



Siemens Matsushita Components

# Multilayer Ceramic Capacitor Arrays

MLCC-Arrays (Size 1206)

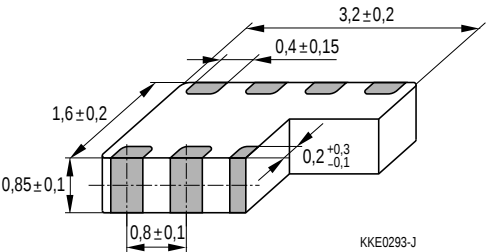
C0G(NP0)/X7R/Y5V

Data Book Supplement



Features

- 4 single capacitors case size 0603 are combined in one 1206 package
- Very well- known case size 1206
- Suitable for the reflow soldering process



|                                                | C0G (NP0)                 | X7R                       | Y5V                       |
|------------------------------------------------|---------------------------|---------------------------|---------------------------|
| <b>Electrical characteristics</b>              |                           |                           |                           |
| Dielectric                                     | Class 1                   | Class 2                   | Class 2                   |
| Rated voltage $V_R$<br>Vdc                     | 50                        | 16/25/50                  | 16/25                     |
| Climatic category (IEC 68- 1)                  | 55/125/56                 | 55/125/56                 | 30/085/56                 |
| Temperature range                              | - 55 °C ... + 125 °C      | - 55 °C ... + 125 °C      | - 30 °C ... + 85 °C       |
| Available capacitance values $C_R$<br>E series | 10 pF ... 470 pF<br>E3    | 470 pF ... 0,1 µF<br>E3   | 0,1 µF; 1 µF              |
| Capacitance tolerance                          | ± 10 %                    | ± 20 %                    | + 80 % / - 20 %           |
| Temperature coefficient<br>(tolerance)         | 0±30·10 <sup>-6</sup> /K  | —                         | —                         |
| Max. rel. capacitance change $\Delta C/C$      | —                         | ± 15 %                    | - 82% ... + 22 %          |
| Voltage test                                   | 2,5 · $V_R$ /5 s          |                           |                           |
| Dissipation factor $\tan \delta$ (limit value) |                           |                           | < 125 · 10 <sup>-3</sup>  |
| Insulation resistance <sup>1)</sup> at 20 °C   | ≥ 10 <sup>4</sup> MΩ<br>— | ≥ 10 <sup>4</sup> MΩ<br>— | ≥ 10 <sup>4</sup> MΩ<br>— |
| Time constant $\tau$ <sup>1)</sup> at 20 °C    | > 500 s                   | > 500 s                   | > 500 s                   |
| <b>Solderability</b> (IEC 68-2-58)             |                           |                           |                           |
| Wetting of pads > 95%                          | 215 °C, 3 sec             |                           |                           |
| Resistance to soldering heat                   | 260 °C, 10 sec            |                           |                           |

1) Whichever is lower.

Product range

| Temp.<br>charact.    | C0G (NP0)                    |    | X7R    |    |    | Y5V    |    |
|----------------------|------------------------------|----|--------|----|----|--------|----|
| Type                 | B37871                       |    | B37872 |    |    | B37873 |    |
| V <sub>R</sub> (Vdc) |                              | 50 | 16     | 25 | 50 | 16     | 25 |
|                      | Chip thickness 0,85 ± 0,1 mm |    |        |    |    |        |    |
| 10, 0 pF             |                              |    |        |    |    |        |    |
| 22,0 pF              |                              |    |        |    |    |        |    |
| 47,0 pF              |                              |    |        |    |    |        |    |
| 100, pF              |                              |    |        |    |    |        |    |
| 220 pF               |                              |    |        |    |    |        |    |
| 470 pF               |                              |    |        |    |    |        |    |
| 1,0 nF               |                              |    |        |    |    |        |    |
| 2,2 nF               |                              |    |        |    |    |        |    |
| 4,7 nF               |                              |    |        |    |    |        |    |
| 10 nF                |                              |    |        |    |    |        |    |
| 22 nF                |                              |    |        |    |    |        |    |
| 47 nF                |                              |    |        |    |    |        |    |
| 100 nF               |                              |    |        |    |    |        |    |
| 1,0 µF               |                              |    |        |    |    |        |    |

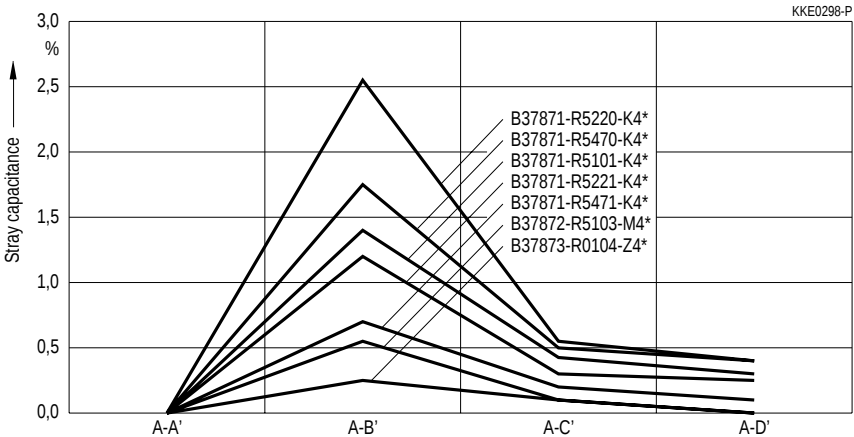
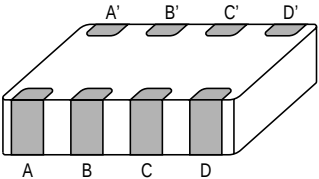


Ordering codes

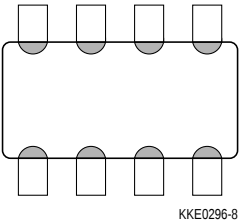
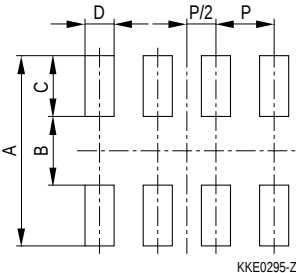
| Temp. charac. | $V_R$<br>(Vdc) | $C_R$       | Ordering code      | Packing units | Taping    |
|---------------|----------------|-------------|--------------------|---------------|-----------|
| C0G<br>(NP0)  | 50             | 10 pF       | B37871- R5100- K41 | 4 000         | Cardboard |
|               |                | 22 pF       | B37871- R5220- K41 | 4 000         | Cardboard |
|               |                | 47 pF       | B37871- R5470- K41 | 4 000         | Cardboard |
|               |                | 100 pF      | B37871- R5101- K41 | 4 000         | Cardboard |
|               |                | 220 pF      | B37871- R5221- K41 | 4 000         | Cardboard |
|               |                | 470 pF      | B37871- R5471- K41 | 4 000         | Cardboard |
| X7R           | 16             | 100 nF      | B37872- R9104- M41 | 4 000         | Cardboard |
|               | 25             | 22 nF       | B37872- R0223- M41 | 4 000         | Cardboard |
|               |                | 47 nF       | B37872- R0473- M41 | 4 000         | Cardboard |
|               | 50             | 470 pF      | B37872- R5471- M41 | 4 000         | Cardboard |
|               |                | 1,0 nF      | B37872- R5102- M41 | 4 000         | Cardboard |
|               |                | 2,2 nF      | B37872- R5222- M41 | 4 000         | Cardboard |
|               |                | 4,7 nF      | B37872- R5472- M41 | 4 000         | Cardboard |
|               |                | 10 nF       | B37872- R5103- M41 | 4 000         | Cardboard |
|               |                | 22 nF       | B37872- R5223- M41 | 4 000         | Cardboard |
|               |                | 47 nF       | B37872- R5473- M41 | 4 000         | Cardboard |
| Y5V           | 16             | 1,0 $\mu$ F | B37873- R9105- Z41 | 4 000         | Cardboard |
|               | 25             | 100 nF      | B37873- R0104- Z41 | 4 000         | Cardboard |

Crosstalk

(Stray Capacitance)



Geometry of solder pads



Dimensions in mm

| A         | B         | C         | D          | P         |
|-----------|-----------|-----------|------------|-----------|
| 2,8 ± 0,1 | 1,0 ± 0,1 | 0,9 ± 0,1 | 0,4 ± 0,05 | 0,8 ± 0,1 |

Ordering code system



B37871-

R

5

101-

K

4

1

**Packaging**  
1 = cardboard tape, reel dia. 180 mm (7 ")  
2 = blister tape, reel dia. 180 mm (7 ")  
3 = cardboard tape, reel dia. 330 mm (13 ")  
4 = blister tape, reel dia. 330 mm (13 ")

**4 = 4 Cap array**

**Capacitance tolerance**  
(tolerance code in acc. with IEC 62)

|            |            |                   |
|------------|------------|-------------------|
| C0G(NP0)   | X7R        | Y5V               |
| K = ± 10 % | M = ± 20 % | Z = + 80 % - 20 % |

|                           |              |              |              |
|---------------------------|--------------|--------------|--------------|
| <b>Capacitance, coded</b> | 100 = 10 pF  | 472 = 4,7 nF | 104 = 100 nF |
|                           | 101 = 100 pF | 103 = 10 nF  | 105 = 1 µF   |
|                           | 102 = 1 nF   | 473 = 47 nF  |              |
|                           |              |              |              |

|                      |                     |    |    |    |
|----------------------|---------------------|----|----|----|
| <b>Rated voltage</b> | Rated voltage [Vdc] | 16 | 25 | 50 |
|                      | Code                | 9  | 0  | 5  |

**R = Array**

| Type and size            |                                         |        |        |
|--------------------------|-----------------------------------------|--------|--------|
| Chip size<br>(inch / mm) | Temperature characteristics<br>C0G(NP0) |        |        |
|                          | X7R                                     | Y5V    |        |
| 1206 / 3216              | B37871                                  | B37872 | B37873 |

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