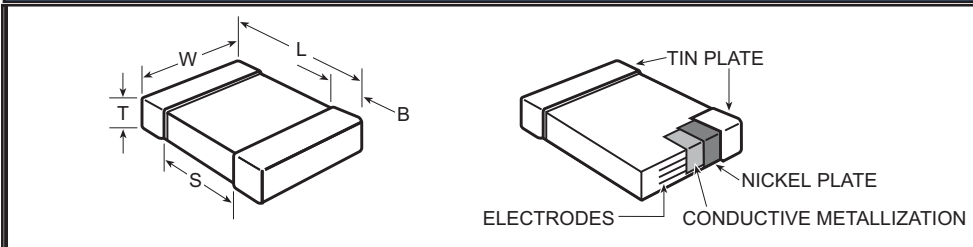


## Fail-Safe Floating Electrode MLCC / FE-CAP / X7R Dielectric

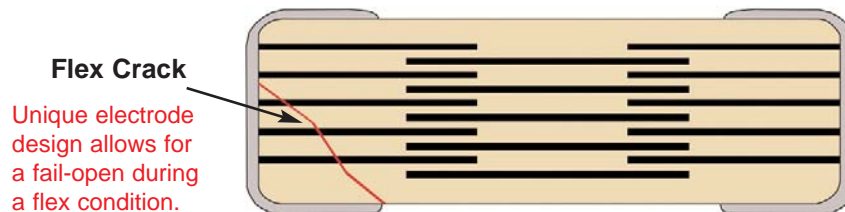
### Outline Drawing



### Product Description

The FE-CAP is a SMD MLCC which utilizes a floating internal electrode design, wherein the electrodes are configured to form multiple capacitors in series within a single MLCC package. This not only yields improved voltage and ESD performance over standard designs, but also mitigates the risk of low-IR or short-circuit failures that can occur due to board flex. Combined with the stability of an X7R dielectric, the FE-CAP complements KEMET's Open Mode Devices by providing a fail-safe design optimized for low- to mid-range capacitance values.

### FE-CAP Internal Design



### Dimensions – Millimeters (Inches)

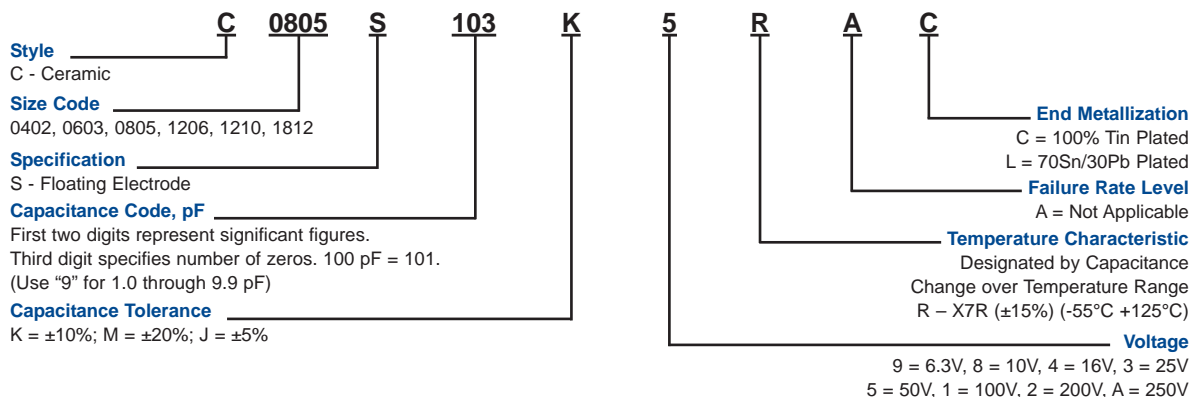
EIA Size Code	Metric Size Code	L Length	W Width	B Bandwidth	S Separation
0402	1005	1.0 (.04) ± 0.05 (.002)	0.5 (.02) ± 0.05 (.002)	0.20 (.008) -0.40 (.016)	0.30 (.012)
0603	1608	1.6 (.063) ± 0.15 (.006)	0.8 (.032) ± 0.15 (.006)	0.35 (.014) ± 0.15 (.006)	0.70 (.028)
0805	2012	2.0 (.079) ± 0.20 (.008)	1.25 (.049) ± 0.20 (.008)	0.05 (.02) ± 0.25 (.010)	0.75 (.030)
1206	3216	3.2 (.126) ± 0.20 (.008)	1.6 (.063) ± 0.20 (.008)	0.50 (.02) ± .25 (.010)	N/A
1210	3225	3.2 (.126) ± 0.20 (.008)	2.5 (.098) ± 0.20 (.008)	0.50 (.02) ± .25 (.010)	N/A
1812	4532	4.5 (.177) ± 0.30 (.012)	3.2 (.126) ± 0.30 (.012)	0.60 (.024) ± .35 (.014)	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	0402					0603					0805					1206					1210					1812														
			6.3	10	16	25	50	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	6.3	10	16	25
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.***

RoHS Compliant

