



FEATURES:

- Utilize a conductive Polymer termination to allow the capacitor to withstand high bending stresses
- 3mm minimum bending strength specification
- Capacitance range: 0.1pF to 47uF
- Voltage range: 6.3V to 3000V DC
- Terminations: 100% matte Tin (Sn)
- Ceramic monolithic structure provides excellent reliability



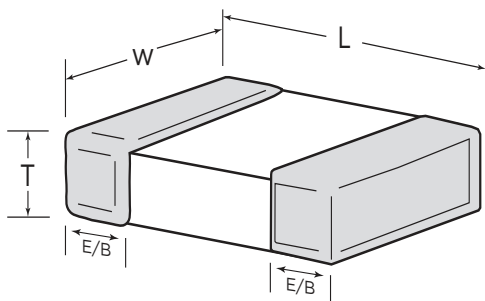
PART NUMBER STRUCTURE

FTC Series	1206 Size	X7R Temperature Characteristic (Dielectric)	500 Rated Voltage	- 106 Capacitance (picofarads)	K Tolerance	N Termination	E Packaging									
0402	0603	0805	1206	1210	1808	1812	2220	COG	X7R	X5R	Y5V	1st two digits are significant followed by number of zeroes. 6R3 = 6.3 VDC 100 = 10 VDC 160 = 16 VDC 250 = 25 VDC 500 = 50 VDC 101 = 100 VDC 201 = 200 VDC 251 = 250 VDC 401 = 400 VDC 451 = 450 VDC 501 = 500 VDC 631 = 630 VDC 102 = 1000 VDC 152 = 1500 VDC 202 = 2000 VDC 302 = 3000 VDC	1st two digits are significant, followed by number of zeroes. R denotes decimal e.g: 101 = 100pF 104 = 100nF 6R8 = 6.8pF	* B = ±0.1pF * C = ±0.25pF * D = ±0.5pF F ±1% G = ±2% J = ±5% K = ±10% M = ±20% Z = -20/+80% * For values below 10pF only.	N = 100% Matte Tin over Nickel over a conductive Polymer	E = Embossed Tape (7" reel) P = Paper Tape (7" reel)

Example P/N: FTC1206X7R500-106KNE

Standard termination finish is 100% matte Tin (Sn) over Nickel.

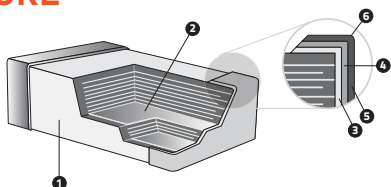
DIMENSIONS



Unit: inches (mm)

SIZE	L	W	T	E/B
0402	0.040 ± 0.002 (1.0 ± 0.05)	0.020 ± 0.002 (0.5 ± 0.05)	See Specific Value	0.004 (min.) (0.10)
0603	0.063 ± 0.006 (1.6 ± 0.15)	0.031 ± 0.0046 (0.8 ± 0.15)	See Specific Value	0.008 (min.) (0.20)
0805	0.08 ± 0.008 (2.0 ± 0.20)	0.050 ± 0.008 (1.25 ± 0.20)	See Specific Value	0.020 ± 0.010 (0.508 ± 0.254)
1206	0.126 ± 0.008 (3.2 ± 0.20)	0.063 ± 0.008 (1.6 ± 0.20)	See Specific Value	0.020 ± 0.010 (0.508 ± 0.254)
1210	0.126 ± 0.008 (3.2 ± 0.20)	0.098 ± 0.008 (2.50 ± 0.20)	See Specific Value	0.020 ± 0.010 (0.508 ± 0.254)
1808	0.18 ± 0.024/-0.16 (4.50 +0.6/-0.4)	0.0812 ± 0.010 (2.03 ± 0.25)	See Specific Value	0.020 ± 0.010 (0.50 ± 0.25)
1812	0.177 ± 0.012 (4.495 ± 0.30)	0.126 ± 0.012 (3.20 ± 0.30)	See Specific Value	0.024 ± 0.015 (0.6096 ± 0.381)
2220	0.225 ± 0.02 (5.70 ± 0.50)	0.200 ± 0.016 (5.00 ± 0.40)	See Specific Value	0.034 ± 0.014 (0.85 ± 0.35)

STRUCTURE

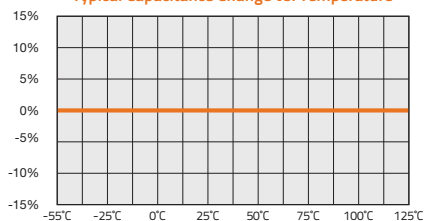


1	Ceramic Body (dielectric)	4	Silver Polymer
2	Inner Electrode	5	Nickel Plating
3	Inner Termination	6	100% Matte Tin (Sn)

ELECTRICAL SPECIFICATION & RANGE

NPO/COG

Typical Capacitance Change vs. Temperature



Operating Temperature Range:
-55°C to +125°C

Temperature Coefficient:
0 ±30PPM/°C

Temperature Voltage Coefficient:
0 ±30PPM/°C

Insulation Resistance:
>100Ω-F or 100GΩ, for values ≤ 0.047μF (whichever is less at 25°C, WDCV).
For Capacitance values > 0.047μF, the 500 Ω-F rule applies.
(The IR at 125°C is 10% of the value at 25°C)

Ageing: None

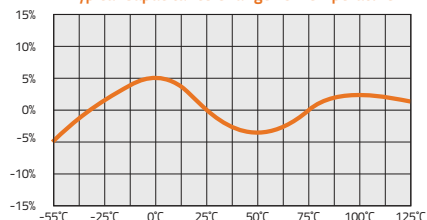
Withstanding Voltage: >2.5 times VDCW

Capacitance Tolerance: B,C,D,F,G,J,K

Dissipation Factor: 0.1% max

X7R

Typical Capacitance Change vs. Temperature



Operating Temperature Range:
-55°C to +125°C

Temperature Coefficient:
0 ±15%Δ°C MAX.

Temperature Voltage Coefficient:
X7R not applicable

Insulation Resistance:
>100Ω-F or 1GΩ, whichever is less at 25°C, VDCW. (10,000Ω at 125°C)

Ageing:
2.5% per decade hour, typical

Withstanding Voltage:
>2.5 times VDCW

Capacitance Tolerance:
J,K,M

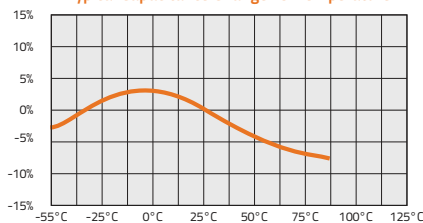
Rated Voltage	Insulation Resistance
100V: All X7R; 1210≥3.3μF	1GΩ or 100Ω-F Whichever is smaller
50V: 0402>0.01μF; 0603≥1μF; 0805≥1μF; 1206≥4.7μF; 1210≥4.7μF	
35V: 0603≥1μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥10μF	
25V: 0402≥0.22μF; 0603≥2.2μF; 0805≥2.2μF; 1206≥10μF; 1210≥10μF	
16V: 0402≥0.22μF; 0603≥1μF; 0805≥2.2μF; 1206≥10μF; 1210≥47μF	
10V: 0402≥0.47μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥47μF	
6.3V ; 4V ; Size 1812	

Rated Voltage	D.F.≤	Exception of D.F.≤
≥100V	≤3%	1206≥0.47μF
	≤5%	0805>0.1μF; 0603≥0.068μF; 1206>1μF; 1210≥2.2μF
	≤10%	0805>0.22μF; 1210≥3.3μF
50V	≤3%	0201(50V); 0603≥0.047μF; 0805≥0.18μF; 1206≥0.47μF
	≤5%	201≥0.01μF; 1210≥4.7μF
	≤10%	0402≥0.012μF; 0603>0.1μF; 0805≥1μF; 1206≥2.2μF; 1210≥10μF
35V	≤3.5%	≤10% 0603≥1μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥10μF
25V	≤5%	201≥0.01μF; 0805≥1μF; 1210≥10μF
	≤7%	0603≥0.33μF
	≤10%	201≥0.01μF; 0402≥0.10μF & (0402/X7R≥0.056μF); 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF
	≤12.5%	0402≥0.47μF
16V	≤5%	201≥0.01μF; 0402≥0.33μF; 0603≥0.15μF; 0805≥0.68μF; 1206≥2.2μF; 1210≥4.7μF
	≤10%	201≥0.01μF; (201/X7R≥0.022μF); 0402≥0.22μF; 0603≥0.68μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF
10V	≤5%	≤10% 201≥0.012μF; 0402≥0.33μF(0402/X7R≥0.22μF); 0603≥0.33μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥22μF; 01R5
	≤15%	201≥0.1μF; 0402≥1μF
6.3V	≤10%	≤15% 201≥0.1μF; 0402≥1μF(0402/X6S≥0.47μF); 0603≥10μF; 0805≥4.7μF; 1206≥47μF; 1210≥100μF
	≤20%	0402≥2.2μF
4V	≤15%	-

ELECTRICAL SPECIFICATION & RANGE

X5R

Typical Capacitance Change vs. Temperature



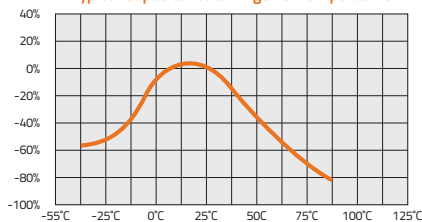
Operating Temperature Range:
-55°C to +85°C
Temperature Coefficient:
0 ±15%Δ°C MAX.
Temperature Voltage Coefficient:
X5R not applicable
Insulation Resistance:
>100Ω-F or 1GΩ, whichever is less at 25°C, VDCW. (10,000 Ω at 125°C)
Ageing:
2.5% per decade hour, typical
Withstanding Voltage:
>2.5 times VDCW
Capacitance Tolerance:
K,M

Rated Voltage	D.F.≤	Exception of D.F.≤	
≥100V	≤2.5%	≤3%	1206≥0.47μF
		≤5%	0805>0.1μF; 0603≥0.068μF; 1206>1μF; 1210≥2.2μF
		≤10%	0805>0.22μF; 1210≥3.3μF
50V	≤2.5%	≤3%	0201(50V); 0603≥0.047μF; 0805≥0.18μF; 1206≥0.47μF
		≤5%	201≥0.01μF; 1210≥4.7μF
		≤10%	0402≥0.012μF; 0603>0.1μF; 0805≥1μF; 1206≥2.2μF; 1210≥10μF
35V	≤3.5%	≤10%	0603≥1μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥10μF
25V	≤3.5%	≤5%	201≥0.01μF; 0805≥1μF; 1210≥10μF
		≤7%	0603≥0.33μF
		≤10%	201≥0.01μF; 0402≥0.10μF & (0402/X7R≥0.056μF); 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF
		≤12.5%	0402≥0.47μF
16V	≤3.5%	≤5%	201≥0.01μF; 0402≥0.33μF; 0603≥0.15μF; 0805≥0.68μF; 1206≥2.2μF; 1210≥4.7μF
		≤10%	201≥0.01μF; (201/X7R≥0.022μF); 0402≥0.22μF; 0603≥0.68μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF
10V	≤5%	≤10%	201≥0.012μF; 0402≥0.33μF(0402/X7R≥0.22μF); 0603≥0.33μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥22μF; 01R5
		≤15%	201≥0.1μF; 0402≥1μF
6.3V	≤10%	≤15%	201≥0.1μF; 0402≥1μF(0402/X6S≥0.47μF); 0603≥10μF; 0805≥4.7μF; 1206≥47μF; 1210≥100μF
		≤20%	0402≥2.2μF
4V	≤15%	-	-

Rated Voltage	Insulation Resistance
100V: All X7R; 1210≥3.3μF	1GΩ or 100Ω-F Whichever is smaller
50V: 0402>0.01μF; 0603≥1μF; 0805≥1μF; 1206≥4.7μF; 1210≥4.7μF	
35V: 0603≥1μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥10μF	
25V: 0402≥0.22μF; 0603≥2.2μF; 0805≥2.2μF; 1206≥10μF; 1210≥10μF	
16V: 0402≥0.22μF; 0603≥1μF; 0805≥2.2μF; 1206≥10μF; 1210≥47μF	
10V: 0402≥0.47μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥47μF	
6.3V ; 4V ; Size 1812	

Y5V

Typical Capacitance Change vs. Temperature



Operating Temperature Range:
-30°C to +85°C
Temperature Coefficient:
+22% - 82%Δ°C MAX.
Insulation Resistance:
>100Ω-F or 1GΩ, whichever is less at 25°C, WDCV. (The IR at 125°C is 10% of the value at 25°C)

Ageing:
7% per decade hour, typical
Withstanding Voltage:
>2.5 times VDCW
Capacitance Tolerance:
M,Z

Rated Voltage	D.F.≤	Exception of D.F.≤	
≥50V	≤5%	≤7%	0603≥0.1μF; 0805≥0.47μF; 1206≥4.7μF
		≤12.5%	1210≥6.8μF
35V	≤7%	-	-
25V	≤5%	≤7%	0402≥0.047μF; 0603≥0.1μF; 0805≥0.33μF; 1206≥1μF; 1210≥4.7μF
		≤9%	0402≥0.068μF; 0603≥0.47μF; 1206≥4.7μF; 1210≥22μF
16V (C<1.0μF)	≤7%	≤9%	0402≥0.068μF; 0603≥0.68μF
		≤12.5%	0402≥0.22μF
16V (C≥1.0μF)	≤9%	≤12.5%	0603≥2.2μF; 0805≥3.3μF; 1206≥10μF; 1210≥22μF; 1812≥47μF
		≤12.5%	0402≥0.47μF
6.3V	≤20%	-	-

Rated Voltage	Insulation Resistance
100V: All X7R; 1210≥3.3μF	1GΩ or 100Ω-F Whichever is smaller
50V: 0402>0.01μF; 0603≥1μF; 0805≥1μF; 1206≥4.7μF; 1210≥4.7μF	
35V: 0603≥1μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥10μF	
25V: 0402≥0.22μF; 0603≥2.2μF; 0805≥2.2μF; 1206≥10μF; 1210≥10μF	
16V: 0402≥0.22μF; 0603≥1μF; 0805≥2.2μF; 1206≥10μF; 1210≥47μF	
10V: 0402≥0.47μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥47μF	
6.3V ; 4V ; Size 1812	

TEST PARAMETERS

Test parameters for Multilayer Ceramic Capacitors - X7R, X5R and Y5V: 1KHz ± 100Hz at 1.0 ± 0.2 Vrms < 10uF (10 V min.)
1KHz ± 100Hz at 0.5 ± 0.1 Vrms < 10uF (6.3V max.)
120Hz ± 24Hz at 1.0 ± 0.1 Vrms ≥ 10uF

Test parameters for Multilayer Ceramic Capacitors - NPO/COG: 1MHz ± 100KHz at 1.0 ± 0.2 Vrms ≤ 1000pF, 25°C
1KHz ± 100Hz at 1.0 ± 0.2 Vrms > 1000pF, 25°C

Note: To ensure proper capacitance readings, the voltage level must be held constant. The HP4284 and Agilent E4980 has a “ALC” (Automatic Level Control) function and should be switched to the “ON” position for accurate capacitance readings.

VOLTAGE AND CAPACITANCE RANGE

COG (NPO) DIELECTRIC (0402 - 0603)

Values that are typically available. (Thickness in mm).

Size (inches)		0402					0603					
VDCW (MAX)		10V	16V	25V	50V	100V	10V	16V	50V	100V	200V	250V
CAPACITANCE CODE	OR1	0.1pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20						
	OR2	0.2pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20						
	OR3	0.3pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20		0.80±0.07	0.80±0.07	0.80±0.07		
	OR4	0.4pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20		0.80±0.07	0.80±0.07	0.80±0.07		
	OR5	0.5pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	OR6	0.6pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	OR7	0.7pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	OR8	0.8pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	OR9	0.9pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	1R0	1.0pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	1R2	1.2pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	1R5	1.5pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	1R8	1.8pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	2R2	2.2pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	2R7	2.7pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	3R3	3.3pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	3R9	3.9pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	4R7	4.7pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	471	5.6pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	5R6	6.8pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	8R2	8.2pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	100	10pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	120	12pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	150	15pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	180	18pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	220	22pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	270	27pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
330	33pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	
390	39pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	
470	47pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	
560	56pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	
680	68pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	
820	82pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	
101	100pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	
121	120pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	
151	150pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	
181	180pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	
221	220pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	
271	270pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	

Note: Additional values may be available. Please contact us for more information. Due to demand and raw material fluctuations, specific values may not be available.

VOLTAGE AND CAPACITANCE RANGE

COG (NPO) DIELECTRIC (0402 - 0603)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		0402					0603						
VDCW (MAX)		10V	16V	25V	50V	100V	10V	16V	25V	50V	100V	200V	250V
CAPACITANCE CODE	331	330pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07		0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
	391	390pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07		0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
	471	470pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07		0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
	561	560pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07		0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
	681	680pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07		0.80±0.07	0.80±0.07		
	821	820pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07		0.80±0.07	0.80±0.07		
	102	1000pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07		0.80±0.07	0.80±0.07		
	122	1200pF					0.80±0.30	0.80±0.30		0.80±0.30			
	152	1500pF					0.80±0.30	0.80±0.30		0.80±0.30			
	182	1800pF					0.80±0.30	0.80±0.30	0.80±0.30	0.80±0.30			
	222	2200pF					0.80±0.30	0.80±0.30	0.80±0.30	0.80±0.30			
	272	2700pF					0.80±0.30	0.80±0.30	0.80±0.30	0.80±0.30			
	332	3300pF					0.80±0.30	0.80±0.30	0.80±0.30	0.80±0.30			

COG (NPO) DIELECTRIC (0805)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		0805									
VDCW (MAX)		10V	16V	25V	50V	100V	200V	250V	500V	630V	1000V
CAPACITANCE CODE	OR5	0.5pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
	OR6	0.6pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
	OR7	0.7pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
	OR8	0.8pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
	OR9	0.9pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
	1R0	1.0pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
	1R2	1.2pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
	1R5	1.5pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
	1R8	1.8pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
	2R2	2.2pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
	2R7	2.7pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
	3R3	3.3pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
	3R9	3.9pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
	4R7	4.7pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
	471	5.6pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
	5R6	6.8pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
	8R2	8.2pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
	100	10pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
	120	12pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
	150	15pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
180	18pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10	
220	22pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10	
270	27pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10	
330	33pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10	
390	39pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10	
470	47pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10	
560	56pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10	
680	68pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10	
820	82pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.80±0.10	0.80±0.10	1.25±0.10	
101	100pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.80±0.10	0.80±0.10	1.25±0.10	
121	120pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.80±0.10	1.25±0.10	1.25±0.10	
151	150pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	

Note: Additional values may be available. Please contact us for more information. Due to demand and raw material fluctuations, specific values may not be available.

Note: Additional values may be available. Please contact us for more information. Due to demand and raw material fluctuations, specific values may not be available.

VOLTAGE AND CAPACITANCE RANGE

COG (NPO) DIELECTRIC (0805)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		0805										
VDCW (MAX)		10V	16V	25V	50V	100V	200V	250V	500V	630V	1000V	
CAPACITANCE CODE	181	180pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
	221	220pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
	271	270pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
	331	330pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
	391	390pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
	471	470pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.30	1.25±0.30	
	561	560pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.30	1.25±0.30	
	681	680pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.30	1.25±0.30	
	821	820pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.30	1.25±0.30	
	102	1000pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.30	1.25±0.30	
	122	1200pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10			
	152	1500pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10			
	182	1800pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10			
	222	2200pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10			
	272	2700pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10					
	332	3300pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10					
	392	3900pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10					
	472	4700pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10					
	562	5600pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10					
	682	6800pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10					
822	8200pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10							
103	0.010µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10							

COG (NPO) DIELECTRIC (1206)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		1206											
VDCW (MAX)		10V	16V	25V	50V	100V	200V	250V	500V	630V	1000V	1500V	2000V
CAPACITANCE CODE	1R0	1.0pF											
	1R2	1.2pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10						
	1R5	1.5pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	1R8	1.8pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	2R2	2.2pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	2R7	2.7pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	3R3	3.3pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	3R9	3.9pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	4R7	4.7pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	471	5.6pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	5R6	6.8pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	8R2	8.2pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	100	10pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	120	12pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	150	15pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	180	18pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	220	22pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	270	27pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	330	33pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10
	390	39pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10
470	47pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10	
560	56pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	1.25±0.10	
680	68pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	1.25±0.10	
820	82pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	
101	100pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	

Note: Additional values may be available. Please contact us for more information. Due to demand and raw material fluctuations, specific values may not be available.

VOLTAGE AND CAPACITANCE RANGE

COG (NPO) DIELECTRIC (1206)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		1206												
VDCW (MAX)		10V	16V	25V	50V	100V	200V	250V	500V	630V	1000V	1500V	2000V	
CAPACITANCE CODE	121	120pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.60±0.20	1.60±0.20	
	151	150pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.60±0.20	1.60±0.20	
	181	180pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.60±0.20	1.60±0.20	1.60±0.20	
	221	220pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.60±0.20	1.60±0.20	1.60±0.20	
	271	270pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.60±0.50	1.60±0.50
	331	330pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.60±0.50	1.60±0.50
	391	390pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.60±0.50	1.60±0.50
	471	470pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20		
	561	560pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20		
	681	680pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20		
	821	820pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20		
	102	1000pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20		
	122	1200pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	1.60±0.20	1.60±0.20	1.60±0.20			
	152	1500pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.60±0.20	1.60±0.20	1.60±0.20			
	182	1800pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.60±0.20	1.60±0.20	1.60±0.20			
	222	2200pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.60±0.20	1.60±0.20	1.60±0.20			
	272	2700pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.60±0.20	1.60±0.20	1.60±0.20			
	332	3300pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.60±0.20	1.60±0.20	1.60±0.20			
	392	3900pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.60±0.20	1.60±0.20	1.60±0.20			
	472	4700pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.60±0.20	1.60±0.20	1.60±0.20			
	562	5600pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10							
	682	6800pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10							
	822	8200pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10							
	103	0.010µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10							
	123	0.012µF	1.60±0.50	1.60±0.50	1.60±0.50	1.60±0.50	1.60±0.50							
	153	0.015µF	1.60±0.50	1.60±0.50	1.60±0.50	1.60±0.50	1.60±0.50							
	183	0.018µF	1.60±0.50	1.60±0.50	1.60±0.50	1.60±0.50	1.60±0.50							
	223	0.022µF	1.60±0.50	1.60±0.50	1.60±0.50	1.60±0.50	1.60±0.50							
	273	0.027µF	1.60±0.50	1.60±0.50	1.60±0.50	1.60±0.50								
	333	0.033µF	1.60±0.50	1.60±0.50	1.60±0.50	1.60±0.50								
	393	0.039µF	1.60±0.50	1.60±0.50	1.60±0.50	1.60±0.50								

COG (NPO) DIELECTRIC (1210)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		1210												
VDCW (MAX)		10V	16V	25V	50V	100V	200V	250V	500V	630V	1000V	1500V	2000V	
CAPACITANCE CODE	100	10pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	
	120	12pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	
	150	15pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	
	180	18pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	
	220	22pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	
	270	27pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	
	330	33pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	
	390	39pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	
	470	47pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	
	560	56pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	
	680	68pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	
	820	82pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	
	101	100pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10
	121	120pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10
	151	150pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.60±0.20	1.60±0.20
	181	180pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.60±0.20	1.60±0.20

Note: Additional values may be available. Please contact us for more information. Due to demand and raw material fluctuations, specific values may not be available.

VOLTAGE AND CAPACITANCE RANGE

COG (NPO) DIELECTRIC (1210)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		1210											
VDCW (MAX)		10V	16V	25V	50V	100V	200V	250V	500V	630V	1000V	1500V	2000V
221	220pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.60±0.20	1.60±0.20
271	270pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	2.00±0.20	2.00±0.20
331	330pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	2.00±0.20	2.00±0.20
391	390pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	2.50±0.50	2.50±0.50
471	470pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	2.50±0.50	2.50±0.50
561	560pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20		
681	680pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20		
821	820pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20		
102	1000pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20		
122	1200pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20		
152	1500pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20		
182	1800pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50		
222	2200pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50		
272	2700pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50		
332	3300pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50		
392	3900pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50		
472	4700pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.60±0.20	1.60±0.20				
562	5600pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.60±0.20	1.60±0.20				
682	6800pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.60±0.20	1.60±0.20				
822	8200pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.60±0.20	1.60±0.20				
103	0.010µF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.60±0.20	1.60±0.20				
123	0.012µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10							
153	0.015µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10							
183	0.018µF												
223	0.022µF												
273	0.027µF												
333	0.033µF												
393	0.039µF												
473	0.047µF												

COG (NPO) DIELECTRIC (1808)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		1808					
VDCW (MAX)		500V	630V	1000V	1500V	2000V	3000V
2R0	2.0pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
2R2	2.2pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
2R7	2.7pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
3R3	3.3pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
3R9	3.9pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
4R7	4.7pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
471	5.6pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
5R6	6.8pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
8R2	8.2pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
100	10pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
120	12pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
150	15pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
180	18pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
220	22pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
270	27pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
330	33pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
390	39pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
470	47pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10

Note: Additional values may be available. Please contact us for more information. Due to demand and raw material fluctuations, specific values may not be available.

VOLTAGE AND CAPACITANCE RANGE

COG (NPO) DIELECTRIC (1808)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		1808						
VDCW (MAX)		500V	630V	1000V	1500V	2000V	3000V	
CAPACITANCE CODE	560	56pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
	680	68pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
	820	82pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
	101	100pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
	121	120pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
	151	150pF	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.00±0.20
	181	180pF	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.00±0.20
	221	220pF	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.00±0.20
	271	270pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
	331	330pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
	391	390pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	
	471	470pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	
	561	560pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	
	681	680pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	
	821	820pF	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.10	1.25±0.10	
	102	1000pF	2.00±0.20	2.00±0.20	2.00±0.20	1.60±0.20	1.60±0.20	
	122	1200pF	2.00±0.20	2.00±0.20	1.60±0.20			
	152	1500pF	2.00±0.20	2.00±0.20	1.60±0.20			
	182	1800pF	2.00±0.20	2.00±0.20	2.00±0.20			
	222	2200pF	2.00±0.20	2.00±0.20	2.00±0.20			
272	2700pF	2.00±0.20	2.00±0.20					
332	3300pF	2.00±0.20	2.00±0.20					

COG (NPO) DIELECTRIC (2220)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		2220												
VDCW (MAX)		25V	50V	100V	200V	250V	500V	630V	1000V	1500V	2000V	3000V	4000V	
CAPACITANCE CODE	100	10pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		2.00±0.20	2.00±0.20		
	120	12pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		2.00±0.20	2.00±0.20		
	150	15pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		
	180	18pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		
	220	22pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		
	270	27pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	
	330	33pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
	390	39pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
	470	47pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
	560	56pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
	680	68pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
	820	82pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
	101	100pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
	121	120pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
	151	150pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
	181	180pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
	221	220pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
	271	270pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30
	331	330pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30
	391	390pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	
471	470pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		
561	560pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		
681	680pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		
821	820pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		
102	1000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		

Note: Additional values may be available. Please contact us for more information. Due to demand and raw material fluctuations, specific values may not be available.

Note: Additional values may be available. Please contact us for more information. Due to demand and raw material fluctuations, specific values may not be available.

VOLTAGE AND CAPACITANCE RANGE

COG (NPO) DIELECTRIC (2220)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		2220											
VDCW (MAX)		25V	50V	100V	200V	250V	500V	630V	1000V	1500V	2000V	3000V	4000V
122	1200pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	
152	1500pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	
182	1800pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		
222	2200pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		
272	2700pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		
332	3300pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		
392	3900pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		
472	4700pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		
562	5600pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20				
682	6800pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20				
822	8200pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30				
103	10000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30				
123	12000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20					
153	15000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20					
183	18000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20					
223	22000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20					
273	27000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20						
333	33000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20						
393	39000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20						
473	47000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30	2.50±0.30						
563	56000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30							
683	68000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30							
823	82000pF	2.00±0.20	2.00±0.20	2.50±0.30									
104	100000pF	2.50±0.30	2.50±0.30	2.50±0.30									

X7R DIELECTRIC (0402, 0603)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		0402					0603						
VDCW (MAX)		10V	16V	25V	50V	100V	10V	16V	25V	50V	100V	200V	250V
101	100pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
121	120pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
151	150pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
181	180pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
221	220pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
271	270pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
331	330pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
391	390pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
471	470pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
561	560pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
681	680pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
821	820pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
102	1000pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
122	1200pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
152	1500pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
182	1800pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
222	2200pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
272	2700pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
332	3300pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
392	3900pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
472	4700pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
562	5600pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
682	6800pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30

Note: Additional values may be available. Please contact us for more information. Due to demand and raw material fluctuations, specific values may not be available.

VOLTAGE AND CAPACITANCE RANGE

X7R DIELECTRIC (0402, 0603)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		0402					0603						
VDCW (MAX)		10V	16V	25V	50V	100V	10V	16V	25V	50V	100V	200V	250V
822	8200pF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
103	0.010µF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30
123	0.012µF	0.50±0.20	0.50±0.20	0.50±0.20			0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30		
153	0.015µF	0.50±0.20	0.50±0.20	0.50±0.20			0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30		
183	0.018µF	0.50±0.20	0.50±0.20	0.50±0.20			0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30		
223	0.022µF	0.50±0.20	0.50±0.20	0.50±0.20			0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30		
273	0.027µF	0.50±0.20	0.50±0.20	0.50±0.20			0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30		
333	0.033µF	0.50±0.20	0.50±0.20				0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30		
393	0.039µF	0.50±0.20	0.50±0.20				0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30		
473	0.047µF	0.50±0.20	0.50±0.20				0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30		
563	0.056µF	0.50±0.20	0.50±0.20				0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30		
683	0.068µF	0.50±0.20	0.50±0.20				0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30		
823	0.082µF	0.50±0.20	0.50±0.20				0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30		
104	0.10µF	0.50±0.20	0.50±0.20				0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30		
124	0.12µF						0.80±0.07	0.80±0.07	0.80±0.30				
154	0.15µF						0.80±0.07	0.80±0.07	0.80±0.30				
184	0.18µF						0.80±0.07	0.80±0.07	0.80±0.30				
224	0.22µF						0.80±0.07	0.80±0.07	0.80±0.30	0.80±0.30			
274	0.27µF						0.80±0.30	0.80±0.30	0.80±0.30				
334	0.33µF						0.80±0.30	0.80±0.30	0.80±0.30				
394	0.39µF						0.80±0.30	0.80±0.30	0.80±0.30				
474	0.47µF						0.80±0.30	0.80±0.30	0.80±0.30				
564	0.56µF						0.80±0.30	0.80±0.30					
684	0.68µF						0.80±0.30	0.80±0.30					
824	0.82µF						0.80±0.30	0.80±0.30					
105	1.0µF						0.80±0.30	0.80±0.30	0.80±0.30				

X7R DIELECTRIC (0805)

Values that are typically available. (Thickness in mm).

Size (inches)		0805									
VDCW (MAX)		10V	16V	25V	50V	100V	200V	250V	500V	630V	1000V
101	100pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.80±0.10	0.80±0.10	0.80±0.10
121	120pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.80±0.10	0.80±0.10	0.80±0.10
151	150pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.80±0.10	0.80±0.10	0.80±0.10
181	180pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.80±0.10	0.80±0.10	0.80±0.10
221	220pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.80±0.10	0.80±0.10	0.80±0.10
271	270pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.80±0.10	0.80±0.10	0.80±0.10
331	330pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.80±0.10	0.80±0.10	0.80±0.10
391	390pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.80±0.10	0.80±0.10	0.80±0.10
471	470pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.80±0.10	0.80±0.10	0.80±0.10
561	560pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.80±0.10	0.80±0.10	0.80±0.10
681	680pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.80±0.10	0.80±0.10	0.80±0.10
821	820pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.80±0.10	0.80±0.10	0.80±0.10
102	1000pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.80±0.10	0.80±0.10	0.80±0.10
122	1200pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.80±0.10	0.80±0.10	0.80±0.10
152	1500pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.80±0.10	0.80±0.10	1.25±0.10
182	1800pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.80±0.10	0.80±0.10	1.25±0.10
222	2200pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.80±0.10	0.80±0.10	1.25±0.10
272	2700pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.80±0.10	0.80±0.10	
332	3300pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.80±0.10	0.80±0.10	
392	3900pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.80±0.10	0.80±0.10	
472	4700pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	

Note: Additional values may be available. Please contact us for more information. Due to demand and raw material fluctuations, specific values may not be available.

VOLTAGE AND CAPACITANCE RANGE

X7R DIELECTRIC (0805)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		0805									
VDCW (MAX)		10V	16V	25V	50V	100V	200V	250V	500V	630V	1000V
562	5600pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
682	6800pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
822	8200pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
103	0.010µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
123	0.012µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
153	0.015µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
183	0.018µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
223	0.022µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
273	0.027µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
333	0.033µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10		
393	0.039µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			
473	0.047µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			
563	0.056µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			
683	0.068µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			
823	0.082µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10				
104	0.10µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10				
124	0.12µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.30					
154	0.15µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.30					
184	0.18µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.30					
224	0.22µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.30					
274	0.27µF	1.25±0.30	1.25±0.30	1.25±0.30	1.25±0.30						
334	0.33µF	1.25±0.30	1.25±0.30	1.25±0.30	1.25±0.30						
394	0.39µF	1.25±0.30	1.25±0.30	1.25±0.30	1.25±0.30						
474	0.47µF	1.25±0.30	1.25±0.30	1.25±0.30	1.25±0.30						
564	0.56µF	1.25±0.30	1.25±0.30	1.25±0.30							
684	0.68µF	1.25±0.30	1.25±0.30	1.25±0.30							
824	0.82µF	1.25±0.30	1.25±0.30	1.25±0.30							
105	1.0µF	1.25±0.30	1.25±0.30	1.25±0.30	1.25±0.30						
155	1.5µF	1.25±0.30	1.25±0.30	1.25±0.30							
225	2.2µF	1.25±0.30	1.25±0.30	1.25±0.30							
475	4.7µF		1.25±0.30	1.25±0.30							
155	1.5µF	1.25±0.30	1.25±0.30	1.25±0.30							
225	2.2µF	1.25±0.30	1.25±0.30	1.25±0.30							
475	4.7µF		1.25±0.30	1.25±0.30							

X7R DIELECTRIC (1206)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		1206													
VDCW (MAX)		10V	16V	25V	50V	100V	200V	250V	400V	450V	500V	630V	1000V	1500V	2000V
101	100pF						1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
121	120pF						1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
151	150pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
181	180pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
221	220pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
271	270pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
331	330pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
391	390pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
471	470pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
561	560pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
681	680pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
821	820pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	1.60±0.20
102	1000pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	1.60±0.20

Note: Additional values may be available. Please contact us for more information. Due to demand and raw material fluctuations, specific values may not be available.

VOLTAGE AND CAPACITANCE RANGE

X7R DIELECTRIC (1206)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		1206													
VDCW (MAX)		10V	16V	25V	50V	100V	200V	250V	400V	450V	500V	630V	1000V	1500V	2000V
122	1200pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	1.60±0.20
152	1500pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	1.60±0.20
182	1800pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	1.60±0.20
222	2200pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	1.60±0.20
272	2700pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	1.60±0.20
332	3300pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	1.60±0.20
392	3900pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	
472	4700pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	
562	5600pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	
682	6800pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	
822	8200pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	
103	0.010µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	
123	0.012µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.60±0.20		
153	0.015µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10	1.60±0.20		
183	0.018µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.25±0.10	1.25±0.10			
223	0.022µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.60±0.20	1.60±0.20			
273	0.027µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			1.60±0.20	1.60±0.20			
333	0.033µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	1.60±0.20			1.60±0.20	1.60±0.20			
393	0.039µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	1.60±0.20			1.60±0.20	1.60±0.20			
473	0.047µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	1.60±0.20			1.60±0.20	1.60±0.20			
563	0.056µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	1.60±0.20			1.60±0.20	1.60±0.20			
683	0.068µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20					
823	0.082µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20					
104	0.10µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20					
124	0.12µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10									
154	0.15µF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20									
184	0.18µF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20									
224	0.22µF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20									
274	0.27µF	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.60±0.20									
334	0.33µF	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.60±0.20									
394	0.39µF	0.95±0.10	0.95±0.10	1.15±0.15	1.60±0.50	1.60±0.20									
474	0.47µF	1.15±0.15	1.15±0.15	1.15±0.15	1.60±0.50	1.60±0.20									
564	0.56µF	1.15±0.15	1.15±0.15	1.15±0.15	1.60±0.50	1.60±0.50									
684	0.68µF	1.15±0.15	1.15±0.15	1.15±0.15	1.60±0.50	1.60±0.50									
824	0.82µF	1.15±0.15	1.15±0.15	1.15±0.15	1.60±0.50	1.60±0.50									
105	1.0µF	1.15±0.15	1.15±0.15	1.15±0.15	1.60±0.50	1.60±0.50									
155	1.5µF	1.15±0.15	1.15±0.15	1.60±0.50											
225	2.2µF	1.15±0.15	1.15±0.15	1.60±0.50	1.60±0.50										
475	4.7µF	1.60±0.50	1.60±0.50	1.60±0.50											
106	10µF	1.60±0.50	1.60±0.50	1.60±0.50											
226	22µF	1.60±0.50													

Note: Additional values may be available. Please contact us for more information. Due to demand and raw material fluctuations, specific values may not be available.

VOLTAGE AND CAPACITANCE RANGE

X7R DIELECTRIC (1210)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		1210														
VDCW (MAX)		6.3V	10V	16V	25V	50V	100V	200V	250V	400V	450V	500V	630V	1000V	1500V	2000V
101	100pF											1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
121	120pF											1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
151	150pF											1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
181	180pF											1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
221	220pF											1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
271	270pF											1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
331	330pF											1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
391	390pF											1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
471	470pF											1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
561	560pF											1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
681	680pF											1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
821	820pF											1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
102	1000pF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50	2.50±0.50
122	1200pF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50	2.50±0.50
152	1500pF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50	2.50±0.50
182	1800pF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50	2.50±0.50
222	2200pF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50	2.50±0.50
272	2700pF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50	2.50±0.50
332	3300pF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50	2.50±0.50
392	3900pF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			1.25±0.10	1.25±0.10	1.60±0.20	2.50±0.50	2.50±0.50
472	4700pF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			1.25±0.10	1.25±0.10	1.60±0.20	2.50±0.50	2.50±0.50
562	5600pF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			1.25±0.10	1.25±0.10	1.60±0.20	2.50±0.50	2.50±0.50
682	6800pF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			1.25±0.10	1.25±0.10	1.60±0.20	2.50±0.50	2.50±0.50
822	8200pF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			1.25±0.10	1.25±0.10	1.60±0.20	2.50±0.50	2.50±0.50
103	0.010µF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			1.25±0.10	1.25±0.10	1.60±0.20		
123	0.012µF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			1.25±0.10	1.25±0.10	1.60±0.20		
153	0.015µF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			1.25±0.10	1.25±0.10	1.60±0.20		
183	0.018µF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			1.25±0.10	1.25±0.10	1.60±0.20		
223	0.022µF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			1.25±0.10	1.25±0.10	1.60±0.20		
273	0.027µF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			1.60±0.20	1.60±0.20	1.60±0.20		
333	0.033µF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			1.60±0.20	1.60±0.20	1.60±0.20		
393	0.039µF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			1.60±0.20	1.60±0.20			
473	0.047µF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10			1.60±0.20	1.60±0.20	2.50±0.50		
563	0.056µF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10			1.60±0.20	1.60±0.20			
683	0.068µF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.60±0.20			2.00±0.20	2.00±0.20			
823	0.082µF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.60±0.20			2.00±0.20	2.00±0.20			
104	0.10µF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.60±0.20			2.00±0.20	2.00±0.20			
124	0.12v		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.60±0.20	2.50±0.50	2.50±0.50					
154	0.15µF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	2.50±0.50	2.50±0.50	2.50±0.50	2.50±0.50					
184	0.18µF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	2.50±0.50	2.50±0.50	2.50±0.50	2.50±0.50					
224	0.22µF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	2.50±0.50	2.50±0.50	2.50±0.50	2.50±0.50					
274	0.27µF		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	2.50±0.50	2.50±0.50	2.50±0.50	2.50±0.50					
334	0.33µF		0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.60±0.20	2.50±0.50	2.50±0.50	2.50±0.50	2.50±0.50					
394	0.39µF		0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	2.50±0.50	2.50±0.50	2.50±0.50							
474	0.47µF		0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	2.50±0.50	2.50±0.50	2.50±0.50							
564	0.56µF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50	2.50±0.50	2.50±0.50							
684	0.68µF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.50±0.50	2.50±0.50							
824	0.82µF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20									
105	1.0µF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20									
155	1.5µF			2.00±0.20	1.60±0.20	2.50±0.50	2.50±0.50									

Note: Additional values may be available. Please contact us for more information. Due to demand and raw material fluctuations, specific values may not be available.

VOLTAGE AND CAPACITANCE RANGE

X7R DIELECTRIC (1210)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		1210														
VDCW (MAX)		6.3V	10V	16V	25V	50V	100V	200V	250V	400V	450V	500V	630V	1000V	1500V	2000V
CAPACITANCE CODE	225	2.2µF			2.00±0.20	1.60±0.20	2.50±0.50	2.50±0.50								
	335	3.3µF			2.00±0.20	1.60±0.20	2.50±0.50									
	475	4.7µF		2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20								
	106	10µF		2.00±0.20	2.00±0.20	2.50±0.50	2.50±0.50									
	226	22µF			2.50±0.50											
	476	47µF	2.50±0.50													
	<CAPACITANCE VALUE>															
	<CAPACITANCE VALUE>															

X7R DIELECTRIC (1808)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		1808						
VDCW (MAX)		500V	630V	1000V	1500V	2000V	3000V	
CAPACITANCE CODE	151	150pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
	181	180pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
	221	220pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
	271	270pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
	331	330pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	
	391	390pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	
	471	470pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	
	561	560pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	
	681	680pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	
	821	820pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	
	102	1000pF	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.00±0.20
	122	1200pF	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.00±0.20
	152	1500pF	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.00±0.20
	182	1800pF	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.00±0.20
	222	2200pF	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	
	272	2700pF	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	
	332	3300pF	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	
	392	3900pF	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	
	472	4700pF	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	
	562	5600pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	
	682	6800pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	
	822	8200pF	2.00±0.20	2.00±0.20	2.00±0.20			
	103	0.010µF	2.00±0.20	2.00±0.20	2.00±0.20			
	123	0.012µF	2.00±0.20	2.00±0.20	2.00±0.20			
	153	0.015µF	2.00±0.20	2.00±0.20	2.00±0.20			
	183	0.018µF	2.00±0.20	2.00±0.20	2.00±0.20			
	223	0.022µF	2.00±0.20	2.00±0.20	2.00±0.20			
	273	0.027µF	2.00±0.20	2.00±0.20	2.00±0.20			
	333	0.033µF	2.00±0.20	2.00±0.20	2.00±0.20			
	393	0.039µF	2.00±0.20	2.00±0.20	2.00±0.20			
	473	0.047µF	2.00±0.20	2.00±0.20	2.00±0.20			
	563	0.056µF	2.00±0.20	2.00±0.20	2.00±0.20			
	683	0.068µF	2.00±0.20	2.00±0.20				
823	0.082µF	2.00±0.20	2.00±0.20					

Note: Additional values may be available. Please contact us for more information. Due to demand and raw material fluctuations, specific values may not be available.

VOLTAGE AND CAPACITANCE RANGE

X7R DIELECTRIC (1812)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		1812												
VDCW (MAX)		10V	16V	25V	50V	100V	200V	250V	500V	630V	1000V	1500V	2000V	3000V
271	270pF						1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
331	330pF						1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
391	390pF						1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
471	470pF						1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
561	560pF						1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
681	680pF						1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
821	820pF						1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
102	1000pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
122	1200pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
152	1500pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
182	1800pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	1.60±0.20	2.50±0.50
222	2200pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	1.60±0.20	2.50±0.50
272	2700pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	1.60±0.20	2.50±0.50
332	3300pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.50
392	3900pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.50
472	4700pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.50
562	5600pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50	2.50±0.50	2.50±0.50
682	6800pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50	2.50±0.50	2.50±0.50
822	8200pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50	2.50±0.50	
103	0.010µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50	2.50±0.50	
123	0.012µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20			
153	0.015µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20			
183	0.018µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50			
223	0.022µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50			
273	0.027µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50			
333	0.033µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50			
393	0.039µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50			
473	0.047µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50			
563	0.056µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.50			
683	0.068µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.50			
823	0.082µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.50			
104	0.10µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.50			
124	0.12µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.50	2.50±0.50				
154	0.15µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.50	2.50±0.50				
184	0.18µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.50	2.50±0.50				
224	0.22µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.50	2.50±0.50				
274	0.27µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.50					
334	0.33µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.50					
394	0.39µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.50					
474	0.47µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.50					
564	0.56µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.50±0.50	2.50±0.50						
684	0.68µF	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.50	2.50±0.50						
824	0.82µF	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.50	2.50±0.50						
105	1.0µF	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.50	2.50±0.50						
155	1.5µF					2.00±0.20								
225	2.2µF				2.50±0.50	2.50±0.50								

Note: Additional values may be available. Please contact us for more information. Due to demand and raw material fluctuations, specific values may not be available.

VOLTAGE AND CAPACITANCE RANGE

X7R DIELECTRIC (2220)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		2220													
VDCW (MAX)		25V	50V	100V	200V	250V	400V	500V	630V	1000V	1500V	2000V	3000V	4000V	
101	100pF														
121	120pF														
151	150pF														
181	180pF														
221	220pF													1.25±0.20	
271	270pF													1.25±0.20	
331	330pF													1.25±0.20	
391	390pF													1.25±0.20	
471	470pF													1.25±0.20	
561	560pF													1.25±0.20	
681	680pF													1.25±0.20	
821	820pF													1.25±0.20	
102	1000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20	
122	1200pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20	
152	1500pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20	
182	1800pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20	
222	2200pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20	1.60±0.20	
272	2700pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20	1.60±0.20	
332	3300pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20	1.60±0.20	
392	3900pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20	1.60±0.20	
472	4700pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	1.25±0.20	1.25±0.20	2.00±0.20	2.00±0.20	
562	5600pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	1.25±0.20	1.25±0.20	2.00±0.20	2.00±0.20	
682	6800pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	1.25±0.20	1.25±0.20	2.00±0.20	2.00±0.20	
822	8200pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	1.25±0.20	1.25±0.20	2.00±0.20	2.40±0.30	
103	10000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	1.25±0.20	1.25±0.20	2.00±0.20	2.80±0.30	
123	12000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	1.25±0.20	1.25±0.20			
153	15000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	1.25±0.20	1.25±0.20			
183	18000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	1.60±0.20	1.60±0.20			
223	22000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	1.60±0.20	1.60±0.20			
273	27000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	1.60±0.20	1.60±0.20			
333	33000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	2.00±0.20	2.00±0.20			
393	39000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	2.00±0.20	2.00±0.20			
473	47000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	2.40±0.30	2.40±0.30			
563	56000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20					
683	68000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20					
823	82000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20					
104	100000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.60±0.20					
124	120000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.60±0.20					
154	150000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.30					
184	180000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.30					
224	220000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.30					
274	270000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20						
334	330000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20						
394	390000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20						
474	470000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20						
564	560000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20									
684	680000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20									
824	820000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20									
105	1000000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20									
125	1200000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30									

Note: Additional values may be available. Please contact us for more information. Due to demand and raw material fluctuations, specific values may not be available.

*Provided with surface coating.

VOLTAGE AND CAPACITANCE RANGE

X7R DIELECTRIC (2220)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		2220												
VDCW (MAX)		25V	50V	100V	200V	250V	400V	500V	630V	1000V	1500V	2000V	3000V	4000V
155	1500000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30								
185	1800000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30								
225	2200000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30								
275	2700000pF	2.00±0.20	2.00±0.20	2.00±0.20										
335	3300000pF	2.00±0.20	2.00±0.20	2.00±0.20										
395	3900000pF	2.00±0.20	2.00±0.20	2.00±0.20										
475	4700000pF	2.00±0.20	2.00±0.20	2.00±0.20										
565	5600000pF	2.00±0.20	2.00±0.20	2.00±0.20										
685	6800000pF	2.00±0.20	2.00±0.20	2.00±0.20										
825	8200000pF	2.50±0.30	2.50±0.30	2.50±0.30										
106	10000000pF	2.50±0.30	2.50±0.30	2.50±0.30										
126	12000000pF	2.80±0.30	2.80±0.30											
156	15000000pF	2.80±0.30	2.80±0.30											
186	18000000pF	2.80±0.30	2.80±0.30											
226	22000000pF	2.80±0.30	2.80±0.30											

X5R DIELECTRIC (0402, 0603, 0805)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		0402				0603					0805				
VDCW (MAX)		6.3V	10V	16V	25V	6.3V	10V	16V	25V	50V	6.3V	10V	16V	25V	50V
273	0.027µF			0.50±0.20											
333	0.033µF			0.50±0.20											
393	0.039µF			0.50±0.20											
473	0.047µF			0.50±0.20											
563	0.056µF		0.50±0.20	0.50±0.20											
683	0.068µF		0.50±0.20	0.50±0.20											
823	0.082µF	0.50±0.20	0.50±0.20	0.50±0.20											
104	0.10µF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20										
154	0.15µF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20										
224	0.22µF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20			0.80±0.30	0.80±0.30						
274	0.27µF					0.80±0.30	0.80±0.30	0.80±0.30	0.80±0.30						
334	0.33µF	0.50±0.20	0.50±0.20			0.80±0.30	0.80±0.30	0.80±0.30	0.80±0.30						
394	0.39µF					0.80±0.30	0.80±0.30	0.80±0.30	0.80±0.30	0.80±0.30					
474	0.47µF	0.50±0.20	0.50±0.20			0.80±0.30	0.80±0.30	0.80±0.30	0.80±0.30	0.80±0.30					
684	0.68µF	0.50±0.20	0.50±0.20			0.80±0.30	0.80±0.30	0.80±0.30	0.80±0.30						
824	0.82µF					0.80±0.30	0.80±0.30	0.80±0.30							
105	1.0µF					0.80±0.30	0.80±0.30	0.80±0.30	0.80±0.30						
155	1.5µF					0.80±0.30				1.25±0.30	1.25±0.30	1.25±0.30	1.25±0.30		
225	2.2µF					0.80±0.30	0.80±0.30	0.80±0.30		1.25±0.30	1.25±0.30	1.25±0.30	1.25±0.30		
335	3.3µF					0.80±0.30				1.25±0.30	1.25±0.30	1.25±0.30	1.25±0.30		
475	4.7µF					0.80±0.30						1.25±0.30	1.25±0.30		

Note: Additional values may be available. Please contact us for more information. Due to demand and raw material fluctuations, specific values may not be available.

VOLTAGE AND CAPACITANCE RANGE

X5R DIELECTRIC (1206, 1210)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		1206					1210				
VDCW (MAX)		6.3V	10V	16V	25V	50V	6.3V	10V	16V	25V	50V
CAPACITANCE CODE	224	0.22μF									
	274	0.27μF									
	334	0.33μF									
	394	0.39μF									
	474	0.47μF									
	684	0.68μF									
	824	0.82μF									
	105	1.0μF									
	155	1.5μF		1.15±0.15	1.15±0.15				2.00±0.20	2.00±0.20	
	225	2.2μF		1.15±0.15	1.15±0.15	1.60±0.60			2.00±0.20	2.00±0.20	
	335	3.3μF		1.60±0.60	1.60±0.60	1.60±0.60					
	475	4.7μF	1.60±0.60	1.60±0.60	1.60±0.60	1.60±0.60			2.00±0.20	2.00±0.20	2.00±0.20
	685	6.8μF	1.60±0.60	1.60±0.60							
106	10μF	1.60±0.60	1.60±0.60	1.60±0.60	1.60±0.60	1.60±0.60	2.00±0.20	2.00±0.20	2.00±0.20		

Y5V DIELECTRIC (0402, 0603)

Values that are typically available. (Thickness in mm).

SIZE (INCHES)		0402					0603			
VDCW (MAX)		6.3V	10V	16V	25V	50V	10V	16V	25V	50V
CAPACITANCE CODE	103	0.010μF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	153	0.015μF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	223	0.022μF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	333	0.033μF	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.20	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	473	0.047μF	0.50±0.20	0.50±0.20	0.50±0.20		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	683	0.068μF	0.50±0.20	0.50±0.20	0.50±0.20		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	104	0.10μF	0.50±0.20	0.50±0.20	0.50±0.20		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	154	0.15μF	0.50±0.20				0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	224	0.22μF	0.50±0.20	0.50±0.20			0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
	334	0.33μF	0.50±0.20	0.50±0.20			0.80±0.07	0.80±0.07	0.80±0.07	
	474	0.47μF					0.80±0.07	0.80±0.07		
	684	0.68μF					0.80±0.07	0.80±0.30		
	105	1.0μF					0.80±0.07	0.80±0.30		
225	2.2μF					0.80±0.07				
475	4.7μF									

Note: Additional values may be available. Please contact us for more information. Due to demand and raw material fluctuations, specific values may not be available.

RELIABILITY TEST CONDITIONS & REQUIREMENTS

ITEM	TEST CONDITION	REQUIREMENTS																																																																																																				
1. Visual and Mechanical		* No remarkable defect. * Dimensions to conform to individual specification sheet.																																																																																																				
2. Capacitance	Class I: (NPO) C _s ≤1000pF, 1.0±0.2Vrms, 1MHz±10% C>1000pF, 1.0±0.2Vrms, 1KHz±10% Class II: (X7R, X6S, X5R, X7S, Y5V) C _s ≤10μF, 1.0±0.2Vrms, 1KHz±10% ** C>10μF, 0.5±0.2Vrms, 120Hz±20% ** Test condition: 0.5±0.2Vrms, 1KHz±10%	* Shall not exceed the limits given in the detailed spec. NPO: Cap30pF, Q1000; Cap<30pF, Q400+20C X7R, X5R, X6S, X7S:																																																																																																				
3. Q/ D.F. (Dissipation Factor)	X7R: 0805=106(6.3V), 0603/475(6.3V) X5R: 0201≥224 (6.3V,10V,16V)#1, 0402≥475 (6.3V,16V), 0402≥225(10V), 0603=106 (6.3V,10V), X6S: 0201/474(4V),0201≥104 (6.3V,10V#1), 0402≥225 (6.3V), 0402/475 (10V), 0603/106 (6.3V), X7S: 0402/225(6.3V)#1 Excluding X5R/0201/105(6.3V);225(10V), X6S/0201/104(10V) (1.0±0.2Vrms, 1KHz±10%) *Before initial measurement (Class II only): To apply de-aging at 150°C for 1hr then set for 24±2 hrs at room temp.	<table border="1"> <thead> <tr> <th>RATED VOL.</th> <th>D.F.≤</th> <th colspan="2">EXCEPTION OF D.F.≤</th> </tr> </thead> <tbody> <tr> <td rowspan="3">≥100V</td> <td rowspan="3">≤2.5%</td> <td>≤3%</td> <td>1206≥0.47μF</td> </tr> <tr> <td>≤5%</td> <td>0805>0.1μF;0603≥0.068μF;1206>1μF;1210≥2.2μF</td> </tr> <tr> <td>≤10%</td> <td>0805>0.22μF;1210≥3.3μF</td> </tr> <tr> <td rowspan="3">50V</td> <td rowspan="3">≤2.5%</td> <td>≤3%</td> <td>0201(50V);0603≥0.047μF;0805≥0.18μF;1206≥0.47μF</td> </tr> <tr> <td>≤5%</td> <td>0201≥0.01μF;1210≥4.7μF</td> </tr> <tr> <td>≤10%</td> <td>0402≥0.012μF;0603>0.1μF;0805≥1μF;1206≥2.2μF;1210≥10μF</td> </tr> <tr> <td>35V</td> <td>≤3.5%</td> <td>≤10%</td> <td>0603≥1μF;0805≥2.2μF;1206≥2.2μF;1210≥10μF</td> </tr> <tr> <td rowspan="4">25V</td> <td rowspan="4">≤3.5%</td> <td>≤5%</td> <td>0201≥0.01μF;0805≥1μF;1210≥10μF</td> </tr> <tr> <td>≤7%</td> <td>0603≥0.33μF</td> </tr> <tr> <td>≤10%</td> <td>0201≥0.1μF;0402≥0.10μF&(0402/X7R≥0.056μF) 0603≥0.47μF;0805≥2.2μF;1206≥4.7μF;1210≥22μF</td> </tr> <tr> <td>≤12.5%</td> <td>0402≥0.47μF</td> </tr> <tr> <td rowspan="2">16V</td> <td rowspan="2">≤3.5%</td> <td>≤5%</td> <td>0201≥0.01μF;0402≥0.033μF;0603≥0.15μF; 0805≥0.68μF;1206≥2.2μF;1210≥4.7μF</td> </tr> <tr> <td>≤10%</td> <td>0201≥0.1μF(0201/X7R≥0.022μF);0402≥0.22μF 0603≥0.68μF;0805≥2.2μF;1206≥4.7μF;1210≥22μF</td> </tr> <tr> <td rowspan="2">10V</td> <td rowspan="2">≤5%</td> <td>≤10%</td> <td>0201≥0.012μF;0402≥0.33μF(0402/X7R≥0.22μF) 0603≥0.33μF;0805≥2.2μF;1206≥2.2μF;1210≥22μF;01R5</td> </tr> <tr> <td>≤15%</td> <td>0201≥0.1μF; 0402≥1μF</td> </tr> <tr> <td rowspan="2">6.3V</td> <td rowspan="2">≤10%</td> <td>≤15%</td> <td>0201≥0.1μF;0402≥1μF(0402/X6S≥0.47μF);0603≥10μF; 0805≥4.7μF;1206≥47μF;1210≥100μF</td> </tr> <tr> <td>≤20%</td> <td>0402≥2.2μF</td> </tr> <tr> <td>4V</td> <td>≤15%</td> <td>-</td> <td>-</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="4">X7R, X5R, X6S, X7S:</th> </tr> <tr> <th>Rated vol.</th> <th>D.F.≤</th> <th colspan="2">Exception of D.F.≤</th> </tr> </thead> <tbody> <tr> <td rowspan="2">≥50V</td> <td rowspan="2">≤5%</td> <td>≤7%</td> <td>0603≥0.1μF; 0805≥0.47μF; 1206≥4.7μF;</td> </tr> <tr> <td>≤12.5%</td> <td>1210≥6.8μF</td> </tr> <tr> <td>35V</td> <td>≤7%</td> <td>-</td> <td>-</td> </tr> <tr> <td rowspan="2">25V</td> <td rowspan="2">≤5%</td> <td>≤7%</td> <td>0402≥0.047μF;0603≥0.1μF; 0805≥0.33μF; 1206≥1μF; 1210≥4.7μF</td> </tr> <tr> <td>≤9%</td> <td>0402≥0.068μF;0603≥0.47μF; 1206≥4.7μF; 1210≥22μF</td> </tr> <tr> <td rowspan="2">16V (C<1.0μF)</td> <td rowspan="2">≤7%</td> <td>≤9%</td> <td>0402≥0.068μF; 0603≥0.68μF</td> </tr> <tr> <td>≤12.5%</td> <td>0402≥0.22μF</td> </tr> <tr> <td rowspan="2">16V (C≥1.0μF)</td> <td rowspan="2">≤9%</td> <td>≤12.5%</td> <td>0603≥2.2μF; 0805≥3.3μF;1206≥10μF; 1210≥22μF; 1812≥47μF</td> </tr> <tr> <td>≤20%</td> <td>0402≥0.47μF</td> </tr> <tr> <td>10V</td> <td>≤12.5%</td> <td>≤20%</td> <td>0402≥0.47μF</td> </tr> <tr> <td>6.3V</td> <td>≤20%</td> <td>-</td> <td>-</td> </tr> </tbody> </table>	RATED VOL.	D.F.≤	EXCEPTION OF D.F.≤		≥100V	≤2.5%	≤3%	1206≥0.47μF	≤5%	0805>0.1μF;0603≥0.068μF;1206>1μF;1210≥2.2μF	≤10%	0805>0.22μF;1210≥3.3μF	50V	≤2.5%	≤3%	0201(50V);0603≥0.047μF;0805≥0.18μF;1206≥0.47μF	≤5%	0201≥0.01μF;1210≥4.7μF	≤10%	0402≥0.012μF;0603>0.1μF;0805≥1μF;1206≥2.2μF;1210≥10μF	35V	≤3.5%	≤10%	0603≥1μF;0805≥2.2μF;1206≥2.2μF;1210≥10μF	25V	≤3.5%	≤5%	0201≥0.01μF;0805≥1μF;1210≥10μF	≤7%	0603≥0.33μF	≤10%	0201≥0.1μF;0402≥0.10μF&(0402/X7R≥0.056μF) 0603≥0.47μF;0805≥2.2μF;1206≥4.7μF;1210≥22μF	≤12.5%	0402≥0.47μF	16V	≤3.5%	≤5%	0201≥0.01μF;0402≥0.033μF;0603≥0.15μF; 0805≥0.68μF;1206≥2.2μF;1210≥4.7μF	≤10%	0201≥0.1μF(0201/X7R≥0.022μF);0402≥0.22μF 0603≥0.68μF;0805≥2.2μF;1206≥4.7μF;1210≥22μF	10V	≤5%	≤10%	0201≥0.012μF;0402≥0.33μF(0402/X7R≥0.22μF) 0603≥0.33μF;0805≥2.2μF;1206≥2.2μF;1210≥22μF;01R5	≤15%	0201≥0.1μF; 0402≥1μF	6.3V	≤10%	≤15%	0201≥0.1μF;0402≥1μF(0402/X6S≥0.47μF);0603≥10μF; 0805≥4.7μF;1206≥47μF;1210≥100μF	≤20%	0402≥2.2μF	4V	≤15%	-	-	X7R, X5R, X6S, X7S:				Rated vol.	D.F.≤	Exception of D.F.≤		≥50V	≤5%	≤7%	0603≥0.1μF; 0805≥0.47μF; 1206≥4.7μF;	≤12.5%	1210≥6.8μF	35V	≤7%	-	-	25V	≤5%	≤7%	0402≥0.047μF;0603≥0.1μF; 0805≥0.33μF; 1206≥1μF; 1210≥4.7μF	≤9%	0402≥0.068μF;0603≥0.47μF; 1206≥4.7μF; 1210≥22μF	16V (C<1.0μF)	≤7%	≤9%	0402≥0.068μF; 0603≥0.68μF	≤12.5%	0402≥0.22μF	16V (C≥1.0μF)	≤9%	≤12.5%	0603≥2.2μF; 0805≥3.3μF;1206≥10μF; 1210≥22μF; 1812≥47μF	≤20%	0402≥0.47μF	10V	≤12.5%	≤20%	0402≥0.47μF	6.3V	≤20%	-	-
RATED VOL.	D.F.≤	EXCEPTION OF D.F.≤																																																																																																				
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10V	≤5%	≤10%	0201≥0.012μF;0402≥0.33μF(0402/X7R≥0.22μF) 0603≥0.33μF;0805≥2.2μF;1206≥2.2μF;1210≥22μF;01R5																																																																																																			
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10V	≤12.5%	≤20%	0402≥0.47μF																																																																																																			
6.3V	≤20%	-	-																																																																																																			

Note: Additional values may be available. Please contact us for more information. Due to demand and raw material fluctuations, specific values may not be available.

RELIABILITY TEST CONDITIONS & REQUIREMENTS

ITEM	TEST CONDITION	REQUIREMENTS																						
4.	Dielectric Strength *To apply voltage: ≤100V: 250% of rated voltage.200V - 300V: 200% of rated voltage. 400V - 450V: 120% of rated voltage. 500V - 999V: 150% of rated voltage. 1000V - 3000V: 120% of rated voltage. 4000V: 110% of rated voltage. *Duration: 1 to 5 sec. *Charge & discharge current less than 50mA.	* No evidence of damage or flash over during test.																						
5.	Insulation Resistance To apply rated voltage for MAX. 120sec.	10GΩ or 500Ω-F whichever is smaller. Class II (X7R, X5R,X6S,X7S,Y5V): <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>RATED VOLTAGE</th> <th>INSULATION RESISTANCE</th> </tr> </thead> <tbody> <tr> <td>100V: All X7R</td> <td rowspan="7" style="text-align: center; vertical-align: middle;">10G or 100Ω-F whichever is smaller.</td> </tr> <tr> <td>50V: 0402>0.01μF;06031μF;08051μF;12064.7μF;12104.7μF</td> </tr> <tr> <td>35V: 0805≥2.2μF;1206≥2.2μF;1210≥10μF</td> </tr> <tr> <td>25V: 0402≥1μF;0603≥2.2μF;0805≥2.2μF;1206≥10μF;1210≥10μF</td> </tr> <tr> <td>16V: 0201≥0.1μF;0402≥0.22μF;0603≥1μF;0805≥2.2μF;1206≥10μF;1210≥47μF</td> </tr> <tr> <td>10V: 0201≥47nF;0402≥0.47μF;0603≥0.47μF;0805≥2.2μF;1206≥4.7μF;1210≥47μF</td> </tr> <tr> <td>6.3V ; 4V ; Size≥1812</td> </tr> <tr> <td>RATED VOLTAGE</td> <td>INSULATION RESISTANCE</td> </tr> <tr> <td>All X6S items, All X7S items</td> <td rowspan="8" style="text-align: center; vertical-align: middle;">≥50Ω-F.</td> </tr> <tr> <td>100V: 1210≥3.3μF</td> </tr> <tr> <td>50V: 0402≥0.1μF; 0603≥2.2μF; 0805≥10μF;1206≥10μF</td> </tr> <tr> <td>35V: 0603≥1μF;</td> </tr> <tr> <td>25V: 0201≥0.1μF; 0402≥2.2μF;0603≥10μF; 0805≥10μF;1206≥22μF</td> </tr> <tr> <td>16V: 0603≥10μF; 0402≥1μF; 0201≥0.22μF</td> </tr> <tr> <td>10V: 0201>0.1μF; 0402≥1μF; 0603≥10μF; 0805≥47μF</td> </tr> <tr> <td>6.3V: 0201≥0.1μF; 0603>4.7μF; 0805≥47μF;1206≥10μF</td> </tr> <tr> <td>4V:0603≥22μF; 0805≥47μF; 1206≥100μF</td> </tr> </tbody> </table>	RATED VOLTAGE	INSULATION RESISTANCE	100V: All X7R	10G or 100Ω-F whichever is smaller.	50V: 0402>0.01μF;06031μF;08051μF;12064.7μF;12104.7μF	35V: 0805≥2.2μF;1206≥2.2μF;1210≥10μF	25V: 0402≥1μF;0603≥2.2μF;0805≥2.2μF;1206≥10μF;1210≥10μF	16V: 0201≥0.1μF;0402≥0.22μF;0603≥1μF;0805≥2.2μF;1206≥10μF;1210≥47μF	10V: 0201≥47nF;0402≥0.47μF;0603≥0.47μF;0805≥2.2μF;1206≥4.7μF;1210≥47μF	6.3V ; 4V ; Size≥1812	RATED VOLTAGE	INSULATION RESISTANCE	All X6S items, All X7S items	≥50Ω-F.	100V: 1210≥3.3μF	50V: 0402≥0.1μF; 0603≥2.2μF; 0805≥10μF;1206≥10μF	35V: 0603≥1μF;	25V: 0201≥0.1μF; 0402≥2.2μF;0603≥10μF; 0805≥10μF;1206≥22μF	16V: 0603≥10μF; 0402≥1μF; 0201≥0.22μF	10V: 0201>0.1μF; 0402≥1μF; 0603≥10μF; 0805≥47μF	6.3V: 0201≥0.1μF; 0603>4.7μF; 0805≥47μF;1206≥10μF	4V:0603≥22μF; 0805≥47μF; 1206≥100μF
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	Rated voltage: 200-630V	To apply rated voltage (500V max.) for 60 sec.	10GΩ or 100Ω-F whichever is smaller																					
	Rated voltage: >630V	To apply 500V for 60 sec.																						

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RELIABILITY TEST CONDITIONS & REQUIREMENTS

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6. Temperature Coefficient	<p>With no electrical load.</p> <table border="1"> <thead> <tr> <th>T.C.</th> <th>Operating Temperature</th> </tr> </thead> <tbody> <tr> <td>NPO</td> <td>-55-125°C at 25°C</td> </tr> <tr> <td>X7R</td> <td>-55-125°C at 25°C</td> </tr> <tr> <td>X7S</td> <td>-55-125°C at 25°C</td> </tr> <tr> <td>X5R</td> <td>-55-85°C at 25°C</td> </tr> <tr> <td>X6S</td> <td>-55-105°C at 25°C</td> </tr> <tr> <td>Y5V</td> <td>-55-85°C at 25°C</td> </tr> </tbody> </table> <p>*Before initial measurement (Class II only): To apply de-aging at 150°C for 1hr then set for 24± 2 hrs at room temp. * Measurement voltage for Class II:</p> <table border="1"> <thead> <tr> <th>01005</th> <th>0201</th> </tr> </thead> <tbody> <tr> <td>Cap≤0.01µF: 0.5V</td> <td>Cap<0.1µF:1V</td> </tr> <tr> <td>Cap>0.01µF: 0.2V</td> <td>0.1µF*≤Cap<1µF: 0.2V</td> </tr> <tr> <td></td> <td>Cap≥1µF: 0.1V</td> </tr> <tr> <td></td> <td>*0201X104/16V: 0.5V</td> </tr> <tr> <th>0402</th> <th>0603</th> </tr> <tr> <td>Cap<1µF: 1V</td> <td>Cap≤1µF: 1V</td> </tr> <tr> <td>Cap=1µF: 0.5V</td> <td>1µF<Cap4.7µF: 0.5V</td> </tr> <tr> <td>1µF<Cap<10µF: 0.2V</td> <td>Cap>4.7µF: 0.2V</td> </tr> <tr> <td>Cap≥10µF: 0.1V</td> <td></td> </tr> <tr> <th>0805</th> <th>1206/1210</th> </tr> <tr> <td>Cap<10µF: 1V</td> <td>Cap10µF: 1V</td> </tr> <tr> <td>Cap=10µF: 0.5V</td> <td>10µF<Cap100µF: 0.5V</td> </tr> <tr> <td>Cap>10µF: 0.2V</td> <td>Cap>100µF: 0.2V</td> </tr> </tbody> </table>	T.C.	Operating Temperature	NPO	-55-125°C at 25°C	X7R	-55-125°C at 25°C	X7S	-55-125°C at 25°C	X5R	-55-85°C at 25°C	X6S	-55-105°C at 25°C	Y5V	-55-85°C at 25°C	01005	0201	Cap≤0.01µF: 0.5V	Cap<0.1µF:1V	Cap>0.01µF: 0.2V	0.1µF*≤Cap<1µF: 0.2V		Cap≥1µF: 0.1V		*0201X104/16V: 0.5V	0402	0603	Cap<1µF: 1V	Cap≤1µF: 1V	Cap=1µF: 0.5V	1µF<Cap4.7µF: 0.5V	1µF<Cap<10µF: 0.2V	Cap>4.7µF: 0.2V	Cap≥10µF: 0.1V		0805	1206/1210	Cap<10µF: 1V	Cap10µF: 1V	Cap=10µF: 0.5V	10µF<Cap100µF: 0.5V	Cap>10µF: 0.2V	Cap>100µF: 0.2V	<table border="1"> <thead> <tr> <th>T.C.</th> <th>Capacitance Change</th> </tr> </thead> <tbody> <tr> <td>NPO</td> <td>Within ±30ppm/°C</td> </tr> <tr> <td>X7R</td> <td>Within ±15%</td> </tr> <tr> <td>X7S</td> <td>Within ±22%</td> </tr> <tr> <td>X5R</td> <td>Within ±15%</td> </tr> <tr> <td>X6S</td> <td>Within ±22%</td> </tr> <tr> <td>Y5V</td> <td>Within +30%/-80%</td> </tr> </tbody> </table>	T.C.	Capacitance Change	NPO	Within ±30ppm/°C	X7R	Within ±15%	X7S	Within ±22%	X5R	Within ±15%	X6S	Within ±22%	Y5V	Within +30%/-80%
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7. Adhesive Strength of Termination	<p>* Pressurizing force: 2N (0201) and 5N (0603) and 10N (>0603) * Test time: 10±1 sec.</p>	* No remarkable damage or removal of the terminations.																																																								
8. Vibration Resistance	<p>* Vibration frequency: 10-55 Hz/min. * Total amplitude: 1.5mm * Test time: 6 hrs. (Two hrs each in three mutually perpendicular directions.) *Before initial measurement (Class II only): To apply de-aging at 150°C for 1hr then set for 24± 2 hrs at room temp. *Cap./DF(Q) Measurement to be made after de-aging at 150°C for 1hr then set for 24±2 hrs at room temp.</p>	<p>* No remarkable damage. * Cap change and Q/D.F.: To meet initial spec.</p>																																																								
9. Solderability	<p>* Solder temperature: 235±5°C * Dipping time: 2±0.5 sec.</p>	75% min. coverage of all metalized area.																																																								
10. Bending Test	<p>* The middle part of substrate shall be pressurized by means of the pressurizing rod at a rate of about 1 mm per second until the deflection becomes 3mm and then the pressure shall be maintained for 5±1 sec. * Before initial measurement (Class II only): To apply de-aging at 150°C for 1hr then set for 24± 2 hrs at room temp. * Measurement to be made after keeping at room temp. for 24±2 hrs.</p>	<p>* No remarkable damage. * Cap change: NPO: within ±5% or 0.5pF whichever is larger X7R, X5R, X6S, X7S: within ±12.5%; Y5V: within ±30% (This capacitance change means the change of capacitance under specified flexure of substrate from the capacitance measured before the test.)</p>																																																								

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RELIABILITY TEST CONDITIONS & REQUIREMENTS

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11.	Resistance to Soldering Heat	<ul style="list-style-type: none"> * Solder temperature: 260±5°C * Dipping time: 10±1 sec * Preheating: 120 to 150°C for 1 minute before immerse the capacitor in a eutectic solder. * Before initial measurement (Class II only): To apply de-aging at 150°C for 1hr then set for 24±2 hrs at room temp. * Cap. / DF(Q) / I.R. Measurement to be made after de-aging at 150°C for 1hr then set for 24±2 hrs at room temp. 	<ul style="list-style-type: none"> * No remarkable damage. * Cap change: NPO: within ±2.5% or 0.25pF whichever is larger X7R, X5R, X6S, X7S: within ±7.5% Y5V: within ±20% * Q/D.F., I.R. and dielectric strength: To meet initial requirements. * 25% max. leaching on each edge. 															
12.	Temperature Cycle	<ul style="list-style-type: none"> * Conduct the five cycles according to the temperatures and time. <table border="1" data-bbox="358 590 721 814"> <thead> <tr> <th data-bbox="358 590 407 621">STEP</th> <th data-bbox="412 590 634 621">TEMP. (°C)</th> <th data-bbox="639 590 721 621">TIME (MIN.)</th> </tr> </thead> <tbody> <tr> <td data-bbox="358 642 407 674">1</td> <td data-bbox="412 642 634 674">Min. operating temp. +0/-3</td> <td data-bbox="639 642 721 674">30±3</td> </tr> <tr> <td data-bbox="358 695 407 726">2</td> <td data-bbox="412 695 634 726">Room temp.</td> <td data-bbox="639 695 721 726">2-3</td> </tr> <tr> <td data-bbox="358 737 407 768">3</td> <td data-bbox="412 737 634 768">Max. operating temp. +3/-0</td> <td data-bbox="639 737 721 768">30±3</td> </tr> <tr> <td data-bbox="358 779 407 810">4</td> <td data-bbox="412 779 634 810">Room temp.</td> <td data-bbox="639 779 721 810">2-3</td> </tr> </tbody> </table> <ul style="list-style-type: none"> * Before initial measurement (Class II only): To apply de-aging at 150°C for 1hr then set for 24±2 hrs at room temp. * Cap. / DF(Q) / I.R. Measurement to be made after de-aging at 150°C for 1hr then set for 24±2 hrs at room temp. 	STEP	TEMP. (°C)	TIME (MIN.)	1	Min. operating temp. +0/-3	30±3	2	Room temp.	2-3	3	Max. operating temp. +3/-0	30±3	4	Room temp.	2-3	<ul style="list-style-type: none"> * No remarkable damage. * Cap change: NPO: within ±2.5% or 0.25pF whichever is larger X7R, X5R, X6S, X7S: within ±7.5% Y5V: within ±20% * Q/D.F., I.R. and dielectric strength: To meet initial requirements.
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RELIABILITY TEST CONDITIONS & REQUIREMENTS

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13.	Humidity (Damp Heat) Steady State * Test temp.: 40±2°C * Humidity: 90-95%RH * Test time: 500±24/-0hrs. * Before initial measurement (Class II only): To apply de-aging at 150°C for 1hr then set for 24±2 hrs at room temp. * Cap. / DF(Q) / I.R. Measurement to be made after de-aging at 150°C for 1hr then set for 24±2 hrs at room temp.	* No remarkable damage. * Cap change: NPO: within ±5% or 0.5pF whichever is larger X7R, X5R, X6S, X7S: ≥10V**, within ±12.5%; ≤6.3V within ±25%; C≥1uF, within ±25% **10V: 0603≥4.7μF; 0402≥1μF; 0201≥0.1μF, within ±25%; Y5V: ≥10V, within ±30%; ≤6.3V, within +30/-40% * Q/D.F. value: NPO: More than 30pF Q≥350, 10pF≤C≤30pF, Q≤275+2.5C; Less than 10pF Q≥200+10C X7R, X5R, X6S, X7S: <table border="1" data-bbox="738 535 1490 1291"> <thead> <tr> <th>RATED VOL.</th> <th>D.F.≤</th> <th colspan="2">EXCEPTION OF D.F.≤</th> </tr> </thead> <tbody> <tr> <td rowspan="3">≥100V</td> <td rowspan="3">≤3%</td> <td>≤6%</td> <td>1206≥0.47μF</td> </tr> <tr> <td>≤7.5%</td> <td>0805>0.1μF, 0603≥0.068μF, 1206>1μF; 1210≥2.2μF</td> </tr> <tr> <td>≤20%</td> <td>0805>0.22μF; 1210≥3.3μF</td> </tr> <tr> <td rowspan="3">50V</td> <td rowspan="3">≤3%</td> <td>≤6%</td> <td>0201(50V); 0603≥0.047μF; 0805≥0.18μF; 1206≥0.47μF</td> </tr> <tr> <td>≤10%</td> <td>0201≥0.01uF; 1210≥4.7μF</td> </tr> <tr> <td>≤20%</td> <td>0402≥0.012μF; 0603>0.1μF; 0805≥1μF; 1206≥2.2μF; 1210≥10μF</td> </tr> <tr> <td>35V</td> <td>≤5%</td> <td>≤20%</td> <td>0603≥1μF; 0805 2.2F; 1206≥2.2μF; 1210≥10μF</td> </tr> <tr> <td rowspan="4">25V</td> <td rowspan="4">≤5%</td> <td>≤10%</td> <td>0201≥0.01μF; 0805≥1μF; 1210≥10μF</td> </tr> <tr> <td>≤14%</td> <td>0603≥0.33μF</td> </tr> <tr> <td>≤15%</td> <td>0201≥0.1μF; 0402≥0.10μF & (0402/ X7R≥0.056μF); 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF</td> </tr> <tr> <td>≤20%</td> <td>0402μ0.47μF</td> </tr> <tr> <td rowspan="2">16V</td> <td rowspan="2">≤5%</td> <td>≤10%</td> <td>0603≥0.15μF; 0805≥0.68μF; 1206≥2.2μF; 1210≥4.7μF</td> </tr> <tr> <td>≤15%</td> <td>0201≥0.01μF (0201/X7R≥0.022μF); 0402≥0.033μF; 0603≥0.68μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF</td> </tr> <tr> <td rowspan="2">10V</td> <td rowspan="2">≤7.5%</td> <td>≤15%</td> <td>0201≥0.012μF; 0402≥0.33μF (0402/X7R≥0.22μF); 0603≥0.33μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥22μF</td> </tr> <tr> <td>≤20%</td> <td>0201≥0.1μF ; 0402≥1μF; 01R5</td> </tr> <tr> <td>6.3V</td> <td>≤15%</td> <td>≤30%</td> <td>0201≥0.1μF; 0402≥1μF (0402/X6S≥0.47μF); 0603V10μF; 0805≥4.7μF; 1206≥47μF; 1210≥100μF</td> </tr> <tr> <td>4V</td> <td>≤20%</td> <td>-</td> <td>-</td> </tr> </tbody> </table> Y5V: <table border="1" data-bbox="738 1344 1490 1795"> <thead> <tr> <th>RATED VOL.</th> <th>D.F.≤</th> <th colspan="2">EXCEPTION OF D.F.≤</th> </tr> </thead> <tbody> <tr> <td rowspan="2">≥50V</td> <td rowspan="2">≤7.5%</td> <td>≤10%</td> <td>0603≥0.1μF; 0805≥0.47μF; 1206≥4.7μF</td> </tr> <tr> <td>≤20%</td> <td>1210≥6.8μF</td> </tr> <tr> <td>35V</td> <td>≤10%</td> <td>-</td> <td>-</td> </tr> <tr> <td rowspan="2">25V</td> <td rowspan="2">≤7.5%</td> <td>≤10%</td> <td>0402≥0.047μF; 0603≥0.1μF; 0805≥0.33μF; 1206≥1μF; 1210≥4.7μF</td> </tr> <tr> <td>≤15%</td> <td>0402≥0.068μF; 0603≥0.47μF; 1206≥4.7μF; 1210≥22μF</td> </tr> <tr> <td rowspan="2">16V (C<1.0μF)</td> <td rowspan="2">≤10%</td> <td>≤12.5%</td> <td>0402≥0.068μF; 0603≥0.68μF</td> </tr> <tr> <td>≤20%</td> <td>0402≥0.22μF</td> </tr> <tr> <td>16V (Cμ1.0μF)</td> <td>≤12.5%</td> <td>≤20%</td> <td>0603≥2.2μF; 0805≥3.3μF; 1206≥10μF; 1210≥22μF; 1812≥47μF;</td> </tr> <tr> <td>10V</td> <td>≤20%</td> <td>≤30%</td> <td>0402≥0.47μF</td> </tr> <tr> <td>6.3V</td> <td>≤30%</td> <td>-</td> <td>-</td> </tr> </tbody> </table> *I.R.: ≥10V, 1GΩ or 50Ω -F whichever is smaller.	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Note: Additional values may be available. Please contact us for more information. Due to demand and raw material fluctuations, specific values may not be available.

RELIABILITY TEST CONDITIONS & REQUIREMENTS

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13. Humidity (Damp Heat) Steady State (continued)	<ul style="list-style-type: none"> * Test temp.: 40±2°C * Humidity: 90-95%RH * Test time: 500+24/-0hrs. * Before initial measurement (Class II only): To apply de-aging at 150°C for 1hr then set for 24±2 hrs at room temp. * Cap. / DF(Q) / I.R. Measurement to be made after de-aging at 150°C for 1hr then set for 24±2 hrs at room temp. 	<p>Class II (X7R, X5R, X6S, X7S, Y5V):</p> <table border="1"> <thead> <tr> <th>RATED VOL.</th> <th>INSULATION RESISTANCE</th> </tr> </thead> <tbody> <tr> <td>100V: All X7R;1210≥3.3μF</td> <td rowspan="7">1GΩ OR 100Ω-F Whichever is smaller</td> </tr> <tr> <td>50V: 0402>0.01μF;0603≥1μF;0805≥1μF;1206≥4.7μF;1210≥4.7μF</td> </tr> <tr> <td>35V:0603≥1μF;0805≥2.2μF; 1206≥2.2μF;1210≥10μF</td> </tr> <tr> <td>25V:0201≥0.1uF; 0402≥0.22μF; 0603≥2.2μF;0805≥2.2μF; 1206≥10μF;1210≥10μF</td> </tr> <tr> <td>16V: 0201≥0.1uF;0402≥0.22μF;0603≥1μF;0805≥2.2μF; 1206≥10μF;1210≥47μF</td> </tr> <tr> <td>10V:0201≥47nF;0402≥0.47μF;0603≥0.47μF;0805≥2.2μF; 1206≥4.7μF;1210≥47μF</td> </tr> <tr> <td>6.3V ; 4V ; All X6S/X7S items; Size1812</td> </tr> </tbody> </table>	RATED VOL.	INSULATION RESISTANCE	100V: All X7R;1210≥3.3μF	1GΩ OR 100Ω-F Whichever is smaller	50V: 0402>0.01μF;0603≥1μF;0805≥1μF;1206≥4.7μF;1210≥4.7μF	35V:0603≥1μF;0805≥2.2μF; 1206≥2.2μF;1210≥10μF	25V:0201≥0.1uF; 0402≥0.22μF; 0603≥2.2μF;0805≥2.2μF; 1206≥10μF;1210≥10μF	16V: 0201≥0.1uF;0402≥0.22μF;0603≥1μF;0805≥2.2μF; 1206≥10μF;1210≥47μF	10V:0201≥47nF;0402≥0.47μF;0603≥0.47μF;0805≥2.2μF; 1206≥4.7μF;1210≥47μF	6.3V ; 4V ; All X6S/X7S items; Size1812																																												
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		≤7.5%	0805>0.1μF, 0603≥0.068μF, 1206>1μF;1210≥2.2μF																																																					
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50V	≤3%	≤6%	0201(50V);0603≥0.047μF; 0805≥0.18μF; 1206≥0.47μF																																																					
		≤10%	0201≥0.01uF;1210≥4.7μF																																																					
		≤20%	0402≥0.012μF; 0603>0.1μF; 0805≥1μF; 1206≥2.2μF; 1210≥10μF																																																					
35V	≤5%	≤20%	0603≥1μF;08052.2F;1206≥2.2μF;1210≥10μF																																																					
25V	≤5%	≤10%	0201≥0.01μF;0805≥1μF; 1210≥10μF																																																					
		≤14%	0603≥0.33μF																																																					
		≤15%	0201≥0.1μF;0402≥0.10μF&(0402/X7R≥0.056μF); 0603≥0.47μF; 0805≥2.2μF;1206≥4.7μF;1210≥22μF																																																					
		≤20%	0402≥0.47μF																																																					
16V	≤5%	≤10%	0603≥0.15μF;0805≥0.68μF;1206≥2.2μF;1210≥4.7μF																																																					
		≤15%	0201≥0.01μF(0201/X7R≥0.022μF);0402≥0.033μF; 0603≥0.68μF;0805≥2.2μF;1206≥4.7μF; 1210≥22μF																																																					
10V	≤7.5%	≤15%	0201≥0.012μF; 0402≥0.33μF(0402/X7R≥0.22μF); 0603≥0.33μF;0805≥2.2μF;1206≥2.2μF; 1210≥22μF																																																					
		≤20%	0201≥0.1μF ;0402≥1μF; 01R5																																																					
6.3V	≤15%	≤30%	0201≥0.1μF;0402≥1μF(0402/X6S≥0.47μF);0603≥10μF; 0805≥4.7μF;1206≥47μF;1210≥100μF																																																					
4V	≤20%	-	-																																																					

Note: Additional values may be available. Please contact us for more information. Due to demand and raw material fluctuations, specific values may not be available.

RELIABILITY TEST CONDITIONS & REQUIREMENTS

ITEM	TEST CONDITION	REQUIREMENTS				
		RATED VOL.	D.F.≤	EXCEPTION OF D.F.≤		
14. Humidity (Damp Heat) Load (continued)	* Test temp.: 40±2°C * Humidity: 90-95%RH * Test time: 500±24/-0 hrs. * To apply voltage: Rated voltage (MAX. 500V) * Before initial measurement (Class II only): To apply de-aging at 150°C for 1hr then set for 24±2 hrs at room temp. * Cap. / DF(Q) / I.R. Measurement to be made after de-aging at 150°C for 1hr then set for 24±2 hrs at room temp.	Y5V:				
		≥50V	≤7.5%	≤10%	0603≥0.1μF; 0805≥0.47μF; 1206≥4.7μF	
				≤20%	1210≥6.8μF	
		35V	≤10%	-	-	
		25V	≤7.5%	≤10%	0402≥0.047μF; 0603≥0.1μF; 0805≥0.33μF; 1206≥1μF; 1210≥4.7μF	
				≤15%	0402≥0.068μF; 0603≥0.47μF; 1206≥4.7μF; 1210≥22μF	
		16V (C<1.0μF)	≤10%	≤12.5%	0402≥0.068μF; 0603≥0.68μF	
				≤20%	0402≥0.22μF	
		16V (C≥1.0μF)	≤12.5%	≤20%	0603≥2.2μF; 0805≥3.3μF; 1206≥10μF; 1210≥22μF; 1812≥47μF;	
		10V	≤20%	≤30%	0402≥0.47μF	
		6.3V	≤30%	-	-	
		*I.R.: ≥10V, 500MΩ or 25Ω -F whichever is smaller. Class II (X7R, X5R, X6S, X7S, Y5V)				
				RATED VOL.	INSULATION RESISTANCE	
				100V: All X7R; 1210≥3.3μF	500MΩ or 100Ω-F Whichever is smaller	
		50V: 0402>0.01μF; 0603≥1μF; 0805≥1μF; 1206≥4.7μF; 1210≥4.7μF				
		35V: 0603≥1μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥10μF				
		25V: 0201≥0.1μF; 0402≥0.22μF; 0603≥2.2μF; 0805≥2.2μF; 1206≥10μF; 1210≥10μF				
		16V: 0201≥0.1μF; 0402≥0.22μF; 0603≥1μF; 0805≥2.2μF; 1206≥10μF; 1210≥47μF				
		10V: 0201≥47nF; 0402≥0.47μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥47μF				
		6.3V ; 4V ; All X6S/X7S items; Size≥1812				

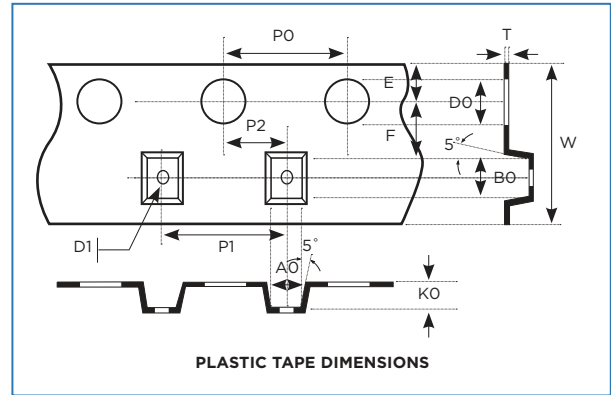
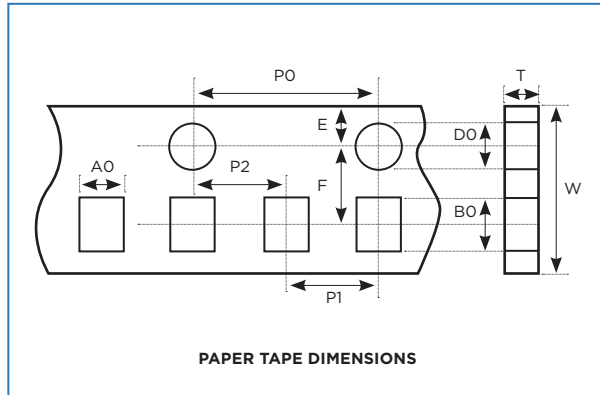
Note: Additional values may be available. Please contact us for more information. Due to demand and raw material fluctuations, specific values may not be available.

RELIABILITY TEST CONDITIONS & REQUIREMENTS

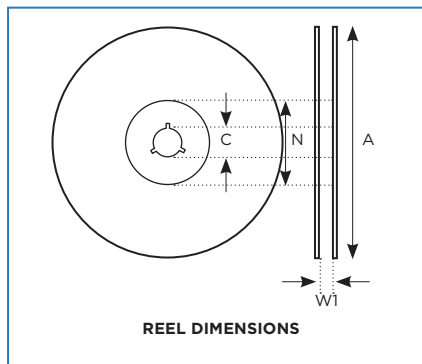
NO	ITEM	TEST CONDITION	REQUIREMENTS																																																		
15	HIGH TEMPERATURE Load-Endurance (Life Testing)	(3) 150% of rated voltage for below range.	<ul style="list-style-type: none"> No remarkable damage. CAP CHANGE: COG: $\pm 3.0\%$ or $\pm 0.3\text{pF}$ whichever is larger X7R, X5R, X6S, X7S: $\geq 10\text{V}^{**}$, within $\pm 12.5\%$; $\leq 6.3\text{V}$ within $\pm 25\%$ **10V: 0603$\geq 4.7\mu\text{F}$; 0402$\geq 1.0\mu\text{F}$; 0201$\geq 0.1\mu\text{F}$, within $\pm 25\%$ Y5V$\geq 10\text{V}$, within $\pm 30\%$; $\leq 6.3\text{V}$, within $+30\%/-40\%$ Q/D.F. VALUE: COG: More than 30pF, Q≥ 350 10pF$\leq 30\text{pF}$, Q$\geq 275+2.5\text{C}$ Less than 10pF, Q$\geq 200+10\text{C}$ 																																																		
		SIZE		DIELECTRIC	RATED VOLTAGE	CAPACITANCE																																															
		0201		X5R/X6S	16V, 25V	C $\geq 0.1\mu\text{F}$																																															
				X7R	16V	C $\geq 0.022\mu\text{F}$																																															
		0402		X7R/X5R/X6S	50V	C $\geq 0.01\mu\text{F}$																																															
					10-25V	C $\geq 0.22\mu\text{F}$																																															
		0603		X7S	50-100V	C $> 0.22\mu\text{F}$																																															
					50V	C $> 0.1\mu\text{F}$																																															
		0603		X7R	25V	C=1.0 μF																																															
					50V	C $\geq 1.0\mu\text{F}$																																															
		0603		X5R/X7R/X6S/X7S	10V, 16V	C $\geq 1.0\mu\text{F}$																																															
					Y5V	C $\geq 2.2\mu\text{F}$																																															
		0805		X5R/X7R/X6S/X7S	100V	C $\geq 0.47\mu\text{F}$																																															
					50V	C $\geq 0.68\mu\text{F}$																																															
					35V	C $\geq 2.2\mu\text{F}$																																															
10-25V	C $\geq 4.7\mu\text{F}$																																																				
0805	Y5V	16V	C $\geq 4.7\mu\text{F}$																																																		
		100V	C $\geq 1.0\mu\text{F}$																																																		
1206	X7R	50V	C=4.7 μF																																																		
		100V	C $> 1.0\mu\text{F}$																																																		
1206	X5R/X6S/X7S	100V	C $> 1.0\mu\text{F}$																																																		
		50V	C=4.7 μF																																																		
1210	X5R/X7R/X6S/X7S	50-100V	C $\geq 2.2\mu\text{F}$																																																		
1825 2220 2225	X7R	100-250V	C $\geq 1.0\mu\text{F}$																																																		
<p>* Before initial measurement (Class II only): To apply de-aging at 150 °C for 1 hr then set for 24\pm2 hrs at room temp</p> <p>* Cap./DF(Q)/I.R. Measurement to be made after de-aging at 150 °C for 1hr then set for 24\pm2hrs at room temp.</p> <p>** De-rating conditions:</p>			<p>Y5V:</p> <table border="1"> <thead> <tr> <th>RATED VOLTAGE</th> <th>D.F.</th> <th colspan="2">EXCEPTIONS OF D.F. \leq</th> </tr> </thead> <tbody> <tr> <td rowspan="2">$\geq 0\text{V}$</td> <td rowspan="2">$\leq 7.5\%$</td> <td>$\leq 10\%$</td> <td>0603$\geq 0.1\mu\text{F}$; 0805$\geq 0.47\mu\text{F}$; 1206$\geq 4.7\mu\text{F}$</td> </tr> <tr> <td>$\leq 20\%$</td> <td>1210$\geq 6.8\mu\text{F}$</td> </tr> <tr> <td>35V</td> <td>$\leq 10\%$</td> <td>-</td> <td>-</td> </tr> <tr> <td rowspan="2">25V</td> <td rowspan="2">$\leq 7.5\%$</td> <td>$\leq 10\%$</td> <td>0402$\geq 0.047\mu\text{F}$; 0603$\geq 0.1\mu\text{F}$; 0805$\geq 0.33\mu\text{F}$; 1206$\geq 1.0\mu\text{F}$; 1210$\geq 4.7\mu\text{F}$</td> </tr> <tr> <td>$\leq 15\%$</td> <td>0402$\geq 0.068\mu\text{F}$; 0603$\geq 0.47\mu\text{F}$; 1206$\geq 4.7\mu\text{F}$; 1210$\geq 22\mu\text{F}$</td> </tr> <tr> <td rowspan="2">16V (C$< 1.0\mu\text{F}$)</td> <td rowspan="2">$\leq 10\%$</td> <td>$\leq 12.5\%$</td> <td>0402$\geq 0.068\mu\text{F}$; 0603$\geq 0.68\mu\text{F}$</td> </tr> <tr> <td>$\leq 20\%$</td> <td>0402$\geq 0.22\mu\text{F}$</td> </tr> <tr> <td rowspan="2">16V (C$\geq 1.0\mu\text{F}$)</td> <td rowspan="2">$\leq 12.5\%$</td> <td>$\leq 20\%$</td> <td>0603$\geq 2.2\mu\text{F}$; 0805$\geq 3.3\mu\text{F}$; 1206$\geq 10\mu\text{F}$; 1210$\geq 22\mu\text{F}$; 1812$\geq 47\mu\text{F}$</td> </tr> <tr> <td>$\leq 30\%$</td> <td>0402$\geq 0.47\mu\text{F}$</td> </tr> <tr> <td>10V</td> <td>$\leq 20\%$</td> <td>$\leq 30\%$</td> <td>0402$\geq 0.47\mu\text{F}$</td> </tr> <tr> <td>6.3V</td> <td>$\leq 30\%$</td> <td>-</td> <td>-</td> </tr> </tbody> </table> <p>*I.R.: $\geq 10\text{V}$, 1GΩ or 50Q-F whichever is smaller. Class II (X7R, X5R, X6S, X7S, Y5V)</p> <table border="1"> <thead> <tr> <th>RATED VOLTAGE</th> <th>INSULATION RESISTANCE</th> </tr> </thead> <tbody> <tr> <td>100V: All X7R; 1210$\geq 3.3\mu\text{F}$</td> <td rowspan="7">1GΩ or apply $\geq 10\text{Q-F}$ rule, whichever is smaller.</td> </tr> <tr> <td>50V: 0402$> 0.01\mu\text{F}$; 0603$\geq 1.0\mu\text{F}$; 0805$\geq 1.0\mu\text{F}$; 1206$\geq 4.7\mu\text{F}$; 1210$\geq 4.7\mu\text{F}$</td> </tr> <tr> <td>35V: 0603$\geq 1.0\mu\text{F}$; 0805$\geq 2.2\mu\text{F}$; 1206$\geq 2.2\mu\text{F}$; 1210$\geq 10\mu\text{F}$</td> </tr> <tr> <td>25V: 0201$\geq 0.1\mu\text{F}$; 0402$\geq 0.22\mu\text{F}$; 0603$\geq 2.2\mu\text{F}$; 0805$\geq 2.2\mu\text{F}$; 1206$\geq 10\mu\text{F}$; 1210$\geq 10\mu\text{F}$</td> </tr> <tr> <td>16V: 0201$\geq 0.1\mu\text{F}$; 0402$\geq 0.22\mu\text{F}$; 0603$\geq 1.0\mu\text{F}$; 0805$\geq 2.2\mu\text{F}$; 1206$\geq 10\mu\text{F}$; 1210$\geq 47\mu\text{F}$</td> </tr> <tr> <td>10V: 0201$\geq 47\text{nF}$; 0402$\geq 0.47\mu\text{F}$; 0603$\geq 0.47\mu\text{F}$; 0805$\geq 2.2\mu\text{F}$; 1206$\geq 4.7\mu\text{F}$; 1210$\geq 47\mu\text{F}$</td> </tr> <tr> <td>6.3V; 4V : All X6S/X7S items, Size≥ 1812</td> </tr> </tbody> </table>	RATED VOLTAGE	D.F.	EXCEPTIONS OF D.F. \leq		$\geq 0\text{V}$	$\leq 7.5\%$	$\leq 10\%$	0603 $\geq 0.1\mu\text{F}$; 0805 $\geq 0.47\mu\text{F}$; 1206 $\geq 4.7\mu\text{F}$	$\leq 20\%$	1210 $\geq 6.8\mu\text{F}$	35V	$\leq 10\%$	-	-	25V	$\leq 7.5\%$	$\leq 10\%$	0402 $\geq 0.047\mu\text{F}$; 0603 $\geq 0.1\mu\text{F}$; 0805 $\geq 0.33\mu\text{F}$; 1206 $\geq 1.0\mu\text{F}$; 1210 $\geq 4.7\mu\text{F}$	$\leq 15\%$	0402 $\geq 0.068\mu\text{F}$; 0603 $\geq 0.47\mu\text{F}$; 1206 $\geq 4.7\mu\text{F}$; 1210 $\geq 22\mu\text{F}$	16V (C $< 1.0\mu\text{F}$)	$\leq 10\%$	$\leq 12.5\%$	0402 $\geq 0.068\mu\text{F}$; 0603 $\geq 0.68\mu\text{F}$	$\leq 20\%$	0402 $\geq 0.22\mu\text{F}$	16V (C $\geq 1.0\mu\text{F}$)	$\leq 12.5\%$	$\leq 20\%$	0603 $\geq 2.2\mu\text{F}$; 0805 $\geq 3.3\mu\text{F}$; 1206 $\geq 10\mu\text{F}$; 1210 $\geq 22\mu\text{F}$; 1812 $\geq 47\mu\text{F}$	$\leq 30\%$	0402 $\geq 0.47\mu\text{F}$	10V	$\leq 20\%$	$\leq 30\%$	0402 $\geq 0.47\mu\text{F}$	6.3V	$\leq 30\%$	-	-	RATED VOLTAGE	INSULATION RESISTANCE	100V: All X7R; 1210 $\geq 3.3\mu\text{F}$	1G Ω or apply $\geq 10\text{Q-F}$ rule, whichever is smaller.	50V: 0402 $> 0.01\mu\text{F}$; 0603 $\geq 1.0\mu\text{F}$; 0805 $\geq 1.0\mu\text{F}$; 1206 $\geq 4.7\mu\text{F}$; 1210 $\geq 4.7\mu\text{F}$	35V: 0603 $\geq 1.0\mu\text{F}$; 0805 $\geq 2.2\mu\text{F}$; 1206 $\geq 2.2\mu\text{F}$; 1210 $\geq 10\mu\text{F}$	25V: 0201 $\geq 0.1\mu\text{F}$; 0402 $\geq 0.22\mu\text{F}$; 0603 $\geq 2.2\mu\text{F}$; 0805 $\geq 2.2\mu\text{F}$; 1206 $\geq 10\mu\text{F}$; 1210 $\geq 10\mu\text{F}$	16V: 0201 $\geq 0.1\mu\text{F}$; 0402 $\geq 0.22\mu\text{F}$; 0603 $\geq 1.0\mu\text{F}$; 0805 $\geq 2.2\mu\text{F}$; 1206 $\geq 10\mu\text{F}$; 1210 $\geq 47\mu\text{F}$	10V: 0201 $\geq 47\text{nF}$; 0402 $\geq 0.47\mu\text{F}$; 0603 $\geq 0.47\mu\text{F}$; 0805 $\geq 2.2\mu\text{F}$; 1206 $\geq 4.7\mu\text{F}$; 1210 $\geq 47\mu\text{F}$	6.3V; 4V : All X6S/X7S items, Size ≥ 1812
RATED VOLTAGE	D.F.	EXCEPTIONS OF D.F. \leq																																																			
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16V (C $< 1.0\mu\text{F}$)	$\leq 10\%$	$\leq 12.5\%$		0402 $\geq 0.068\mu\text{F}$; 0603 $\geq 0.68\mu\text{F}$																																																	
		$\leq 20\%$		0402 $\geq 0.22\mu\text{F}$																																																	
16V (C $\geq 1.0\mu\text{F}$)	$\leq 12.5\%$	$\leq 20\%$		0603 $\geq 2.2\mu\text{F}$; 0805 $\geq 3.3\mu\text{F}$; 1206 $\geq 10\mu\text{F}$; 1210 $\geq 22\mu\text{F}$; 1812 $\geq 47\mu\text{F}$																																																	
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<h3>DERATING CURVE</h3> <p>Ratio [Operating Voltage / Rated Voltage (%)]</p> <p>Ambient temperature (°C)</p> <p>— Product for 85 °C — Product for 105 °C — Product for 125 °C</p>																																																					

Note: Additional values may be available. Please contact us for more information. Due to demand and raw material fluctuations, specific values may not be available.

TAPE AND REEL SPECIFICATIONS



SIZE	0402	0603	0805	1206			1210		1808	1812		2220	
Thickness (mm)	0.50±0.20	0.80±0.07 0.80±0.30	1.25±0.30	1.15±0.15	1.60±0.20	1.60±0.50	0.95±0.10 1.25±0.10 1.60±0.20 2.00±0.20	2.50±0.50	1.25±0.10 1.60±0.20 2.00±0.20	1.25±0.10 1.60±0.20 2.00±0.20	2.50±0.50	1.40±0.15 1.60±0.20 2.00±0.20	2.50±0.50
A0	0.70±0.20	1.05±0.30	<1.80	1.90±0.50	<2.00	<2.30	<3.05	<3.05	<3.20	<2.50	<3.90	<5.80	<6.80
B0	1.20±0.20	1.80±0.30	<2.70	3.50±0.50	<3.70	<4.00	<3.80	<3.80	<4.00	<5.30	<5.30	<6.50	<6.50
T	≤0.80	≤1.20	0.23±0.1	≤1.20	0.23±0.1	0.23±0.1	0.23±0.1	0.23±0.1	0.23±0.1	0.25±0.1	0.25±0.1	0.30±0.1	0.30±0.1
K0	-	-	<2.50	-	<2.50	<2.50	<1.50	<2.50	<3.20	<2.50	<2.50	<2.50	<3.10
W	8.00±0.30	8.00±0.30	8.00±0.30	8.00±0.30	8.00±0.30	8.00±0.30	8.00±0.30	8.00±0.30	8.00±0.30	12.00±0.30	12.00±0.30	12.00±0.20	12.00±0.20
P0	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10
P1	2.00±0.05	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	8.00±0.10	8.00±0.10	8.00±0.10
P2	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05
D0	1.50+0.1/-0	1.50+0.1/-0	1.50+0.1/-0	1.50+0.1/-0	1.50+0.1/-0	1.50+0.1/-0	1.50+0.1/-0	1.50+0.1/-0	1.50+0.1/-0	1.50+0.1/-0	1.50+0.1/-0	1.50+0.1/-0	1.50+0.1/-0
D1	-	-	1.00±0.10	-	1.00±0.10	1.00±0.10	1.00±0.10	1.00±0.10	1.00±0.10	1.50±0.10	1.50±0.10	1.50±0.10	1.50±0.10
E	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10
F	3.50±0.05	3.50±0.05	3.50±0.05	3.50±0.05	3.50±0.05	3.50±0.05	3.50±0.05	3.50±0.05	3.50±0.05	5.50±0.10	5.50±0.10	5.50±0.05	5.50±0.05



SIZE	0402, 0603, 0805, 1206, 1210	1808, 1812, 2220
Reel Size	7"	7"
C	13.0+0.5/-0.2	13.0+0.5/-0.2
W1	8.4+1.5/-0	12.4+2.0/-0
A	178.0±1.0	178.0±1.00
N	60.0+1.0/-0	60.0+1.0/-0