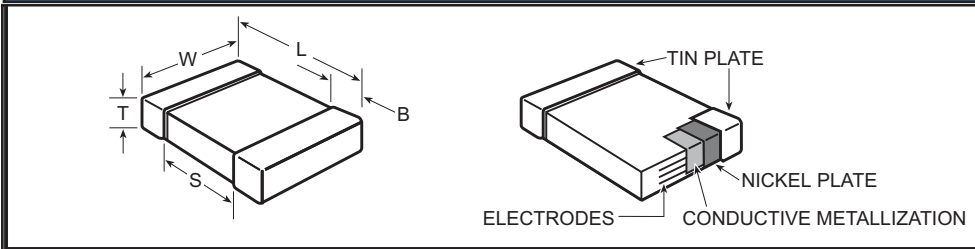


## Fail-Safe Floating Electrode MLCC / FE-CAP / X7R Dielectric

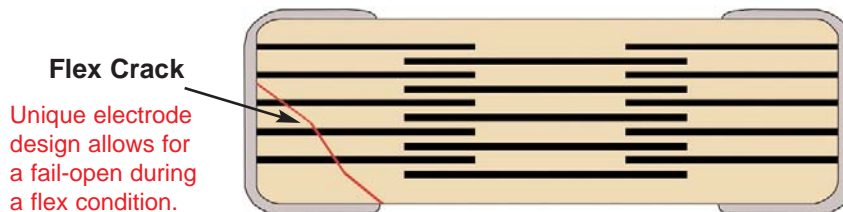
### Outline Drawing



### Product Description

The FE-CAP is a SMD MLCC utilizing 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)

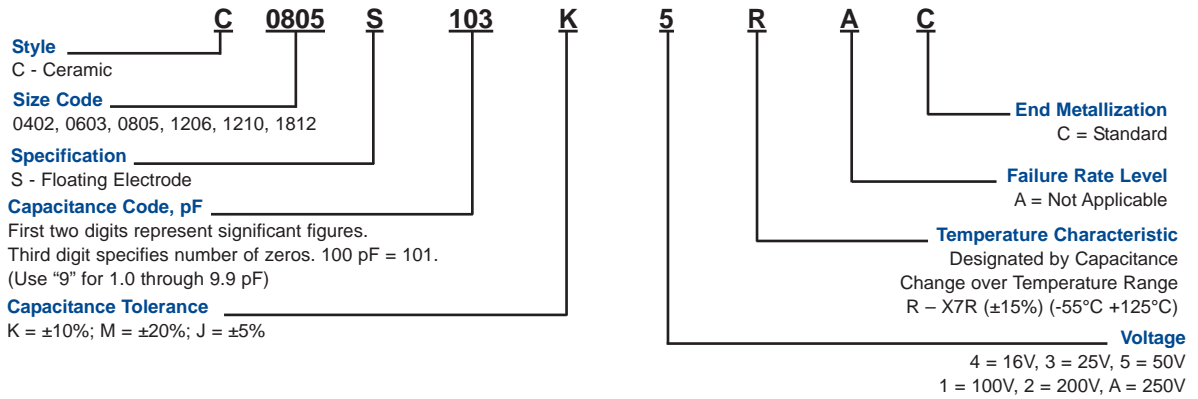
EIA Size Code	Metric Size Code	L Length	W Width	B Bandwidth	S Separation
0402	1005	1.0 (.04) ± 0.05 (.002)	0.5 (.02) ± 0.05 (.002)	0.20 (.008) -0.40 (.016)	0.30 (.012)
0603	1608	1.6 (.063) ± 0.15 (.006)	0.8 (.032) ± 0.15 (.006)	0.35 (.014) ± 0.15 (.006)	0.70 (.028)
0805	2012	2.0 (.079) ± 0.20 (.008)	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								
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%

## 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.

***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.***