BA) |                                                |
|             | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X7R1H471K(050BA)<br>C1005X7R1H471M(050BA) |                                                |                                                |                                                |
| 680pF       | 0603             | 0.30±0.03          | ±10%<br>±20%             |                                                |                                                | C0603X7R1E681K(030BA)<br>C0603X7R1E681M(030BA) |                                                |
|             | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X7R1H681K(050BA)<br>C1005X7R1H681M(050BA) |                                                |                                                |                                                |
| 1nF         | 0603             | 0.30±0.03          | ±10%<br>±20%             |                                                |                                                | C0603X7R1E102K(030BA)<br>C0603X7R1E102M(030BA) |                                                |
|             | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X7R1H102K(050BA)<br>C1005X7R1H102M(050BA) |                                                |                                                |                                                |
| 1.5nF       | 0603             | 0.30±0.03          | ±10%<br>±20%             |                                                |                                                | C0603X7R1E152K(030BA)<br>C0603X7R1E152M(030BA) |                                                |
|             | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X7R1H152K(050BA)<br>C1005X7R1H152M(050BA) |                                                |                                                |                                                |
| 2.2nF       | 0603             | 0.30±0.03          | ±10%<br>±20%             |                                                |                                                | C0603X7R1E222K(030BA)<br>C0603X7R1E222M(030BA) |                                                |
|             | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X7R1H222K(050BA)<br>C1005X7R1H222M(050BA) |                                                |                                                |                                                |
| 3.3nF       | 0603             | 0.30±0.03          | ±10%<br>±20%             |                                                |                                                | C0603X7R1E332K(030BA)<br>C0603X7R1E332M(030BA) |                                                |
|             | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X7R1H332K(050BA)<br>C1005X7R1H332M(050BA) |                                                |                                                |                                                |
| 4.7nF       | 0603             | 0.30±0.03          | ±10%<br>±20%             |                                                |                                                |                                                | C0603X7R1C472K(030BA)<br>C0603X7R1C472M(030BA) |
|             | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X7R1H472K(050BA)<br>C1005X7R1H472M(050BA) |                                                |                                                |                                                |
| 6.8nF       | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X7R1H682K(050BA)<br>C1005X7R1H682M(050BA) |                                                |                                                |                                                |
| 10nF        | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X7R1H103K(050BB)<br>C1005X7R1H103M(050BB) | C1005X7R1V103K(050BB)<br>C1005X7R1V103M(050BB) |                                                |                                                |
|             | 1608             | 0.80±0.10          | ±10%<br>±20%             | C1608X7R1H103K(080AA)<br>C1608X7R1H103M(080AA) |                                                |                                                |                                                |
| 15nF        | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X7R1H153K(050BB)<br>C1005X7R1H153M(050BB) | C1005X7R1V153K(050BB)<br>C1005X7R1V153M(050BB) |                                                |                                                |
|             | 1608             | 0.80±0.10          | ±10%<br>±20%             | C1608X7R1H153K(080AA)<br>C1608X7R1H153M(080AA) |                                                |                                                |                                                |
| 22nF        | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X7R1H223K(050BB)<br>C1005X7R1H223M(050BB) | C1005X7R1V223K(050BB)<br>C1005X7R1V223M(050BB) |                                                |                                                |
|             | 1608             | 0.80±0.10          | ±10%<br>±20%             | C1608X7R1H223K(080AA)<br>C1608X7R1H223M(080AA) |                                                |                                                |                                                |
| 33nF        | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X7R1H333K(050BB)<br>C1005X7R1H333M(050BB) | C1005X7R1V333K(050BB)<br>C1005X7R1V333M(050BB) |                                                |                                                |
|             | 1608             | 0.80±0.10          | ±10%<br>±20%             | C1608X7R1H333K(080AA)<br>C1608X7R1H333M(080AA) |                                                |                                                |                                                |
| 47nF        | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X7R1H473K(050BB)<br>C1005X7R1H473M(050BB) | C1005X7R1V473K(050BB)<br>C1005X7R1V473M(050BB) |                                                |                                                |
|             | 1608             | 0.80±0.10          | ±10%<br>±20%             | C1608X7R1H473K(080AA)<br>C1608X7R1H473M(080AA) |                                                |                                                |                                                |
| 68nF        | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005X7R1H683K(050BB)<br>C1005X7R1H683M(050BB) | C1005X7R1V683K(050BB)<br>C1005X7R1V683M(050BB) | C1005X7R1E683K(050BB)<br>C1005X7R1E683M(050BB) |                                                |
|             | 1608             | 0.80±0.10          | ±10%<br>±20%             | C1608X7R1H683K(080AA)<br>C1608X7R1H683M(080AA) |                                                |                                                |                                                |

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**CAPACITANCE RANGES: CLASS 2****TEMPERATURE CHARACTERISTICS: X7R(±15%)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 50V | Rated voltage Edc: 35V | Rated voltage Edc: 25V | Rated voltage Edc: 16V |
|-------------|------------------|--------------------|--------------------------|------------------------------------|------------------------|------------------------|------------------------|
| 100nF       | 1005             | 0.50±0.05          | ±10%                     | C1005X7R1H104K(050BB)              | C1005X7R1V104K(050BB)  | C1005X7R1E104K(050BB)  | C1005X7R1C104K(050BC)  |
|             |                  |                    | ±20%                     | C1005X7R1H104M(050BB)              | C1005X7R1V104M(050BB)  | C1005X7R1E104M(050BB)  | C1005X7R1C104M(050BC)  |
|             | 1608             | 0.80±0.10          | ±10%                     | C1608X7R1H104K(080AA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C1608X7R1H104M(080AA)              |                        |                        |                        |
|             | 2012             | 0.85±0.10          | ±10%                     | C2012X7R1H104K(085AA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C2012X7R1H104M(085AA)              |                        |                        |                        |
| 150nF       | 1005             | 0.50±0.05          | ±10%                     |                                    |                        |                        | C1005X7R1C154K(050BC)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C1005X7R1C154M(050BC)  |
|             | 1608             | 0.80±0.10          | ±10%                     | C1608X7R1H154K(080AB)              | C1608X7R1V154K(080AB)  | C1608X7R1E154K(080AA)  |                        |
|             |                  |                    | ±20%                     | C1608X7R1H154M(080AB)              | C1608X7R1V154M(080AB)  | C1608X7R1E154M(080AA)  |                        |
|             | 2012             | 0.85±0.10          | ±10%                     | C2012X7R1H154K(085AA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C2012X7R1H154M(085AA)              |                        |                        |                        |
| 220nF       | 1005             | 0.50±0.05          | ±10%                     |                                    |                        |                        | C1005X7R1C224K(050BC)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C1005X7R1C224M(050BC)  |
|             | 1608             | 0.80±0.10          | ±10%                     | C1608X7R1H224K(080AB)              | C1608X7R1V224K(080AB)  | C1608X7R1E224K(080AC)  |                        |
|             |                  |                    | ±20%                     | C1608X7R1H224M(080AB)              | C1608X7R1V224M(080AB)  | C1608X7R1E224M(080AC)  |                        |
|             | 2012             | 1.25±0.10          | ±10%                     | C2012X7R1H224K(125AA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C2012X7R1H224M(125AA)              |                        |                        |                        |
| 330nF       | 1608             | 0.80±0.10          | ±10%                     | C1608X7R1H334K(080AC)              | C1608X7R1V334K(080AB)  | C1608X7R1E334K(080AB)  |                        |
|             |                  |                    | ±20%                     | C1608X7R1H334M(080AC)              | C1608X7R1V334M(080AB)  | C1608X7R1E334M(080AB)  |                        |
|             | 2012             | 1.25±0.20          | ±10%                     | C2012X7R1H334K(125AA)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C2012X7R1H334M(125AA)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±10%                     | C1608X7R1H474K(080AC)              | C1608X7R1V474K(080AB)  | C1608X7R1E474K(080AB)  | C1608X7R1C474K(080AC)  |
|             |                  |                    | ±20%                     | C1608X7R1H474M(080AC)              | C1608X7R1V474M(080AB)  | C1608X7R1E474M(080AB)  | C1608X7R1C474M(080AC)  |
| 470nF       | 2012             | 1.25±0.10          | ±10%                     | C2012X7R1H474K(125AB)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C2012X7R1H474M(125AB)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±10%                     |                                    | C1608X7R1V684K(080AC)  | C1608X7R1E684K(080AB)  | C1608X7R1C684K(080AC)  |
|             |                  |                    | ±20%                     |                                    | C1608X7R1V684M(080AC)  | C1608X7R1E684M(080AB)  | C1608X7R1C684M(080AC)  |
|             | 2012             | 1.25±0.10          | ±10%                     | C2012X7R1H684K(125AB)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C2012X7R1H684M(125AB)              |                        |                        |                        |
| 680nF       | 1608             | 0.80±0.10          | ±10%                     |                                    | C1608X7R1V105K(080AC)  | C1608X7R1E105K(080AB)  | C1608X7R1C105K(080AC)  |
|             |                  |                    | ±20%                     |                                    | C1608X7R1V105M(080AC)  | C1608X7R1E105M(080AB)  | C1608X7R1C105M(080AC)  |
|             | 2012             | 1.25±0.10          | ±10%                     | C2012X7R1H105K(085AC)              | C2012X7R1V105K(085AB)  | C2012X7R1E105K(085AB)  | C2012X7R1C105K(085AA)  |
|             |                  |                    | ±20%                     | C2012X7R1H105M(085AC)              | C2012X7R1V105M(085AB)  | C2012X7R1E105M(085AB)  | C2012X7R1C105M(085AA)  |
|             | 2012             | 1.25±0.10          | ±10%                     | C2012X7R1H105K(125AB)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C2012X7R1H105M(125AB)              |                        |                        |                        |
| 1µF         | 3216             | 1.60±0.10          | ±10%                     | C3216X7R1H105K(160AB)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C3216X7R1H105M(160AB)              |                        |                        |                        |
|             | 2012             | 1.25±0.10          | ±10%                     | C2012X7R1H155K(125AC)              | C2012X7R1V155K(125AB)  |                        |                        |
|             |                  |                    | ±20%                     | C2012X7R1H155M(125AC)              | C2012X7R1V155M(125AB)  |                        |                        |
|             | 2012             | 1.25±0.20          | ±10%                     |                                    |                        | C2012X7R1E155K(125AB)  | C2012X7R1C155K(125AB)  |
|             |                  |                    | ±20%                     |                                    |                        | C2012X7R1E155M(125AB)  | C2012X7R1C155M(125AB)  |
| 1.5µF       | 3216             | 1.60±0.10          | ±10%                     | C3216X7R1H155K(160AB)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C3216X7R1H155M(160AB)              |                        |                        |                        |
|             | 2012             | 0.85±0.10          | ±10%                     |                                    | C2012X7R1V225K(085AC)  | C2012X7R1E225K(085AB)  | C2012X7R1C225K(085AB)  |
|             |                  |                    | ±20%                     |                                    | C2012X7R1V225M(085AC)  | C2012X7R1E225M(085AB)  | C2012X7R1C225M(085AB)  |
|             | 2012             | 1.25±0.20          | ±10%                     | C2012X7R1H225K(125AC)              | C2012X7R1V225K(125AB)  | C2012X7R1E225K(125AB)  | C2012X7R1C225K(125AB)  |
|             |                  |                    | ±20%                     | C2012X7R1H225M(125AC)              | C2012X7R1V225M(125AB)  | C2012X7R1E225M(125AB)  | C2012X7R1C225M(125AB)  |
| 2.2µF       | 3216             | 1.60±0.20          | ±10%                     | C3216X7R1H225K(160AB)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C3216X7R1H225M(160AB)              |                        |                        |                        |
|             | 2012             | 1.25±0.20          | ±10%                     |                                    | C2012X7R1V335K(125AC)  | C2012X7R1E335K(125AB)  | C2012X7R1C335K(125AB)  |
|             |                  |                    | ±20%                     |                                    | C2012X7R1V335M(125AC)  | C2012X7R1E335M(125AB)  | C2012X7R1C335M(125AB)  |
|             | 3216             | 1.60±0.10          | ±10%                     | C3216X7R1H335K(160AC)              | C3216X7R1V335K(160AB)  |                        |                        |
|             |                  |                    | ±20%                     | C3216X7R1H335M(160AC)              | C3216X7R1V335M(160AB)  |                        |                        |

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**CAPACITANCE RANGES: CLASS 2****TEMPERATURE CHARACTERISTICS: X7R(±15%)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 50V | Rated voltage Edc: 35V | Rated voltage Edc: 25V | Rated voltage Edc: 16V |
|-------------|------------------|--------------------|--------------------------|------------------------------------|------------------------|------------------------|------------------------|
| 4.7μF       | 2012             | 1.25±0.20          | ±10%                     |                                    | C2012X7R1V475K(125AC)  | C2012X7R1E475K(125AB)  | C2012X7R1C475K(125AB)  |
|             |                  |                    | ±20%                     |                                    | C2012X7R1V475M(125AC)  | C2012X7R1E475M(125AB)  | C2012X7R1C475M(125AB)  |
|             |                  | 0.85±0.10          | ±10%                     |                                    | C3216X7R1V475K(085AC)  | C3216X7R1E475K(085AB)  | C3216X7R1C475K(085AB)  |
|             |                  |                    | ±20%                     |                                    | C3216X7R1V475M(085AC)  | C3216X7R1E475M(085AB)  | C3216X7R1C475M(085AB)  |
|             | 3216             | 1.60±0.10          | ±10%                     |                                    |                        | C3216X7R1E475K(160AC)  |                        |
|             |                  |                    | ±20%                     |                                    |                        | C3216X7R1E475M(160AC)  |                        |
|             |                  | 1.60±0.20          | ±10%                     |                                    | C3216X7R1V475K(160AB)  |                        |                        |
|             |                  |                    | ±20%                     |                                    | C3216X7R1V475M(160AB)  |                        |                        |
| 6.8μF       | 3225             | 2.50±0.20          | ±10%                     | C3225X7R1H475K(250AB)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C3225X7R1H475M(250AB)              |                        |                        |                        |
|             | 3216             | 1.60±0.10          | ±10%                     |                                    | C3216X7R1V685K(160AC)  | C3216X7R1E685K(160AB)  | C3216X7R1C685K(160AC)  |
|             |                  |                    | ±20%                     |                                    | C3216X7R1V685M(160AC)  | C3216X7R1E685M(160AB)  | C3216X7R1C685M(160AC)  |
|             | 4532             | 2.50±0.30          | ±10%                     | C4532X7R1H685K(250KB)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C4532X7R1H685M(250KB)              |                        |                        |                        |
| 10μF        | 3216             | 1.60±0.10          | ±10%                     |                                    |                        |                        | C3216X7R1C106K(160AB)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C3216X7R1C106M(160AB)  |
|             |                  | 1.60±0.20          | ±10%                     |                                    | C3216X7R1V106K(160AC)  | C3216X7R1E106K(160AB)  |                        |
|             |                  |                    | ±20%                     |                                    | C3216X7R1V106M(160AC)  | C3216X7R1E106M(160AB)  |                        |
|             | 3225             | 2.50±0.20          | ±10%                     |                                    |                        | C3225X7R1E106K(250AC)  |                        |
|             |                  |                    | ±20%                     |                                    |                        | C3225X7R1E106M(250AC)  |                        |
|             | 4532             | 2.50±0.30          | ±10%                     |                                    |                        | C4532X7R1E106K(250KA)  |                        |
|             |                  |                    | ±20%                     |                                    |                        | C4532X7R1E106M(250KA)  |                        |
| 15μF        | 5750             | 2.30±0.20          | ±10%                     | C5750X7R1H106K(230KB)              |                        |                        |                        |
|             |                  |                    | ±20%                     | C5750X7R1H106M(230KB)              |                        |                        |                        |
|             | 3225             | 2.50±0.30          | ±20%                     |                                    |                        |                        | C3225X7R1C156M(250AB)  |
|             |                  |                    | ±20%                     |                                    |                        | C4532X7R1E156M(250KC)  |                        |
| 22μF        | 3225             | 2.50±0.30          | ±20%                     |                                    |                        |                        | C3225X7R1C226M(250AC)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C4532X7R1C226M(200KC)  |
|             | 4532             | 2.50±0.30          | ±20%                     |                                    |                        | C4532X7R1E226M(250KC)  |                        |
|             |                  |                    | ±20%                     |                                    |                        | C5750X7R1E226M(250KA)  |                        |
| 33μF        | 4532             | 2.50±0.30          | ±20%                     |                                    |                        |                        | C4532X7R1C336M(250KC)  |
|             |                  |                    | ±20%                     |                                    |                        |                        | C5750X7R1C336M(200KB)  |
| 47μF        | 5750             | 2.30±0.20          | ±20%                     |                                    |                        |                        | C5750X7R1C476M(230KB)  |

**TEMPERATURE CHARACTERISTICS: X7R(±15%)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 10V | Rated voltage Edc: 6.3V | Rated voltage Edc: 4V |
|-------------|------------------|--------------------|--------------------------|------------------------------------|-------------------------|-----------------------|
| 100pF       | 0402             | 0.20±0.02          | ±10%                     | C0402X7R1A101K(020BA)              |                         |                       |
|             |                  |                    | ±20%                     | C0402X7R1A101M(020BA)              |                         |                       |
| 150pF       | 0402             | 0.20±0.02          | ±10%                     | C0402X7R1A151K(020BA)              |                         |                       |
|             |                  |                    | ±20%                     | C0402X7R1A151M(020BA)              |                         |                       |
| 220pF       | 0402             | 0.20±0.02          | ±10%                     | C0402X7R1A221K(020BA)              |                         |                       |
|             |                  |                    | ±20%                     | C0402X7R1A221M(020BA)              |                         |                       |
| 330pF       | 0402             | 0.20±0.02          | ±10%                     | C0402X7R1A331K(020BA)              |                         |                       |
|             |                  |                    | ±20%                     | C0402X7R1A331M(020BA)              |                         |                       |
| 470pF       | 0402             | 0.20±0.02          | ±10%                     | C0402X7R1A471K(020BA)              |                         |                       |
|             |                  |                    | ±20%                     | C0402X7R1A471M(020BA)              |                         |                       |
| 680pF       | 0402             | 0.20±0.02          | ±10%                     | C0402X7R1A681K(020BA)              |                         |                       |
|             |                  |                    | ±20%                     | C0402X7R1A681M(020BA)              |                         |                       |
| 220nF       | 1005             | 0.50±0.05          | ±10%                     | C1005X7R1A224K(050BB)              |                         |                       |
|             |                  |                    | ±20%                     | C1005X7R1A224M(050BB)              |                         |                       |
| 1.5μF       | 1608             | 0.80±0.10          | ±10%                     | C1608X7R1A155K(080AC)              | C1608X7R0J155K(080AB)   |                       |
|             |                  |                    | ±20%                     | C1608X7R1A155M(080AC)              | C1608X7R0J155M(080AB)   |                       |
| 2.2μF       | 1608             | 0.80±0.10          | ±10%                     | C1608X7R1A225K(080AC)              | C1608X7R0J225K(080AB)   |                       |
|             |                  |                    | ±20%                     | C1608X7R1A225M(080AC)              | C1608X7R0J225M(080AB)   |                       |
| 4.7μF       | 2012             | 0.85±0.10          | ±10%                     | C2012X7R1A475K(085AC)              | C2012X7R0J475K(085AB)   |                       |
|             |                  |                    | ±20%                     | C2012X7R1A475M(085AC)              | C2012X7R0J475M(085AB)   |                       |
|             |                  | 1.25±0.10          | ±10%                     | C2012X7R1A475K(125AC)              |                         |                       |
|             |                  |                    | ±20%                     | C2012X7R1A475M(125AC)              |                         |                       |
| 6.8μF       | 2012             | 1.25±0.10          | ±10%                     | C2012X7R1A685K(125AC)              |                         |                       |
|             |                  |                    | ±20%                     | C2012X7R1A685M(125AC)              |                         |                       |
| 10μF        | 2012             | 1.25±0.20          | ±10%                     | C2012X7R1A106K(125AC)              |                         |                       |
|             |                  |                    | ±20%                     | C2012X7R1A106M(125AC)              |                         |                       |
|             | 3216             | 0.85±0.10          | ±10%                     | C3216X7R1A106K(085AC)              | C3216X7R0J106K(085AB)   |                       |
|             |                  |                    | ±20%                     | C3216X7R1A106M(085AC)              | C3216X7R0J106M(085AB)   |                       |

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**CAPACITANCE RANGES: CLASS 2****TEMPERATURE CHARACTERISTICS: X7S(±22%)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.               |                        |                        |                        |
|-------------|------------------|--------------------|--------------------------|------------------------|------------------------|------------------------|------------------------|
|             |                  |                    |                          | Rated voltage Edc: 50V | Rated voltage Edc: 35V | Rated voltage Edc: 25V | Rated voltage Edc: 16V |
| 6.8μF       | 3225             | 2.50±0.20          | ±10%                     | C3225X7S1H685K(250AB)  |                        |                        |                        |
|             |                  |                    | ±20%                     | C3225X7S1H685M(250AB)  |                        |                        |                        |
| 10μF        | 3225             | 2.50±0.20          | ±10%                     | C3225X7S1H106K(250AB)  |                        |                        |                        |
|             |                  |                    | ±20%                     | C3225X7S1H106M(250AB)  |                        |                        |                        |

**TEMPERATURE CHARACTERISTICS: X7S(±22%)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.               |                         |                       |
|-------------|------------------|--------------------|--------------------------|------------------------|-------------------------|-----------------------|
|             |                  |                    |                          | Rated voltage Edc: 10V | Rated voltage Edc: 6.3V | Rated voltage Edc: 4V |
| 100nF       | 0603             | 0.30±0.03          | ±10%                     | C0603X7S0G104K(030BC)  |                         |                       |
|             |                  |                    | ±20%                     | C0603X7S0G104M(030BC)  |                         |                       |
| 220nF       | 0603             | 0.30±0.03          | ±10%                     | C0603X7S0G224K(030BC)  |                         |                       |
|             |                  |                    | ±20%                     | C0603X7S0G224M(030BC)  |                         |                       |
| 470nF       | 1005             | 0.50±0.05          | ±10%                     | C1005X7S1A474K(050BC)  | C1005X7S0J474K(050BB)   |                       |
|             |                  |                    | ±20%                     | C1005X7S1A474M(050BC)  | C1005X7S0J474M(050BB)   |                       |
| 1μF         | 1005             | 0.50±0.05          | ±10%                     | C1005X7S0G105K(050BC)  |                         |                       |
|             |                  |                    | ±20%                     | C1005X7S0G105M(050BC)  |                         |                       |
| 2.2μF       | 1608             | 0.80±0.10          | ±10%                     | C1608X7S1A225K(080AC)  | C1608X7S0J225K(080AB)   |                       |
|             |                  |                    | ±20%                     | C1608X7S1A225M(080AC)  | C1608X7S0J225M(080AB)   |                       |
| 4.7μF       | 1608             | 0.80±0.10          | ±10%                     | C1608X7S0G475K(080AC)  |                         |                       |
|             |                  |                    | ±20%                     | C1608X7S0G475M(080AC)  |                         |                       |
| 10μF        | 2012             | 0.85±0.10          | ±10%                     | C2012X7S0G106K(085AC)  |                         |                       |
|             |                  |                    | ±20%                     | C2012X7S0G106M(085AC)  |                         |                       |
| 47μF        | 3225             | 2.50±0.30          | ±20%                     | C3225X7S0J476M(250AC)  |                         |                       |

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## CAPACITANCE RANGES: CLASS 2

TEMPERATURE CHARACTERISTICS: JB( $\pm 10\%$ )

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 50V | Rated voltage Edc: 35V | Rated voltage Edc: 25V | Rated voltage Edc: 16V |
|-------------|------------------|--------------------|--------------------------|------------------------------------|------------------------|------------------------|------------------------|
| 100pF       | 0402             | 0.20±0.02          | ±10%                     |                                    |                        |                        | C0402JB1C101K(020BA)   |
|             |                  |                    | ±20%                     |                                    |                        |                        | C0402JB1C101M(020BA)   |
|             | 0603             | 0.30±0.03          | ±10%                     |                                    |                        | C0603JB1E101K(030BA)   |                        |
|             |                  |                    | ±20%                     |                                    |                        | C0603JB1E101M(030BA)   |                        |
| 150pF       | 0402             | 0.20±0.02          | ±10%                     |                                    |                        |                        | C0402JB1C151K(020BA)   |
|             |                  |                    | ±20%                     |                                    |                        |                        | C0402JB1C151M(020BA)   |
|             | 0603             | 0.30±0.03          | ±10%                     |                                    |                        | C0603JB1E151K(030BA)   |                        |
|             |                  |                    | ±20%                     |                                    |                        | C0603JB1E151M(030BA)   |                        |
| 220pF       | 0402             | 0.20±0.02          | ±10%                     |                                    |                        |                        | C0402JB1C221K(020BA)   |
|             |                  |                    | ±20%                     |                                    |                        |                        | C0402JB1C221M(020BA)   |
|             | 0603             | 0.30±0.03          | ±10%                     |                                    |                        | C0603JB1E221K(030BA)   |                        |
|             |                  |                    | ±20%                     |                                    |                        | C0603JB1E221M(030BA)   |                        |
| 330pF       | 0402             | 0.20±0.02          | ±10%                     | C1005JB1H221K(050BA)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005JB1H221M(050BA)               |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±10%                     |                                    |                        | C0603JB1E331K(030BA)   |                        |
|             |                  |                    | ±20%                     |                                    |                        | C0603JB1E331M(030BA)   |                        |
| 470pF       | 0402             | 0.20±0.02          | ±10%                     |                                    |                        |                        | C0402JB1C471K(020BA)   |
|             |                  |                    | ±20%                     |                                    |                        |                        | C0402JB1C471M(020BA)   |
|             | 0603             | 0.30±0.03          | ±10%                     |                                    |                        | C0603JB1E471K(030BA)   |                        |
|             |                  |                    | ±20%                     |                                    |                        | C0603JB1E471M(030BA)   |                        |
| 680pF       | 0402             | 0.20±0.02          | ±10%                     | C1005JB1H471K(050BA)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005JB1H471M(050BA)               |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±10%                     |                                    |                        | C0603JB1E681K(030BA)   |                        |
|             |                  |                    | ±20%                     |                                    |                        | C0603JB1E681M(030BA)   |                        |
| 1nF         | 0402             | 0.20±0.02          | ±10%                     | C1005JB1H681K(050BA)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005JB1H681M(050BA)               |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±10%                     |                                    |                        | C0603JB1E102K(030BA)   |                        |
|             |                  |                    | ±20%                     |                                    |                        | C0603JB1E102M(030BA)   |                        |
| 1.5nF       | 0402             | 0.20±0.02          | ±10%                     | C1005JB1H102K(050BA)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005JB1H102M(050BA)               |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±10%                     |                                    |                        | C0603JB1E152K(030BA)   |                        |
|             |                  |                    | ±20%                     |                                    |                        | C0603JB1E152M(030BA)   |                        |
| 2.2nF       | 0402             | 0.20±0.02          | ±10%                     | C1005JB1H152K(050BA)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005JB1H152M(050BA)               |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±10%                     |                                    |                        | C0603JB1E222K(030BA)   |                        |
|             |                  |                    | ±20%                     |                                    |                        | C0603JB1E222M(030BA)   |                        |
| 3.3nF       | 0402             | 0.20±0.02          | ±10%                     | C1005JB1H222K(050BA)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005JB1H222M(050BA)               |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±10%                     |                                    |                        | C0603JB1E332K(030BA)   |                        |
|             |                  |                    | ±20%                     |                                    |                        | C0603JB1E332M(030BA)   |                        |
| 4.7nF       | 0402             | 0.20±0.02          | ±10%                     | C1005JB1H332K(050BA)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005JB1H332M(050BA)               |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±10%                     |                                    |                        | C0603JB1E472K(030BA)   |                        |
|             |                  |                    | ±20%                     |                                    |                        | C0603JB1E472M(030BA)   |                        |
| 6.8nF       | 0402             | 0.20±0.02          | ±10%                     | C1005JB1H472K(050BA)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005JB1H472M(050BA)               |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±10%                     | C1005JB1H682K(050BA)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005JB1H682M(050BA)               |                        |                        |                        |
| 10nF        | 0402             | 0.20±0.02          | ±10%                     | C1005JB1H682K(050BA)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005JB1H682M(050BA)               |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±10%                     | C1005JB1H103K(050BB)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005JB1H103M(050BB)               |                        |                        |                        |
| 15nF        | 0402             | 0.20±0.02          | ±10%                     | C1608JB1H103K(080AA)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C1608JB1H103M(080AA)               |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±10%                     | C1005JB1H153K(050BB)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005JB1H153M(050BB)               |                        |                        |                        |
| 22nF        | 0402             | 0.20±0.02          | ±10%                     | C1608JB1H153K(080AA)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C1608JB1H153M(080AA)               |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±10%                     |                                    |                        |                        |                        |
|             |                  |                    | ±20%                     |                                    |                        |                        |                        |

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**CAPACITANCE RANGES: CLASS 2**
**TEMPERATURE CHARACTERISTICS: JB(±10%)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 50V | Rated voltage Edc: 35V | Rated voltage Edc: 25V | Rated voltage Edc: 16V |
|-------------|------------------|--------------------|--------------------------|------------------------------------|------------------------|------------------------|------------------------|
| 22nF        | 1005             | 0.50±0.05          | ±10%                     | C1005JB1H223K(050BB)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005JB1H223M(050BB)               |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±10%                     | C1608JB1H223K(080AA)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C1608JB1H223M(080AA)               |                        |                        |                        |
| 33nF        | 1005             | 0.50±0.05          | ±10%                     | C1005JB1H333K(050BB)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005JB1H333M(050BB)               |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±10%                     | C1608JB1H333K(080AA)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C1608JB1H333M(080AA)               |                        |                        |                        |
| 47nF        | 1005             | 0.50±0.05          | ±10%                     | C1005JB1H473K(050BB)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C1005JB1H473M(050BB)               |                        |                        |                        |
|             | 1608             | 0.80±0.10          | ±10%                     | C1608JB1H473K(080AA)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C1608JB1H473M(080AA)               |                        |                        |                        |
| 68nF        | 1005             | 0.50±0.05          | ±10%                     | C1005JB1H683K(050BB)               | C1005JB1V683K(050BB)   | C1005JB1E683K(050BB)   |                        |
|             |                  |                    | ±20%                     | C1005JB1H683M(050BB)               | C1005JB1V683M(050BB)   | C1005JB1E683M(050BB)   |                        |
|             | 1608             | 0.80±0.10          | ±10%                     | C1608JB1H683K(080AA)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C1608JB1H683M(080AA)               |                        |                        |                        |
| 100nF       | 0603             | 0.30±0.03          | ±10%                     |                                    |                        |                        | C0603JB1C104K(030BC)   |
|             |                  |                    | ±20%                     |                                    |                        |                        | C0603JB1C104M(030BC)   |
|             | 1005             | 0.50±0.05          | ±10%                     | C1005JB1H104K(050BB)               | C1005JB1V104K(050BB)   | C1005JB1E104K(050BB)   | C1005JB1C104K(050BA)   |
|             |                  |                    | ±20%                     | C1005JB1H104M(050BB)               | C1005JB1V104M(050BB)   | C1005JB1E104M(050BB)   | C1005JB1C104M(050BA)   |
|             | 1608             | 0.80±0.10          | ±10%                     | C1608JB1H104K(080AA)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C1608JB1H104M(080AA)               |                        |                        |                        |
|             | 2012             | 0.85±0.10          | ±10%                     | C2012JB1H104K(085AA)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C2012JB1H104M(085AA)               |                        |                        |                        |
| 150nF       | 1005             | 0.50±0.05          | ±10%                     |                                    |                        | C1005JB1E154K(050BC)   | C1005JB1C154K(050BB)   |
|             |                  |                    | ±20%                     |                                    |                        | C1005JB1E154M(050BC)   | C1005JB1C154M(050BB)   |
|             | 1608             | 0.80±0.10          | ±10%                     | C1608JB1H154K(080AB)               | C1608JB1V154K(080AB)   | C1608JB1E154K(080AA)   |                        |
|             |                  |                    | ±20%                     | C1608JB1H154M(080AB)               | C1608JB1V154M(080AB)   | C1608JB1E154M(080AA)   |                        |
|             | 2012             | 0.85±0.10          | ±10%                     | C2012JB1H154K(085AA)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C2012JB1H154M(085AA)               |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±10%                     |                                    |                        |                        | C0603JB1C224K(030BC)   |
|             |                  |                    | ±20%                     |                                    |                        |                        | C0603JB1C224M(030BC)   |
| 220nF       | 1005             | 0.50±0.05          | ±10%                     |                                    |                        | C1005JB1E224K(050BC)   | C1005JB1C224K(050BB)   |
|             |                  |                    | ±20%                     |                                    |                        | C1005JB1E224M(050BC)   | C1005JB1C224M(050BB)   |
|             | 1608             | 0.80±0.10          | ±10%                     | C1608JB1H224K(080AB)               | C1608JB1V224K(080AB)   | C1608JB1E224K(080AA)   |                        |
|             |                  |                    | ±20%                     | C1608JB1H224M(080AB)               | C1608JB1V224M(080AB)   | C1608JB1E224M(080AA)   |                        |
|             | 2012             | 1.25±0.10          | ±10%                     | C2012JB1H224K(125AA)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C2012JB1H224M(125AA)               |                        |                        |                        |
|             | 0603             | 0.30±0.03          | ±10%                     |                                    |                        |                        | C0603JB1C224K(030BC)   |
|             |                  |                    | ±20%                     |                                    |                        |                        | C0603JB1C224M(030BC)   |
| 330nF       | 1005             | 0.50±0.05          | ±10%                     |                                    |                        |                        | C1005JB1C334K(050BC)   |
|             |                  |                    | ±20%                     |                                    |                        |                        | C1005JB1C334M(050BC)   |
|             | 1608             | 0.80±0.10          | ±10%                     | C1608JB1H334K(080AB)               | C1608JB1V334K(080AB)   | C1608JB1E334K(080AB)   |                        |
|             |                  |                    | ±20%                     | C1608JB1H334M(080AB)               | C1608JB1V334M(080AB)   | C1608JB1E334M(080AB)   |                        |
|             | 2012             | 1.25±0.20          | ±10%                     | C2012JB1H334K(125AA)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C2012JB1H334M(125AA)               |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±10%                     |                                    | C1005JB1V474K(050BC)   | C1005JB1E474K(050BB)   |                        |
|             |                  |                    | ±20%                     |                                    | C1005JB1V474M(050BC)   | C1005JB1E474M(050BB)   |                        |
| 470nF       | 1608             | 0.80±0.10          | ±10%                     | C1608JB1H474K(080AB)               | C1608JB1V474K(080AB)   | C1608JB1E474K(080AB)   | C1608JB1C474K(080AA)   |
|             |                  |                    | ±20%                     | C1608JB1H474M(080AB)               | C1608JB1V474M(080AB)   | C1608JB1E474M(080AB)   | C1608JB1C474M(080AA)   |
|             | 2012             | 1.25±0.10          | ±10%                     | C2012JB1H474K(125AB)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C2012JB1H474M(125AB)               |                        |                        |                        |
|             | 1005             | 0.50±0.05          | ±10%                     |                                    |                        |                        | C1005JB1C684K(050BC)   |
|             |                  |                    | ±20%                     |                                    |                        |                        | C1005JB1C684M(050BC)   |
|             | 1608             | 0.80±0.10          | ±10%                     | C1608JB1H684K(080AB)               | C1608JB1V684K(080AB)   | C1608JB1E684K(080AB)   | C1608JB1C684K(080AA)   |
|             |                  |                    | ±20%                     | C1608JB1H684M(080AB)               | C1608JB1V684M(080AB)   | C1608JB1E684M(080AB)   | C1608JB1C684M(080AA)   |
| 680nF       | 2012             | 1.25±0.10          | ±10%                     | C2012JB1H684K(125AB)               |                        |                        |                        |
|             |                  |                    | ±20%                     | C2012JB1H684M(125AB)               |                        |                        |                        |

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**CAPACITANCE RANGES: CLASS 2**
**TEMPERATURE CHARACTERISTICS: JB(±10%)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 50V           | Rated voltage Edc: 35V                       | Rated voltage Edc: 25V                       | Rated voltage Edc: 16V                       |
|-------------|------------------|--------------------|--------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| 1μF         | 1005             | 0.50±0.05          | ±10%<br>±20%             |                                              |                                              |                                              | C1005JB1C105K(050BC)<br>C1005JB1C105M(050BC) |
|             | 1608             | 0.80±0.10          | ±10%<br>±20%             | C1608JB1H105K(080AB)<br>C1608JB1H105M(080AB) | C1608JB1V105K(080AB)<br>C1608JB1V105M(080AB) | C1608JB1E105K(080AB)<br>C1608JB1E105M(080AB) | C1608JB1C105K(080AA)<br>C1608JB1C105M(080AA) |
|             |                  |                    | ±10%<br>±20%             | C2012JB1H105K(085AB)<br>C2012JB1H105M(085AB) | C2012JB1V105K(085AB)<br>C2012JB1V105M(085AB) | C2012JB1E105K(085AC)<br>C2012JB1E105M(085AC) | C2012JB1C105K(085AC)<br>C2012JB1C105M(085AC) |
|             | 2012             | 0.85±0.10          | ±10%<br>±20%             | C2012JB1H105K(125AB)<br>C2012JB1H105M(125AB) |                                              | C2012JB1E105K(125AA)<br>C2012JB1E105M(125AA) |                                              |
|             |                  | 1.25±0.10          | ±10%<br>±20%             |                                              |                                              |                                              |                                              |
|             | 3216             | 1.60±0.10          | ±10%<br>±20%             | C3216JB1H105K(160AA)<br>C3216JB1H105M(160AA) |                                              |                                              |                                              |
|             |                  |                    |                          |                                              |                                              |                                              |                                              |
|             | 1608             | 0.80±0.10          | ±10%<br>±20%             |                                              |                                              | C1608JB1E155K(080AC)<br>C1608JB1E155M(080AC) | C1608JB1C155K(080AB)<br>C1608JB1C155M(080AB) |
|             |                  |                    | ±10%<br>±20%             |                                              |                                              | C2012JB1E155K(085AC)<br>C2012JB1E155M(085AC) |                                              |
|             | 2012             | 0.85±0.10          | ±10%<br>±20%             | C2012JB1H155K(125AB)<br>C2012JB1H155M(125AB) | C2012JB1V155K(125AB)<br>C2012JB1V155M(125AB) | C2012JB1E155K(125AB)<br>C2012JB1E155M(125AB) | C2012JB1C155K(125AA)<br>C2012JB1C155M(125AA) |
| 1.5μF       | 3216             | 1.60±0.10          | ±10%<br>±20%             | C3216JB1H155K(160AB)<br>C3216JB1H155M(160AB) |                                              |                                              |                                              |
|             |                  |                    |                          |                                              |                                              |                                              |                                              |
|             | 1608             | 0.80±0.10          | ±10%<br>±20%             |                                              | C1608JB1V225K(080AC)<br>C1608JB1V225M(080AC) | C1608JB1E225K(080AC)<br>C1608JB1E225M(080AC) | C1608JB1C225K(080AB)<br>C1608JB1C225M(080AB) |
|             |                  |                    | ±10%<br>±20%             | C2012JB1H225K(085AB)<br>C2012JB1H225M(085AB) | C2012JB1V225K(085AB)<br>C2012JB1V225M(085AB) |                                              |                                              |
|             | 2012             | 0.85±0.10          | ±10%<br>±20%             |                                              |                                              |                                              |                                              |
|             |                  | 1.25±0.10          | ±10%<br>±20%             |                                              |                                              | C2012JB1E225K(125AC)<br>C2012JB1E225M(125AC) | C2012JB1C225K(125AA)<br>C2012JB1C225M(125AA) |
|             |                  | 1.25±0.20          | ±10%<br>±20%             | C2012JB1H225K(125AB)<br>C2012JB1H225M(125AB) | C2012JB1V225K(125AB)<br>C2012JB1V225M(125AB) |                                              |                                              |
|             |                  |                    | ±10%<br>±20%             | C3216JB1H225K(160AB)<br>C3216JB1H225M(160AB) |                                              |                                              |                                              |
|             | 3216             | 1.60±0.20          | ±10%<br>±20%             |                                              |                                              |                                              |                                              |
|             |                  |                    |                          |                                              |                                              |                                              |                                              |
| 2.2μF       | 1608             | 0.80±0.10          | ±10%<br>±20%             |                                              |                                              |                                              | C1608JB1C335K(080AC)<br>C1608JB1C335M(080AC) |
|             |                  |                    | ±10%<br>±20%             |                                              |                                              |                                              | C2012JB1C335K(060AC)<br>C2012JB1C335M(060AC) |
|             | 2012             | 0.85±0.10          | ±10%<br>±20%             |                                              |                                              | C2012JB1E335K(085AC)<br>C2012JB1E335M(085AC) | C2012JB1C335K(085AB)<br>C2012JB1C335M(085AB) |
|             |                  | 1.25±0.10          | ±10%<br>±20%             |                                              |                                              | C2012JB1E335K(125AB)<br>C2012JB1E335M(125AB) | C2012JB1C335K(125AB)<br>C2012JB1C335M(125AB) |
|             |                  | 1.25±0.20          | ±10%<br>±20%             | C2012JB1H335K(125AB)<br>C2012JB1H335M(125AB) | C2012JB1V335K(125AB)<br>C2012JB1V335M(125AB) |                                              |                                              |
|             |                  |                    | ±10%<br>±20%             | C3216JB1H335K(160AB)<br>C3216JB1H335M(160AB) | C3216JB1V335K(160AB)<br>C3216JB1V335M(160AB) |                                              |                                              |
|             | 3216             | 1.60±0.10          | ±10%<br>±20%             |                                              |                                              |                                              |                                              |
|             |                  |                    |                          |                                              |                                              |                                              |                                              |
|             | 1608             | 0.80±0.10          | ±10%<br>±20%             |                                              |                                              |                                              | C1608JB1C475K(080AC)<br>C1608JB1C475M(080AC) |
|             |                  |                    | ±10%<br>±20%             |                                              |                                              |                                              | C2012JB1C475K(060AC)<br>C2012JB1C475M(060AC) |
| 3.3μF       | 2012             | 0.85±0.10          | ±10%<br>±20%             |                                              |                                              | C2012JB1E475K(085AC)<br>C2012JB1E475M(085AC) | C2012JB1C475K(085AB)<br>C2012JB1C475M(085AB) |
|             |                  | 1.25±0.10          | ±10%<br>±20%             |                                              |                                              | C2012JB1E475K(125AB)<br>C2012JB1E475M(125AB) | C2012JB1C475K(125AB)<br>C2012JB1C475M(125AB) |
|             |                  | 1.25±0.20          | ±10%<br>±20%             | C2012JB1H475K(125AB)<br>C2012JB1H475M(125AB) | C2012JB1V475K(125AB)<br>C2012JB1V475M(125AB) |                                              |                                              |
|             |                  |                    | ±10%<br>±20%             | C3216JB1H475K(085AB)<br>C3216JB1H475M(085AB) | C3216JB1V475K(085AB)<br>C3216JB1V475M(085AB) |                                              |                                              |
|             | 3216             | 1.60±0.10          | ±10%<br>±20%             |                                              |                                              | C3216JB1E475K(115AB)<br>C3216JB1E475M(115AB) |                                              |
|             |                  |                    | ±10%<br>±20%             |                                              |                                              | C3216JB1E475K(160AA)<br>C3216JB1E475M(160AA) |                                              |
|             |                  | 1.60±0.20          | ±10%<br>±20%             | C3216JB1H475K(160AB)<br>C3216JB1H475M(160AB) | C3216JB1V475K(160AB)<br>C3216JB1V475M(160AB) |                                              |                                              |
|             |                  |                    | ±10%<br>±20%             | C3225JB1H475K(250AB)<br>C3225JB1H475M(250AB) |                                              |                                              |                                              |
|             | 3225             | 2.50±0.20          | ±10%<br>±20%             |                                              |                                              |                                              |                                              |
|             |                  |                    |                          |                                              |                                              |                                              |                                              |
| 4.7μF       | 2012             | 0.85±0.10          | ±10%<br>±20%             |                                              |                                              |                                              | C2012JB1C685K(085AC)<br>C2012JB1C685M(085AC) |
|             |                  | 1.25±0.10          | ±10%<br>±20%             |                                              |                                              | C2012JB1E685K(125AC)<br>C2012JB1E685M(125AC) | C2012JB1C685K(125AB)<br>C2012JB1C685M(125AB) |
|             | 3216             | 1.60±0.10          | ±10%<br>±20%             | C3216JB1H685K(160AB)<br>C3216JB1H685M(160AB) | C3216JB1V685K(160AB)<br>C3216JB1V685M(160AB) | C3216JB1E685K(160AB)<br>C3216JB1E685M(160AB) |                                              |
|             |                  |                    | ±10%<br>±20%             | C4532JB1H685K(250KA)<br>C4532JB1H685M(250KA) |                                              |                                              |                                              |
|             | 4532             | 2.50±0.30          | ±10%<br>±20%             |                                              |                                              |                                              |                                              |
|             |                  |                    |                          |                                              |                                              |                                              |                                              |
|             | 1608             | 0.80±0.10          | ±10%<br>±20%             |                                              |                                              |                                              |                                              |
|             |                  |                    |                          |                                              |                                              |                                              |                                              |
|             | 2012             | 0.85±0.10          | ±10%<br>±20%             |                                              |                                              |                                              |                                              |
|             |                  | 1.25±0.10          | ±10%<br>±20%             |                                              |                                              |                                              |                                              |
|             | 3216             | 1.60±0.10          | ±10%<br>±20%             |                                              |                                              |                                              |                                              |
|             |                  |                    |                          |                                              |                                              |                                              |                                              |
| 6.8μF       | 2012             | 0.85±0.10          | ±10%<br>±20%             |                                              |                                              |                                              |                                              |
|             |                  | 1.25±0.10          | ±10%<br>±20%             |                                              |                                              |                                              |                                              |
|             | 3216             | 1.60±0.10          | ±10%<br>±20%             |                                              |                                              |                                              |                                              |
|             |                  |                    |                          |                                              |                                              |                                              |                                              |
|             | 4532             | 2.50±0.30          | ±10%<br>±20%             |                                              |                                              |                                              |                                              |
|             |                  |                    |                          |                                              |                                              |                                              |                                              |
|             | 1608             | 0.80±0.10          | ±10%<br>±20%             |                                              |                                              |                                              |                                              |
|             |                  |                    |                          |                                              |                                              |                                              |                                              |
|             | 2012             | 0.85±0.10          | ±10%<br>±20%             |                                              |                                              |                                              |                                              |
|             |                  | 1.25±0.10          | ±10%<br>±20%             |                                              |                                              |                                              |                                              |
|             | 3216             | 1.60±0.10          | ±10%<br>±20%             |                                              |                                              |                                              |                                              |
|             |                  |                    |                          |                                              |                                              |                                              |                                              |

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**CAPACITANCE RANGES: CLASS 2**
**TEMPERATURE CHARACTERISTICS: JB(±10%)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 50V | Rated voltage Edc: 35V | Rated voltage Edc: 25V | Rated voltage Edc: 16V |
|-------------|------------------|--------------------|--------------------------|------------------------------------|------------------------|------------------------|------------------------|
| 10µF        | 2012             | 0.85±0.10          | ±10%                     |                                    |                        |                        | C2012JB1C106K(085AC)   |
|             |                  |                    | ±20%                     |                                    |                        |                        | C2012JB1C106M(085AC)   |
|             |                  | 1.25±0.10          | ±10%                     |                                    |                        | C2012JB1E106K(125AC)   | C2012JB1C106K(125AB)   |
|             |                  |                    | ±20%                     |                                    |                        | C2012JB1E106M(125AC)   | C2012JB1C106M(125AB)   |
|             | 3216             | 0.85±0.10          | ±10%                     |                                    |                        | C3216JB1E106K(085AC)   | C3216JB1C106K(085AB)   |
|             |                  |                    | ±20%                     |                                    |                        | C3216JB1E106M(085AC)   | C3216JB1C106M(085AB)   |
|             |                  | 1.60±0.10          | ±10%                     |                                    |                        |                        | C3216JB1C106K(160AC)   |
|             |                  |                    | ±20%                     |                                    |                        |                        | C3216JB1C106M(160AA)   |
|             |                  | 1.60±0.20          | ±10%                     | C3216JB1H106K(160AB)               | C3216JB1V106K(160AB)   | C3216JB1E106K(160AB)   |                        |
|             |                  |                    | ±20%                     | C3216JB1H106M(160AB)               | C3216JB1V106M(160AB)   | C3216JB1E106M(160AB)   |                        |
|             |                  | 3225               | ±10%                     |                                    |                        | C3225JB1E106K(250AA)   |                        |
|             |                  |                    | ±20%                     |                                    |                        | C3225JB1E106M(250AA)   |                        |
|             | 4532             | 2.50±0.30          | ±10%                     |                                    |                        | C4532JB1E106K(250KA)   |                        |
|             |                  |                    | ±20%                     |                                    |                        | C4532JB1E106M(250KA)   |                        |
| 15µF        | 2012             | 1.25±0.10          | ±20%                     |                                    |                        |                        | C2012JB1C156M(125AC)   |
|             | 3216             | 1.60±0.20          | ±20%                     |                                    |                        | C3216JB1E156M(160AC)   | C3216JB1C156M(160AB)   |
|             | 3225             | 2.50±0.20          | ±20%                     |                                    |                        |                        | C3225JB1C156M(250AA)   |
|             | 4532             | 2.50±0.30          | ±20%                     |                                    |                        | C4532JB1E156M(250KA)   |                        |
| 22µF        | 2012             | 1.25±0.10          | ±20%                     |                                    |                        |                        | C2012JB1C226M(125AC)   |
|             | 3216             | 1.60±0.20          | ±20%                     |                                    |                        | C3216JB1E226M(160AC)   | C3216JB1C226M(160AB)   |
|             | 3225             | 2.50±0.30          | ±20%                     |                                    |                        |                        | C3225JB1C226M(250AA)   |
|             | 4532             | 2.00±0.20          | ±20%                     |                                    |                        |                        | C4532JB1C226M(200KA)   |
|             |                  | 2.50±0.30          | ±20%                     |                                    |                        | C4532JB1E226M(250KA)   |                        |
|             | 5750             | 2.50±0.30          | ±20%                     |                                    |                        | C5750JB1E226M(250KA)   |                        |
| 33µF        | 3216             | 1.60±0.20          | ±20%                     |                                    |                        |                        | C3216JB1C336M(160AB)   |
|             | 4532             | 2.50±0.30          | ±20%                     |                                    |                        |                        | C4532JB1C336M(250KA)   |
| 47µF        | 3216             | 1.60±0.20          | ±20%                     |                                    |                        |                        | C3216JB1C476M(160AB)   |

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**CAPACITANCE RANGES: CLASS 2**
**TEMPERATURE CHARACTERISTICS: JB(±10%)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 10V           | Rated voltage Edc: 6.3V                      | Rated voltage Edc: 4V                        |
|-------------|------------------|--------------------|--------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| 1nF         | 0402             | 0.20±0.02          | ±10%<br>±20%             | C0402JB1A102K(020BA)<br>C0402JB1A102M(020BA) |                                              |                                              |
| 1.5nF       | 0402             | 0.20±0.02          | ±10%<br>±20%             | C0402JB1A152K(020BA)<br>C0402JB1A152M(020BA) |                                              |                                              |
| 2.2nF       | 0402             | 0.20±0.02          | ±10%<br>±20%             | C0402JB1A222K(020BA)<br>C0402JB1A222M(020BA) |                                              |                                              |
| 3.3nF       | 0402             | 0.20±0.02          | ±10%<br>±20%             |                                              | C0402JB0J332K(020BA)<br>C0402JB0J332M(020BA) |                                              |
| 4.7nF       | 0402             | 0.20±0.02          | ±10%<br>±20%             |                                              | C0402JB0J472K(020BB)<br>C0402JB0J472M(020BB) |                                              |
| 6.8nF       | 0402             | 0.20±0.02          | ±10%<br>±20%             |                                              | C0402JB0J682K(020BB)<br>C0402JB0J682M(020BB) |                                              |
|             | 0603             | 0.30±0.03          | ±10%<br>±20%             | C0603JB1A682K(030BB)<br>C0603JB1A682M(030BB) |                                              |                                              |
| 10nF        | 0402             | 0.20±0.02          | ±10%<br>±20%             |                                              | C0402JB0J103K(020BB)<br>C0402JB0J103M(020BB) |                                              |
|             | 0603             | 0.30±0.03          | ±10%<br>±20%             | C0603JB1A103K(030BB)<br>C0603JB1A103M(030BB) |                                              |                                              |
| 15nF        | 0603             | 0.30±0.03          | ±10%<br>±20%             | C0603JB1A153K(030BB)<br>C0603JB1A153M(030BB) |                                              |                                              |
| 22nF        | 0603             | 0.30±0.03          | ±10%<br>±20%             | C0603JB1A223K(030BB)<br>C0603JB1A223M(030BB) |                                              |                                              |
| 33nF        | 0603             | 0.30±0.03          | ±10%<br>±20%             | C0603JB1A333K(030BB)<br>C0603JB1A333M(030BB) |                                              |                                              |
| 47nF        | 0603             | 0.30±0.03          | ±10%<br>±20%             | C0603JB1A473K(030BB)<br>C0603JB1A473M(030BB) |                                              |                                              |
| 68nF        | 0603             | 0.30±0.03          | ±10%<br>±20%             | C0603JB1A683K(030BB)<br>C0603JB1A683M(030BB) |                                              |                                              |
| 100nF       | 0603             | 0.30±0.03          | ±10%<br>±20%             | C0603JB1A104K(030BB)<br>C0603JB1A104M(030BB) |                                              |                                              |
| 150nF       | 0603             | 0.30±0.03          | ±10%<br>±20%             | C0603JB1A154K(030BB)<br>C0603JB1A154M(030BB) |                                              |                                              |
| 220nF       | 0603             | 0.30±0.03          | ±10%<br>±20%             | C0603JB1A224K(030BB)<br>C0603JB1A224M(030BB) |                                              |                                              |
| 330nF       | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005JB1A334K(050BC)<br>C1005JB1A334M(050BC) |                                              |                                              |
| 470nF       | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005JB1A474K(050BC)<br>C1005JB1A474M(050BC) |                                              |                                              |
| 680nF       | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005JB1A684K(050BB)<br>C1005JB1A684M(050BB) |                                              |                                              |
| 1μF         | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005JB1A105K(050BB)<br>C1005JB1A105M(050BB) | C1005JB0J105K(050BC)<br>C1005JB0J105M(050BC) |                                              |
| 1.5μF       | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005JB1A155K(050BC)<br>C1005JB1A155M(050BC) | C1005JB0J155K(050BB)<br>C1005JB0J155M(050BB) |                                              |
| 2.2μF       | 1005             | 0.50±0.05          | ±10%<br>±20%             | C1005JB1A225K(050BC)<br>C1005JB1A225M(050BC) | C1005JB0J225K(050BC)<br>C1005JB0J225M(050BB) | C1005JB0G225K(050BB)<br>C1005JB0G225M(050BB) |
|             | 1608             | 0.80±0.10          | ±10%<br>±20%             | C1608JB1A225K(080AC)<br>C1608JB1A225M(080AC) | C1608JB0J225K(080AB)<br>C1608JB0J225M(080AB) |                                              |

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**CAPACITANCE RANGES: CLASS 2**
**TEMPERATURE CHARACTERISTICS: JB(±10%)**

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 10V | Rated voltage Edc: 6.3V | Rated voltage Edc: 4V |
|-------------|------------------|--------------------|--------------------------|------------------------------------|-------------------------|-----------------------|
| 3.3μF       | 1005             | 0.50±0.10          | ±20%                     |                                    | C1005JB0J335M(050BC)    | C1005JB0G335M(050BB)  |
|             | 1608             | 0.80±0.15/-0.10    | ±10%                     |                                    | C1608JB0J335K(080AB)    |                       |
|             |                  |                    | ±20%                     |                                    | C1608JB0J335M(080AB)    |                       |
|             |                  | 0.80±0.10          | ±10%                     | C1608JB1A335K(080AB)               |                         |                       |
|             |                  |                    | ±20%                     | C1608JB1A335M(080AB)               |                         |                       |
|             | 1005             | 0.50±0.15/-0.10    | ±20%                     |                                    | C1005JB0J475M(050BC)    | C1005JB0G475M(050BB)  |
| 4.7μF       | 1608             | 0.80±0.10          | ±10%                     | C1608JB1A475K(080AB)               | C1608JB0J475K(080AB)    |                       |
|             |                  |                    | ±20%                     | C1608JB1A475M(080AB)               | C1608JB0J475M(080AB)    |                       |
|             | 2012             | 0.60±0.10          | ±10%                     | C2012JB1A475K(060AB)               |                         |                       |
|             |                  |                    | ±20%                     | C2012JB1A475M(060AB)               |                         |                       |
|             |                  | 1.25±0.10          | ±10%                     | C2012JB1A475K(125AA)               |                         |                       |
|             |                  |                    | ±20%                     | C2012JB1A475M(125AA)               |                         |                       |
| 6.8μF       | 1608             | 0.80±0.10          | ±10%                     | C1608JB1A685K(080AC)               | C1608JB0J685K(080AB)    |                       |
|             |                  |                    | ±20%                     | C1608JB1A685M(080AC)               | C1608JB0J685M(080AB)    |                       |
|             | 2012             | 0.60±0.10          | ±10%                     | C2012JB1A685K(060AC)               |                         |                       |
|             |                  |                    | ±20%                     | C2012JB1A685M(060AC)               |                         |                       |
|             |                  | 1.25±0.10          | ±10%                     | C2012JB1A685K(125AC)               |                         |                       |
|             |                  |                    | ±20%                     | C2012JB1A685M(125AC)               |                         |                       |
| 10μF        | 1608             | 0.80±0.10          | ±10%                     | C1608JB1A106K(080AC)               | C1608JB0J106K(080AB)    |                       |
|             |                  |                    | ±20%                     | C1608JB1A106M(080AC)               | C1608JB0J106M(080AB)    |                       |
|             | 2012             | 0.85±0.10          | ±10%                     | C2012JB1A106K(085AB)               |                         |                       |
|             |                  |                    | ±20%                     | C2012JB1A106M(085AB)               |                         |                       |
|             |                  | 1.25±0.20          | ±10%                     | C2012JB1A106K(125AC)               |                         |                       |
|             |                  |                    | ±20%                     | C2012JB1A106M(125AC)               |                         |                       |
| 15μF        | 2012             | 0.85±0.10          | ±20%                     | C2012JB1A156M(085AC)               |                         |                       |
|             |                  | 1.25±0.10          | ±20%                     | C2012JB1A156M(125AB)               |                         |                       |
| 22μF        | 2012             | 0.85±0.10          | ±20%                     | C2012JB1A226M(085AC)               | C2012JB0J226M(085AB)    |                       |
|             |                  | 1.25±0.10          | ±20%                     | C2012JB1A226M(125AB)               | C2012JB0J226M(125AB)    |                       |
|             | 3216             | 1.60±0.20          | ±20%                     | C3216JB1A226M(160AC)               |                         |                       |
| 33μF        | 2012             | 1.25±0.20          | ±20%                     |                                    | C2012JB0J336M(125AC)    |                       |
|             | 3216             | 1.60±0.20          | ±20%                     | C3216JB1A336M(160AB)               |                         |                       |
| 47μF        | 2012             | 1.25±0.20          | ±20%                     |                                    | C2012JB0J476M(125AC)    |                       |
|             | 3216             | 1.60±0.20          | ±20%                     | C3216JB1A476M(160AB)               | C3216JB0J476M(160AC)    |                       |
| 68μF        | 3216             | 1.60±0.20          | ±20%                     | C3216JB1A686M(160AC)               | C3216JB0J686M(160AB)    |                       |
|             | 3225             | 2.00±0.20          | ±20%                     |                                    | C3225JB0J686M(200AC)    |                       |
| 100μF       | 3216             | 1.60±0.30/-0.10    | ±20%                     | C3216JB1A107M(160AC)               | C3216JB0J107M(160AB)    |                       |
|             | 3225             | 2.50±0.30          | ±20%                     |                                    | C3225JB0J107M(250AC)    |                       |

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## CAPACITANCE RANGES: CLASS 2

### TEMPERATURE CHARACTERISTICS: Y5V(+22, -82%)

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 50V | Rated voltage Edc: 35V | Rated voltage Edc: 25V | Rated voltage Edc: 16V |
|-------------|------------------|--------------------|--------------------------|------------------------------------|------------------------|------------------------|------------------------|
| 100nF       | 1005             | 0.50±0.05          | +80%, -20%               |                                    |                        | C1005Y5V1E104Z(050BA)  |                        |
|             | 1608             | 0.80±0.10          | +80%, -20%               | C1608Y5V1H104Z(080AA)              |                        |                        |                        |
| 220nF       | 1005             | 0.50±0.05          | +80%, -20%               |                                    |                        | C1005Y5V1E224Z(050BA)  |                        |
|             | 1608             | 0.80±0.10          | +80%, -20%               | C1608Y5V1H224Z(080AA)              |                        |                        |                        |
| 470nF       | 1608             | 0.80±0.10          | +80%, -20%               | C1608Y5V1H474Z(080AA)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | +80%, -20%               |                                    |                        | C1608Y5V1E105Z(080AA)  |                        |
| 1μF         | 2012             | 0.85±0.10          | +80%, -20%               | C2012Y5V1H105Z(085AA)              |                        |                        |                        |
|             | 1608             | 0.80±0.10          | +80%, -20%               |                                    |                        |                        | C1608Y5V1C225Z(080AA)  |
| 2.2μF       | 2012             | 1.25±0.10          | +80%, -20%               | C2012Y5V1H225Z(125AA)              |                        |                        |                        |
|             | 2012             | 1.25±0.20          | +80%, -20%               |                                    |                        | C2012Y5V1E475Z(125AA)  |                        |
| 4.7μF       | 3216             | 1.60±0.10          | +80%, -20%               | C3216Y5V1H475Z(160AA)              |                        |                        |                        |
|             | 2012             | 1.25±0.20          | +80%, -20%               |                                    |                        |                        | C2012Y5V1C106Z(125AA)  |
| 10μF        | 3216             | 1.60±0.20          | +80%, -20%               |                                    |                        | C3216Y5V1E106Z(160AA)  |                        |
|             | 3225             | 1.60±0.20          | +80%, -20%               | C3225Y5V1H106Z(160AA)              |                        |                        |                        |
| 22μF        | 3216             | 1.60±0.20          | +80%, -20%               |                                    |                        |                        | C3216Y5V1C226Z(160AA)  |
|             | 3225             | 2.00±0.20          | +80%, -20%               |                                    |                        | C3225Y5V1E226Z(200AA)  |                        |
| 47μF        | 5750             | 2.00±0.20          | +80%, -20%               | C5750Y5V1H226Z(200KA)              |                        |                        |                        |
|             | 3225             | 2.30±0.20          | +80%, -20%               |                                    |                        |                        | C3225Y5V1C476Z(230AA)  |
| 100μF       | 5750             | 2.00±0.20          | +80%, -20%               |                                    |                        | C5750Y5V1E476Z(200KA)  |                        |
|             | 5750             | 2.50±0.30          | +80%, -20%               |                                    |                        |                        | C5750Y5V1C107Z(250KA)  |

### TEMPERATURE CHARACTERISTICS: Y5V(+22, -82%)

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 10V | Rated voltage Edc: 6.3V | Rated voltage Edc: 4V |
|-------------|------------------|--------------------|--------------------------|------------------------------------|-------------------------|-----------------------|
| 470nF       | 1005             | 0.50±0.05          | +80%, -20%               | C1005Y5V1A474Z(050BA)              |                         |                       |
| 1μF         | 1005             | 0.50±0.05          | +80%, -20%               |                                    | C1005Y5V0J105Z(050BA)   |                       |
| 4.7μF       | 1608             | 0.80±0.10          | +80%, -20%               |                                    | C1608Y5V0J475Z(080AA)   |                       |
| 22μF        | 2012             | 1.25±0.20          | +80%, -20%               |                                    | C2012Y5V0J226Z(125AA)   |                       |
| 47μF        | 3216             | 1.60±0.30/-0.10    | +80%, -20%               |                                    | C3216Y5V0J476Z(160AA)   |                       |
|             | 3225             | 2.00±0.20          | +80%, -20%               | C3225Y5V1A476Z(200AA)              |                         |                       |
| 100μF       | 3225             | 2.50±0.30          | +80%, -20%               |                                    | C3225Y5V0J107Z(250AA)   |                       |
|             | 4532             | 2.50±0.30          | +80%, -20%               | C4532Y5V1A107Z(250KA)              |                         |                       |

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## CAPACITANCE RANGES: CLASS 2

### TEMPERATURE CHARACTERISTICS: JF(+30, –80%)

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 50V | Rated voltage Edc: 35V | Rated voltage Edc: 25V | Rated voltage Edc: 16V |
|-------------|------------------|--------------------|--------------------------|------------------------------------|------------------------|------------------------|------------------------|
| 100nF       | 1005             | 0.50±0.05          | +80%, –20%               | C1608JF1H104Z(080AA)               |                        | C1005JF1E104Z(050BA)   |                        |
|             | 1608             | 0.80±0.10          | +80%, –20%               |                                    |                        |                        |                        |
| 220nF       | 1005             | 0.50±0.05          | +80%, –20%               | C1608JF1H224Z(080AA)               |                        | C1005JF1E224Z(050BA)   |                        |
|             | 1608             | 0.80±0.10          | +80%, –20%               |                                    |                        |                        |                        |
| 470nF       | 1608             | 0.80±0.10          | +80%, –20%               | C1608JF1H474Z(080AA)               |                        |                        |                        |
|             | 1608             | 0.80±0.10          | +80%, –20%               |                                    |                        |                        |                        |
| 1μF         | 2012             | 0.85±0.10          | +80%, –20%               | C2012JF1H105Z(085AA)               |                        | C1608JF1E105Z(080AA)   |                        |
|             | 1608             | 0.80±0.10          | +80%, –20%               |                                    |                        |                        |                        |
| 2.2μF       | 2012             | 1.25±0.10          | +80%, –20%               | C2012JF1H225Z(125AA)               |                        |                        | C1608JF1C225Z(080AA)   |
|             | 2012             | 1.25±0.20          | +80%, –20%               |                                    |                        |                        |                        |
| 4.7μF       | 3216             | 1.60±0.10          | +80%, –20%               | C3216JF1H475Z(160AA)               |                        | C2012JF1E475Z(125AA)   |                        |
|             | 2012             | 1.25±0.20          | +80%, –20%               |                                    |                        |                        |                        |
| 10μF        | 3216             | 1.60±0.20          | +80%, –20%               |                                    |                        | C3216JF1E106Z(160AA)   | C2012JF1C106Z(125AA)   |
|             | 3225             | 1.60±0.20          | +80%, –20%               |                                    |                        |                        |                        |
| 22μF        | 3216             | 1.60±0.20          | +80%, –20%               | C3225JF1H106Z(160AA)               |                        |                        | C3216JF1C226Z(160AA)   |
|             | 3225             | 2.00±0.20          | +80%, –20%               |                                    |                        |                        |                        |
| 47μF        | 5750             | 2.00±0.20          | +80%, –20%               | C5750JF1H226Z(200KA)               |                        | C3225JF1E226Z(200AA)   | C3225JF1C476Z(230AA)   |
|             | 3225             | 2.30±0.20          | +80%, –20%               |                                    |                        |                        |                        |
| 100μF       | 5750             | 2.00±0.20          | +80%, –20%               |                                    |                        | C5750JF1E476Z(200KA)   | C5750JF1C107Z(250KA)   |
|             | 5750             | 2.50±0.30          | +80%, –20%               |                                    |                        |                        |                        |

### TEMPERATURE CHARACTERISTICS: JF(+30, –80%)

| Capacitance | Dimension<br>L×W | Thickness<br>T(mm) | Capacitance<br>tolerance | Part No.<br>Rated voltage Edc: 10V | Rated voltage Edc: 6.3V | Rated voltage Edc: 4V |
|-------------|------------------|--------------------|--------------------------|------------------------------------|-------------------------|-----------------------|
| 470nF       | 1005             | 0.50±0.05          | +80%, –20%               | C1005JF1A474Z(050BA)               |                         |                       |
| 1μF         | 1005             | 0.50±0.05          | +80%, –20%               |                                    | C1005JF0J105Z(050BA)    |                       |
| 4.7μF       | 1608             | 0.80±0.10          | +80%, –20%               |                                    | C1608JF0J475Z(080AA)    |                       |
| 22μF        | 2012             | 1.25±0.20          | +80%, –20%               |                                    | C2012JF0J226Z(125AA)    |                       |
| 47μF        | 3216             | 1.60+0.30/–0.10    | +80%, –20%               |                                    | C3216JF0J476Z(160AA)    |                       |
|             | 3225             | 2.00±0.20          | +80%, –20%               | C3225JF1A476Z(200AA)               |                         |                       |
| 100μF       | 3225             | 2.50±0.30          | +80%, –20%               |                                    | C3225JF0J107Z(250AA)    |                       |
|             | 4532             | 2.50±0.30          | +80%, –20%               | C4532JF1A107Z(250KA)               |                         |                       |

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