

FP series

Anti-Bend (Soft termination) capacitor series

◆ Features

- » High performance to withstanding 5mm of substrate bending test guarantee
- » A wide selection of sizes is available (0603 to 2225)
- » High capacitance in given case size
- » Capacitor with lead-free termination (pure Tin)
- » Reduction in PCB bend failure
- » High reliability and stability.
- » RoHS & HALOGEN compliant.

◆ Applications

- » For general digital circuit
- » For power supply bypass capacitors
- » For consumer electronics
- » For telecommunication
- » DC to DC converter

◆ Part Number

FP Series	0805 Size	X Dielectric	103 Capacitance	K Tolerance	251 Rated voltage
	Inch: 0402, 0603, 0805, 1206, 1210, 1808, 1812, 2220, 2225	N: NPO (COG) X: X7R	Two significant Digits followed by no. of Zeros And P is in place of decimal point. Eg.: 1P5 = 1.5pF 100=10x10 ⁰ =10pF 103=10x10 ³ =10nF	B=±0.1pF C=±0.25pF D=±0.5pF F=±1% G=±2% J=±5% K=±10% M=±20%	Two significant Digits followed by no. of zeros and V is in place of decimal point 500=50 VDC 101=100 VDC 201=200 VDC 251=250 VDC 501=500 VDC 631=630 VDC 102=1K VDC 202=2K VDC 302=3K VDC

◆ General Electrical Data

Dielectric	NPO	X7R
Size	0402, 0603, 0805, 1206, 1210, 1808, 1812, 1825, 2220, 2225	0402, 0603, 0805, 1206, 1210, 1808, 1812, 1825, 2220, 2225
Rated voltage (WVDC)	50V, 100V, 200V, 250V, 500V, 630V 1KV, 2KV, 3KV	50V, 100V, 200V, 250V, 500V, 630V 1KV, 2KV, 3KV
Capacitance range*	0.5pF ~150nF	100pF ~10uF
Capacitance tolerance**	Cap≤5pF: B (±0.1pF), C (±0.25pF) 5pF<Cap<10pF: C (±0.25pF), D (±0.5pF) Cap≥10pF: F (±1%), G (±2%), J (±5%), K (±10%)	J (±5%), K (±10%), M (±20%)
Tan δ	Cap<30pF: Q≥400+20C Cap≥30pF: Q≥1000	50V ≤ 2.5%** 100V ~ 3KV ≤ 2.5%
Insulation resistance at U _R	≥100GΩ or R x C≥1000 whichever is smaller	≥10GΩ or R x C≥ 500Ω-F whichever is smaller
Operating temperature	-55 to +125°C	
Temperature coefficient	±30ppm / °C	±15%
Termination	Ag (or Cu)/Ni/Sn (lead-free termination)	

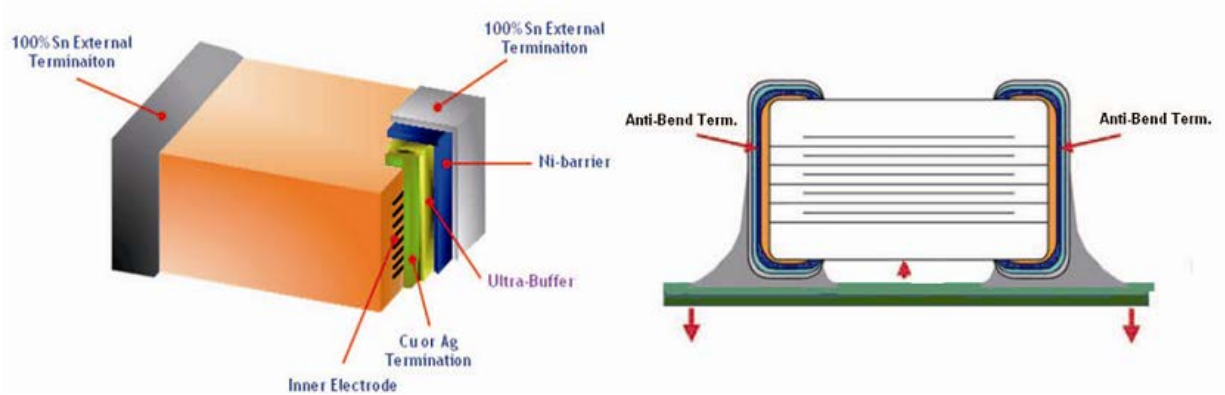
* Measured at 1.0±0.2Vrms, 1.0kHz±10% for C≤10μF; 0.5±0.2Vrms, 120Hz±20% for C>10μF, 30~70% related humidity, 25°C ambient temperature.

**X7R:

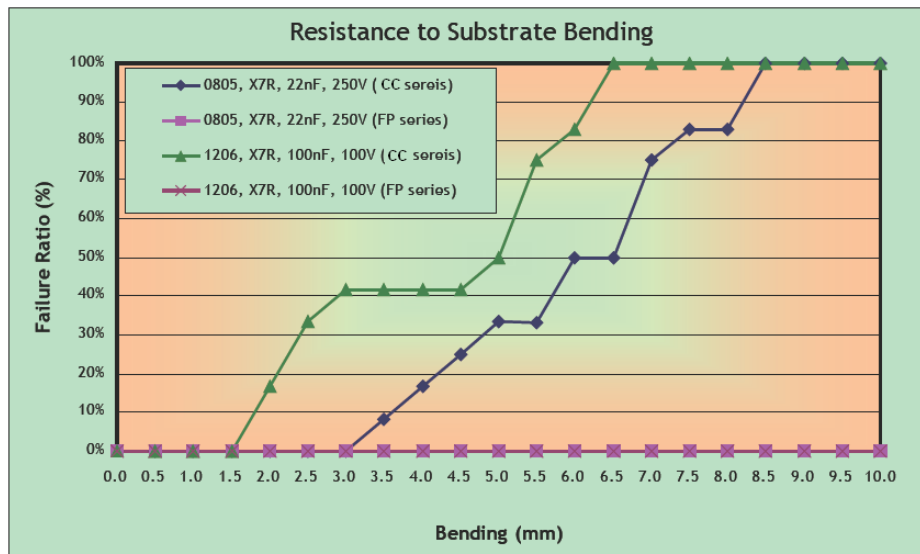
Rated vol.	D.F.	Exception of D.F.
50V	≤2.5%	≤3.0% 0603≥0.047μF 0805≥0.18μF 1206≥0.47μF

◆ Structure

Faithful Link FP series is added a special termination material (Ultra-Buffer or Anti-Bend) between ceramic body and Ni-barrier that can absorb mechanical stress to prevent bending crack occurred.



◆ Comparison of Bending Test Result



PCB TEST RESULT				
Size	Dielectric	Mean Bend CC series (mm)	Mean Bend FP series (mm)	Improvement With Ultra-buffer
0603	X7R	≥ 2	≥ 5	300%
0805	X7R	≥ 2	≥ 5	300%
1206	X7R	≥ 2	≥ 5	300%
1210	X7R	≥ 2	≥ 5	300%
1808	X7R	≥ 3	≥ 5	300%
1812	X7R	≥ 3	≥ 5	140%
1825	X7R	≥ 3	≥ 5	117%
2220	X7R	≥ 5	≥ 7	114%
2225	X7R	≥ 5	≥ 7	114%

◆ Capacitance Range

Dielectric	NPO (C0G)																						
	0402				0603				0805				1206										
Size	10	16	25 50	100	50	100	200	250	50	100	200	250	500	630	50	100	200	250	500	630	1KV	2KV	
Rated Voltage																							
0.5pF (0P5)																							
1.0pF (1P0)																							
1.2pF (1P2)																							
1.5pF (1P5)																							
1.8pF (1P8)																							
2.2pF (2P2)																							
2.7pF (2P7)																							
3.3pF (3P3)																							
3.9pF (3P9)																							
4.7pF (4P7)																							
5.6pF (5P6)																							
6.8pF (6P8)																							
8.2pF (8P2)																							
10pF (100)																							
12pF (120)																							
15pF (150)																							
18pF (180)																							
22pF (220)																							
27pF (270)																							
33pF (330)																							
39pF (390)																							
47pF (470)																							
56pF (560)																							
68pF (680)																							
82pF (820)																							
100pF (101)																							
120pF (121)																							
150pF (151)																							
180pF (181)																							
220pF (221)																							
270pF (271)																							
330pF (331)																							
390pF (391)																							
470pF (471)																							
560pF (561)																							
680pF (681)																							
820pF (821)																							
1000pF (102)																							
1200pF (122)																							
1500pF (152)																							
1800pF (182)																							
2200pF (222)																							
2700pF (272)																							
3300pF (332)																							
3900pF (392)																							
4700pF (472)																							
5600pF (562)																							
6800pF (682)																							

820pF (821)																			
1000pF (102)																			
1200pF (122)																			
1500pF (152)																			
1800pF (182)																			
2200pF (222)																			
2700pF (272)																			
3300pF (332)																			
3900pF (392)																			
4700pF (472)																			
5600pF (562)																			
6800pF (682)																			
8200pF (822)																			
10000pF (103)																			
12000pF (123)																			
15000pF (153)																			
18000pF (183)																			
22000pF (223)																			

◆ Capacitance Range

Dielectric	NPO (COG)																			
	Size	1812									1825									
		Rated Voltage	50	100	200	250	500	630	1KV	2KV	3KV	50	100	200	250	500	630	1KV	2KV	3KV
10pF (100)																				
12pF (120)																				
15pF (150)																				
18pF (180)																				
22pF (220)																				
27pF (270)																				
33pF (330)																				
39pF (390)																				
47pF (470)																				
56pF (560)																				
68pF (680)																				
82pF (820)																				
100pF (101)																				
120pF (121)																				
150pF (151)																				
180pF (181)																				
220pF (221)																				
270pF (271)																				
330pF (331)																				
390pF (391)																				
470pF (471)																				
560pF (561)																				
680pF (681)																				
820pF (821)																				
1000pF (102)																				
1200pF (122)																				
1500pF (152)																				
1800pF (182)																				
2200pF (222)																				
2700pF (272)																				
3300pF (332)																				

3900pF (392)																							
4700pF (472)																							
5600pF (562)																							
6800pF (682)																							
8200pF (822)																							
10000pF (103)																							
12000pF (123)																							
15000pF (153)																							
18000pF (183)																							
22000pF (223)																							
27000pF (273)																							
33000pF (333)																							
39000pF (393)																							
47000pF (473)																							
56000pF (563)																							
68000pF (683)																							
82000pF (823)																							
100000pF (104)																							
120000pF (124)																							

◆ Capacitance Range

Dielectric	NPO (C0G)																			
	Size		2220								2225									
Rated Voltage	50	100	200	250	500	630	1KV	2KV	3KV	50	100	200	250	500	630	1KV	2KV	3KV		
10pF (100)																				
12pF (120)																				
15pF (150)																				
18pF (180)																				
22pF (220)																				
27pF (270)																				
33pF (330)																				
39pF (390)																				
47pF (470)																				
56pF (560)																				
68pF (680)																				
82pF (820)																				
100pF (101)																				
120pF (121)																				
150pF (151)																				
180pF (181)																				
220pF (221)																				
270pF (271)																				
330pF (331)																				
390pF (391)																				
470pF (471)																				
560pF (561)																				
680pF (681)																				
820pF (821)																				
1000pF (102)																				

1500pF (152)																			
1800pF (182)																			
2200pF (222)																			
2700pF (272)																			
3300pF (332)																			
3900pF (392)																			
4700pF (472)																			
5600pF (562)																			
6800pF (682)																			
8200pF (822)																			
0.010uF (103)																			
0.012uF (123)																			
0.015uF (153)																			
0.018uF (183)																			
0.022uF (223)																			
0.027uF (273)																			
0.033uF (333)																			
0.039uF (393)																			
0.047uF (473)																			
0.056uF (563)																			
0.068uF (683)																			
0.082uF (823)																			
0.10uF (104)																			
0.12uF (124)																			
0.15uF (154)																			
0.18uF (184)																			
0.22uF (224)																			
0.27uF (274)																			
0.33uF (334)																			
0.39uF (394)																			
0.47uF (474)																			
0.56uF (564)																			
0.68uF (684)																			
0.82uF (824)																			
1.0uF (105)																			
1.5uF (155)																			
2.2uF (225)																			
3.3uF(335)																			
4.7uF(475)																			
6.8uF(685)																			
10uF(106)																			

◆ **Capacitance Range**

Dielectric		X7R																	
		1812									1825								
Size		50	100	200	250	500	630	1K	2K	3K	50	100	200	250	500	630	1K	2K	3K
Rated Voltage		50	100	200	250	500	630	1K	2K	3K	50	100	200	250	500	630	1K	2K	3K
Capacitance	270pF (271)																		
	330pF (331)																		
	390pF (391)																		
	470pF (471)																		
	560pF (561)																		
	680pF (681)																		
	820pF (821)																		
	1000pF (102)																		
	1200pF (122)																		
	1500pF (152)																		

1800pF (182)																			
2200pF (222)																			
2700pF (272)																			
3300pF (332)																			
3900pF (392)																			
4700pF (472)																			
5600pF (562)																			
6800pF (682)																			
8200pF (822)																			
0.010uF (103)																			
0.012uF (123)																			
0.015uF (153)																			
0.018uF (183)																			
0.022uF (223)																			
0.027uF (273)																			
0.033uF (333)																			
0.039uF (393)																			
0.047uF (473)																			
0.056uF (563)																			
0.068uF (683)																			
0.082uF (823)																			
0.10uF (104)																			
0.12uF (124)																			
0.15uF (154)																			
0.18uF (184)																			
0.22uF (224)																			
0.27uF (274)																			
0.33uF (334)																			
0.39uF (394)																			
0.47uF (474)																			
0.56uF (564)																			
0.68uF (684)																			
0.82uF (824)																			
1.0uF (105)																			
1.50uF (155)																			
2.20uF (225)																			
3.30uF (335)																			
4.70uF (475)																			
6.80uF (685)																			
10.0uF (106)																			

◆ Capacitance Range

Dielectric	X7R																	
	2220									2225								
	50	100	200	250	500	630	1K	2K	3K	50	100	200	250	500	630	1K	2K	3K
Size																		
Rated Voltage																		
1000pF (102)																		
1200pF (122)																		
1500pF (152)																		
1800pF (182)																		
2200pF (222)																		
2700pF (272)																		
3300pF (332)																		
3900pF (392)																		
4700pF (472)																		
5600pF (562)																		
6800pF (682)																		

8200pF (822)																		
0.010uF (103)																		
0.012uF (123)																		
0.015uF (153)																		
0.018uF (183)																		
0.022uF (223)																		
0.027uF (273)																		
0.033uF (333)																		
0.039uF (393)																		
0.047uF (473)																		
0.056uF (563)																		
0.068uF (683)																		
0.082uF (823)																		
0.10uF (104)																		
0.12uF (124)																		
0.15uF (154)																		
0.18uF (184)																		
0.22uF (224)																		
0.27uF (274)																		
0.33uF (334)																		
0.39uF (394)																		
0.47uF (474)																		
0.56uF (564)																		
0.68uF (684)																		
0.82uF (824)																		
1.0uF (105)																		
1.2uF (125)																		
1.5uF (155)																		
1.8uF (185)																		
2.2uF (225)																		
3.3uF(335)																		
4.7uF (475)																		
6.8uF (685)																		
10uF (106)																		