

# OBSOLETE. Use F161 Series.

General Purpose, High Stability and AC Line EMI Suppression

Electronic Components

## MMC Series Encapsulated Winding, Size 2220 – 6560, 50 – 400 VDC

**KEMET**  
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### Overview

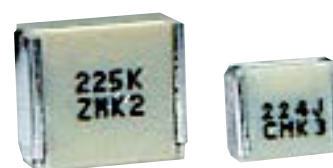
KEMET's MMC Series polyester (PET) film capacitor for surface mounting is encapsulated in self-extinguishing material meeting the requirements of UL 94 V-0.

### Applications

Typical applications include bypassing and signal coupling. MMC is a general purpose series designed for the highest reliability.

### Benefits

- Rated voltage: 50 – 400 VDC
- Rated voltage: 30 – 200 VAC
- Capacitance range: 0.001 – 15  $\mu$ F
- EIA size: 2220 – 6560
- Capacitance tolerance:  $\pm 5\%$ ,  $\pm 10\%$ , other tolerances on request
- Climatic category: 55/100/56
- RoHS Compliant and lead-free terminations
- Operating temperature range of  $-55^{\circ}\text{C}$  to  $+100^{\circ}\text{C}$



### Legacy Part Number System

| MMC                  | 5.7                                | 102                                                                                                                                                 | K                                                              | 50                            | J31                 | TR12                       |
|----------------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-------------------------------|---------------------|----------------------------|
| Series               | Chip Length (mm)                   | Capacitance Code (pF)                                                                                                                               | Capacitance Tolerance                                          | Rated Voltage (VDC)           | Size Code           | Packaging Code             |
| Metallized Polyester | 5.7<br>7.3<br>10.2<br>12.7<br>16.5 | First two digits indicate the two most significant digits of the capacitance value in picofarads. The third digit is the number of following zeros. | J = $\pm 5\%$<br>K = $\pm 10\%$<br>Other tolerances on request | 50<br>63<br>100<br>250<br>400 | See Dimension Table | See Ordering Options Table |

### New KEMET Part Number System

| F               | 160                  | P                                                        | L                   | 102                                                                                                                                                 | K                                                              | 050                                                         | V                          |
|-----------------|----------------------|----------------------------------------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------|----------------------------|
| Capacitor Class | Series               | Chip Size                                                | Size Code           | Capacitance Code (pF)                                                                                                                               | Capacitance Tolerance                                          | Rated Voltage (VDC)                                         | Packaging Code             |
| F = Film        | Metallized Polyester | P = 2220<br>S = 2824<br>W = 4036<br>Y = 5045<br>Z = 6560 | See Dimension Table | First two digits indicate the two most significant digits of the capacitance value in picofarads. The third digit is the number of following zeros. | J = $\pm 5\%$<br>K = $\pm 10\%$<br>Other tolerances on request | 050 = 50<br>063 = 63<br>100 = 100<br>250 = 250<br>400 = 400 | See Ordering Options Table |

One world. One KEMET

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## Ordering Options Table

| Chip Size (EIA) | Packaging Type                                   | KEMET Packaging Code | Legacy Packaging Code |
|-----------------|--------------------------------------------------|----------------------|-----------------------|
| 2220            | <b>Standard Packaging Options</b>                |                      |                       |
|                 | Tape & Reel (Standard Reel)                      | V                    | TR12                  |
|                 | Bulk (Bag)                                       | A                    | BULK                  |
| 2824            | <b>Standard Packaging Options</b>                |                      |                       |
|                 | Tape & Reel (Standard Reel)                      | V                    | TR12                  |
|                 | Bulk (Bag)                                       | A                    | BULK                  |
| 4036            | <b>Standard Packaging Options</b>                |                      |                       |
|                 | Tape & Reel (Standard Reel)                      | V                    | TR16                  |
|                 | Bulk (Bag)                                       | A                    | BULK                  |
|                 | <b>Other Packaging Options</b>                   |                      |                       |
|                 | Tape & Reel (Vertical Orientation Standard Reel) | Y                    | TV24                  |
| 5045            | <b>Standard Packaging Options</b>                |                      |                       |
|                 | Tape & Reel (Standard Reel)                      | V                    | TR24                  |
|                 | Bulk (Bag)                                       | A                    | BULK                  |
|                 | <b>Other Packaging Options</b>                   |                      |                       |
|                 | Tape & Reel (Vertical Orientation Standard Reel) | Y                    | TV24                  |
| 6560            | <b>Standard Packaging Options</b>                |                      |                       |
|                 | Tape & Reel (Standard Reel)                      | V                    | TR24                  |
|                 | Bulk (Bag)                                       | A                    | BULK                  |
|                 | <b>Other Packaging Options</b>                   |                      |                       |
|                 | Tape & Reel (Vertical Orientation Standard Reel) | Y                    | TV44                  |

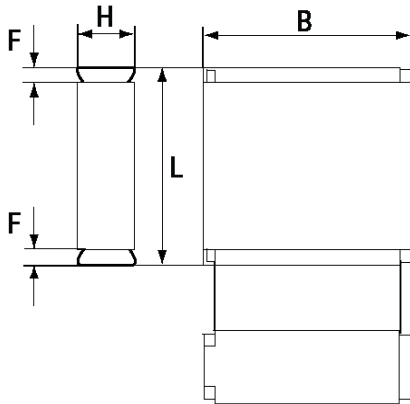
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## Dimensions – Millimeters



| KEMET<br>Size Code | Legacy<br>Size Code | Chip Size<br>(EIA) | B       |           | H       |           | L       |           | F       |           |
|--------------------|---------------------|--------------------|---------|-----------|---------|-----------|---------|-----------|---------|-----------|
|                    |                     |                    | Nominal | Tolerance | Nominal | Tolerance | Nominal | Tolerance | Nominal | Tolerance |
| PL                 | J31                 | 2220               | 5.0     | +/-0.2    | 2.5     | +/-0.2    | 5.7     | +/-0.2    | 0.5     | Nominal   |
| PP                 | J33                 | 2220               | 5.0     | +/-0.2    | 3.0     | +/-0.2    | 5.7     | +/-0.2    | 0.5     | Nominal   |
| PU                 | J35                 | 2220               | 5.0     | +/-0.2    | 4.0     | +/-0.2    | 5.7     | +/-0.2    | 0.5     | Nominal   |
| SG                 | K31                 | 2824               | 6.0     | +/-0.2    | 2.5     | +/-0.2    | 7.3     | +/-0.2    | 0.5     | Nominal   |
| SL                 | K33                 | 2824               | 6.0     | +/-0.2    | 3.0     | +/-0.2    | 7.3     | +/-0.2    | 0.5     | Nominal   |
| SP                 | K35                 | 2824               | 6.0     | +/-0.2    | 3.5     | +/-0.2    | 7.3     | +/-0.2    | 0.5     | Nominal   |
| ST                 | K37                 | 2824               | 6.0     | +/-0.2    | 4.5     | +/-0.2    | 7.3     | +/-0.2    | 0.5     | Nominal   |
| WP                 | A31                 | 4036               | 9.1     | +/-0.2    | 5.5     | +/-0.2    | 10.2    | +/-0.2    | 0.5     | Nominal   |
| YR                 | B31                 | 5045               | 11.5    | +/-0.2    | 6.5     | +/-0.2    | 12.7    | +/-0.2    | 0.5     | Nominal   |
| ZS                 | C31                 | 6560               | 15      | +/-0.2    | 7.0     | +/-0.2    | 16.5    | +/-0.2    | 0.5     | Nominal   |

## Environmental Compliance

All KEMET surface mount capacitors are RoHS Compliant.

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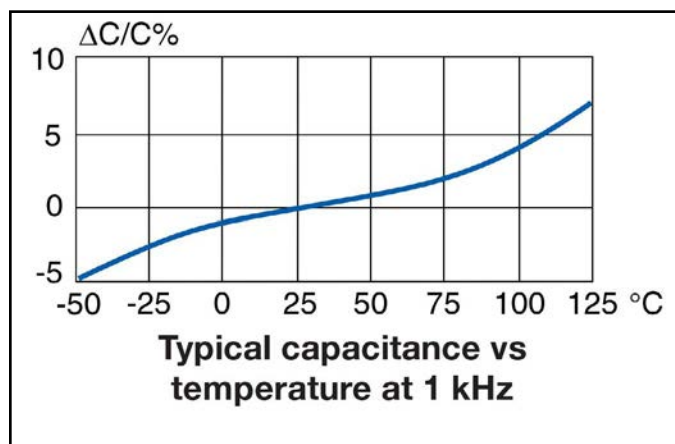
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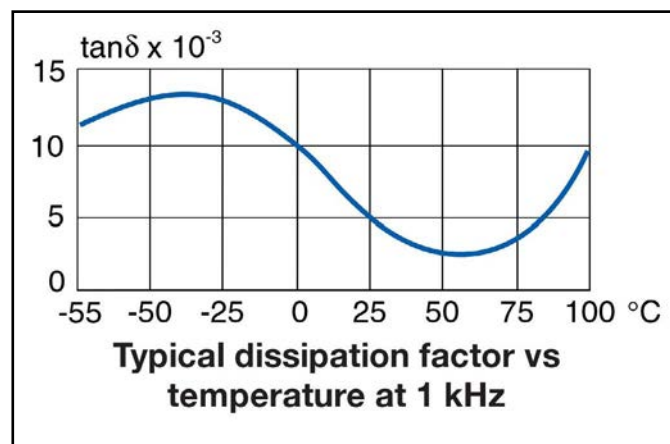
## Performance Characteristics

|                            |                                                                                                                                                                                                                            |             |                |                |              |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------|----------------|--------------|
| Rated Voltage (VDC)        | 50                                                                                                                                                                                                                         | 63          | 100            | 250            | 400          |
| Rated Voltage (VAC)        | 30                                                                                                                                                                                                                         | 40          | 63             | 160            | 200          |
| Capacitance Range (μF)     | 0.001 – 15                                                                                                                                                                                                                 | 0.001 – 4.7 | 0.001 – 3.3    | 0.001 – 1      | 0.001 – 0.47 |
| Chip Size (EIA)            | 2220 – 6560                                                                                                                                                                                                                |             |                |                |              |
| Capacitance Tolerance      | ±5%, ±10%, other tolerances on request                                                                                                                                                                                     |             |                |                |              |
| Category Temperature Range | -55°C to +100°C                                                                                                                                                                                                            |             |                |                |              |
| Rated Temperature          | +85°C                                                                                                                                                                                                                      |             |                |                |              |
| Voltage Derating           | The rated voltage is decreased with 1.25%/°C from +85°C                                                                                                                                                                    |             |                |                |              |
| Climatic Category          | 55/100/56                                                                                                                                                                                                                  |             |                |                |              |
| Test Voltage               | 1.6 x V <sub>R</sub> , 60 seconds                                                                                                                                                                                          |             |                |                |              |
| Insulation Resistance      | Measured at +20°C According to IEC 60384-2                                                                                                                                                                                 |             |                |                |              |
|                            | Minimum Values Between Terminals                                                                                                                                                                                           |             |                |                |              |
|                            |                                                                                                                                                                                                                            | C ≤ 0.33 μF |                | C > 0.33 μF    |              |
|                            | V <sub>R</sub> ≤ 100                                                                                                                                                                                                       | 10,000 MΩ   |                | 3,000 MΩ • μF  |              |
|                            | V <sub>R</sub> > 100                                                                                                                                                                                                       | 30,000 MΩ   |                | 10,000 MΩ • μF |              |
| Dissipation Factor         | Maximum Values at +23°C                                                                                                                                                                                                    |             |                |                |              |
|                            |                                                                                                                                                                                                                            | C ≤ 0.1 μF  | 0.1 < C < 1 μF | 1 ≤ C ≤ 10 μF  | C > 10 μF    |
|                            | 1 kHz                                                                                                                                                                                                                      | 0.8%        | 0.8%           | 0.8%           | 0.8%         |
|                            | 10 kHz                                                                                                                                                                                                                     | 1.2%        | 1.2%           | 1.5%           | 3.0%         |
|                            | 100 kHz                                                                                                                                                                                                                    | 2.5%        | 3.0%           |                |              |
| Pulse Rise Time            | The capacitors can withstand an unlimited number of pulses with a dV/dt according to Table 1. For voltages (V) lower than the rated voltage (V <sub>R</sub> ), the specified dV/dt can be multiplied by V <sub>R</sub> /V. |             |                |                |              |

### Capacitance vs. Temperature



### Dissipation Factor vs. Temperature



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**Table 1 – Ratings & Part Number Reference**

| VDC | VAC | Cap Value<br>( $\mu$ F) | Size Code<br>(New/Legacy) | Dimensions in mm |        |        | Chip<br>Size | dV/dt<br>(V/ $\mu$ s) | New KEMET<br>Part Number | Legacy Part<br>Number |
|-----|-----|-------------------------|---------------------------|------------------|--------|--------|--------------|-----------------------|--------------------------|-----------------------|
|     |     |                         |                           | B                | H      | L      |              |                       |                          |                       |
| 50  | 30  | 0.0010                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL102(1)050(2)       | MMC5.7102(1)50J31(2)  |
| 50  | 30  | 0.0012                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL122(1)050(2)       | MMC5.7122(1)50J31(2)  |
| 50  | 30  | 0.0015                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL152(1)050(2)       | MMC5.7152(1)50J31(2)  |
| 50  | 30  | 0.0018                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL182(1)050(2)       | MMC5.7182(1)50J31(2)  |
| 50  | 30  | 0.0022                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL222(1)050(2)       | MMC5.7222(1)50J31(2)  |
| 50  | 30  | 0.0027                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL272(1)050(2)       | MMC5.7272(1)50J31(2)  |
| 50  | 30  | 0.0033                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL332(1)050(2)       | MMC5.7332(1)50J31(2)  |
| 50  | 30  | 0.0039                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL392(1)050(2)       | MMC5.7392(1)50J31(2)  |
| 50  | 30  | 0.0047                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL472(1)050(2)       | MMC5.7472(1)50J31(2)  |
| 50  | 30  | 0.0056                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL562(1)050(2)       | MMC5.7562(1)50J31(2)  |
| 50  | 30  | 0.0068                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL682(1)050(2)       | MMC5.7682(1)50J31(2)  |
| 50  | 30  | 0.0082                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL822(1)050(2)       | MMC5.7822(1)50J31(2)  |
| 50  | 30  | 0.010                   | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL103(1)050(2)       | MMC5.7103(1)50J31(2)  |
| 50  | 30  | 0.012                   | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL123(1)050(2)       | MMC5.7123(1)50J31(2)  |
| 50  | 30  | 0.015                   | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 30                    | F160PL153(1)050(2)       | MMC5.7153(1)50J31(2)  |
| 50  | 30  | 0.018                   | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 30                    | F160PL183(1)050(2)       | MMC5.7183(1)50J31(2)  |
| 50  | 30  | 0.022                   | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 30                    | F160PL223(1)050(2)       | MMC5.7223(1)50J31(2)  |
| 50  | 30  | 0.027                   | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 30                    | F160PL273(1)050(2)       | MMC5.7273(1)50J31(2)  |
| 50  | 30  | 0.033                   | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 30                    | F160PL333(1)050(2)       | MMC5.7333(1)50J31(2)  |
| 50  | 30  | 0.039                   | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 30                    | F160PL393(1)050(2)       | MMC5.7393(1)50J31(2)  |
| 50  | 30  | 0.047                   | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 30                    | F160PL473(1)050(2)       | MMC5.7473(1)50J31(2)  |
| 50  | 30  | 0.056                   | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 30                    | F160PL563(1)050(2)       | MMC5.7563(1)50J31(2)  |
| 50  | 30  | 0.068                   | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 20                    | F160PL683(1)050(2)       | MMC5.7683(1)50J31(2)  |
| 50  | 30  | 0.082                   | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 20                    | F160PL823(1)050(2)       | MMC5.7823(1)50J31(2)  |
| 50  | 30  | 0.10                    | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 20                    | F160PL104(1)050(2)       | MMC5.7104(1)50J31(2)  |
| 50  | 30  | 0.12                    | PP/J33                    | 5.0              | 3.0    | 5.7    | 2220         | 20                    | F160PP124(1)050(2)       | MMC5.7124(1)50J33(2)  |
| 50  | 30  | 0.15                    | PP/J33                    | 5.0              | 3.0    | 5.7    | 2220         | 20                    | F160PP154(1)050(2)       | MMC5.7154(1)50J33(2)  |
| 50  | 30  | 0.18                    | PU/J35                    | 5.0              | 4.0    | 5.7    | 2220         | 20                    | F160PU184(1)050(2)       | MMC5.7184(1)50J35(2)  |
| 50  | 30  | 0.22                    | PU/J35                    | 5.0              | 4.0    | 5.7    | 2220         | 20                    | F160PU224(1)050(2)       | MMC5.7224(1)50J35(2)  |
| 50  | 30  | 0.0010                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG102(1)050(2)       | MMC7.3102(1)50K31(2)  |
| 50  | 30  | 0.0012                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG122(1)050(2)       | MMC7.3122(1)50K31(2)  |
| 50  | 30  | 0.0015                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG152(1)050(2)       | MMC7.3152(1)50K31(2)  |
| 50  | 30  | 0.0018                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG182(1)050(2)       | MMC7.3182(1)50K31(2)  |
| 50  | 30  | 0.0022                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG222(1)050(2)       | MMC7.3222(1)50K31(2)  |
| 50  | 30  | 0.0027                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG272(1)050(2)       | MMC7.3272(1)50K31(2)  |
| 50  | 30  | 0.0033                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG332(1)050(2)       | MMC7.3332(1)50K31(2)  |
| 50  | 30  | 0.0039                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG392(1)050(2)       | MMC7.3392(1)50K31(2)  |
| 50  | 30  | 0.0047                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG472(1)050(2)       | MMC7.3472(1)50K31(2)  |
| 50  | 30  | 0.0056                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG562(1)050(2)       | MMC7.3562(1)50K31(2)  |
| 50  | 30  | 0.0068                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 40                    | F160SG682(1)050(2)       | MMC7.3682(1)50K31(2)  |
| 50  | 30  | 0.0082                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 40                    | F160SG822(1)050(2)       | MMC7.3822(1)50K31(2)  |
| 50  | 30  | 0.010                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 40                    | F160SG103(1)050(2)       | MMC7.3103(1)50K31(2)  |
| 50  | 30  | 0.012                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 40                    | F160SG123(1)050(2)       | MMC7.3123(1)50K31(2)  |
| 50  | 30  | 0.015                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 40                    | F160SG153(1)050(2)       | MMC7.3153(1)50K31(2)  |
| 50  | 30  | 0.018                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 40                    | F160SG183(1)050(2)       | MMC7.3183(1)50K31(2)  |
| 50  | 30  | 0.022                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG223(1)050(2)       | MMC7.3223(1)50K31(2)  |
| 50  | 30  | 0.027                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG273(1)050(2)       | MMC7.3273(1)50K31(2)  |
| 50  | 30  | 0.033                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG333(1)050(2)       | MMC7.3333(1)50K31(2)  |
| 50  | 30  | 0.039                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG393(1)050(2)       | MMC7.3393(1)50K31(2)  |
| 50  | 30  | 0.047                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG473(1)050(2)       | MMC7.3473(1)50K31(2)  |
| 50  | 30  | 0.056                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG563(1)050(2)       | MMC7.3563(1)50K31(2)  |
| 50  | 30  | 0.068                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG683(1)050(2)       | MMC7.3683(1)50K31(2)  |
| 50  | 30  | 0.082                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG823(1)050(2)       | MMC7.3823(1)50K31(2)  |
| 50  | 30  | 0.10                    | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG104(1)050(2)       | MMC7.3104(1)50K31(2)  |
| 50  | 30  | 0.12                    | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG124(1)050(2)       | MMC7.3124(1)50K31(2)  |
| 50  | 30  | 0.15                    | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 25                    | F160SG154(1)050(2)       | MMC7.3154(1)50K31(2)  |
| 50  | 30  | 0.18                    | SL/K33                    | 6.0              | 3.0    | 7.3    | 2824         | 25                    | F160SL184(1)050(2)       | MMC7.3184(1)50K33(2)  |
| 50  | 30  | 0.22                    | SL/K33                    | 6.0              | 3.0    | 7.3    | 2824         | 25                    | F160SL224(1)050(2)       | MMC7.3224(1)50K33(2)  |
| 50  | 30  | 0.27                    | SP/K35                    | 6.0              | 3.5    | 7.3    | 2824         | 25                    | F160SP274(1)050(2)       | MMC7.3274(1)50K35(2)  |
| VDC | VAC | Cap Value<br>( $\mu$ F) | Size Code<br>(New/Legacy) | B (mm)           | H (mm) | L (mm) | Chip Size    | dV/dt<br>(V/ $\mu$ s) | New KEMET<br>Part Number | Legacy<br>Part Number |

(1) J =  $\pm 5\%$ , K =  $\pm 10\%$ , other tolerances on request.

(2) Insert ordering code for lead type and packaging. See Ordering Options Table for available options.

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MMC Series Encapsulated Winding, Size 2220 – 6560, 50 – 400 VDC



**Table 1 – Ratings & Part Number Reference cont'd**

| VDC | VAC | Cap Value<br>( $\mu$ F) | Size Code<br>(New/Legacy) | Dimensions in mm |           |        | Chip<br>Size | dV/dt<br>(V/ $\mu$ s) | New KEMET<br>Part Number | Legacy Part<br>Number |
|-----|-----|-------------------------|---------------------------|------------------|-----------|--------|--------------|-----------------------|--------------------------|-----------------------|
|     |     |                         |                           | B                | H         | L      |              |                       |                          |                       |
| 50  | 30  | 0.33                    | SP/K35                    | 6.0              | 3.5       | 7.3    | 2824         | 25                    | F160SP334(1)050(2)       | MMC7.3334(1)50K35(2)  |
| 50  | 30  | 0.39                    | SP/K35                    | 6.0              | 3.5       | 7.3    | 2824         | 25                    | F160SP394(1)050(2)       | MMC7.3394(1)50K35(2)  |
| 50  | 30  | 0.47                    | SP/K35                    | 6.0              | 3.5       | 7.3    | 2824         | 25                    | F160SP474(1)050(2)       | MMC7.3474(1)50K35(2)  |
| 50  | 30  | 0.56                    | ST/K37                    | 6.0              | 4.5       | 7.3    | 2824         | 12                    | F160ST564(1)050(2)       | MMC7.3564(1)50K37(2)  |
| 50  | 30  | 0.68                    | ST/K37                    | 6.0              | 4.5       | 7.3    | 2824         | 12                    | F160ST684(1)050(2)       | MMC7.3684(1)50K37(2)  |
| 50  | 30  | 0.82                    | ST/K37                    | 6.0              | 4.5       | 7.3    | 2824         | 12                    | F160ST824(1)050(2)       | MMC7.3824(1)50K37(2)  |
| 50  | 30  | 1.0                     | ST/K37                    | 6.0              | 4.5       | 7.3    | 2824         | 12                    | F160ST105(1)050(2)       | MMC7.3105(1)50K37(2)  |
| 50  | 30  | 0.022                   | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 40                    | F160WP223(1)050(2)       | MMC10.2223(1)50A31(2) |
| 50  | 30  | 0.027                   | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 40                    | F160WP273(1)050(2)       | MMC10.2273(1)50A31(2) |
| 50  | 30  | 0.033                   | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 40                    | F160WP333(1)050(2)       | MMC10.2333(1)50A31(2) |
| 50  | 30  | 0.039                   | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 40                    | F160WP393(1)050(2)       | MMC10.2393(1)50A31(2) |
| 50  | 30  | 0.047                   | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 40                    | F160WP473(1)050(2)       | MMC10.2473(1)50A31(2) |
| 50  | 30  | 0.056                   | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 40                    | F160WP563(1)050(2)       | MMC10.2563(1)50A31(2) |
| 50  | 30  | 0.068                   | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 40                    | F160WP683(1)050(2)       | MMC10.2683(1)50A31(2) |
| 50  | 30  | 0.082                   | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 40                    | F160WP823(1)050(2)       | MMC10.2823(1)50A31(2) |
| 50  | 30  | 0.10                    | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 30                    | F160WP104(1)050(2)       | MMC10.2104(1)50A31(2) |
| 50  | 30  | 0.12                    | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 30                    | F160WP124(1)050(2)       | MMC10.2124(1)50A31(2) |
| 50  | 30  | 0.15                    | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 30                    | F160WP154(1)050(2)       | MMC10.2154(1)50A31(2) |
| 50  | 30  | 0.18                    | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 20                    | F160WP184(1)050(2)       | MMC10.2184(1)50A31(2) |
| 50  | 30  | 0.22                    | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 20                    | F160WP224(1)050(2)       | MMC10.2224(1)50A31(2) |
| 50  | 30  | 0.27                    | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 20                    | F160WP274(1)050(2)       | MMC10.2274(1)50A31(2) |
| 50  | 30  | 0.33                    | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 20                    | F160WP334(1)050(2)       | MMC10.2334(1)50A31(2) |
| 50  | 30  | 0.39                    | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 20                    | F160WP394(1)050(2)       | MMC10.2394(1)50A31(2) |
| 50  | 30  | 0.47                    | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 20                    | F160WP474(1)050(2)       | MMC10.2474(1)50A31(2) |
| 50  | 30  | 0.56                    | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 12                    | F160WP564(1)050(2)       | MMC10.2564(1)50A31(2) |
| 50  | 30  | 0.68                    | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 12                    | F160WP684(1)050(2)       | MMC10.2684(1)50A31(2) |
| 50  | 30  | 0.82                    | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 12                    | F160WP824(1)050(2)       | MMC10.2824(1)50A31(2) |
| 50  | 30  | 1.0                     | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 12                    | F160WP105(1)050(2)       | MMC10.2105(1)50A31(2) |
| 50  | 30  | 1.2                     | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 12                    | F160WP125(1)050(2)       | MMC10.2125(1)50A31(2) |
| 50  | 30  | 1.5                     | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 12                    | F160WP155(1)050(2)       | MMC10.2155(1)50A31(2) |
| 50  | 30  | 1.8                     | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 12                    | F160WP185(1)050(2)       | MMC10.2185(1)50A31(2) |
| 50  | 30  | 2.2                     | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 12                    | F160WP225(1)050(2)       | MMC10.2225(1)50A31(2) |
| 50  | 30  | 2.7                     | YR/B31                    | 11.5             | 6.5       | 12.7   | 5045         | 8                     | F160YR275(1)050(2)       | MMC12.7275(1)50B31(2) |
| 50  | 30  | 3.3                     | YR/B31                    | 11.5             | 6.5       | 12.7   | 5045         | 8                     | F160YR335(1)050(2)       | MMC12.7335(1)50B31(2) |
| 50  | 30  | 3.9                     | YR/B31                    | 11.5             | 6.5       | 12.7   | 5045         | 8                     | F160YR395(1)050(2)       | MMC12.7395(1)50B31(2) |
| 50  | 30  | 4.7                     | YR/B31                    | 11.5             | 6.5       | 12.7   | 5045         | 8                     | F160YR475(1)050(2)       | MMC12.7475(1)50B31(2) |
| 50  | 30  | 5.6                     | ZS/C31                    | 15.0             | 7.0       | 16.5   | 5045         | 5                     | F160ZS565(1)050(2)       | MMC16.5565(1)50C31(2) |
| 50  | 30  | 6.8                     | ZS/C31                    | 15.0             | 7.0       | 16.5   | 5045         | 5                     | F160ZS685(1)050(2)       | MMC16.5685(1)50C31(2) |
| 50  | 30  | 8.2                     | ZS/C31                    | 15.0             | 7.0       | 16.5   | 5045         | 5                     | F160ZS825(1)050(2)       | MMC16.5825(1)50C31(2) |
| 50  | 30  | 10.0                    | ZS/C31                    | 15.0             | 7.0       | 16.5   | 5045         | 5                     | F160ZS106(1)050(2)       | MMC16.5106(1)50C31(2) |
| 50  | 30  | 12.0                    | ZS/C31                    | 15.0             | 7.0       | 16.5   | 5045         | 5                     | F160ZS126(1)050(2)       | MMC16.5126(1)50C31(2) |
| 50  | 30  | 15.0                    | ZS/C31                    | 15.0             | 7.0       | 16.5   | 5045         | 5                     | F160ZS156(1)050(2)       | MMC16.5156(1)50C31(2) |
| 63  | 40  | 0.0010                  | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 50                    | F160SG102(1)063(2)       | MMC7.3102(1)63K31(2)  |
| 63  | 40  | 0.0012                  | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 50                    | F160SG122(1)063(2)       | MMC7.3122(1)63K31(2)  |
| 63  | 40  | 0.0015                  | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 50                    | F160SG152(1)063(2)       | MMC7.3152(1)63K31(2)  |
| 63  | 40  | 0.0018                  | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 50                    | F160SG182(1)063(2)       | MMC7.3182(1)63K31(2)  |
| 63  | 40  | 0.0022                  | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 50                    | F160SG222(1)063(2)       | MMC7.3222(1)63K31(2)  |
| 63  | 40  | 0.0027                  | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 50                    | F160SG272(1)063(2)       | MMC7.3272(1)63K31(2)  |
| 63  | 40  | 0.0033                  | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 50                    | F160SG332(1)063(2)       | MMC7.3332(1)63K31(2)  |
| 63  | 40  | 0.0039                  | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 50                    | F160SG392(1)063(2)       | MMC7.3392(1)63K31(2)  |
| 63  | 40  | 0.0047                  | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 50                    | F160SG472(1)063(2)       | MMC7.3472(1)63K31(2)  |
| 63  | 40  | 0.0056                  | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 50                    | F160SG562(1)063(2)       | MMC7.3562(1)63K31(2)  |
| 63  | 40  | 0.0068                  | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 40                    | F160SG682(1)063(2)       | MMC7.3682(1)63K31(2)  |
| 63  | 40  | 0.0082                  | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 40                    | F160SG822(1)063(2)       | MMC7.3822(1)63K31(2)  |
| 63  | 40  | 0.010                   | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 40                    | F160SG103(1)063(2)       | MMC7.3103(1)63K31(2)  |
| 63  | 40  | 0.012                   | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 40                    | F160SG123(1)063(2)       | MMC7.3123(1)63K31(2)  |
| 63  | 40  | 0.015                   | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 40                    | F160SG153(1)063(2)       | MMC7.3153(1)63K31(2)  |
| 63  | 40  | 0.018                   | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 40                    | F160SG183(1)063(2)       | MMC7.3183(1)63K31(2)  |
| 63  | 40  | 0.022                   | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 30                    | F160SG223(1)063(2)       | MMC7.3223(1)63K31(2)  |
| VDC | VAC | Cap Value<br>( $\mu$ F) | Size Code<br>(New/Legacy) | B (mm)           | H<br>(mm) | L (mm) | Chip Size    | dV/dt<br>(V/ $\mu$ s) | New KEMET<br>Part Number | Legacy<br>Part Number |

(1) J =  $\pm 5\%$ , K =  $\pm 10\%$ , other tolerances on request.

(2) Insert ordering code for lead type and packaging. See Ordering Options Table for available options.

# OBSOLETE. Use F161 Series

Film Capacitors – General Purpose, High Stability and AC Line EMI Suppression

MMC Series Encapsulated Winding, Size 2220 – 6560, 50 – 400 VDC



**Table 1 – Ratings & Part Number Reference cont'd**

| VDC | VAC | Cap Value<br>( $\mu$ F) | Size Code<br>(New/Legacy) | Dimensions in mm |        |        | Chip<br>Size | dV/dt<br>(V/ $\mu$ s) | New KEMET<br>Part Number | Legacy Part<br>Number |
|-----|-----|-------------------------|---------------------------|------------------|--------|--------|--------------|-----------------------|--------------------------|-----------------------|
|     |     |                         |                           | B                | H      | L      |              |                       |                          |                       |
| 63  | 40  | 0.027                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG273(1)063(2)       | MMC7.3273(1)63K31(2)  |
| 63  | 40  | 0.033                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG333(1)063(2)       | MMC7.3333(1)63K31(2)  |
| 63  | 40  | 0.039                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG393(1)063(2)       | MMC7.3393(1)63K31(2)  |
| 63  | 40  | 0.047                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG473(1)063(2)       | MMC7.3473(1)63K31(2)  |
| 63  | 40  | 0.056                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG563(1)063(2)       | MMC7.3563(1)63K31(2)  |
| 63  | 40  | 0.068                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG683(1)063(2)       | MMC7.3683(1)63K31(2)  |
| 63  | 40  | 0.082                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG823(1)063(2)       | MMC7.3823(1)63K31(2)  |
| 63  | 40  | 0.10                    | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG104(1)063(2)       | MMC7.3104(1)63K31(2)  |
| 63  | 40  | 0.12                    | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG124(1)063(2)       | MMC7.3124(1)63K31(2)  |
| 63  | 40  | 0.15                    | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG154(1)063(2)       | MMC7.3154(1)63K31(2)  |
| 63  | 40  | 0.18                    | SL/K33                    | 6.0              | 3.0    | 7.3    | 2824         | 25                    | F160SL184(1)063(2)       | MMC7.3184(1)63K33(2)  |
| 63  | 40  | 0.22                    | SL/K33                    | 6.0              | 3.0    | 7.3    | 2824         | 25                    | F160SL224(1)063(2)       | MMC7.3224(1)63K33(2)  |
| 63  | 40  | 0.27                    | SP/K35                    | 6.0              | 3.5    | 7.3    | 2824         | 25                    | F160SP274(1)063(2)       | MMC7.3274(1)63K35(2)  |
| 63  | 40  | 0.33                    | SP/K35                    | 6.0              | 3.5    | 7.3    | 2824         | 25                    | F160SP334(1)063(2)       | MMC7.3334(1)63K35(2)  |
| 63  | 40  | 0.39                    | SP/K35                    | 6.0              | 3.5    | 7.3    | 2824         | 25                    | F160SP394(1)063(2)       | MMC7.3394(1)63K35(2)  |
| 63  | 40  | 0.47                    | SP/K35                    | 6.0              | 3.5    | 7.3    | 2824         | 25                    | F160SP474(1)063(2)       | MMC7.3474(1)63K35(2)  |
| 63  | 40  | 0.022                   | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 40                    | F160WP223(1)063(2)       | MMC10.2223(1)63A31(2) |
| 63  | 40  | 0.027                   | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 40                    | F160WP273(1)063(2)       | MMC10.2273(1)63A31(2) |
| 63  | 40  | 0.033                   | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 40                    | F160WP333(1)063(2)       | MMC10.2333(1)63A31(2) |
| 63  | 40  | 0.039                   | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 40                    | F160WP393(1)063(2)       | MMC10.2393(1)63A31(2) |
| 63  | 40  | 0.047                   | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 40                    | F160WP473(1)063(2)       | MMC10.2473(1)63A31(2) |
| 63  | 40  | 0.056                   | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 40                    | F160WP563(1)063(2)       | MMC10.2563(1)63A31(2) |
| 63  | 40  | 0.068                   | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 40                    | F160WP683(1)063(2)       | MMC10.2683(1)63A31(2) |
| 63  | 40  | 0.082                   | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 40                    | F160WP823(1)063(2)       | MMC10.2823(1)63A31(2) |
| 63  | 40  | 0.10                    | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 30                    | F160WP104(1)063(2)       | MMC10.2104(1)63A31(2) |
| 63  | 40  | 0.12                    | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 30                    | F160WP124(1)063(2)       | MMC10.2124(1)63A31(2) |
| 63  | 40  | 0.15                    | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 30                    | F160WP154(1)063(2)       | MMC10.2154(1)63A31(2) |
| 63  | 40  | 0.18                    | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 20                    | F160WP184(1)063(2)       | MMC10.2184(1)63A31(2) |
| 63  | 40  | 0.22                    | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 20                    | F160WP224(1)063(2)       | MMC10.2224(1)63A31(2) |
| 63  | 40  | 0.27                    | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 20                    | F160WP274(1)063(2)       | MMC10.2274(1)63A31(2) |
| 63  | 40  | 0.33                    | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 20                    | F160WP334(1)063(2)       | MMC10.2334(1)63A31(2) |
| 63  | 40  | 0.39                    | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 20                    | F160WP394(1)063(2)       | MMC10.2394(1)63A31(2) |
| 63  | 40  | 0.47                    | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 20                    | F160WP474(1)063(2)       | MMC10.2474(1)63A31(2) |
| 63  | 40  | 0.56                    | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 12                    | F160WP564(1)063(2)       | MMC10.2564(1)63A31(2) |
| 63  | 40  | 0.68                    | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 12                    | F160WP684(1)063(2)       | MMC10.2684(1)63A31(2) |
| 63  | 40  | 0.82                    | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 12                    | F160WP824(1)063(2)       | MMC10.2824(1)63A31(2) |
| 63  | 40  | 1.0                     | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 12                    | F160WP105(1)063(2)       | MMC10.2105(1)63A31(2) |
| 63  | 40  | 1.2                     | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 12                    | F160WP125(1)063(2)       | MMC10.2125(1)63A31(2) |
| 63  | 40  | 1.5                     | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 12                    | F160WP155(1)063(2)       | MMC10.2155(1)63A31(2) |
| 63  | 40  | 1.8                     | YR/B31                    | 11.5             | 6.5    | 12.7   | 6560         | 8                     | F160YR185(1)063(2)       | MMC12.7185(1)63B31(2) |
| 63  | 40  | 2.2                     | YR/B31                    | 11.5             | 6.5    | 12.7   | 6560         | 8                     | F160YR225(1)063(2)       | MMC12.7225(1)63B31(2) |
| 63  | 40  | 2.7                     | YR/B31                    | 11.5             | 6.5    | 12.7   | 6560         | 8                     | F160YR275(1)063(2)       | MMC12.7275(1)63B31(2) |
| 63  | 40  | 3.3                     | YR/B31                    | 11.5             | 6.5    | 12.7   | 6560         | 8                     | F160YR335(1)063(2)       | MMC12.7335(1)63B31(2) |
| 63  | 40  | 3.9                     | ZS/C31                    | 15.0             | 7.0    | 16.5   | 6560         | 5                     | F160ZS395(1)063(2)       | MMC16.5395(1)63C31(2) |
| 63  | 40  | 4.7                     | ZS/C31                    | 15.0             | 7.0    | 16.5   | 6560         | 5                     | F160ZS475(1)063(2)       | MMC16.5475(1)63C31(2) |
| 100 | 63  | 0.0010                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL102(1)100(2)       | MMC5.7102(1)100J31(2) |
| 100 | 63  | 0.0012                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL122(1)100(2)       | MMC5.7122(1)100J31(2) |
| 100 | 63  | 0.0015                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL152(1)100(2)       | MMC5.7152(1)100J31(2) |
| 100 | 63  | 0.0018                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL182(1)100(2)       | MMC5.7182(1)100J31(2) |
| 100 | 63  | 0.0022                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL222(1)100(2)       | MMC5.7222(1)100J31(2) |
| 100 | 63  | 0.0027                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL272(1)100(2)       | MMC5.7272(1)100J31(2) |
| 100 | 63  | 0.0033                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL332(1)100(2)       | MMC5.7332(1)100J31(2) |
| 100 | 63  | 0.0039                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL392(1)100(2)       | MMC5.7392(1)100J31(2) |
| 100 | 63  | 0.0047                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL472(1)100(2)       | MMC5.7472(1)100J31(2) |
| 100 | 63  | 0.0056                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL562(1)100(2)       | MMC5.7562(1)100J31(2) |
| 100 | 63  | 0.0068                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL682(1)100(2)       | MMC5.7682(1)100J31(2) |
| 100 | 63  | 0.0082                  | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL822(1)100(2)       | MMC5.7822(1)100J31(2) |
| 100 | 63  | 0.010                   | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL103(1)100(2)       | MMC5.7103(1)100J31(2) |
| 100 | 63  | 0.012                   | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 40                    | F160PL123(1)100(2)       | MMC5.7123(1)100J31(2) |
| VDC | VAC | Cap Value<br>( $\mu$ F) | Size Code<br>(New/Legacy) | B (mm)           | H (mm) | L (mm) | Chip Size    | dV/dt<br>(V/ $\mu$ s) | New KEMET<br>Part Number | Legacy<br>Part Number |

(1) J =  $\pm 5\%$ , K =  $\pm 10\%$ , other tolerances on request.

(2) Insert ordering code for lead type and packaging. See Ordering Options Table for available options.

# OBSOLETE. Use F161 Series

Film Capacitors – General Purpose, High Stability and AC Line EMI Suppression

MMC Series Encapsulated Winding, Size 2220 – 6560, 50 – 400 VDC



**Table 1 – Ratings & Part Number Reference cont'd**

| VDC | VAC | Cap Value<br>( $\mu$ F) | Size Code<br>(New/Legacy) | Dimensions in mm |        |        | Chip<br>Size | dV/dt<br>(V/ $\mu$ s) | New KEMET<br>Part Number | Legacy Part<br>Number  |
|-----|-----|-------------------------|---------------------------|------------------|--------|--------|--------------|-----------------------|--------------------------|------------------------|
|     |     |                         |                           | B                | H      | L      |              |                       |                          |                        |
| 100 | 63  | 0.015                   | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 30                    | F160PL153(1)100(2)       | MMC5.7153(1)100J31(2)  |
| 100 | 63  | 0.018                   | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 30                    | F160PL183(1)100(2)       | MMC5.7183(1)100J31(2)  |
| 100 | 63  | 0.022                   | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 30                    | F160PL223(1)100(2)       | MMC5.7223(1)100J31(2)  |
| 100 | 63  | 0.027                   | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 30                    | F160PL273(1)100(2)       | MMC5.7273(1)100J31(2)  |
| 100 | 63  | 0.033                   | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 30                    | F160PL333(1)100(2)       | MMC5.7333(1)100J31(2)  |
| 100 | 63  | 0.039                   | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 30                    | F160PL393(1)100(2)       | MMC5.7393(1)100J31(2)  |
| 100 | 63  | 0.047                   | PL/J31                    | 5.0              | 2.5    | 5.7    | 2220         | 30                    | F160PL473(1)100(2)       | MMC5.7473(1)100J31(2)  |
| 100 | 63  | 0.056                   | PP/J33                    | 5.0              | 3.0    | 5.7    | 2220         | 30                    | F160PP563(1)100(2)       | MMC5.7563(1)100J33(2)  |
| 100 | 63  | 0.068                   | PP/J33                    | 5.0              | 3.0    | 5.7    | 2220         | 30                    | F160PP683(1)100(2)       | MMC5.7683(1)100J33(2)  |
| 100 | 63  | 0.082                   | PU/J35                    | 5.0              | 4.0    | 5.7    | 2220         | 30                    | F160PU823(1)100(2)       | MMC5.7823(1)100J35(2)  |
| 100 | 63  | 0.10                    | PU/J35                    | 5.0              | 4.0    | 5.7    | 2220         | 30                    | F160PU104(1)100(2)       | MMC5.7104(1)100J35(2)  |
| 100 | 63  | 0.0010                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG102(1)100(2)       | MMC7.3102(1)100K31(2)  |
| 100 | 63  | 0.0012                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG122(1)100(2)       | MMC7.3122(1)100K31(2)  |
| 100 | 63  | 0.0015                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG152(1)100(2)       | MMC7.3152(1)100K31(2)  |
| 100 | 63  | 0.0018                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG182(1)100(2)       | MMC7.3182(1)100K31(2)  |
| 100 | 63  | 0.0022                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG222(1)100(2)       | MMC7.3222(1)100K31(2)  |
| 100 | 63  | 0.0027                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG272(1)100(2)       | MMC7.3272(1)100K31(2)  |
| 100 | 63  | 0.0033                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG332(1)100(2)       | MMC7.3332(1)100K31(2)  |
| 100 | 63  | 0.0039                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG392(1)100(2)       | MMC7.3392(1)100K31(2)  |
| 100 | 63  | 0.0047                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG472(1)100(2)       | MMC7.3472(1)100K31(2)  |
| 100 | 63  | 0.0056                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG562(1)100(2)       | MMC7.3562(1)100K31(2)  |
| 100 | 63  | 0.0068                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 40                    | F160SG682(1)100(2)       | MMC7.3682(1)100K31(2)  |
| 100 | 63  | 0.0082                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 40                    | F160SG822(1)100(2)       | MMC7.3822(1)100K31(2)  |
| 100 | 63  | 0.010                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 40                    | F160SG103(1)100(2)       | MMC7.3103(1)100K31(2)  |
| 100 | 63  | 0.012                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 40                    | F160SG123(1)100(2)       | MMC7.3123(1)100K31(2)  |
| 100 | 63  | 0.015                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 40                    | F160SG153(1)100(2)       | MMC7.3153(1)100K31(2)  |
| 100 | 63  | 0.018                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 40                    | F160SG183(1)100(2)       | MMC7.3183(1)100K31(2)  |
| 100 | 63  | 0.022                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG223(1)100(2)       | MMC7.3223(1)100K31(2)  |
| 100 | 63  | 0.027                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG273(1)100(2)       | MMC7.3273(1)100K31(2)  |
| 100 | 63  | 0.033                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG333(1)100(2)       | MMC7.3333(1)100K31(2)  |
| 100 | 63  | 0.039                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG393(1)100(2)       | MMC7.3393(1)100K31(2)  |
| 100 | 63  | 0.047                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG473(1)100(2)       | MMC7.3473(1)100K31(2)  |
| 100 | 63  | 0.056                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG563(1)100(2)       | MMC7.3563(1)100K31(2)  |
| 100 | 63  | 0.068                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG683(1)100(2)       | MMC7.3683(1)100K31(2)  |
| 100 | 63  | 0.082                   | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG823(1)100(2)       | MMC7.3823(1)100K31(2)  |
| 100 | 63  | 0.10                    | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 30                    | F160SG104(1)100(2)       | MMC7.3104(1)100K31(2)  |
| 100 | 63  | 0.12                    | SL/K33                    | 6.0              | 3.0    | 7.3    | 2824         | 30                    | F160SL124(1)100(2)       | MMC7.3124(1)100K33(2)  |
| 100 | 63  | 0.15                    | SP/K35                    | 6.0              | 3.5    | 7.3    | 2824         | 30                    | F160SP154(1)100(2)       | MMC7.3154(1)100K35(2)  |
| 100 | 63  | 0.18                    | SP/K35                    | 6.0              | 3.5    | 7.3    | 2824         | 30                    | F160SP184(1)100(2)       | MMC7.3184(1)100K35(2)  |
| 100 | 63  | 0.22                    | ST/K35                    | 6.0              | 4.5    | 7.3    | 2824         | 30                    | F160ST224(1)100(2)       | MMC7.3224(1)100K37(2)  |
| 100 | 63  | 0.022                   | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 40                    | F160WP223(1)100(2)       | MMC10.2223(1)100A31(2) |
| 100 | 63  | 0.027                   | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 40                    | F160WP273(1)100(2)       | MMC10.2273(1)100A31(2) |
| 100 | 63  | 0.033                   | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 40                    | F160WP333(1)100(2)       | MMC10.2333(1)100A31(2) |
| 100 | 63  | 0.039                   | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 40                    | F160WP393(1)100(2)       | MMC10.2393(1)100A31(2) |
| 100 | 63  | 0.047                   | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 40                    | F160WP473(1)100(2)       | MMC10.2473(1)100A31(2) |
| 100 | 63  | 0.056                   | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 40                    | F160WP563(1)100(2)       | MMC10.2563(1)100A31(2) |
| 100 | 63  | 0.068                   | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 40                    | F160WP683(1)100(2)       | MMC10.2683(1)100A31(2) |
| 100 | 63  | 0.082                   | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 40                    | F160WP823(1)100(2)       | MMC10.2823(1)100A31(2) |
| 100 | 63  | 0.10                    | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 30                    | F160WP104(1)100(2)       | MMC10.2104(1)100A31(2) |
| 100 | 63  | 0.12                    | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 30                    | F160WP124(1)100(2)       | MMC10.2124(1)100A31(2) |
| 100 | 63  | 0.15                    | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 30                    | F160WP154(1)100(2)       | MMC10.2154(1)100A31(2) |
| 100 | 63  | 0.18                    | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 20                    | F160WP184(1)100(2)       | MMC10.2184(1)100A31(2) |
| 100 | 63  | 0.22                    | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 20                    | F160WP224(1)100(2)       | MMC10.2224(1)100A31(2) |
| 100 | 63  | 0.27                    | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 20                    | F160WP274(1)100(2)       | MMC10.2274(1)100A31(2) |
| 100 | 63  | 0.33                    | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 20                    | F160WP334(1)100(2)       | MMC10.2334(1)100A31(2) |
| 100 | 63  | 0.39                    | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 20                    | F160WP394(1)100(2)       | MMC10.2394(1)100A31(2) |
| 100 | 63  | 0.47                    | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 20                    | F160WP474(1)100(2)       | MMC10.2474(1)100A31(2) |
| 100 | 63  | 0.56                    | YR/B31                    | 11.5             | 6.5    | 12.7   | 5045         | 12                    | F160YR564(1)100(2)       | MMC12.7564(1)100B31(2) |
| 100 | 63  | 0.68                    | YR/B31                    | 11.5             | 6.5    | 12.7   | 5045         | 12                    | F160YR684(1)100(2)       | MMC12.7684(1)100B31(2) |
| VDC | VAC | Cap Value<br>( $\mu$ F) | Size Code<br>(New/Legacy) | B (mm)           | H (mm) | L (mm) | Chip Size    | dV/dt<br>(V/ $\mu$ s) | New KEMET<br>Part Number | Legacy<br>Part Number  |

(1) J =  $\pm 5\%$ , K =  $\pm 10\%$ , other tolerances on request.

(2) Insert ordering code for lead type and packaging. See Ordering Options Table for available options.

# OBSOLETE. Use F161 Series

Film Capacitors – General Purpose, High Stability and AC Line EMI Suppression

MMC Series Encapsulated Winding, Size 2220 – 6560, 50 – 400 VDC



**Table 1 – Ratings & Part Number Reference cont'd**

| VDC | VAC | Cap Value<br>(μF) | Size Code<br>(New/Legacy) | Dimensions in mm |           |        | Chip<br>Size | dV/dt<br>(V/μs) | New KEMET<br>Part Number | Legacy Part<br>Number  |
|-----|-----|-------------------|---------------------------|------------------|-----------|--------|--------------|-----------------|--------------------------|------------------------|
|     |     |                   |                           | B                | H         | L      |              |                 |                          |                        |
| 100 | 63  | 0.82              | YR/B31                    | 11.5             | 6.5       | 12.7   | 5045         | 12              | F160YR824(1)100(2)       | MMC12.7824(1)100B31(2) |
| 100 | 63  | 1.0               | YR/B31                    | 11.5             | 6.5       | 12.7   | 5045         | 12              | F160YR105(1)100(2)       | MMC12.7105(1)100B31(2) |
| 100 | 63  | 1.2               | ZS/C31                    | 15.0             | 7.0       | 16.5   | 6560         | 8               | F160ZS125(1)100(2)       | MMC16.5125(1)100C31(2) |
| 100 | 63  | 1.5               | ZS/C31                    | 15.0             | 7.0       | 16.5   | 6560         | 8               | F160ZS155(1)100(2)       | MMC16.5155(1)100C31(2) |
| 100 | 63  | 1.8               | ZS/C31                    | 15.0             | 7.0       | 16.5   | 6560         | 8               | F160ZS185(1)100(2)       | MMC16.5185(1)100C31(2) |
| 100 | 63  | 2.2               | ZS/C31                    | 15.0             | 7.0       | 16.5   | 6560         | 8               | F160ZS225(1)100(2)       | MMC16.5225(1)100C31(2) |
| 100 | 63  | 2.7               | ZS/C31                    | 15.0             | 7.0       | 16.5   | 6560         | 8               | F160ZS275(1)100(2)       | MMC16.5275(1)100C31(2) |
| 100 | 63  | 3.3               | ZS/C31                    | 15.0             | 7.0       | 16.5   | 6560         | 8               | F160ZS335(1)100(2)       | MMC16.5335(1)100C31(2) |
| 250 | 160 | 0.0010            | PL/J31                    | 5.0              | 2.5       | 5.7    | 2220         | 40              | F160PL102(1)250(2)       | MMC5.7102(1)250J31(2)  |
| 250 | 160 | 0.0012            | PL/J31                    | 5.0              | 2.5       | 5.7    | 2220         | 40              | F160PL122(1)250(2)       | MMC5.7122(1)250J31(2)  |
| 250 | 160 | 0.0015            | PL/J31                    | 5.0              | 2.5       | 5.7    | 2220         | 40              | F160PL152(1)250(2)       | MMC5.7152(1)250J31(2)  |
| 250 | 160 | 0.0018            | PL/J31                    | 5.0              | 2.5       | 5.7    | 2220         | 40              | F160PL182(1)250(2)       | MMC5.7182(1)250J31(2)  |
| 250 | 160 | 0.0022            | PL/J31                    | 5.0              | 2.5       | 5.7    | 2220         | 40              | F160PL222(1)250(2)       | MMC5.7222(1)250J31(2)  |
| 250 | 160 | 0.0027            | PL/J31                    | 5.0              | 2.5       | 5.7    | 2220         | 40              | F160PL272(1)250(2)       | MMC5.7272(1)250J31(2)  |
| 250 | 160 | 0.0033            | PL/J31                    | 5.0              | 2.5       | 5.7    | 2220         | 40              | F160PL332(1)250(2)       | MMC5.7332(1)250J31(2)  |
| 250 | 160 | 0.0039            | PL/J31                    | 5.0              | 2.5       | 5.7    | 2220         | 40              | F160PL392(1)250(2)       | MMC5.7392(1)250J31(2)  |
| 250 | 160 | 0.0047            | PL/J31                    | 5.0              | 2.5       | 5.7    | 2220         | 40              | F160PL472(1)250(2)       | MMC5.7472(1)250J31(2)  |
| 250 | 160 | 0.0056            | PL/J31                    | 5.0              | 2.5       | 5.7    | 2220         | 40              | F160PL562(1)250(2)       | MMC5.7562(1)250J31(2)  |
| 250 | 160 | 0.0068            | PL/J31                    | 5.0              | 2.5       | 5.7    | 2220         | 40              | F160PL682(1)250(2)       | MMC5.7682(1)250J31(2)  |
| 250 | 160 | 0.0082            | PL/J31                    | 5.0              | 2.5       | 5.7    | 2220         | 40              | F160PL822(1)250(2)       | MMC5.7822(1)250J31(2)  |
| 250 | 160 | 0.010             | PL/J31                    | 5.0              | 2.5       | 5.7    | 2220         | 40              | F160PL103(1)250(2)       | MMC5.7103(1)250J31(2)  |
| 250 | 160 | 0.012             | PL/J31                    | 5.0              | 2.5       | 5.7    | 2220         | 40              | F160PL123(1)250(2)       | MMC5.7123(1)250J31(2)  |
| 250 | 160 | 0.015             | PP/J33                    | 5.0              | 3.0       | 5.7    | 2220         | 40              | F160PP153(1)250(2)       | MMC5.7153(1)250J33(2)  |
| 250 | 160 | 0.018             | PU/J35                    | 5.0              | 4.0       | 5.7    | 2220         | 40              | F160PU183(1)250(2)       | MMC5.7183(1)250J35(2)  |
| 250 | 160 | 0.022             | PU/J35                    | 5.0              | 4.0       | 5.7    | 2220         | 40              | F160PU223(1)250(2)       | MMC5.7223(1)250J35(2)  |
| 250 | 160 | 0.0010            | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 50              | F160SG102(1)250(2)       | MMC7.3102(1)250K31(2)  |
| 250 | 160 | 0.0012            | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 50              | F160SG122(1)250(2)       | MMC7.3122(1)250K31(2)  |
| 250 | 160 | 0.0015            | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 50              | F160SG152(1)250(2)       | MMC7.3152(1)250K31(2)  |
| 250 | 160 | 0.0018            | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 50              | F160SG182(1)250(2)       | MMC7.3182(1)250K31(2)  |
| 250 | 160 | 0.0022            | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 50              | F160SG222(1)250(2)       | MMC7.3222(1)250K31(2)  |
| 250 | 160 | 0.0027            | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 50              | F160SG272(1)250(2)       | MMC7.3272(1)250K31(2)  |
| 250 | 160 | 0.0033            | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 50              | F160SG332(1)250(2)       | MMC7.3332(1)250K31(2)  |
| 250 | 160 | 0.0039            | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 50              | F160SG392(1)250(2)       | MMC7.3392(1)250K31(2)  |
| 250 | 160 | 0.0047            | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 50              | F160SG472(1)250(2)       | MMC7.3472(1)250K31(2)  |
| 250 | 160 | 0.0056            | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 50              | F160SG562(1)250(2)       | MMC7.3562(1)250K31(2)  |
| 250 | 160 | 0.0068            | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 40              | F160SG682(1)250(2)       | MMC7.3682(1)250K31(2)  |
| 250 | 160 | 0.0082            | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 40              | F160SG822(1)250(2)       | MMC7.3822(1)250K31(2)  |
| 250 | 160 | 0.010             | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 40              | F160SG103(1)250(2)       | MMC7.3103(1)250K31(2)  |
| 250 | 160 | 0.012             | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 40              | F160SG123(1)250(2)       | MMC7.3123(1)250K31(2)  |
| 250 | 160 | 0.015             | SG/K31                    | 6.0              | 2.5       | 7.3    | 2824         | 40              | F160SG153(1)250(2)       | MMC7.3153(1)250K31(2)  |
| 250 | 160 | 0.018             | SL/K33                    | 6.0              | 3.0       | 7.3    | 2824         | 40              | F160SL183(1)250(2)       | MMC7.3183(1)250K33(2)  |
| 250 | 160 | 0.022             | SL/K33                    | 6.0              | 3.0       | 7.3    | 2824         | 40              | F160SL223(1)250(2)       | MMC7.3223(1)250K33(2)  |
| 250 | 160 | 0.027             | SP/K35                    | 6.0              | 3.5       | 7.3    | 2824         | 40              | F160SP273(1)250(2)       | MMC7.3273(1)250K35(2)  |
| 250 | 160 | 0.033             | SP/K35                    | 6.0              | 3.5       | 7.3    | 2824         | 40              | F160SP333(1)250(2)       | MMC7.3333(1)250K35(2)  |
| 250 | 160 | 0.039             | SP/K35                    | 6.0              | 3.5       | 7.3    | 2824         | 40              | F160SP393(1)250(2)       | MMC7.3393(1)250K35(2)  |
| 250 | 160 | 0.047             | ST/K37                    | 6.0              | 4.5       | 7.3    | 2824         | 40              | F160ST473(1)250(2)       | MMC7.3473(1)250K37(2)  |
| 250 | 160 | 0.022             | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 40              | F160WP223(1)250(2)       | MMC10.2223(1)250A31(2) |
| 250 | 160 | 0.027             | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 40              | F160WP273(1)250(2)       | MMC10.2273(1)250A31(2) |
| 250 | 160 | 0.033             | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 40              | F160WP333(1)250(2)       | MMC10.2333(1)250A31(2) |
| 250 | 160 | 0.039             | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 40              | F160WP393(1)250(2)       | MMC10.2393(1)250A31(2) |
| 250 | 160 | 0.047             | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 40              | F160WP473(1)250(2)       | MMC10.2473(1)250A31(2) |
| 250 | 160 | 0.056             | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 40              | F160WP563(1)250(2)       | MMC10.2563(1)250A31(2) |
| 250 | 160 | 0.068             | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 40              | F160WP683(1)250(2)       | MMC10.2683(1)250A31(2) |
| 250 | 160 | 0.082             | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 40              | F160WP823(1)250(2)       | MMC10.2823(1)250A31(2) |
| 250 | 160 | 0.10              | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 30              | F160WP104(1)250(2)       | MMC10.2104(1)250A31(2) |
| 250 | 160 | 0.12              | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 30              | F160WP124(1)250(2)       | MMC10.2124(1)250A31(2) |
| 250 | 160 | 0.15              | WP/A31                    | 9.1              | 5.5       | 10.2   | 4036         | 30              | F160WP154(1)250(2)       | MMC10.2154(1)250A31(2) |
| 250 | 160 | 0.18              | YR/B31                    | 11.5             | 6.5       | 12.7   | 5045         | 20              | F160YR184(1)250(2)       | MMC12.7184(1)250B31(2) |
| 250 | 160 | 0.22              | YR/B31                    | 11.5             | 6.5       | 12.7   | 5045         | 20              | F160YR224(1)250(2)       | MMC12.7224(1)250B31(2) |
| VDC | VAC | Cap Value<br>(μF) | Size Code<br>(New/Legacy) | B (mm)           | H<br>(mm) | L (mm) | Chip Size    | dV/dt<br>(V/μs) | New KEMET<br>Part Number | Legacy<br>Part Number  |

(1) J = ±5%, K = ±10%, other tolerances on request.

(2) Insert ordering code for lead type and packaging. See Ordering Options Table for available options.

# OBSOLETE. Use F161 Series.

Film Capacitors – General Purpose, High Stability and AC Line EMI Suppression

MMC Series Encapsulated Winding, Size 2220 – 6560, 50 – 400 VDC



**Table 1 – Ratings & Part Number Reference cont'd**

| VDC | VAC | Cap Value<br>( $\mu$ F) | Size Code<br>(New/Legacy) | Dimensions in mm |        |        | Chip<br>Size | dV/dt<br>(V/ $\mu$ s) | New KEMET<br>Part Number | Legacy Part<br>Number  |
|-----|-----|-------------------------|---------------------------|------------------|--------|--------|--------------|-----------------------|--------------------------|------------------------|
|     |     |                         |                           | B                | H      | L      |              |                       |                          |                        |
| 250 | 160 | 0.27                    | YR/B31                    | 11.5             | 6.5    | 12.7   | 5045         | 20                    | F160YR274(1)250(2)       | MMC12.7274(1)250B31(2) |
| 250 | 160 | 0.33                    | YR/B31                    | 11.5             | 6.5    | 12.7   | 5045         | 20                    | F160YR334(1)250(2)       | MMC12.7334(1)250B31(2) |
| 250 | 160 | 0.39                    | YR/B31                    | 11.5             | 6.5    | 12.7   | 5045         | 20                    | F160YR394(1)250(2)       | MMC12.7394(1)250B31(2) |
| 250 | 160 | 0.47                    | YR/B31                    | 11.5             | 6.5    | 12.7   | 5045         | 20                    | F160YR474(1)250(2)       | MMC12.7474(1)250B31(2) |
| 250 | 160 | 0.56                    | ZS/C31                    | 15.0             | 7.0    | 16.5   | 6560         | 12                    | F160ZS564(1)250(2)       | MMC16.5564(1)250C31(2) |
| 250 | 160 | 0.68                    | ZS/C31                    | 15.0             | 7.0    | 16.5   | 6560         | 12                    | F160ZS684(1)250(2)       | MMC16.5684(1)250C31(2) |
| 250 | 160 | 0.82                    | ZS/C31                    | 15.0             | 7.0    | 16.5   | 6560         | 12                    | F160ZS824(1)250(2)       | MMC16.5824(1)250C31(2) |
| 250 | 160 | 1.0                     | ZS/C31                    | 15.0             | 7.0    | 16.5   | 6560         | 12                    | F160ZS105(1)250(2)       | MMC16.5105(1)250C31(2) |
| 400 | 200 | 0.0010                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG102(1)400(2)       | MMC7.3102(1)400K31(2)  |
| 400 | 200 | 0.0012                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG122(1)400(2)       | MMC7.3122(1)400K31(2)  |
| 400 | 200 | 0.0015                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG152(1)400(2)       | MMC7.3152(1)400K31(2)  |
| 400 | 200 | 0.0018                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG182(1)400(2)       | MMC7.3182(1)400K31(2)  |
| 400 | 200 | 0.0022                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG222(1)400(2)       | MMC7.3222(1)400K31(2)  |
| 400 | 200 | 0.0027                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG272(1)400(2)       | MMC7.3272(1)400K31(2)  |
| 400 | 200 | 0.0033                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG332(1)400(2)       | MMC7.3332(1)400K31(2)  |
| 400 | 200 | 0.0039                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG392(1)400(2)       | MMC7.3392(1)400K31(2)  |
| 400 | 200 | 0.0047                  | SG/K31                    | 6.0              | 2.5    | 7.3    | 2824         | 50                    | F160SG472(1)400(2)       | MMC7.3472(1)400K31(2)  |
| 400 | 200 | 0.0056                  | SL/K33                    | 6.0              | 3.0    | 7.3    | 2824         | 50                    | F160SL562(1)400(2)       | MMC7.3562(1)400K33(2)  |
| 400 | 200 | 0.0068                  | SL/K33                    | 6.0              | 3.0    | 7.3    | 2824         | 50                    | F160SL682(1)400(2)       | MMC7.3682(1)400K33(2)  |
| 400 | 200 | 0.0082                  | SL/K33                    | 6.0              | 3.0    | 7.3    | 2824         | 50                    | F160SL822(1)400(2)       | MMC7.3822(1)400K33(2)  |
| 400 | 200 | 0.010                   | SP/K35                    | 6.0              | 3.5    | 7.3    | 2824         | 50                    | F160SP103(1)400(2)       | MMC7.3103(1)400K35(2)  |
| 400 | 200 | 0.012                   | SP/K35                    | 6.0              | 3.5    | 7.3    | 2824         | 50                    | F160SP123(1)400(2)       | MMC7.3123(1)400K35(2)  |
| 400 | 200 | 0.015                   | ST/K37                    | 6.0              | 4.5    | 7.3    | 2824         | 50                    | F160ST153(1)400(2)       | MMC7.3153(1)400K37(2)  |
| 400 | 200 | 0.022                   | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 40                    | F160WP223(1)400(2)       | MMC10.2223(1)400A31(2) |
| 400 | 200 | 0.027                   | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 40                    | F160WP273(1)400(2)       | MMC10.2273(1)400A31(2) |
| 400 | 200 | 0.033                   | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 40                    | F160WP333(1)400(2)       | MMC10.2333(1)400A31(2) |
| 400 | 200 | 0.039                   | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 40                    | F160WP393(1)400(2)       | MMC10.2393(1)400A31(2) |
| 400 | 200 | 0.047                   | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 40                    | F160WP473(1)400(2)       | MMC10.2473(1)400A31(2) |
| 400 | 200 | 0.056                   | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 40                    | F160WP563(1)400(2)       | MMC10.2563(1)400A31(2) |
| 400 | 200 | 0.068                   | WP/A31                    | 9.1              | 5.5    | 10.2   | 4036         | 40                    | F160WP683(1)400(2)       | MMC10.2683(1)400A31(2) |
| 400 | 200 | 0.082                   | YR/B31                    | 11.5             | 6.5    | 12.7   | 5045         | 30                    | F160YR823(1)400(2)       | MMC12.7823(1)400B31(2) |
| 400 | 200 | 0.10                    | YR/B31                    | 11.5             | 6.5    | 12.7   | 5045         | 30                    | F160YR104(1)400(2)       | MMC12.7104(1)400B31(2) |
| 400 | 200 | 0.12                    | YR/B31                    | 11.5             | 6.5    | 12.7   | 5045         | 30                    | F160YR124(1)400(2)       | MMC12.7124(1)400B31(2) |
| 400 | 200 | 0.15                    | YR/B31                    | 11.5             | 6.5    | 12.7   | 5045         | 30                    | F160YR154(1)400(2)       | MMC12.7154(1)400B31(2) |
| 400 | 200 | 0.18                    | ZS/C31                    | 15.0             | 7.0    | 16.5   | 6560         | 20                    | F160ZS184(1)400(2)       | MMC16.5184(1)400C31(2) |
| 400 | 200 | 0.22                    | ZS/C31                    | 15.0             | 7.0    | 16.5   | 6560         | 20                    | F160ZS224(1)400(2)       | MMC16.5224(1)400C31(2) |
| 400 | 200 | 0.27                    | ZS/C31                    | 15.0             | 7.0    | 16.5   | 6560         | 20                    | F160ZS274(1)400(2)       | MMC16.5274(1)400C31(2) |
| 400 | 200 | 0.33                    | ZS/C31                    | 15.0             | 7.0    | 16.5   | 6560         | 20                    | F160ZS334(1)400(2)       | MMC16.5334(1)400C31(2) |
| 400 | 200 | 0.39                    | ZS/C31                    | 15.0             | 7.0    | 16.5   | 6560         | 20                    | F160ZS394(1)400(2)       | MMC16.5394(1)400C31(2) |
| 400 | 200 | 0.47                    | ZS/C31                    | 15.0             | 7.0    | 16.5   | 6560         | 20                    | F160ZS474(1)400(2)       | MMC16.5474(1)400C31(2) |
| VDC | VAC | Cap Value<br>( $\mu$ F) | Size Code<br>(New/Legacy) | B (mm)           | H (mm) | L (mm) | Chip Size    | dV/dt<br>(V/ $\mu$ s) | New KEMET<br>Part Number | Legacy<br>Part Number  |

(1) J =  $\pm 5\%$ , K =  $\pm 10\%$ , other tolerances on request.

(2) Insert ordering code for lead type and packaging. See Ordering Options Table for available options.

# OBSOLETE. Use F161 Series

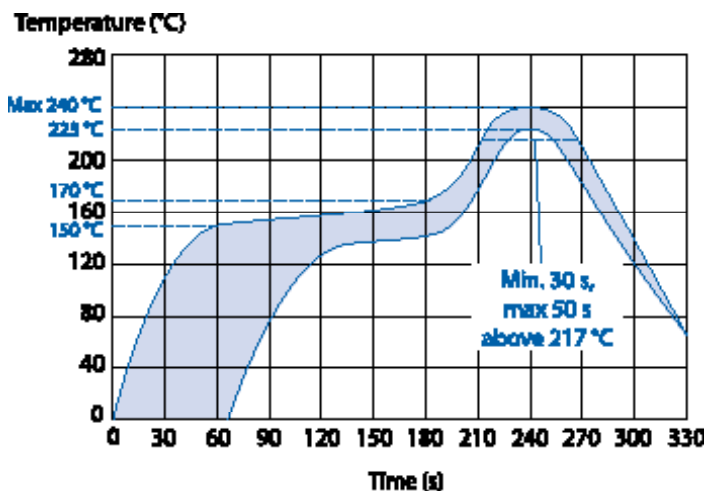
Film Capacitors – General Purpose, High Stability and AC Line EMI Suppression

MMC Series Encapsulated Winding, Size 2220 – 6560, 50 – 400 VDC

Electronic Components  
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## Soldering Process

Reflow soldering temperature is measured on the top body surface of the component. Preheating temperature should be less than 170°C. The time above 217°C should be less than 50 seconds. The peak temperature must not exceed 240°C.



## Marking

- Capacitance
- Capacitance tolerance code
- Rated voltage code
- Capacitor type M for MMC
- Manufacturing date code

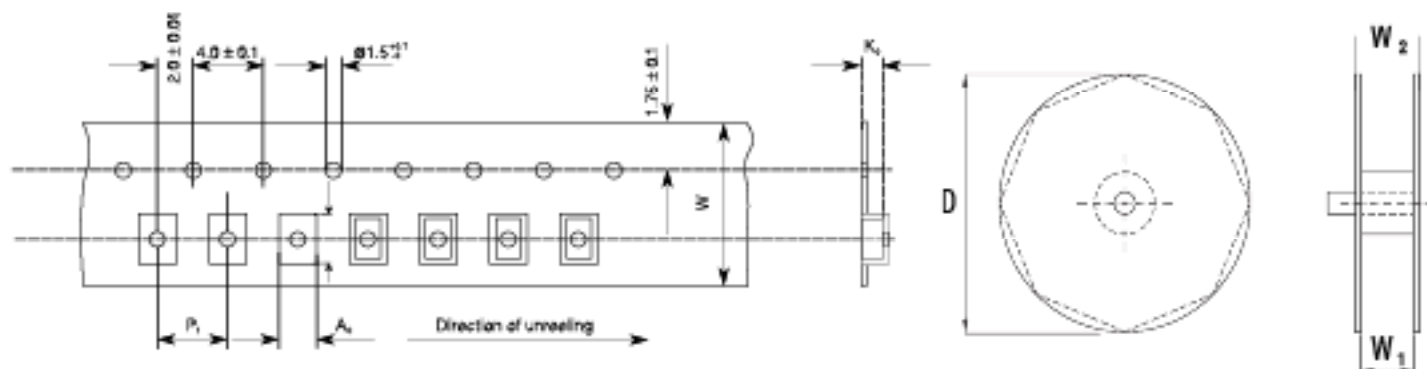
## Packaging Quantities

| Chip Size (EIA) | Base (mm) | Height (mm) | Length (mm) | Bulk | Reel Horizontal Orientation | Reel Vertical Orientation |
|-----------------|-----------|-------------|-------------|------|-----------------------------|---------------------------|
| 2220            | 5         | 2.5         | 5.7         | 2000 | 3100                        |                           |
| 2220            | 5         | 3           | 5.7         | 2000 | 2400                        |                           |
| 2220            | 5         | 4           | 5.7         | 2000 | 2100                        |                           |
| 2824            | 6         | 2.5         | 7.3         | 2000 | 3100                        |                           |
| 2824            | 6         | 3           | 7.3         | 2000 | 2500                        |                           |
| 2824            | 6         | 3.5         | 7.3         | 2000 | 2300                        |                           |
| 2824            | 6         | 4.5         | 7.3         | 1000 | 1700                        |                           |
| 4036            | 9.1       | 5.5         | 10.2        | 1000 | 800                         | 500                       |
| 5045            | 11.5      | 6.5         | 12.7        | 1000 | 600                         | 400                       |
| 6560            | 15        | 7           | 16.5        | 800  | 500                         | 200                       |

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## Carrier Taping & Packaging (IEC 60286-2)

### Horizontal Taping Orientation

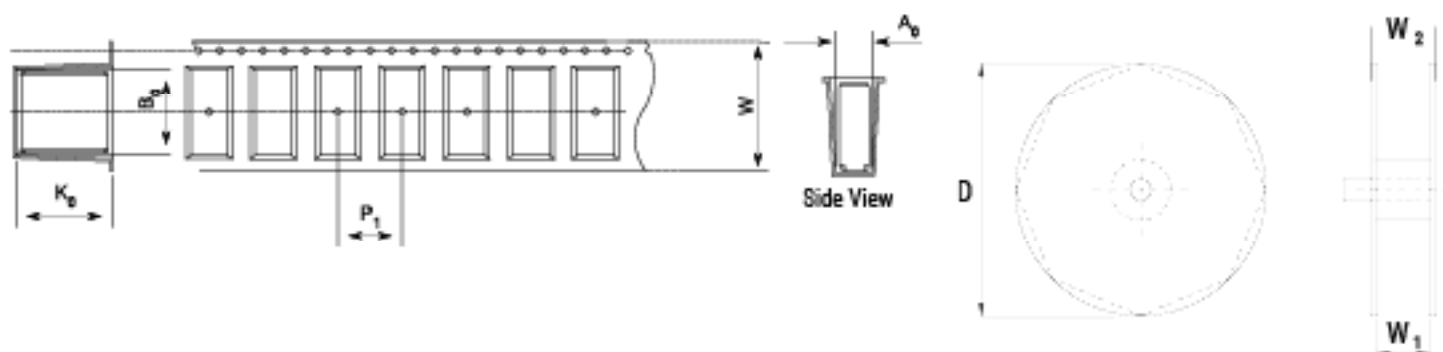


| EIA Size Code<br>Horizontal<br>Mounting | Dimensions in mm |         |         | Taping Specification |                |                |                |                |        |                |                |
|-----------------------------------------|------------------|---------|---------|----------------------|----------------|----------------|----------------|----------------|--------|----------------|----------------|
|                                         | B                | H       | L       | W                    | P <sub>1</sub> | A <sub>0</sub> | B <sub>0</sub> | K <sub>0</sub> | D      | W <sub>1</sub> | W <sub>2</sub> |
|                                         | Nominal          | Nominal | Nominal | -0/+0.3              | +/-0.1         | Nominal        | Nominal        | Nominal        | -/+2.0 | -0/+2          | Maximum        |
| 2220                                    | 5.0              | 2.5     | 5.7     | 12.0                 | 8.0            | 5.5            | 6.0            | 2.8            | 330    | 12.4           | 22.0           |
| 2220                                    | 5.0              | 3.0     | 5.7     | 12.0                 | 8.0            | 5.5            | 6.0            | 3.3            | 330    | 12.4           | 22.0           |
| 2220                                    | 5.0              | 4.0     | 5.7     | 12.0                 | 8.0            | 5.5            | 6.0            | 4.3            | 330    | 12.4           | 22.0           |
| 2824                                    | 6.0              | 2.5     | 7.3     | 12.0                 | 8.0            | 6.5            | 7.5            | 2.8            | 330    | 12.4           | 22.0           |
| 2824                                    | 6.0              | 3.0     | 7.3     | 12.0                 | 8.0            | 6.5            | 7.5            | 3.3            | 330    | 12.4           | 22.0           |
| 2824                                    | 6.0              | 3.5     | 7.3     | 12.0                 | 8.0            | 6.5            | 7.5            | 3.8            | 330    | 12.4           | 22.0           |
| 2824                                    | 6.0              | 4.5     | 7.3     | 12.0                 | 8.0            | 6.5            | 7.5            | 4.8            | 330    | 12.4           | 22.0           |
| 4036                                    | 9.1              | 5.5     | 10.2    | 16.0                 | 16.0           | 9.5            | 10.5           | 5.8            | 330    | 16.4           | 22.0           |
| 5045                                    | 11.5             | 6.5     | 12.7    | 24.0                 | 16.0           | 11.9           | 13.1           | 6.8            | 330    | 24.4           | 30.0           |
| 6560                                    | 15.0             | 7.0     | 16.5    | 24.0                 | 20.0           | 15.4           | 16.8           | 7.3            | 330    | 24.4           | 30.0           |

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## Carrier Taping & Packaging (IEC 60286-2) cont'd

### Vertical Taping Orientation



| Size Code<br>Vertical<br>Mounting | Dimensions in mm |         |         | Taping Specification |                |                |                |                |        |                |                |
|-----------------------------------|------------------|---------|---------|----------------------|----------------|----------------|----------------|----------------|--------|----------------|----------------|
|                                   | B                | H       | L       | W                    | P <sub>1</sub> | A <sub>0</sub> | B <sub>0</sub> | K <sub>0</sub> | D      | W <sub>1</sub> | W <sub>2</sub> |
|                                   | Nominal          | Nominal | Nominal | -0/+0.3              | +/-0.1         | Nominal        | Nominal        | Nominal        | -/+2.0 | -0/+2          | Maximum        |
| 4022                              | 5.5              | 9.1     | 10.2    | 24.0                 | 16.0           | 6.0            | 10.5           | 9.3            | 330    | 24.4           | 30.0           |
| 5026                              | 6.5              | 11.5    | 12.7    | 24.0                 | 16.0           | 6.9            | 13.1           | 11.8           | 330    | 24.4           | 30.0           |
| 6528                              | 7.0              | 15.0    | 16.5    | 44.0                 | 20.0           | 7.5            | 17.0           | 15.3           | 330    | 44.5           | 49.5           |

Note: Chip dimensions B and H correspond to dimensions H and B in the horizontal mounting table.

# OBSOLETE. Use F161 Series.

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