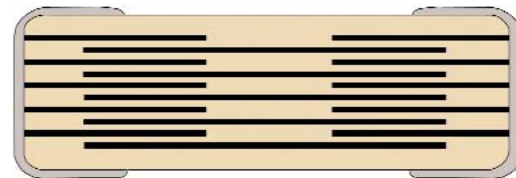


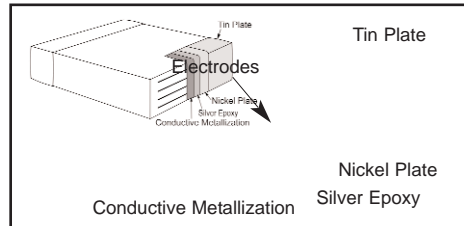
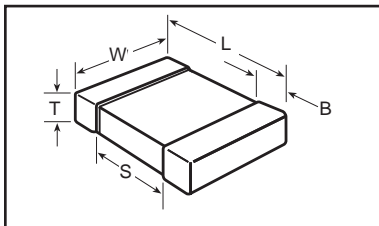
**Fail-Safe Floating Electrode MLCC with Flexible Termination
FF-CAP / X7R Dielectric**



Floating (Cascading) Electrode Internal Design



Outline Drawing



Product Description

The FF-CAP incorporates two existing KEMET technologies; Floating Electrode (cascading electrode design) and Flexible Termination. The floating electrode component of these capacitors yields improved voltage and ESD performance over standard designs, and also mitigates the risk of low IR or short circuit failures associated with mechanical flex cracks. The flexible termination component incorporates a measure of flexibility to the capacitor, shifting flex stress away from the ceramic body and into the termination area.

The combination of these technologies ensures an increased measure of protection from board flex, offering up to 5mm of flex-bend capability. This provides for an enhanced level of mechanical flex crack protection for low to mid capacitance part types.

Dimensions – Millimeters (Inches)

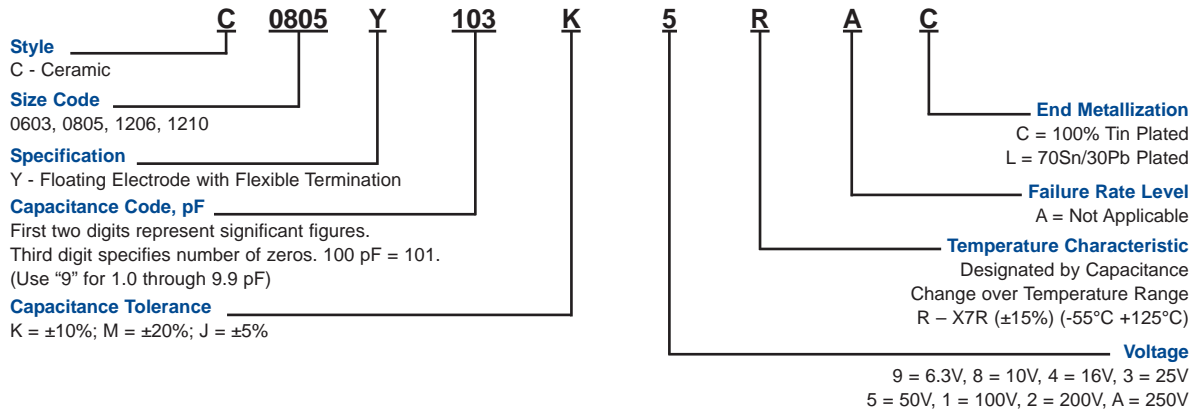
| EIA Size Code | Metric Size Code | L Length | W Width | B Bandwidth | S Separation |
|---------------|------------------|--------------------------|---------------------------|---------------------------|--------------|
| 0603 | 1608 | 1.8 (.071) ± 0.15 (.006) | 0.8 (.032) ± 0.15 (.006) | 0.35 (.014) ± 0.15 (.006) | 0.70 (.028) |
| 0805 | 2012 | 2.2 (.087) ± 0.20 (.008) | 1.25 (.049) ± 0.20 (.008) | 0.05 (.02) ± 0.25 (.010) | 0.75 (.030) |
| 1206 | 3216 | 3.4 (.134) ± 0.20 (.008) | 1.6 (.063) ± 0.20 (.008) | 0.50 (.02) ± .25 (.010) | N/A |
| 1210 | 3225 | 3.4 (.134) ± 0.20 (.008) | 2.5 (.098) ± 0.20 (.008) | 0.50 (.02) ± .25 (.010) | N/A |

Refer to standard thickness dimensions and table located in the F3102 SMT catalog on pages 73, 74, and 77.

X7R Capacitance Range

| CAP (pF) | CAP (nF) | CAP CODE | 0603 | | | | | | 0805 | | | | | | 1206 | | | | | | 1210 | | | | | | | | | | | | |
|-------------|-------------|-------------|------|----|----|----|----|-----|------|-----|----|----|----|----|------|-----|-----|-----|----|----|------|----|-----|-----|-----|-----|----|----|----|----|-----|-----|-----|
| | | | 6.3 | 10 | 16 | 25 | 50 | 100 | 200 | 6.3 | 10 | 16 | 25 | 50 | 100 | 200 | 250 | 6.3 | 10 | 16 | 25 | 50 | 100 | 200 | 250 | 6.3 | 10 | 16 | 25 | 50 | 100 | 200 | 250 |
| 150 | 0.15 | 151 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 180 | 0.18 | 181 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 220 | 0.22 | 221 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 270 | 0.27 | 271 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 330 | 0.33 | 331 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 390 | 0.39 | 391 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 470 | 0.47 | 471 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 560 | 0.56 | 561 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 680 | 0.68 | 681 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 820 | 0.82 | 821 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1000 | 1.00 | 102 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1200 | 1.2 | 122 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1500 | 1.5 | 152 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1800 | 1.8 | 182 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2200 | 2.2 | 222 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2700 | 2.7 | 272 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3300 | 3.3 | 332 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3900 | 3.9 | 392 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4700 | 4.7 | 472 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5600 | 5.6 | 562 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6800 | 6.8 | 682 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8200 | 8.2 | 822 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10000 | 10 | 103 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12000 | 12 | 123 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15000 | 15 | 153 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18000 | 18 | 183 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22000 | 22 | 223 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27000 | 27 | 273 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 33000 | 33 | 333 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39000 | 39 | 393 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 47000 | 47 | 473 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 56000 | 56 | 563 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 68000 | 68 | 683 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 82000 | 82 | 823 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 100000 | 100 | 104 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 120000 | 120 | 124 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 150000 | 150 | 154 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 180000 | 180 | 184 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 220000 | 220 | 224 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Ordering Information



Electrical Parameters

As detailed in the KEMET Surface Mount Catalog F3102 for X7R, with following specific requirements based on room temperature (25°C) parameters:

- Operating Range: -55°C to +125°C, with no-bias capacitance shift limited to ± 15% over that range.
- Insulation Resistance (IR) measured after 2 minutes at rated voltage @ 25°C: Limit is 1,000 megohm microfarads or 100 gigohm, whichever is less.
- Capacitance and Dissipation Factor (DF) measured at 1kHz and 1 Vrms.
DF Limits are:

| | |
|----------------|------|
| 50 - 250 Volts | 2.5% |
| 16 - 25 Volts | 3.5% |
| 6.3 - 10 Volts | 5.0% |

Soldering Process

These components are suitable for reflow and wave soldering. All parts incorporate the standard KEMET barrier layer of pure nickel, with an overplate of pure tin to provide excellent solderability as well as resistance to leaching.

Marking

These chips will be supplied unmarked. If required, they can be laser-marked as an extra option. Details on the marking format are included in KEMET Surface Mount catalog F3102.

Qualification/Certification

AEC-Q200 Rev. C - Automotive
RoHS 6 - 100% tin termination

In general, the information in the KEMET Surface Mount catalog F3102 applies to these capacitors. The information in this bulletin supplements that in the catalog.