



FEATURES:

- Capacitance range: 0.1pF to 220uF
- Voltage range: 4V to 100V
- Terminations: 100% matte Tin (Sn), Palladium Silver (Pd-Ag), Gold (Au) and Lead (Pb)
- Very low ESR in X7R/X7S/X6S/X5R (<10mΩ typical)
- Ceramic monolithic structure provides excellent reliability



PART NUMBER STRUCTURE

C	0805	COG	500	-	101	J	N	P	□ □	
Series	Size	Temperature Characteristic (Dielectric)	Rated Voltage	Capacitance	Tolerance	Termination	Packaging	Optional Thickness Identifier		
01005	0201	0402	0603	0805	1206	1210	1812	2220	2225	

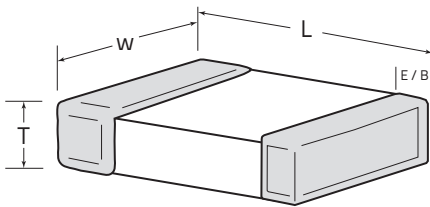
Example P/N: C0805COG500-101JNP

Optional Thickness Identifier Codes:

CODE:	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	6
DIMENSION:	.015	.020	.026	.030	.035	.040	.045	.050	.055	.060	.065	.070	.075	.080	.085	.090	.095	.100	.105	.110	.023

DIMENSIONS

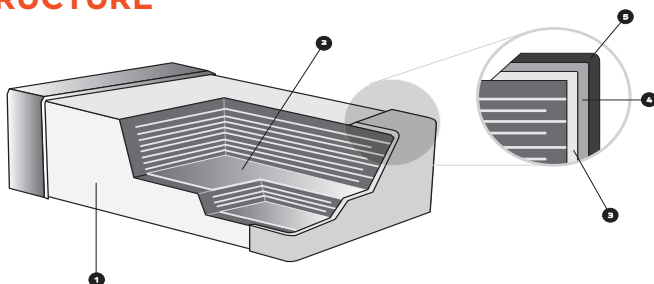
Unit: inches (mm)



SIZE	L	W	T	MIN. E/B
01005	0.016 ± 0.0008 (0.4 ± 0.02)	0.008 ± 0.0008 (0.2 ± 0.02)	See Specific Value	0.002 (0.05)
0201	0.024 ± 0.002 (0.6 ± 0.05)	0.012 ± 0.002 (0.3 ± 0.05)	See Specific Value	0.002 (0.05)
0402*	0.040 ± 0.002 (1.0 ± 0.05)	0.020 ± 0.002 (0.5 ± 0.05)	See Specific Value	0.004 (0.10)
0603	0.063 ± 0.006 (1.6 ± 0.15)	0.031 ± 0.0046 (0.8 ± 0.15)	See Specific Value	0.008 (0.20)
0805	0.08 ± 0.008 (2.0 ± 0.20)	0.050 ± 0.008 (1.25 ± 0.20)	See Specific Value	0.010 (0.25)
1206	0.126 ± 0.008 (3.2 ± 0.20)	0.063 ± 0.008 (1.6 ± 0.20)	See Specific Value	0.010 (0.25)
1210	0.126 ± 0.157 (3.2 ± 0.40)	0.098 ± 0.0118 (2.50 ± 0.30)	See Specific Value	0.010 (0.25)
1812	0.177 ± 0.012 (4.495 ± 0.30)	0.126 ± 0.012 (3.20 ± 0.30)	See Specific Value	0.010 (0.25)
2220	0.225 ± 0.016 (5.715 ± 0.41)	0.200 ± 0.006 (5.08 ± 0.41)	See Specific Value	0.010 (0.25)

* 0402 size in the X6S/X7S dielectric will have a dimensional tolerance of ±0.20mm

STRUCTURE

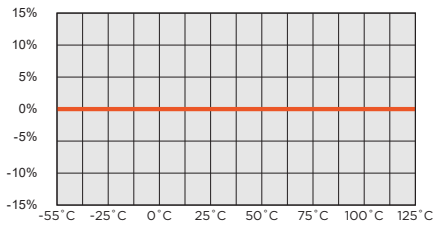


1	Ceramic Body (dielectric)	4	Nickel Plating
2	Inner Electrode	5	Outer Termination
3	Inner Termination		

ELECTRICAL SPECIFICATIONS

COG(NPO)

Typical Capacitance Change vs. Temperature

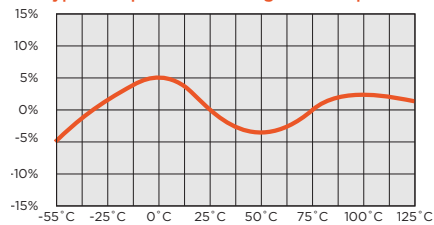


Operating Temperature Range:
 -55°C to +125°C
Temperature Coefficient:
 0 ±30PPM/°C
Temperature Voltage Coefficient:
 0 ±30PPM/°C
Insulation Resistance:
 >1000 Ω-F or 10 GΩ, for values ≤ 0.047uF
 (whichever is less at 25°C, WDCV).
 For Capacitance values > 0.047uF, the 500 Ω-F
 rule applies. (The IR 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

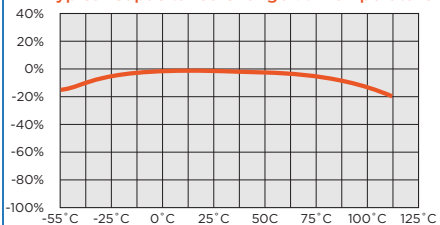


Operating Temperature Range:
 -55°C to +125°C
Temperature Coefficient:
 0 ±15%Δ°C MAX.
Temperature Voltage Coefficient:
 X7R not applicable
Insulation Resistance:
 >100 Ω-F or 10 GΩ, whichever is less
 at 25°C, VDCW. (The IR at 125°C is 10%
 of the value at 25°C)
Ageing:
 2.5% per decade hour, typical
Withstanding Voltage:
 >2.5 times VDCW
Capacitance Tolerance:
 J,K,M

RATED VOLTAGE	D.F.	EXCEPTION OF D.F.	
		≤3%	EXCEPTION OF D.F.
≥50V	≤2.5%	≤3%	0201 (50V); 0603≥0.047uF 0805≥0.22uF; 1206≥0.47uF
		≤5%	0603≥1uF; 0805≥1uF; 1206≥4.7uF; 1210≥4.7uF
25V	≤2.5%	≤5%	0201≥0.01uF; 0805≥1uF; 1210≥4.7uF
		≤10%	0402≥0.10uF; 0603≥0.33uF; 0805≥2.2uF 1206≥2.2uF; 1210≥22uF
16V	≤3.5%	≤5%	0201≥0.01uF; 0402≥0.033uF; 0805≥0.68uF; 1206≥2.2uF; 1210≥4.7uF
		≤10%	0402≥0.47uF; 0603≥0.68uF; 0805≥2.2uF; 1206≥4.7uF; 1210≥22uF
10V	≤5%	≤10%	0402≥0.33uF; 0603≥0.33uF; 0805≥2.2uF; 1206≥2.2uF; 1210≥22uF
6.3V	≤10%		

X7S

Typical Capacitance Change vs. Temperature



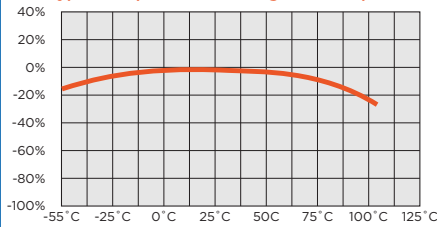
Operating Temperature Range:
 -55°C to +125°C
Temperature Coefficient:
 0 ±22%Δ°C MAX.
Insulation Resistance:
 >1000 Ω-F or 100 GΩ, whichever is less
 at 25°C, VDCW. (The IR at 125°C is 10%
 of the value at 25°C)
Ageing:
 2.5% per decade hour, typical
Withstanding Voltage:
 >2.5 times VDCW
Capacitance Tolerance:
 K,M

RATED VOLTAGE	D.F.	EXCEPTION OF D.F.	
		≤3%	EXCEPTION OF D.F.
≥50V	≤2.5%	≤3%	0201 (50V); 0603≥0.047uF 0805≥0.22uF; 1206≥0.47uF
		≤5%	0603≥1uF; 0805≥1uF; 1206≥4.7uF; 1210≥4.7uF
25V	≤2.5%	≤5%	0201≥0.01uF; 0805≥1uF; 1210≥4.7uF
		≤10%	0402≥0.10uF; 0603≥0.33uF; 0805≥2.2uF 1206≥4.7uF; 1210≥22uF
16V	≤3.5%	≤5%	0201≥0.01uF; 0402≥0.033uF; 0805≥0.68uF; 1206≥2.2uF; 1210≥4.7uF
		≤10%	0402≥0.47uF; 0603≥0.68uF; 0805≥2.2uF; 1206≥4.7uF; 1210≥22uF
≤10V	≤5%	≤10%	0402≥0.33uF; 0603≥0.33uF; 0805≥2.2uF; 1206≥2.2uF; 1210≥22uF
6.3V	≤10%		

ELECTRICAL SPECIFICATIONS

X6S

Typical Capacitance Change vs. Temperature

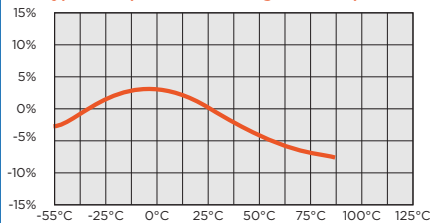


Operating Temperature Range:
-55°C to +105°C
Temperature Coefficient:
0 ±22%Δ°C MAX.
Insulation Resistance:
100,000 MΩ min., or 1000 MΩ (@ +25°C, RVDC) per uF min. or 100GW, whichever is less
Ageing:
2.5% per decade hour, typical
Withstanding Voltage:
>2.5 times VDCW
Capacitance Tolerance:
K,M

RATED VOLTAGE	D.F.	EXCEPTION OF D.F.	
≥50V	≤2.5%	≤3%	0201 (50V); 0603≥0.047uF 0805≥0.22uF; 1206≥0.47uF
		≤5%	0603≥1uF; 0805≥1uF; 1206≥4.7uF; 1210≥4.7uF
25V	≤2.5%	≤5%	0201≥0.01uF; 0805≥1uF; 1210≥4.7uF
		≤10%	0402≥0.10uF; 0603≥0.33uF; 0805≥2.2uF 1206≥4.7uF; 1210≥22uF
16V	≤3.5%	≤5%	0201≥0.01uF; 0402≥0.033uF; 0805≥0.68uF; 1206≥2.2uF; 1210≥4.7uF
		≤10%	0402≥0.47uF; 0603≥0.68uF; 0805≥2.2uF; 1206≥4.7uF; 1210≥22uF
≤10V	≤5%	≤10%	0402≥0.33uF; 0603≥0.33uF; 0805≥2.2uF; 1206≥2.2uF; 1210≥22uF
4V/6.3V	≤10%		

X5R

Typical Capacitance Change vs. Temperature

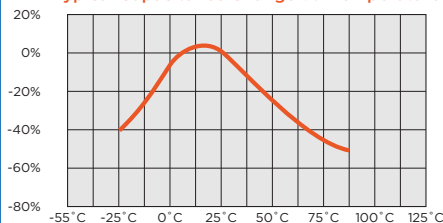


Operating Temperature Range:
-55°C to +85°C
Temperature Coefficient:
0 ±15%Δ°C MAX.
Insulation Resistance:
>100 Ω-F or 10 GΩ, whichever is less at 25°C, VDCW. (The IR at 125°C is 10% of the value at 25°C)
Ageing:
2.5% per decade hour, typical
Withstanding Voltage:
>2.5 times VDCW
Capacitance Tolerance:
K,M

RATED VOLTAGE	D.F.	EXCEPTION OF D.F.	
≥50V	≤2.5%	≤3%	0201 (50V); 0603≥0.047uF 0805≥0.22uF; 1206≥0.47uF
		≤5%	0603≥1uF; 0805≥1uF; 1206≥4.7uF; 1210≥4.7uF
25V	≤2.5%	≤5%	0201≥0.01uF; 0805≥1uF; 1210≥4.7uF
		≤10%	0402≥0.10uF; 0603≥0.33uF; 0805≥2.2uF 1206≥4.7uF; 1210≥22uF
16V	≤3.5%	≤5%	0201≥0.01uF; 0402≥0.033uF; 0805≥0.68uF; 1206≥2.2uF; 1210≥4.7uF
		≤10%	0402≥0.47uF; 0603≥0.68uF; 0805≥2.2uF; 1206≥4.7uF; 1210≥22uF
≤10V	≤5%	≤10%	0402≥0.33uF; 0603≥0.33uF; 0805≥2.2uF; 1206≥2.2uF; 1210≥22uF
6.3V	≤10%		

Z5U

Typical Capacitance Change vs. Temperature

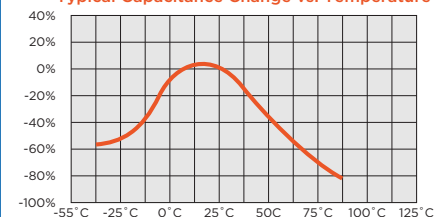


Operating Temperature Range:
+10°C to +85°C
Temperature Coefficient:
+22% - 56%Δ°C MAX.
Insulation Resistance:
>100 Ω-F or 10 GΩ, whichever is less at 25°C, VDCV. (The IR at 125°C is 10% of the value at 25°C)
Ageing:
5% per decade hour, typical
Withstanding Voltage:
>2.5 times VDCW
Capacitance Tolerance:
M,Z

RATED VOLTAGE	D.F.	EXCEPTION OF D.F.	
≥50V	≤5%	≤9%	0603≥0.1uF; 0805≥0.47uF; 1206≥4.7uF;
25V	≤5%	≤9%	0402≥0.047uF; 0603≥0.1uF; 0805≥0.33uF; 1206≥1uF; 1210≥4.7uF
		≤12.5%	0603≥2.2uF; 0805≥3.3uF; 1206≥10uF; 1210≥22uF; 1812≥47uF
16V	≤9%	≤16%	0603≥2.2uF; 0805≥3.3uF; 1206≥4.7uF; 1210≥10uF; 1812≥47uF
10V	≤12.5%	≤16%	0603≥2.2uF; 0805≥3.3uF; 1206≥4.7uF; 1210≥10uF; 1812≥47uF
6.3V	≤16%		

Y5V

Typical Capacitance Change vs. Temperature



Operating Temperature Range:
-30°C to +85°C
Temperature Coefficient:
+22% - 82%Δ°C MAX.
Insulation Resistance:
>100 Ω-F or 10 GΩ, whichever is less at 25°C, VDCW. (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%	≤9%	0603≥0.1uF; 0805≥0.47uF; 1206≥4.7uF;
25V	≤5%	≤9%	0402≥0.047uF; 0603≥0.1uF; 0805≥0.33uF; ≥1206≥1uF; 1210≥4.7uF
		≤12.5%	0603≥2.2uF; 0805≥3.3uF; 1206≥10uF; 1210≥22uF; 1812≥47uF
16V	≤9%	≤16%	0603≥2.2uF; 0805≥3.3uF; 1206≥4.7uF; 1210≥10uF; 1812≥47uF
10V	≤12.5%	≤16%	0603≥2.2uF; 0805≥3.3uF; 1206≥4.7uF; 1210≥10uF; 1812≥47uF
6.3V	≤16%		

VOLTAGE AND CAPACITANCE RANGE

COG(NP0) DIELECTRIC

Unit: mm

Values that are typically available.

SIZE	01005		0201			0402			
	VDCW (MAX)	16V	25V	50V	10V	16V	25V	50V	100V
OR1	0.1		0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
OR2	0.2		0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
OR3	0.3		0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
OR4	0.4		0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
OR5	0.5	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
OR6	0.6	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
OR7	0.7		0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
OR8	0.8		0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
OR9	0.9		0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
1R0	1pF	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
1R2	1.2	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
1R5	1.5	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
1R8	1.8	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
2R0	2.0		0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
2R2	2.2	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
2R7	2.7	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
3R0	3.0	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
3R3	3.3	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
3R9	3.9	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
4R0	4.0		0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
4R7	4.7	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
5R0	5.0		0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
5R6	5.6	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
6R0	6.0		0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
6R8	6.8	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
7R0	7.0		0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
8R0	8.0		0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
8R2	8.2	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
9R0	9.0		0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
100	10pF	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
120	12	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
150	15	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
180	18	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
220	22	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
270	27	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
330	33	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
390	39	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
470	47	0.20±0.02	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
560	56		0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
680	68		0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
820	82		0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
101	100pF		0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
121	120		0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
151	150				0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
181	180				0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
221	220				0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
271	270				0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
331	330				0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
391	390				0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
471	470				0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
561	560				0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
681	680				0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
821	820				0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
102	1000pF				0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
122	1200								
152	1500								
182	1800								
222	2200								
272	2700								
332	3300								
392	3900								
472	4700								
562	5600								
682	6800								
822	8200								
103	0.01uF								
123	0.012								
153	0.015								
183	0.018								
223	0.022								
273	0.027								
333	0.033								
393	0.039								
473	0.047								
563	0.056								
683	0.068								
823	0.082								
104	0.1uF								

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 Unit: mm

Values that are typically available.

SIZE	0603					0805				
	10V	16V	25V	50V	100V	10V	16V	25V	50V	100V
OR1	0.1									
OR2	0.2									
OR3	0.3	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07					
OR4	0.4	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07					
OR5	0.5	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
OR6	0.6	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
OR7	0.7	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
OR8	0.8	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
OR9	0.9	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
1R0	1pF	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
1R2	1.2	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
1R5	1.5	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
1R8	1.8	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
2R0	2.0	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
2R2	2.2	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
2R7	2.7	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
3R0	3.0	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
3R3	3.3	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
3R9	3.9	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
4R0	4.0	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
4R7	4.7	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
5R0	5.0	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
5R6	5.6	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
6R0	6.0	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
6R8	6.8	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
7R0	7.0	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
8R0	8.0	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
8R2	8.2	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
9R0	9.0	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
100	10pF	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
120	12	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
150	15	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
180	18	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
220	22	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
270	27	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
330	33	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
390	39	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
470	47	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
560	56	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
680	68	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
820	82	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
101	100pF	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
120	120	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
151	150	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
181	180	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
221	220	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
271	270	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
331	330	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
391	390	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
471	470	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
561	560	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
681	680	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
821	820	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
102	1000pF	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
122	1200	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
152	1500	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
182	1800	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
222	2200	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
272	2700	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
332	3300	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
392	3900	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
472	4700	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
562	5600	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
682	6800	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
822	8200	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15		1.25±0.10	1.25±0.10	1.25±0.10	
103	0.01uF	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
123	0.012						0.85±0.10	0.85±0.10	0.85±0.10	0.85±0.10
153	0.015						0.85±0.10	0.85±0.10	0.85±0.10	0.85±0.10
183	0.018						1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
223	0.022						1.25±0.10	1.25±0.10	1.25±0.10	
273	0.027									
333	0.033						1.35±0.10	1.35±0.10	1.35±0.10	1.35±0.10
393	0.039									
473	0.047									
563	0.056									
683	0.068									
823	0.082									
104	0.1uF									

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

Unit: mm

Values that are typically available.

SIZE		1206					1210				
VDCW (MAX)		10V	16V	25V	50V	100V	10V	16V	25V	50V	100V
OR1	0.1										
OR2	0.2										
OR3	0.3										
OR4	0.4										
OR5	0.5										
OR6	0.6										
OR7	0.7										
OR8	0.8										
OR9	0.9										
1R0	1pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10					
1R2	1.2	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10					
1R5	1.5	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10					
1R8	1.8	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10					
2R0	2.0	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10					
2R2	2.2	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10					
2R7	2.7	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10					
3R0	3.0	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10					
3R3	3.3	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10					
3R9	3.9	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10					
4R0	4.0	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10					
4R7	4.7	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10					
5R0	5.0	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10					
5R6	5.6	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10					
6R0	6.0	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10					
6R8	6.8	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10					
7R0	7.0	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10					
8R0	8.0	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10					
8R2	8.2	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10					
9R0	9.0	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	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
120	12	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	0.95±0.10
150	15	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	0.95±0.10
180	18	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	0.95±0.10
220	22	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	0.95±0.10
270	27	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	0.95±0.10
330	33	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	0.95±0.10
390	39	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	0.95±0.10
470	47	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	0.95±0.10
560	56	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	0.95±0.10
680	68	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	0.95±0.10
820	82	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	0.95±0.10
101	100pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
121	120	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	0.95±0.10
151	150	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	0.95±0.10
181	180	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	0.95±0.10
221	220	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	0.95±0.10
271	270	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	0.95±0.10
331	330	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	0.95±0.10
391	390	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	0.95±0.10
471	470	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	0.95±0.10
561	560	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	0.95±0.10
681	680	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	0.95±0.10
821	820	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	0.95±0.10
102	100pF	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	0.95±0.10
122	1200	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	0.95±0.10
152	1500	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	0.95±0.10
182	1800	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	0.95±0.10
222	2200	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	0.95±0.10
272	2700	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	0.95±0.10
332	3300	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	0.95±0.10
392	3900	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	0.95±0.10
472	4700	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	0.95±0.10
562	5600	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	0.95±0.10
682	6800	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
822	8200	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
103	0.01uF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
123	0.012	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
153	0.015	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
183	0.018	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
223	0.022	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
273	0.027	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
333	0.033	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
393	0.039	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
473	0.047	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
563	0.056	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30					
683	0.068	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30					
823	0.082	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30					
104	0.1uF	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30	1.60±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 Unit: mm

Values that are typically available.

SIZE		01005	0201					0402					
VDCW (MAX)		10V	6.3V	10V	16V	25V	50V	6.3V	10V	16V	25V	50V	100V
101	100pF			0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
121	120			0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
151	150			0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
181	180			0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
221	220	0.20±0.02		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
271	270			0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
331	330			0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
391	390			0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
471	470			0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
561	560			0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
681	680			0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
821	820			0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
102	1000pF	0.20±0.02	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
122	1200		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03			0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
152	1500		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03			0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
182	1800		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03			0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
222	2200		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03			0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
272	2700		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03			0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
332	3300		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03			0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
392	3900		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03			0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
472	4700		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03			0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
562	5600		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03			0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
682	6800		0.30±0.03	0.30±0.03	0.30±0.03				0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
822	8200		0.30±0.03	0.30±0.03	0.30±0.03				0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
103	.01uF		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
123	.012								0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
153	.015								0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
183	.018								0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
223	.022			0.30±0.03	0.30±0.03			0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
273	.027								0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
333	.033								0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
393	.039								0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
473	.047								0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
563	.056								0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.20	
683	.068								0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.20	
823	.082								0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.20	
104	0.1uF		0.30±0.03	0.30±0.03				0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.20	
124	0.12												
154	0.15									0.50±0.05			
184	0.18												
224	0.22		0.30±0.09					0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		
274	0.27												
334	0.33												
394	0.39												
474	0.47							0.50±0.05	0.50±0.05				
564	0.56												
684	0.68												
824	0.82												
105	1.00uF							0.50±0.05	0.50±0.20				
125	1.25												
155	1.55												
185	1.85												
225	2.20												
335	3.30												
475	4.70												
685	6.80												
106	10uF												

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 Unit: mm

Values that are typically available.

SIZE		0603					0805							
VDCW (MAX)		6.3V	10V	16V	25V	50V	100V	6.3V	10V	16V	25V	50V	100V	
101	100pF	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	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	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	
	151	150	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	
	181	180	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	
	221	220	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	
	271	270	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	331	330	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	391	390	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	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	470	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	561	560	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	681	680	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	821	820	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	102	1000pF	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
		122	1200	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
		152	1500	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
		182	1800	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
		222	2200	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
		272	2700	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
		332	3300	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
		392	3900	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
472		4700	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	
562		5600	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	
103	.01uF	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	
	123	.012	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	
	153	.015	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	
	183	.018	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	
	223	.022	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	
	273	.027	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	
	333	.033	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	
	393	.039	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	
	473	.047	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	
	563	.056	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	
104	.068	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	
	823	.082	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	
	104	.104	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	
	124	.124	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.15		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.20	
	154	.154	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.15	0.80±0.15	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	
	184	.184	0.80±0.15	0.80±0.15	0.80±0.15			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	
	224	.224	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.85±0.15	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	
	274	.274	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20	
	334	.334	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15		1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20	
	394	.394	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20	
105	.474	0.85±0.15	0.85±0.15	0.85±0.15	0.85±0.15	0.85±0.15		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20		
	564	.564	0.80±0.15	0.80±0.15	0.80±0.15			1.25±0.10	1.25±0.10	1.25±0.10				
	684	.684	0.80±0.15	0.80±0.15	0.80±0.15			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20			
	824	.824	0.80±0.15	0.80±0.15	0.80±0.15			1.25±0.10	1.25±0.10	1.25±0.10				
	105	1.00uF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.15	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20	
	125	1.25							1.25±0.20	1.25±0.20				
	155	1.55							1.25±0.20	1.25±0.20	1.25±0.20			
	185	1.85												
	225	2.20	0.80±0.10	0.80±0.10	0.80±0.15			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20		
	335	3.30						1.25±0.20	1.25±0.20	1.25±0.20				
106	475	4.70	0.80±0.15	0.85±0.15				1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20		
	685	6.80												
	106	10uF	0.85±0.15	0.80±0.20				1.25±0.15	1.25±0.15	1.25±0.15	1.25±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 Unit: mm

Values that are typically available.

SIZE		1206					1210								
VDCW (MAX)		6.3V	10V	16V	25V	50V	100V	6.3V	10V	16V	25V	50V	100V		
CAPACITANCE CODE	100pF	101													
		121													
		151		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10							
		181		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10							
		221		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10							
		271		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10							
		331		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10							
		391		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10							
		471		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10							
	561		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10								
	681		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10								
	821		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10								
	CAPACITANCE VALUE	1000pF	102	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	0.95±0.10	0.95±0.10	
			122	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	0.95±0.10	0.95±0.10	
			152	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	0.95±0.10	0.95±0.10	
			182	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	0.95±0.10	0.95±0.10	
			222	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	0.95±0.10	0.95±0.10	
			272	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	0.95±0.10	0.95±0.10	
			332	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	0.95±0.10	0.95±0.10	
			392	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	0.95±0.10	0.95±0.10	
			472	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	0.95±0.10	0.95±0.10	
		562	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	0.95±0.10	0.95±0.10		
		682	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	0.95±0.10	0.95±0.10		
		822	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	0.95±0.10	0.95±0.10		
		CAPACITANCE VALUE	.01uF	103	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.85±0.15	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
				123	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	0.95±0.10	0.95±0.10
				153	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	0.95±0.10	0.95±0.10
				183	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	0.95±0.10	0.95±0.10
				223	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	0.95±0.10	0.95±0.10
				273	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	0.95±0.10	0.95±0.10
	333			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	0.95±0.10	0.95±0.10	
	473			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	0.95±0.10	0.95±0.10	
	563			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	0.95±0.10	0.95±0.10	
	683		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	0.95±0.10	0.95±0.10		
	823		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10		
	CAPACITANCE VALUE		0.1uF	104	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	0.95±0.10	0.95±0.10	0.95±0.10
				124	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	
				154	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10
				184	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10
				224	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10
				274	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20
				334	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.60±0.20		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20
		394		0.95±0.10	0.95±0.10	1.60±0.30	1.60±0.30	1.60±0.20		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.30	
		474		1.15±0.15	1.15±0.15	1.60±0.30	1.60±0.30	1.60±0.20		1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20	
	564	1.15±0.15	1.15±0.15	1.15±0.15	1.60±0.30	1.60±0.30		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.30			
	684	1.15±0.15	1.15±0.15	1.15±0.15	1.60±0.30	1.60±0.30		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20			
	824	1.15±0.15	1.15±0.15	1.15±0.15	1.60±0.30	1.60±0.30		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20			
CAPACITANCE VALUE	1.00uF	105	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20		
		125													
		155	1.15±0.15	1.15±0.15	1.15±0.15	1.60±0.30	1.60±0.30		2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30		
		185													
		225	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	2.50±0.30	2.50±0.30	2.50±0.30		
		335	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.30		2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30		
		475	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20		2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30	2.00±0.20		
		685													
		825													
		106	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±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	
CAPACITANCE VALUE	10uF	156	15												
		226	22	1.60±0.20	1.60±0.20	1.60±0.30-M			2.50±0.20	2.50±0.20	2.50±0.20	2.50±0.20			
		476	47						2.50±0.20	2.50±0.20					
		107	100uF												

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 Unit: mm

Values that are typically available.

SIZE		1812					1825		2220/2225			
VDCW (MAX)		10V	16V	25V	50V	100V	50V	100V	16V	25V	50V	100V
101	100pF											
121	120											
151	150											
181	180											
221	220											
271	270											
331	330											
391	390											
471	470											
561	560											
681	680											
821	820											
102	1000pF	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		2.00±0.20	2.00±0.20	2.00±0.20
122	1200	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		2.00±0.20	2.00±0.20	2.00±0.20
152	1500	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		2.00±0.20	2.00±0.20	2.00±0.20
182	1800	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		2.00±0.20	2.00±0.20	2.00±0.20
222	2200	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		2.00±0.20	2.00±0.20	2.00±0.20
272	2700	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		2.00±0.20	2.00±0.20	2.00±0.20
332	3300	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		2.00±0.20	2.00±0.20	2.00±0.20
392	3900	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		2.00±0.20	2.00±0.20	2.00±0.20
472	4700	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		2.00±0.20	2.00±0.20	2.00±0.20
562	5600	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		2.00±0.20	2.00±0.20	2.00±0.20
682	6800	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		2.00±0.20	2.00±0.20	2.00±0.20
822	8200	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		2.00±0.20	2.00±0.20	2.00±0.20
103	.01uF	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		2.00±0.20	2.00±0.20	2.00±0.20
123	.012	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		2.00±0.20	2.00±0.20	2.00±0.20
153	.015	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		2.00±0.20	2.00±0.20	2.00±0.20
183	.018	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		2.00±0.20	2.00±0.20	2.00±0.20
223	.022	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		2.00±0.20	2.00±0.20	2.00±0.20
273	.027	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		2.00±0.20	2.00±0.20	2.00±0.20
333	.033	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		2.00±0.20	2.00±0.20	2.00±0.20
473	.047	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		2.00±0.20	2.00±0.20	2.00±0.20
563	.056	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		2.00±0.20	2.00±0.20	2.00±0.20
683	.068	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		2.00±0.20	2.00±0.20	2.00±0.20
823	.082	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		2.00±0.20	2.00±0.20	2.00±0.20
104	0.1uF	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		2.00±0.20	2.00±0.20	2.00±0.20
124	0.12	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		2.00±0.20	2.00±0.20	2.00±0.20
154	0.15	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		2.00±0.20	2.00±0.20	2.00±0.20
184	0.18	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		2.00±0.20	2.00±0.20	2.00±0.20
224	0.22	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		2.00±0.20	2.00±0.20	2.00±0.20
274	0.27	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		2.00±0.20	2.00±0.20	2.00±0.20
334	0.33	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		2.00±0.20	2.00±0.20	2.00±0.20
394	0.39	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		2.00±0.20	2.00±0.20	2.00±0.20
474	0.47	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		2.00±0.20	2.00±0.20	2.00±0.20
564	0.56	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		2.00±0.20	2.00±0.20	2.00±0.20
684	0.68	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		2.00±0.20	2.00±0.20	2.00±0.20
824	0.82	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		2.00±0.20	2.00±0.20	2.00±0.20
105	1.00uF	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	1.60±0.20
125	1.25		2.00±0.20	2.00±0.20	2.00±0.20							
155	1.55					2.00±0.20	2.00±0.20				2.00±0.20	2.00±0.20
185	1.85											
225	2.20		2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30	2.00±0.20			2.00±0.20	2.00±0.20	
335	3.30		2.50±0.30	2.50±0.30	2.50±0.30					2.00±0.20	2.00±0.20	
475	4.70		2.00±0.20	2.00±0.20	2.00±0.20	2.40±0.20				2.00±0.20	2.00±0.20	
685	6.80				2.50±0.30						2.50±0.30	
106	10uF	2.30±0.20	2.30±0.20	2.00±0.20	2.00±0.20		2.50±0.30	2.50±0.30		2.50±0.30	2.50±0.30	2.50±0.30
156	15										2.50±0.30	2.50±0.30
226	22	2.50±0.30	2.50±0.30	2.50±0.30	3.10±0.30				2.40±0.20	2.80±0.30	2.40±0.20	
476	47											
107	100uF											

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

X7S DIELECTRIC Unit: mm

Values that are typically available

SIZE		0201				0402				
VDCW (MAX)		4V	6.3V	10V	16V	6.3V	10V	16V	25V	50V
CAPACITANCE CODE	104	0.10uF	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
	224	0.22	0.30±0.09	0.30±0.09			0.50±0.05	0.50±0.05	0.50±0.05	
	474	0.47								
	105	1.00uF					0.50±0.05	0.50±0.20		
	225	2.2					0.50±0.20	0.50±0.20		
	475	4.7								
	106	10.0uF								
	226	22.0uF								
	476	47.0uF								
	107	100.0uF								

SIZE		0603						0805					
VDCW (MAX)		6.3V	10V	16V	25V	50V	100V	6.3V	10V	16V	25V	50V	100V
CAPACITANCE CODE	104	0.10uF	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	224	0.22	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
	474	0.47	0.85±0.15	0.85±0.15	0.85±0.15	0.85±0.15	0.85±0.15		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20
	105	1.00uF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.15		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
	225	2.2	0.80±0.10	0.80±0.10	0.85±0.15				1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20
	475	4.7	0.80±0.15						1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	
	106	10.0uF	0.85±0.15-M						1.25±0.15	1.25±0.15	1.25±0.15	1.25±0.20	
	226	22.0uF											
	476	47.0uF											
	107	100.0uF											

SIZE		1206						1210					
VDCW (MAX)		6.3V	10V	16V	25V	50V	100V	6.3V	10V	16V	25V	50V	100V
CAPACITANCE CODE	104	0.10uF	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	0.95±0.10	0.95±0.10
	224	0.22	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
	474	0.47	1.15±0.15	1.15±0.15	1.15±0.15	1.60±0.30	1.60±0.30	1.60±0.20	1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20
	105	1.00uF	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
	225	2.2	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	2.50±0.30	2.50±0.30
	335	3.3							2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30
	475	4.7	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.30	2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30
	106	10.0uF	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20		2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
	156	15.0uF											
	226	22.0uF	1.60±0.20	1.60±0.20					2.50±0.20	2.50±0.20	2.50±0.20	2.50±0.20	
476	47.0uF							2.50±0.20	2.50±0.20				
107	100.0uF							2.50±0.30					

SIZE		1812				2220			
VDCW (MAX)		16V	25V	50V	100V	16V	25V	50V	100V
CAPACITANCE CODE	104	0.10uF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10		2.00±0.20	2.00±0.20
	224	0.22	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10		2.00±0.20	2.00±0.20
	474	0.47	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20		2.00±0.20	2.00±0.20
	105	1.00uF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20			2.00±0.20
	225	2.2	2.50±0.30						2.00±0.20
	335	3.3							
	475	4.7	2.00±0.20	2.00±0.20	2.00±0.20				2.00±0.20
	106	10.0uF	2.30±0.20	2.00±0.20	2.00±0.20				2.50±0.30
	156	15.0uF							2.80±0.30
	226	22.0uF	2.40±0.20	2.40±0.20			2.40±0.20	2.80±0.30	2.40±0.20
476	47.0uF								
107	100.0uF								

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

X6S DIELECTRIC Unit: mm

Values that are typically available.

SIZE		0201				0402						
VDCW (MAX)		4V	6.3V	10V	16V	4V	6.3V	10V	16V	25V	50V	
←-----CAPACITANCE CODE----->	104	0.10uF	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
	224	0.22	0.30±0.03	0.30±0.03			0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
	474	0.47					0.50±0.05	0.50±0.05	0.50±0.05			
	105	1.00uF	0.30±0.09-M	0.30±0.09-M			0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.10	
	225	2.2	0.30±0.09-M	0.50±0.05-M			0.50±0.20	0.50±0.20	0.50±0.20			
	475	4.7						0.50±0.15-M				
	106	10.0uF						0.50±0.20-M				
	226	22.0uF					0.60±0.20-M					
	476	47.0uF										
	107	100.0uF										

SIZE		0603						0805						
VDCW (MAX)		4V	6.3V	10V	16V	25V	50V	4V	6.3V	10V	16V	25V	50V	
←-----CAPACITANCE CODE----->	104	0.10uF	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	224	0.22	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
	474	0.47	0.85±0.15	0.85±0.15	0.85±0.15	0.85±0.15	0.85±0.15	0.85±0.15	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20
	105	1.00uF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.15	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20
	225	2.2	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	1.25±0.20
	475	4.7	0.80±0.10	0.80±0.10	0.80±0.15	0.80±0.15			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.15	1.25±0.25
	106	10.0uF	0.80±0.20-M	0.80±0.20-M	0.80±0.20-M	0.80±0.20-M			1.25±0.15	1.25±0.15	1.25±0.15	1.25±0.15	1.25±0.20	
	226	22.0uF	0.80±0.15-M	0.85±0.20-M					1.25±0.15-M	1.25±0.15-M	1.25±0.20-M	1.25±0.20-M	1.25±0.20-M	
	476	47.0uF	0.80±0.20-M						1.25±0.20-M	1.25±0.20-M				
	107	100uF							1.25±0.20-M					

SIZE		1206						1210					
VDCW (MAX)		4V	6.3V	10V	16V	25V	50V	6.3V	10V	16V	25V	50V	
←-----CAPACITANCE CODE----->	104	0.10uF	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	0.95±0.10	0.95±0.10
	224	0.22	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
	474	0.47	1.15±0.15	1.15±0.15	1.15±0.15	1.15±0.15	1.60±0.30	1.60±0.30	1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20
	105	1.00uF	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
	225	2.2	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	2.50±0.30	2.50±0.30
	335	3.3							2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30
	475	4.7	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30
	106	10.0uF	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
	156	15.0uF											
	226	22.0uF	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20		2.50±0.20-M	2.50±0.20-M	2.50±0.20-M	2.50±0.20-M	
476	47.0uF	1.60±0.20	1.60±0.20					2.50±0.20-M	2.50±0.20-M	2.50±0.20-M			
107	100.0uF	1.60±0.30-M						2.50±0.30-M					

SIZE		1812				2220				
VDCW (MAX)		16V	25V	50V	100V	16V	25V	50V	100V	
←-----CAPACITANCE CODE----->	104	0.10uF	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	2.00±0.20
	224	0.22	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	2.00±0.20
	474	0.47	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
	105	1.00uF	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
	225	2.2	2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
	335	3.3								
	475	4.7	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
	106	10.0uF	2.30±0.20	2.00±0.20	2.00±0.20		2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30
	156	15.0uF					2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30
	226	22.0uF	2.40±0.20	2.40±0.20			2.40±0.20	2.80±0.30	2.40±0.20	
476	47.0uF									
107	100.0uF									

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 Unit: mm

Values that are typically available.

SIZE		01005	0201						0402							
VDCW (MAX)		6.3V	4V	6.3V	10V	16V	25V	50V	4V	6.3V	10V	16V	25V	35V	50V	
CAPACITANCE CODE ↑	102	1000pF	0.20±0.02	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
	122	1200		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.05	
	152	1500		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.05	
	182	1800		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.05	
	222	2200		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.05	
	272	2700		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.05	
	332	3300		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.05	
	392	3900		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.05	
	472	4700		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.05	
	562	5600		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.05	
	682	6800		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.05	
	822	8200		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.05	
	103	0.01uF	0.20±0.02	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.05
	153	.015		0.30±0.03	0.30±0.03	0.30±0.03					0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.05
	223	.022		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03			0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.05
	273	.027		0.30±0.03	0.30±0.03	0.30±0.03					0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.05
	333	.033		0.30±0.03	0.30±0.03	0.30±0.03					0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.05
	393	.039		0.30±0.03	0.30±0.03	0.30±0.03					0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.05
	473	.047		0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03			0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.05
	563	.056		0.30±0.03	0.30±0.03	0.30±0.03					0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.20
	683	.068		0.30±0.03	0.30±0.03	0.30±0.03					0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.20
	823	.082		0.30±0.03	0.30±0.03	0.30±0.03					0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.20
104	0.1uF	0.20±0.02	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03			0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.20	
154	.150									0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05			
224	.220	0.20±0.02-M	0.30±0.03	0.30±0.03	0.30±0.03					0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.05	
274	.270															
334	.330		0.30±0.03	0.30±0.03						0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05			
394	.390															
474	.470		0.30±0.03	0.30±0.03	0.30±0.03					0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.50±0.20	
684	.680															
824	.820															
105	1uF	0.20±0.02-M	0.30±0.05	0.30±0.05	0.30±0.05	0.30±0.09				0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.10	0.50±0.15		
125	1.20															
155	1.50															
185	1.80															
225	2.20		0.30±0.09	0.30±0.09	0.30±0.09				0.50±0.05	0.50±0.05	0.50±0.07	0.50±0.10	0.50±0.05	0.50±0.15		
335	3.30															
395	3.90															
475	4.70		0.50±0.05	0.50±0.05					0.50±0.15	0.50±0.15	0.50±0.15	0.50±0.20-M				
685	6.80															
106	10uF								0.50±0.20-M	0.50±0.20-M	0.50±0.20-M					
156	15															
226	22								0.50±0.20-M	0.50±0.20-M						
476	47															
107	100uF															
157	150															
227	220															

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

Values that are typically available.

X5R DIELECTRIC Unit: mm

SIZE		0603							0805							
VDCW (MAX)		4V	6.3V	10V	16V	25V	35V	50V	4V	6.3V	10V	16V	25V	35V	50V	
CAPACITANCE CODE	104	0.1uF		0.80±0.15	0.80±0.15	0.80±0.15		0.80±0.15		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10		0.80±0.10	
	154	.150			0.80±0.15	0.80±0.15										
	224	.220	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15						1.25±0.10	1.25±0.10			
	274	.270	0.80±0.15	0.80±0.15	0.80±0.15											
	334	.330	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15						1.25±0.20				
	394	.390														
	474	.470	0.85±0.15	0.85±0.15	0.85±0.15	0.80±0.15			0.85±0.15		1.25±0.10	1.25±0.10	1.25±0.10		1.25±0.20	
	684	.680	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15						1.25±0.10				
	824	.820	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15										
	105	1uF	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	1.25±0.10	1.25±0.10		1.25±0.20
	125	1.20														
	155	1.50	0.80±0.15	0.80±0.15												
	185	1.80														
	225	2.20	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.15	0.80±0.15	0.80±0.15		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10		1.25±0.10	
	335	3.30	0.80±0.15	0.80±0.15							1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20		
	395	3.90														
	475	4.70	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.15	0.80±0.20				1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.15		1.25±0.15
	685	6.80														
	106	10uF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.15	0.80±0.20 M	0.80±0.20 M			1.25±0.10	1.25±0.10	1.25±0.15	1.25±0.20	1.25±0.20	1.25±0.20
	156	15														
	226	22	0.85±0.15 M	0.85±0.15 M	0.80±0.25 M					1.25±0.20 M	1.25±0.15 M	1.25±0.20 M	1.25±0.20 M	1.25±0.20 M	1.25±0.20 M	
	476	47	0.85±0.15 M	0.85±0.15 M						1.25±0.20 M	1.25±0.20 M	1.25±0.20 M				
107	100uF															
157	150															
227	220															

SIZE		1206					1210								
VDCW (MAX)		4V	6.3V	10V	16V	25V	50V	4V	6.3V	10V	16V	25V	35V	50V	
CAPACITANCE CODE	105	1uF		1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20							1.25±0.10	
	125	1.20													
	155	1.50		1.15±0.15	1.15±0.15					2.00±0.20	2.00±0.20				
	185	1.80													
	225	2.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20			1.60±0.20	1.60±0.20	1.60±0.20		2.50±0.30	
	335	3.30	1.60±0.30	1.60±0.30	1.60±0.30	1.60±0.20									
	395	3.90													
	475	4.70	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20		2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30	1.80±0.20	2.50±0.30
	685	6.80	1.60±0.30	1.60±0.30											
	106	10uF	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20		2.50±0.20	2.50±0.20	2.50±0.20	2.50±0.20	2.50±0.20	2.50±0.30	2.00±0.20
	156	15													
	226	22	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20			2.50±0.20	2.50±0.20	2.50±0.20	2.50±0.20	2.50±0.20		
	476	47	1.60±0.20	1.60±0.20	1.60±0.20 M	1.60±0.30 M			2.50±0.30 M	2.50±0.30 M	2.50±0.30 M	2.50±0.30 M	2.50±0.30 M		
	107	100uF	1.60±0.20 M	1.60±0.20 M					2.50±0.30 M	2.50±0.30 M	2.50±0.30 M				
	157	150							2.50±0.30 M						
227	220	1.60±0.20 M	1.60±0.20 M					2.50±0.30 M							

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 Unit: mm

SIZE		1812						2220						
VDCW (MAX)		4V	6.3V	10V	16V	25V	50V	4V	6.3V	10V	16V	25V	50V	
CAPACITANCE CODE	475	4.70		2.00±0.20	2.00±0.20	2.00±0.20								
	685	6.80												
	106	10uF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20						2.50±0.30	2.50±0.30	
	156	15										2.50±0.30		
	226	22	2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30								
	476	47	2.80±0.30-M	2.80±0.30-M					2.80±0.20-M	2.80±0.20-M	2.80±0.20-M			
	107	100uF	2.80±0.30-M						2.80±0.30-M					
	157	150												
	227	220												

VOLTAGE AND CAPACITANCE RANGE

Z5U DIELECTRIC Unit: mm

Values that are typically available.

SIZE		0402		0603		0805		1206		1210		1812		2220		
VDCW (MAX)		25V	50V	25V	50V	25V	50V	25V	50V	25V	50V	25V	50V	25V	50V	
CAPACITANCE CODE	103	.01uF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10				
	123	.012	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10				
	153	.015	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10				
	183	.018	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10				
	223	.022	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10				
	273	.027	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10				
	333	.033	0.50±0.05	0.50±0.05	0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10				
	393	.039	0.50±0.05	0.50±0.05	0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10				
	473	.047	0.50±0.05	0.50±0.05	0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10				
	563	.056	0.50±0.05		0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10				
	683	.068	0.50±0.05		0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10				
	823	.082	0.50±0.05		0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10				
	104	0.10uF	0.50±0.05		0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10		
	124	.120			0.80±0.15		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10		
	154	.150			0.80±0.15		1.25±0.10	1.25±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	2.00±0.20	2.00±0.20
	184	.180			0.80±0.15		1.25±0.10	1.25±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	2.00±0.20	2.00±0.20
	224	.220			0.80±0.15		1.25±0.10	1.25±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	2.00±0.20	2.00±0.20
	274	.270					1.25±0.10	1.25±0.20	1.25±0.10	1.25±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20
	334	.330					1.25±0.20		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
	394	.390					1.25±0.10		1.60±0.30	1.60±0.30	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20
	474	.470					1.25±0.10		1.60±0.30	1.60±0.30	1.25±0.20	1.25±0.20	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20
	564	.560					1.25±0.10		1.15±0.15		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20
	684	.680							1.15±0.15		1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.00±0.20
	824	.820							1.15±0.15		1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.00±0.20
	105	1.00uF							1.60±0.20		1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20		2.00±0.20
	125	1.20											2.00±0.20	2.00±0.20		
	155	1.50									2.50±0.30	2.50±0.30				2.00±0.20
	185	1.80														
	225	2.20									2.50±0.30		2.50±0.30	2.50±0.30		2.00±0.20
	335	3.30									2.50±0.30		2.50±0.30			2.00±0.20
475	4.70									2.50±0.30						
685	6.80															
106	10.0uF														2.50±0.30	
156	15.0uF															
226	22.0uF															
476	47.0uF															
107	100.0uF															

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

Y5V DIELECTRIC Unit: mm

Values that are typically available.

SIZE		0201		0402					0603				
VDCW (MAX)		10V	6.3V	10V	16V	25V	50V	6.3V	10V	16V	25V	50V	
103	.01uF	0.30±0.03			0.50±0.05	0.50±0.05	0.50±0.05			0.80±0.07	0.80±0.07	0.80±0.07	
	123	.012			0.50±0.05	0.50±0.05				0.80±0.07	0.80±0.07	0.80±0.07	
	153	.015			0.50±0.05	0.50±0.05				0.80±0.07	0.80±0.07	0.80±0.07	
	183	.018			0.50±0.05	0.50±0.05				0.80±0.07	0.80±0.07	0.80±0.07	
	223	.022			0.50±0.05	0.50±0.05				0.80±0.07	0.80±0.07	0.80±0.07	
	273	.027			0.50±0.05	0.50±0.05				0.80±0.07	0.80±0.07	0.80±0.07	
	333	.033			0.50±0.05	0.50±0.05				0.80±0.15	0.80±0.15	0.80±0.15	
	393	.039			0.50±0.05	0.50±0.05				0.80±0.15	0.80±0.15	0.80±0.15	
	473	.047			0.50±0.05	0.50±0.05				0.80±0.15	0.80±0.15	0.80±0.15	
	563	.056			0.50±0.05	0.50±0.05				0.80±0.15	0.80±0.15	0.80±0.15	
	683	.068			0.50±0.05	0.50±0.05				0.80±0.15	0.80±0.15	0.80±0.15	
	823	.082			0.50±0.05	0.50±0.05				0.80±0.15	0.80±0.15	0.80±0.15	
	104	.100uF		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05		0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15
		124	.120						0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.15	
		154	.150						0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	
184		.180						0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15		
224		.220		0.50±0.05	0.50±0.05	0.50±0.05		0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15	
274		.270								0.80±0.15	0.80±0.15		
334		.330		0.50±0.05	0.50±0.05					0.80±0.15	0.80±0.15		
394		.390											
474		.470		0.50±0.05	0.50±0.05			0.85±0.15	0.85±0.15	0.85±0.15	0.85±0.15	0.85±0.15	
564		.560											
684		.680											
824		.820											
105		1.00uF		0.50±0.05					0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	
		125	1.20										
		155	1.50										
	185	1.80											
	225	2.20						0.80±0.10	0.80±0.10	0.80±0.10			
	335	3.30											
	395	3.90											
	475	4.70						0.80±0.10	0.80±0.10				
106	10.0uF												
	156	15.0uF											
	226	22.0uF											
	476	47.0uF											
	107	100uF											

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

Y5V DIELECTRIC Unit: mm

Values that are typically available.

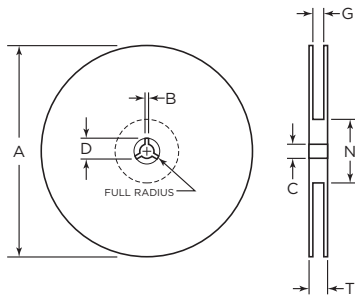
SIZE		0805					1206			
VDCW (MAX)		6.3V	10V	16V	25V	50V	10V	16V	25V	50V
CAPACITANCE CODE	103	.01uF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10				
	123	.012	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10				
	153	.015	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10				
	183	.018	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10				
	223	.022	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10				
	273	.027	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10				
	333	.033	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10				
	393	.039	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10				
	473	.047	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10				
	563	.056	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10				
	683	.068	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10				
	823	.082	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10				
	104	.100uF	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
	124	.120	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
	154	.150	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
	184	.180	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
	224	.220	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
	274	.270	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10
	334	.330	1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10
	394	.390	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	0.95±0.10	0.95±0.10	1.60±0.30	1.60±0.30
474	.470	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.15±0.15	1.15±0.15	1.60±0.30	1.60±0.30	
564	.560	1.25±0.10	1.25±0.10	1.25±0.10						
684	.680	1.25±0.10	1.25±0.10	1.25±0.10		1.15±0.15	1.15±0.15	1.15±0.15	1.60±0.30	
824	.820	1.25±0.10	1.25±0.10	1.25±0.10		1.15±0.15	1.15±0.15	1.15±0.15	1.60±0.30	
105	1.00uF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.60±0.20	1.60±0.20	1.60±0.20	
125	1.20									
155	1.50	1.25±0.20	1.25±0.20				1.15±0.15	1.60±0.30		
185	1.80									
225	2.20	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	
335	3.30	1.25±0.20	1.25±0.20	1.25±0.20			1.60±0.30	1.60±0.30		
395	3.90									
475	4.70	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20		1.60±0.20	1.60±0.20	1.60±0.20	
685	6.80									
106	10.0uF	1.25±0.15	1.25±0.15	1.25±0.15			1.60±0.20	1.60±0.20	1.60±0.20	
156	15.0uF									
226	22.0uF						1.60±0.20			
476	47.0uF									
107	100uF									

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 & REEL SPECIFICATIONS

All tape and reel specifications must be adhered to per EIA-481-1-A.

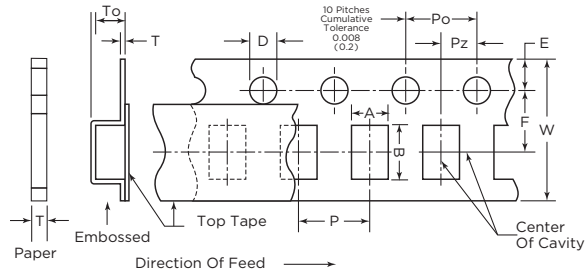
REEL



Unit: mm (inch)

Tape	B min	C	A (7")	A (13")	D min	N min	G	T max
4mm	2.0 (0.079)	13 ± 0.05 (0.512 ± 0.02)	178 ± 2.0 (7 ± 0.079)	-	21 ± 0.8 (0.82 ± 0.03)	50 (1.97)	5.0 ± 1.5 (0.196 ± 0.05)	8.0 max (0.315 max)
8mm	2.0 (0.07)	13 ± 0.05 (0.512 ± 0.02)	178 ± 2.0 (7 ± 0.079)	330 ± 2.0 (13 ± 0.08)	20.2 (0.795)	50 (1.97)	10 ± 1.5 (0.394 ± 0.059)	14.9 (0.587)
12mm	2.0 (0.07)	13 ± 0.05 (0.512 ± 0.02)	178 ± 2.0 (7 ± 0.079)	330 ± 2.0 (13 ± 0.08)	20.2 (0.795)	50 (1.97)	10 ± 1.5 (0.394 ± 0.059)	14.9 (0.587)

TAPE



7" Reel Quantities **

SIZE	01005 (E)	01005 (P)	0201	0402	0603	0805	1206	1210	1812	2220
Tape Size	4mm	8mm	8mm	8mm	8mm	8mm	8mm	8mm	12mm	12mm
Min Qty Per Reel	40,000*	20000*	15,000	5,000	3,000	2,000	2,000	1,000	1,000	1,000
Max Qty Per Reel	40,000*	20000*	15,000	10,000	4,000	5,000	5,000	5,000	3,000	1,000

NOTE: ** Quantity dependent on thickness

*Smaller quantities may be available. Please contact us.

Unit: mm (inch)

Paper Tape Carrier Dimensions (8mm)

Size (inches)	A	B	W	F	E	Po	Pz	D	t	P
01005	$\frac{0.25 \pm 0.05}{(0.010 \pm 0.002)}$	$\frac{0.45 \pm 0.05}{(0.018 \pm 0.002)}$	$\frac{8.0 \pm 0.2}{(0.315 \pm 0.008)}$	$\frac{3.5 \pm 0.1}{(0.138 \pm 0.004)}$	$\frac{1.75 \pm 0.1}{(0.069 \pm 0.004)}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$	$\frac{2.0 \pm 0.05}{-0.0}$ $\frac{-0.0}{(0.039 \pm 0.002)}$ -0.000	$\frac{1.5 \pm 0.1}{(0.064 \pm .004)}$	$\frac{1.15 \text{ max}}{(0.045 \text{ max})}$	$\frac{2.0 \pm 0.05}{(0.079 \pm 0.002)}$
0201	$\frac{0.37 \pm 0.05}{(0.014 \pm 0.002)}$	$\frac{0.67 \pm 0.05}{(0.026 \pm 0.002)}$	$\frac{8.0 \pm 0.2}{(0.315 \pm 0.008)}$	$\frac{3.5 \pm 0.1}{(0.138 \pm 0.004)}$	$\frac{1.75 \pm 0.1}{(0.069 \pm 0.004)}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$	$\frac{2.0 \pm 0.05}{-0.0}$ $\frac{-0.0}{(0.039 \pm 0.002)}$ -0.000	$\frac{1.5 \pm 0.1}{(0.064 \pm .004)}$	$\frac{1.15 \text{ max}}{(0.045 \text{ max})}$	$\frac{2.0 \pm 0.05}{(0.079 \pm 0.002)}$
0402	$\frac{0.65 \pm 0.1}{(0.026 \pm 0.004)}$	$\frac{1.10 \pm 0.2}{(0.043 \pm 0.008)}$	$\frac{8.0 \pm 0.2}{(0.315 \pm 0.008)}$	$\frac{3.5 \pm 0.1}{(0.138 \pm 0.004)}$	$\frac{1.75 \pm 0.1}{(0.069 \pm 0.004)}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$	$\frac{2.0 \pm 0.05}{-0.0}$ $\frac{-0.0}{(0.039 \pm 0.002)}$ -0.000	$\frac{1.5 \pm 0.1}{(0.064 \pm .004)}$	$\frac{1.15 \text{ max}}{(0.045 \text{ max})}$	$\frac{2.0 \pm 0.05}{(0.079 \pm 0.002)}$
0603	$\frac{1.10 \pm 0.2}{(0.043 \pm 0.008)}$	$\frac{1.90 \pm 0.2}{(0.075 \pm 0.008)}$	$\frac{8.0 \pm 0.2}{(0.315 \pm 0.008)}$	$\frac{3.5 \pm 0.1}{(0.138 \pm 0.004)}$	$\frac{1.75 \pm 0.1}{(0.069 \pm 0.004)}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$	$\frac{2.0 \pm 0.05}{-0.0}$ $\frac{-0.0}{(0.039 \pm 0.002)}$ -0.000	$\frac{1.5 \pm 0.1}{(0.064 \pm .004)}$	$\frac{1.15 \text{ max}}{(0.045 \text{ max})}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$
0805	$\frac{1.16 \pm 0.2}{(0.046 \pm 0.008)}$	$\frac{2.4 \pm 0.2}{(0.095 \pm 0.008)}$	$\frac{8.0 \pm 0.2}{(0.315 \pm 0.008)}$	$\frac{3.5 \pm 0.1}{(0.138 \pm 0.004)}$	$\frac{1.75 \pm 0.1}{(0.069 \pm 0.004)}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$	$\frac{2.0 \pm 0.05}{-0.0}$ $\frac{-0.0}{(0.039 \pm 0.002)}$ -0.000	$\frac{1.5 \pm 0.1}{(0.064 \pm .004)}$	$\frac{1.15 \text{ max}}{(0.045 \text{ max})}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$
1206	$\frac{2.0 \pm 0.2}{(0.079 \pm 0.008)}$	$\frac{3.6 \pm 0.2}{(0.142 \pm 0.008)}$	$\frac{8.0 \pm 0.2}{(0.315 \pm 0.008)}$	$\frac{3.5 \pm 0.1}{(0.138 \pm 0.004)}$	$\frac{1.75 \pm 0.1}{(0.069 \pm 0.004)}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$	$\frac{2.0 \pm 0.05}{-0.0}$ $\frac{-0.0}{(0.039 \pm 0.002)}$ -0.000	$\frac{1.5 \pm 0.1}{(0.064 \pm .004)}$	$\frac{1.15 \text{ max}}{(0.045 \text{ max})}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$

Embossed Carrier Dimensions (4mm, 8mm & 12mm)

Size (inches)	A	B	W	F	E	Po	Pz	D	To	T	P
01005	$\frac{0.23}{(0.009)}$	$\frac{0.43}{(0.016)}$	$\frac{4.0 \pm 0.05}{(0.157 \pm 0.002)}$	$\frac{1.8 \pm 0.02}{(0.070 \pm 0.001)}$	$\frac{0.9 \pm 0.05}{(0.035 \pm 0.002)}$	$\frac{2.0 \pm 0.04}{(0.079 \pm 0.001)}$	$\frac{2.00}{(0.079)}$	$\frac{0.8 \pm 0.04}{(0.031 \pm 0.001)}$	$\frac{0.5 \text{ max}}{(0.019 \text{ max})}$	$\frac{0.15 - 0.4}{(0.005 - 0.015)}$	$\frac{1.00}{(0.039)}$
0603	$\frac{1.05 \pm 0.15}{(0.042 \pm .006)}$	$\frac{1.90 \pm 0.15}{(0.075 \pm 0.006)}$	$\frac{8.0 \pm 0.3}{(0.315 \pm 0.012)}$	$\frac{3.5 \pm 0.1}{(0.138 \pm .004)}$	$\frac{1.75 \pm 0.1}{(0.069 \pm .004)}$	$\frac{4.0 \pm 0.1}{(0.157 \pm .004)}$	$\frac{2.0 \pm 0.05}{(0.079 \pm .002)}$	$\frac{1.5 \pm 0.1}{-0.0}$ $\frac{-0.0}{(0.06 \pm .004)}$ -0.000	$\frac{0.75 \text{ max}}{(0.03 \text{ max})}$	$\frac{0.6 \text{ max}}{(0.024 \text{ max})}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$
0805	$\frac{1.48 \pm 0.2}{(0.058 \pm 0.008)}$	$\frac{2.3 \pm 0.3}{(0.091 \pm .008)}$	$\frac{8.0 \pm 0.3}{(0.315 \pm 0.008)}$	$\frac{3.5 \pm 0.1}{(0.138 \pm 0.004)}$	$\frac{1.75 \pm 0.1}{(0.069 \pm 0.004)}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$	$\frac{2.0 \pm 0.05}{(0.079 \pm 0.002)}$	$\frac{1.5 \pm 0.1}{-0.0}$ $\frac{-0.0}{(0.06 \pm 0.004)}$ -0.000	$\frac{2.5 \text{ max}}{(0.098 \text{ max})}$	$\frac{0.6 \text{ max}}{(0.024 \text{ max})}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$
1206	$\frac{2.0 \pm 0.2}{(0.079 \pm 0.008)}$	$\frac{3.6 \pm 0.3}{(0.142 \pm 0.008)}$	$\frac{8.0 \pm 0.3}{(0.315 \pm 0.008)}$	$\frac{3.5 \pm 0.1}{(0.138 \pm 0.004)}$	$\frac{1.75 \pm 0.1}{(0.069 \pm 0.004)}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$	$\frac{2.0 \pm 0.05}{(0.079 \pm 0.002)}$	$\frac{1.5 \pm 0.1}{-0.0}$ $\frac{-0.0}{(0.06 \pm 0.004)}$ -0.000	$\frac{2.5 \text{ max}}{(0.098 \text{ max})}$	$\frac{0.6 \text{ max}}{(0.024 \text{ max})}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$
1210	$\frac{2.9 \pm 0.2}{(0.114 \pm 0.008)}$	$\frac{3.6 \pm 0.3}{(0.142 \pm 0.008)}$	$\frac{8.0 \pm 0.3}{(0.315 \pm 0.008)}$	$\frac{3.5 \pm 0.1}{(0.138 \pm 0.004)}$	$\frac{1.75 \pm 0.1}{(0.069 \pm 0.004)}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$	$\frac{2.0 \pm 0.05}{(0.079 \pm 0.002)}$	$\frac{1.5 \pm 0.1}{-0.0}$ $\frac{-0.0}{(0.06 \pm 0.004)}$ -0.000	$\frac{2.5 \text{ max}}{(0.098 \text{ max})}$	$\frac{0.6 \text{ max}}{(0.024 \text{ max})}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$
1812	$\frac{3.6 \pm 0.2}{(0.142 \pm 0.008)}$	$\frac{4.9 \pm 0.3}{(0.193 \pm 0.008)}$	$\frac{12.0 \pm 0.3}{(0.472 \pm 0.012)}$	$\frac{5.6 \pm 0.1}{(0.221 \pm 0.004)}$	$\frac{1.75 \pm 0.1}{(0.069 \pm 0.004)}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$	$\frac{2.0 \pm 0.05}{(0.079 \pm 0.002)}$	$\frac{1.5 \pm 0.1}{-0.0}$ $\frac{-0.0}{(0.06 \pm 0.004)}$ -0.000	$\frac{3.8 \text{ max}}{(0.150 \text{ max})}$	$\frac{0.6 \text{ max}}{(0.024 \text{ max})}$	$\frac{8.0 \pm 0.1}{(0.315 \pm 0.004)}$
2220	$\frac{5.8 \pm 0.2}{(0.228 \pm 0.008)}$	$\frac{6.5 \pm 0.2}{(0.256 \pm 0.008)}$	$\frac{12.0 \pm 0.3}{(0.472 \pm 0.012)}$	$\frac{5.6 \pm 0.1}{(0.221 \pm 0.004)}$	$\frac{1.75 \pm 0.1}{(0.069 \pm 0.004)}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$	$\frac{2.0 \pm 0.05}{(0.079 \pm 0.002)}$	$\frac{1.5 \pm 0.1}{-0.0}$ $\frac{-0.0}{(0.06 \pm 0.004)}$ -0.000	$\frac{4.2 \text{ max}}{(0.165 \text{ max})}$	$\frac{0.6 \text{ max}}{(0.024 \text{ max})}$	$\frac{8.0 \pm 0.1}{(0.315 \pm 0.004)}$
2225	$\frac{6.8 \pm 0.2}{(0.268 \pm 0.008)}$	$\frac{6.5 \pm 0.2}{(0.256 \pm 0.008)}$	$\frac{12.0 \pm 0.3}{(0.472 \pm 0.012)}$	$\frac{5.6 \pm 0.1}{(0.221 \pm 0.004)}$	$\frac{1.75 \pm 0.1}{(0.069 \pm 0.004)}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$	$\frac{2.0 \pm 0.05}{(0.079 \pm 0.002)}$	$\frac{1.5 \pm 0.1}{-0.0}$ $\frac{-0.0}{(0.06 \pm 0.004)}$ -0.000	$\frac{3.5 \text{ max}}{(0.138 \text{ max})}$	$\frac{0.6 \text{ max}}{(0.024 \text{ max})}$	$\frac{8.0 \pm 0.1}{(0.315 \pm 0.004)}$

ENVIRONMENTAL CHARACTERISTICS

NO	ITEM		PERFORMANCE	TEST CONDITION					
1	APPEARANCE		NO ABNORMAL EXTERIOR APPEARANCE	THROUGH MICROSCOPE (X10)					
2	INSULATION RESISTANCE		10,000M OR 500M μ F PRODUCT WHICHEVER IS SMALLER (RATED VOLTAGE IS BELOW 16V: 10,000M OR 100M μ F)	RATED VOLTAGE SHALL BE APPLIED. MEASUREMENT TIME IS 60 - 120 RATED VOLTAGE TIME 60 SEC .					
3	WITHSTANDING VOLTAGE		NO DIELECTRIC BREAKDOWN OR MECHANICAL BREAKDOWN	CLASS I : 300% OF THE RATED VOLTAGE FOR 1-5 SEC. CLASS II: 250% OF THE RATED VOLTAGE FOR 1-5 SEC IS APPLIED WITH LESS THAN 50mA CURRENT					
4	CAPACITANCE	CLASS I	WITHIN THE SPECIFIED TOLERANCE	CAPACITANCE	FREQUENCY	VOLTAGE			
				1,000pF AND BELOW	1MHZ \pm 10%	0.5 - 5 Vrms			
		MORE THAN 1,000 pF		1kHz \pm 10%					
		CLASS II		CAPACITANCE	FREQUENCY	VOLTAGE			
4.7 μ F AND BELOW	1kHz \pm 10%		1.0 \pm 0.2Vrms						
			MORE THAN 4.7 μ F	120HZ \pm 20%	1.0 \pm 0.2Vrms				
5	Q	CLASS I	OVER 30pF : Q 1,000 LESS THAN 30pF: Q 400 +20C (C: CAPACITANCE)	CAPACITANCE	FREQUENCY	VOLTAGE			
				1,000pF AND BELOW	1MHZ \pm 10%	0.5 - 5 Vrms			
				MORE THAN 1,000 pF	1kHz \pm 10%				
6	DISSIPATION FACTOR (Tan θ CLASS II)	CLASS II	X7R, X6S, X5R						
			Rated Voltage	D.F.	Exception of D.F.				
			\geq 50V	\leq 2.5%	\leq 3%	0201 (50V); 0603 \geq 0.047 μ F 0805 \geq 0.22 μ F; 1206 \geq 0.47 μ F			
					\leq 5%	0603 \geq 1 μ F; 0805 \geq 1 μ F; 1206 \geq 4.7 μ F; 1210 \geq 4.7 μ F			
			25V	\leq 2.5%	\leq 5%	0201 \geq 0.01 μ F; 0805 \geq 1 μ F; 1210 \geq 4.7 μ F			
					\leq 10%	0402 \geq 0.10 μ F; 0603 \geq 0.33 μ F; 0805 \geq 2.2 μ F 1206 \geq 4.7 μ F; 1210 \geq 22 μ F			
			16V	\leq 3.5%	\leq 5%	0201 \geq 0.01 μ F; 0402 \geq 0.033 μ F; 0805 \geq 0.68 μ F; 1206 \geq 2.2 μ F; 1210 \geq 4.7 μ F			
					\leq 10%	0402 \geq 0.47 μ F; 0603 \geq 0.68 μ F; 0805 \geq 2.2 μ F; 1206 \geq 4.7 μ F; 1210 \geq 22 μ F			
			10V	\leq 5%	\leq 10%	0402 \geq 0.33 μ F; 0603 \geq 0.33 μ F; 0805 \geq 2.2 μ F; 1206 \geq 2.2 μ F; 1210 \geq 22 μ F			
			6.3V	\leq 10%					
			Y5V, Z5U						
			Rated Voltage	D.F.	Exception of D.F.				
			\geq 50V	\leq 5%	\leq 9%	0603 \geq 0.1 μ F; 0805 \geq 0.47 μ F; 1206 \geq 4.7 μ F;			
			25V	\leq 5%	\leq 9%	0402 \geq 0.047 μ F; 0603 \geq 0.1 μ F; 0805 \geq 0.33 μ F; 1206 \geq 1 μ F; 1210 \geq 4.7 μ F			
					\leq 12.5%	0603 \geq 2.2 μ F; 0805 \geq 3.3 μ F; 1206 \geq 10 μ F; 1210 \geq 22 μ F; 1812 \geq 47 μ F			
			16V	\leq 9%	\leq 16%	0603 \geq 2.2 μ F; 0805 \geq 3.3 μ F; 1206 \geq 4.7 μ F; 1210 \geq 10 μ F; 1812 \geq 47 μ F			
			10V	\leq 12.5%	\leq 16%				
			6.3V	\leq 16%					

ENVIRONMENTAL CHARACTERISTICS

NO	ITEM		PERFORMANCE		TEST CONDITION					
			CHARACTERISTIC	TEMP. COEFFICIENT (PPM/°C)	THESE SYMMETRICAL TOLERANCE APPLY TO 2 POINT MEASUREMENT OF TEMPERATURE COEFFICIENT: ONE AT -25°C AND AT 85°C					
7	CAPACITANCE TEMPERATURE COEFFICIENT	CLASS I	COG/COG	0 ± 60 (±30)	STEP	TEMPERATURE (°C)				
				-150 ± 60	1	25 ± 2				
				-220 ± 60	2	MIN RATED TEMP ± 2				
				-330 ± 60	3	25 ± 2				
				-470 ± 60	4	MAX RATED TEMP ± 2				
				-750 ± 120	5	25 ± 2				
				+350 - -1000						
8	TEMPERATURE CHARACTERISTICS	CLASS II	CAPACITANCE CHANGE		STEP	TEMP. (°C) B	TEMP. (°C) F			
			CHAR.	CAP. CHANGE (%)				1	25 ± 2	25 ± 2
			X	X7R	±15%	2	-55 ± 2	-25 ± 2		
				X6S	±22%					
			Y	X5R	±15%	3	25 ± 2	25 ± 2		
				Y5V	-82% - +22%					
				Z5U	-56% - +22%	4	125 ± 2	85 ± 2		
						5	25 ± 2	25 ± 2		
				$\frac{C2 - C1}{C1} \times 100\%$ <p>C1: CAPACITANCE AT STANDARD TEMPERATURE (25°C) C2: CAPACITANCE AT EACH TEMPERATURE</p>						
9	ADHESIVE STRENGTH OF TERMINATION	NO INDICATION OF PEELING SHALL OCCUR ON THE TERMINAL ELECTRODE		A 500g.f PRESSURE SHALL BE APPLIED FOR 10±1 SECOND 						
10	BENDING STRENGTH	APPEARANCE	NO MECHANICAL DAMAGE SHALL OCCURE		BENDING SHALL BE APPLIED TO THE LIMIT (1mm) WITH 0.3mm/SEC					
		CAPACITANCE	CHARACTER	CHANGE OF CAPACITANCE						
			CLASS I		WITHIN ±5% OR ±0.5pF WHICHEVER IS LARGER					
			X (X7R, X6S, X5R)	WITHIN ±12.5%						
CLASS II		WITHIN ±30%								
		Y (Y5V, Z5U)								
11	SOLDERABILITY	MORE THAN 75% OF THE TERMINAL SURFACE IS TO BE SOLDERED NEWLY, SO METAL PART (A) DOES NOT COME OUT OR DISSOLVE 		SOLDER TEMPERATURE: 245 ± 5 °C SOLDER: Sn_Ag3_0.5Cu FLUX: RMA Type PRE-HEATING: AT 80 - 120 °C FOR 10 - 30 SEC.						

ENVIRONMENTAL CHARACTERISTICS

NO	ITEM	PERFORMANCE	TEST CONDITION									
12	RESISTANCE TO SOLDERING HEAT	APPEARANCE	NO MECHANICAL DAMAGE SHALL OCCUR									
		CAPACITANCE	CHARACTERISTIC	CAP. CHANGE								
			CLASS I	WITHIN ±2.5% OR ±0.25 pF WHICHEVER IS LARGER								
			CLASS II	X	WITHIN ±7.5%							
				Y	WITHIN ±20%							
		QCLASS I	30 pF AND OVER: Q 1000 LESS THAN 30 pF: Q 400 + 20xC									
		Tan CLASS II	TO SATISFY THE SPECIFIED INITIAL VALUE									
		INSULATION RESISTANCE	TO SATISFY THE SPECIFIED INITIAL VALUE									
WITHSTANDING VOLTAGE	TO SATISFY THE SPECIFIED INITIAL VALUE											
13	VIBRATION TEST	APPEARANCE	NO MECHANICAL DAMAGE SHALL OCCUR									
		CAPACITANCE	CHARACTERISTIC	CAP. CHANGE								
			CLASS I	WITHIN ±2.5% OR ±0.25 pF WHICHEVER IS LARGER								
			CLASS II	X	WITHIN ±5%							
				Y	WITHIN ±20%							
		QCLASS I	30 pF AND OVER: Q 1000 LESS THAN 30 pF: Q 400 + 20xC									
		Tan CLASS II	TO SATISFY THE SPECIFIED INITIAL VALUE									
INSULATION RESISTANCE	TO SATISFY THE SPECIFIED INITIAL VALUE											
			<p>DIP : SOLDER TEMPERATURE OF 270± 5 °C DIP TIME :10±1 SEC. EACH TERMINATION SHALL BE FULLY IMMERSSED AND PREHEATED AS FOLLOWING:</p> <table border="1"> <thead> <tr> <th>STEP</th> <th>TEMP. (°C)</th> <th>TIME (SEC.)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>80-100</td> <td>60</td> </tr> <tr> <td>2</td> <td>150-180</td> <td>60</td> </tr> </tbody> </table> <p>MEASURE AT ROOM TEMP. AFTER COOLING FOR CLASS I : 24 ± 2 HOURS CLASS II : 48 ± 4 HOURS</p>	STEP	TEMP. (°C)	TIME (SEC.)	1	80-100	60	2	150-180	60
STEP	TEMP. (°C)	TIME (SEC.)										
1	80-100	60										
2	150-180	60										
			<p>THE CAPACITOR SHALL BE SUBJECTED TO A HARMONIC MOTION HAVING A TOTAL AMPLITUDE of 1.5mm</p> <p>THE ENTIRE FREQUENCY RANGE, FROM 10 TO 55Hz AND RETURN TO 10Hz SHALL BE TRAVERSED IN 1 MINUTE.</p> <p>THIS CYCLE SHALL BE PERFORMED 2 HOURS IN EACH THREE MUTUALLY PERPENDICULAR DIRECTION, FOR TOTAL PERIOD of 6 HOURS.</p>									

ENVIRONMENTAL CHARACTERISTICS

NO	ITEM	PERFORMANCE	TEST CONDITION			
14	APPEARANCE	NO MECHANICAL DAMAGE SHALL OCCUR	TEMPERATURE : 40±2 °C RELATIVE HUMIDITY: 90-95 %RH TEST TIME : 500 +12/-0 Hr. MEASURE AT ROOM TEMPERATURE AFTER COOLING FOR CLASS I : 24±2 Hr. CLASS II : 48±4 Hr. SEE (FIG.3)			
	CAPACITANCE	CHARACTERISTIC		CAPACITANCE CHANGE		
		CLASS I		WITHIN ±5% OR±0.5pF WHICHEVER IS LARGER		
		CLASS II		X	WITHIN ±12.5%	
				Y	WITHIN ±30%	
	QCLASS I	30pF AND OVER : Q 350 10 - 30pF : Q 275 + 2.5xC LESS THAN 10pF : Q 200 + 10xC				
	DISSIPATION FACTOR (Tanθ CLASS II)	X7R, X6S, X5R				
		Rated Voltage		D.F.	Exception of D.F.	
		≥50V		≤2.5%	≤3%	0201 (50V); 0603≥0.047uF 0805≥0.22uF; 1206≥0.47uF
					≤5%	0603≥1uF; 0805≥1uF; 1206≥4.7uF; 1210≥4.7uF
25V		≤2.5%	≤5%	0201≥0.01uF; 0805≥1uF; 1210≥4.7uF		
			≤10%	0402≥0.10uF; 0603≥0.33uF; 0805≥2.2uF 1206≥4.7uF; 1210≥22uF		
16V		≤3.5%	≤5%	0201≥0.01uF; 0402≥0.033uF; 0805≥0.68uF; 1206≥2.2uF; 1210≥4.7uF		
			≤10%	0402≥0.47uF; 0603≥0.68uF; 0805≥2.2uF; 1206≥4.7uF; 1210≥22uF		
10V		≤5%	≤10%	0402≥0.33uF; 0603≥0.33uF; 0805≥2.2uF; 1206≥2.2uF; 1210≥22uF		
6.3V		≤10%				
Y5V, Z5U						
Rated Voltage	D.F.	Exception of D.F.				
≥50V	≤5%	≤9%	0603≥0.1uF; 0805≥0.47uF; 1206≥4.7uF;			
25V	≤5%	≤9%	0402≥0.047uF; 0603≥0.1uF; 0805≥0.33uF; 1206≥1uF; 1210≥4.7uF			
16V	≤9%	≤12.5%	0603≥2.2uF; 0805≥3.3uF; 1206≥10uF; 1210≥22uF; 1812≥47uF			
10V	≤12.5%	≤16%	0603≥2.2uF; 0805≥3.3uF; 1206≥4.7uF; 1210≥10uF; 1812≥47uF			
6.3V	≤16%					
INSULATION RESISTANCE	MINIMUM INSULATION RESISTANCE: 1,000M OR 50M μF PRODUCT WHICHEVER IS SMALLER					

ENVIRONMENTAL CHARACTERISTICS

NO	ITEM	PERFORMANCE	TEST CONDITION			
15	APPEARANCE	NO MECHANICAL DAMAGE SHALL OCCUR	APPLIED VOLTAGE: RATED VOLTAGE TEMPERATURE : 40±2 °C RELATIVE HUMIDITY: 90-95%RH TEST TIME : 500 +12/-0 Hr. CURRENT APPLIED: 50mA MAX. MEASURING AT ROOM TEMPERATURE AFTER COOLING FOR CLASS I : 24±2 Hr. CLASS II : 48±4 Hr. SEE (FIG.3)			
	CAPACITANCE	CHARACTERISTIC		CAPACITANCE CHANGE		
		CLASS I		WITHIN ±7.5% OR±0.75pF WHICHEVER IS LARGER		
		CLASS II		X	WITHIN ±12.5%	
	Y			WITHIN ±30%		
	QCLASS I	30pF AND OVER : Q 200 30pF AND BELOW : Q 100 + 10/3xC				
	DISSIPATION FACTOR (Tanθ CLASS II)	X7R, X6S, X5R				
		Rated Voltage		D.F.	Exception of D.F.	
		≥50V		≤2.5%	≤3%	0201 (50V); 0603≥0.047uF 0805≥0.22uF; 1206≥0.47uF
					≤5%	0603≥1uF; 0805≥1uF; 1206≥4.7uF; 1210≥4.7uF
25V		≤2.5%	≤5%	0201≥0.01uF; 0805≥1uF; 1210≥4.7uF		
			≤10%	0402≥0.10uF; 0603≥0.33uF; 0805≥2.2uF 1206≥4.7uF; 1210≥22uF		
16V		≤3.5%	≤5%	0201≥0.01uF; 0402≥0.033uF; 0805≥0.68uF; 1206≥2.2uF; 1210≥4.7uF		
			≤10%	0402≥0.47uF; 0603≥0.68uF; 0805≥2.2uF; 1206≥4.7uF; 1210≥22uF		
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6.3V	≤10%					
Y5V, Z5U						
Rated Voltage	D.F.	Exception of D.F.				
≥50V	≤5%	≤9%	0603≥0.1uF; 0805≥0.47uF; 1206≥4.7uF;			
25V	≤5%	≤9%	0402≥0.047uF; 0603≥0.1uF; 0805≥0.33uF; 1206≥1uF; 1210≥4.7uF			
		≤12.5%	0603≥2.2uF; 0805≥3.3uF; 1206≥10uF; 1210≥22uF; 1812≥47uF			
10V	≤12.5%	≤16%	0603≥2.2uF; 0805≥3.3uF; 1206≥4.7uF; 1210≥10uF; 1812≥47uF			
6.3V	≤16%					
INSULATION RESISTANCE	MINIMUM INSULATION RESISTANCE: 100 M OR 25M μF PRODUCT, WHICHEVER IS SMALLER					

ENVIRONMENTAL CHARACTERISTICS

NO	ITEM	PERFORMANCE	TEST CONDITION			
16	APPEARANCE	NO MECHANICAL DAMAGE SHALL OCCUR	APPLIED VOLTAGE: 200% OF RATED VOLTAGE TEST TIME : 1000 +48/-0 Hr. CURRENT APPLIED: 50mA MAX.			
	CAPACITANCE	CHARACTERISTIC		CAP. CHANGE		
		CLASS I		WITHIN ±3% OR ±0.3pF, WHICHEVER IS LARGER		
		CLASS II		X	WITHIN ±12.5%	
	Y		WITHIN ±30%			
	QCLASS I	30pF AND OVER : Q 350 10 - 30 pF : Q 275 + 2.5xC LESS THAN 10pF :Q 200 + 10xC	CLASS I 125 ±3 °C			
	DISSIPATION FACTOR (Tanθ CLASS II)	X7R, X6S, X5R		(INITIAL VALUE MEASUREMENT) FOR CLASS II CAPACITORS, 200 % OF RATED VOLTAGE SHALL BE APPLIED FOR 1 HOUR AT THE MAXIMUM OPERATING TEMPERATURE, THEN KEEP IT AT ROOM TEMPERATURE FOR 48 ±4 HRS. SEE (FIG.3)		
		Rated Voltage	D.F.		Exception of D.F.	
		≥50V	≤2.5%		≤3%	0201 (50V); 0603≥0.047uF 0805≥0.22uF; 1206≥0.47uF
					≤5%	0603≥1uF; 0805≥1uF; 1206≥4.7uF; 1210≥4.7uF
25V		≤2.5%	≤5%		0201≥0.01uF; 0805≥1uF; 1210≥4.7uF	
			≤10%		0402≥0.10uF; 0603≥0.33uF; 0805≥2.2uF 1206≥4.7uF; 1210≥22uF	
16V		≤3.5%	≤5%		0201≥0.01uF; 0402≥0.033uF; 0805≥0.68uF; 1206≥2.2uF; 1210≥4.7uF	
			≤10%		0402≥0.47uF; 0603≥0.68uF; 0805≥2.2uF; 1206≥4.7uF; 1210≥22uF	
10V		≤5%	≤10%		0402≥0.33uF; 0603≥0.33uF; 0805≥2.2uF; 1206≥2.2uF; 1210≥22uF	
6.3V		≤10%				
Y5V, Z5U						
Rated Voltage	D.F.	Exception of D.F.				
≥50V	≤5%	≤9%	0603≥0.1uF; 0805≥0.47uF; 1206≥4.7uF;			
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6.3V	≤16%					
INSULATION RESISTANCE	MINIMUM INSULATION RESISTANCE: 1,000M OR 50M μF PRODUCT WHICHEVER IS SMALLER					

ENVIRONMENTAL CHARACTERISTICS

NO	ITEM	PERFORMANCE	TEST CONDITION																																																																																														
17	TEMPERATURE CYCLE	<table border="1"> <tr> <td>APPEARANCE</td> <td colspan="2">NO MECHANICAL DAMAGE SHALL OCCUR</td> </tr> <tr> <td rowspan="4">CAPACITANCE</td> <td>CHARACTERISTIC</td> <td>CAP. CHANGE</td> </tr> <tr> <td>CLASS I</td> <td>WITHIN $\pm 2.5\%$ OR $\pm 0.25\text{pF}$ WHICHEVER IS LARGER</td> </tr> <tr> <td rowspan="2">CLASS II</td> <td>X</td> <td>WITHIN $\pm 7.5\%$</td> </tr> <tr> <td>Y</td> <td>WITHIN $\pm 20\%$</td> </tr> <tr> <td>QCLASS I</td> <td colspan="2">30 pF AND OVER : Q 1000 LESS THAN 30pF:Q 400 +20xC</td> </tr> <tr> <td rowspan="10">TAN CLASS II</td> <td colspan="2">X7R, X6S, X5R</td> <td rowspan="10"> CAPACITORS SHALL BE SUBJECTED TO FIVE CYCLES OF THE TEMPERATURE CYCLE AS FOLLOWING <table border="1"> <thead> <tr> <th>STEP</th> <th>TEMP.(°C)</th> <th>TIME (MIN)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>MIN. RATED TEMP. +0/-3</td> <td>30</td> </tr> <tr> <td>2</td> <td>25</td> <td>2 - 3</td> </tr> <tr> <td>3</td> <td>MAX. RATED TEMP. +3/-0</td> <td>30</td> </tr> <tr> <td>4</td> <td>25</td> <td>2 - 3</td> </tr> </tbody> </table> </td> </tr> <tr> <td>Rated Voltage</td> <td>D.F.</td> <td>Exception of D.F.</td> </tr> <tr> <td rowspan="2">$\geq 50\text{V}$</td> <td rowspan="2">$\leq 2.5\%$</td> <td>$\leq 3\%$</td> <td>0201 (50V); 0603$\geq 0.047\mu\text{F}$ 0805$\geq 0.22\mu\text{F}$; 1206$\geq 0.47\mu\text{F}$</td> </tr> <tr> <td>$\leq 5\%$</td> <td>0603$\geq 1\mu\text{F}$; 0805$\geq 1\mu\text{F}$; 1206$\geq 4.7\mu\text{F}$; 1210$\geq 4.7\mu\text{F}$</td> </tr> <tr> <td rowspan="2">25V</td> <td rowspan="2">$\leq 2.5\%$</td> <td>$\leq 5\%$</td> <td>0201$\geq 0.01\mu\text{F}$; 0805$\geq 1\mu\text{F}$; 1210$\geq 4.7\mu\text{F}$</td> </tr> <tr> <td>$\leq 10\%$</td> <td>0402$\geq 0.10\mu\text{F}$; 0603$\geq 0.33\mu\text{F}$; 0805$\geq 2.2\mu\text{F}$ 1206$\geq 4.7\mu\text{F}$; 1210$\geq 22\mu\text{F}$</td> </tr> <tr> <td rowspan="2">16V</td> <td rowspan="2">$\leq 3.5\%$</td> <td>$\leq 5\%$</td> <td>0201$\geq 0.01\mu\text{F}$; 0402$\geq 0.033\mu\text{F}$; 0805$\geq 0.68\mu\text{F}$; 1206$\geq 2.2\mu\text{F}$; 1210$\geq 4.7\mu\text{F}$</td> </tr> <tr> <td>$\leq 10\%$</td> <td>0402$\geq 0.47\mu\text{F}$; 0603$\geq 0.68\mu\text{F}$; 0805$\geq 2.2\mu\text{F}$; 1206$\geq 4.7\mu\text{F}$; 1210$\geq 22\mu\text{F}$</td> </tr> <tr> <td>10V</td> <td>$\leq 5\%$</td> <td>$\leq 10\%$</td> <td>0402$\geq 0.33\mu\text{F}$; 0603$\geq 0.33\mu\text{F}$; 0805$\geq 2.2\mu\text{F}$; 1206$\geq 2.2\mu\text{F}$; 1210$\geq 22\mu\text{F}$</td> </tr> <tr> <td>6.3V</td> <td>$\leq 10\%$</td> <td></td> <td></td> </tr> <tr> <td colspan="2">Y5V, Z5U</td> <td></td> <td rowspan="6">MEASURE AT ROOM TEMPERATURE AFTER COOLING FOR CLASS I : 24\pm2 Hr. CLASS II : 48\pm4 Hr. 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Exception of D.F.	$\geq 50\text{V}$	$\leq 2.5\%$	$\leq 3\%$	0201 (50V); 0603 $\geq 0.047\mu\text{F}$ 0805 $\geq 0.22\mu\text{F}$; 1206 $\geq 0.47\mu\text{F}$	$\leq 5\%$	0603 $\geq 1\mu\text{F}$; 0805 $\geq 1\mu\text{F}$; 1206 $\geq 4.7\mu\text{F}$; 1210 $\geq 4.7\mu\text{F}$	25V	$\leq 2.5\%$	$\leq 5\%$	0201 $\geq 0.01\mu\text{F}$; 0805 $\geq 1\mu\text{F}$; 1210 $\geq 4.7\mu\text{F}$	$\leq 10\%$	0402 $\geq 0.10\mu\text{F}$; 0603 $\geq 0.33\mu\text{F}$; 0805 $\geq 2.2\mu\text{F}$ 1206 $\geq 4.7\mu\text{F}$; 1210 $\geq 22\mu\text{F}$	16V	$\leq 3.5\%$	$\leq 5\%$	0201 $\geq 0.01\mu\text{F}$; 0402 $\geq 0.033\mu\text{F}$; 0805 $\geq 0.68\mu\text{F}$; 1206 $\geq 2.2\mu\text{F}$; 1210 $\geq 4.7\mu\text{F}$	$\leq 10\%$	0402 $\geq 0.47\mu\text{F}$; 0603 $\geq 0.68\mu\text{F}$; 0805 $\geq 2.2\mu\text{F}$; 1206 $\geq 4.7\mu\text{F}$; 1210 $\geq 22\mu\text{F}$	10V	$\leq 5\%$	$\leq 10\%$	0402 $\geq 0.33\mu\text{F}$; 0603 $\geq 0.33\mu\text{F}$; 0805 $\geq 2.2\mu\text{F}$; 1206 $\geq 2.2\mu\text{F}$; 1210 $\geq 22\mu\text{F}$	6.3V	$\leq 10\%$			Y5V, Z5U			MEASURE AT ROOM TEMPERATURE AFTER COOLING FOR CLASS I : 24 \pm 2 Hr. 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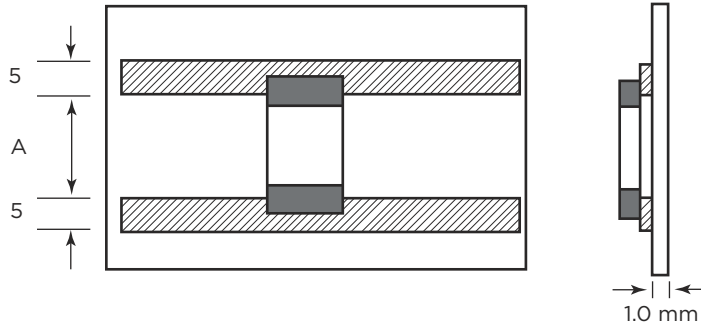
ENVIRONMENTAL CHARACTERISTICS

NO	ITEM	TEST CONDITION	REQUIREMENTS																																																																																																																			
18	HIGH TEMPERATURE Load-Endurance (Life Testing)	*Test Temperature: COG, X7R/X7S: 125±3°C X5R, Y5V: 85±3°C Test time: 1000+24/-0 hrs. Endurance or Life Test Voltage (RVLL) * All components are tested at 100% of rated voltage (Vr) for the below range:	• No remarkable damage. CAP CHANGE: COG: ±3.0% or ±0.3pF whichever is larger X7R, X5R, X6S, X7S: ≥10V**, within ±12.5%; ≤6.3V within ±25%; **10V: 0603≥4.7µF; 0402≥1.0µF; 0201≥0.1µF, within ±25% Y5V≥10V, within ±30%; ≤6.3V, within +30/-40% Q/D.F. VALUE: COG: More than 30pF, Q≥350 10pF≤30pF, Q≥275+2.5C Less than 10pF, Q≥200+10C																																																																																																																			
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50V	≤3%	≤6%	0201(50V); 0603>0.047µF; 0805≥0.18µF; 1206≥0.47µF																																																																																																																			
		≤10%	0201≥0.01µF; 1210≥3.3µF																																																																																																																			
35V	≤5%	≤20%	0402≥0.012µF; 0603>0.1µF; 0805≥1.0µF (0805/X7R>0.47µF); 1206≥2.2µF; 1210≥10µF																																																																																																																			
		≤10%	0201=0.01µF; 0805≥1.0µF; 1210≥10µF																																																																																																																			
25V	≤5%	≤14%	0603≥0.33µF																																																																																																																			
		≤15%	0201>0.01µF; 0402>0.10µF (0402/X7R≥0.056µF); 0603>0.47µF; 0805≥2.2µF; 1206≥0.47µF; 1210≥22µF (1210/X5R≥10µF)																																																																																																																			
		≤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>0.47µF; 0805≥2.2µF; 1206≥4.7µF; 1210≥22µF																																																																																																																			
10V	≤7.5%	≤15%	0201≥0.012µF; 0402≥0.22µF; 0603≥0.33µF; 0805≥2.2µF; 1206≥2.2µF; 1210≥22µF																																																																																																																			
		≤20%	0201≥0.01µF; 0402≥1.0µF; 0603/X5R≥10µF; 01R5/X5R																																																																																																																			
6.3V	≤15%	≤30%	0201≥0.01µF; 0402≥1.0µF (0402/X6S≥0.47µF); 0603≥10µF; 0805≥4.7µF; 1206≥47µF; 1210≥100µF																																																																																																																			
4V	≤20%	-	-																																																																																																																			
*Any items outside this range or with a different dielectric will hold the following test conditions: (1) ≤ 6.3V or C ≥ 10µF : 150% of rated voltage. (2) 10V ≤ Vr ≤ 100V: 200% of rated voltage.																																																																																																																						

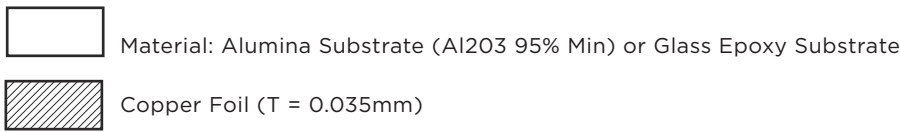
ENVIRONMENTAL CHARACTERISTICS

NO	ITEM	TEST CONDITION	REQUIREMENTS																																																																									
18	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$\geq 200+10\text{C}$ 																																																																									
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<p>DERATING CURVE</p>																																																																												
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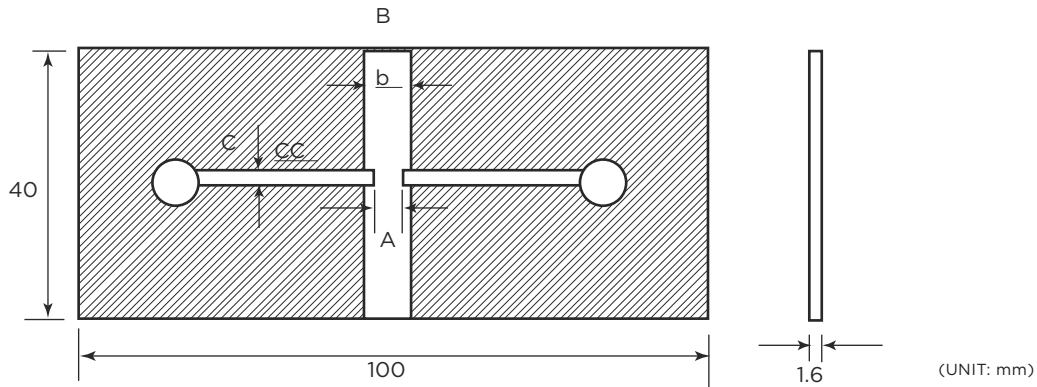
ADHESIVE STRENGTH OF TERMINATION



CODE	DIMENSION (mm)	A (mm)	CODE	DIMENSION (mm)	A (mm)
01005 (0402)	0.40 x 0.20	0.12	1206 (3216)	3.2 x 1.6	2.2
0201 (0603)	0.61 x 0.31	0.2	1210 (3225)	3.2 x 2.5	2.2
0402 (1005)	1.0 x 0.5	0.4	1812 (4532)	4.5 x 3.2	3.5
0603 (1608)	1.6 x 0.8	1.0	2220 (5750)	5.7 x 5.08	4.7
0805 (2012)	2.0 x 1.25	1.2			



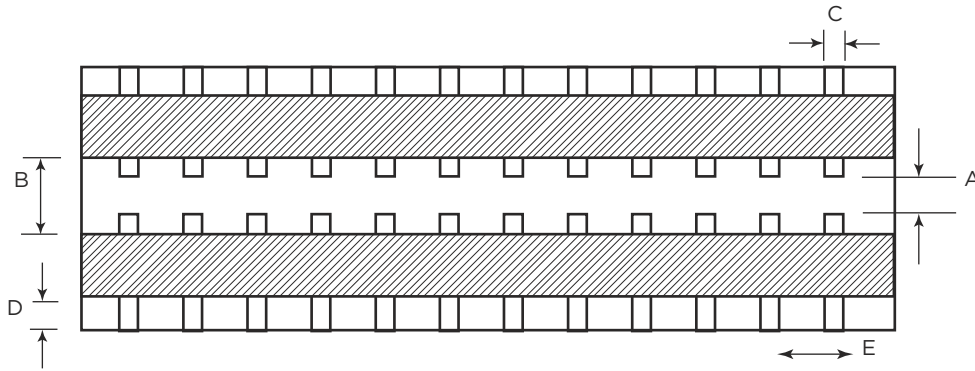
SUBSTRATE BENDING STRENGTH



CODE	DIMENSION (mm)	A (mm)	B (mm)	C (mm)
01005 (0402)	0.40 x 0.20	0.12	0.7	0.20
0201 (0603)	0.61 x 0.31	0.2	1.0	0.4
0402 (1005)	1.0 x 0.5	0.4	1.4	0.5
0603 (1608)	1.6 x 0.8	1.0	3.0	1.0
0805 (2012)	2.0 x 1.25	1.2	4.0	1.65
1206 (3216)	3.2 x 1.6	2.2	5.0	2.0
1210 (3225)	3.2 x 2.5	2.2	5.0	3.2
1812 (4532)	4.5 x 3.2	3.5	7.0	4.0
2220 (5750)	5.7 x 5.08	4.7	8.5	5.0



TEST SUBSTRATE



(UNIT: mm)

CODE	DIMENSION (MM)	A	B	C	D	E
0201 (0603)	0.61 x 0.31	0.2	1.0	0.4	7.5	3.6
0402 (1005)	1.0 x 0.5	0.4	1.4	0.5	7.5	3.8
0603 (1608)	1.6 x 0.8	1.0	3.0	0.7	7.5	4.0
0805 (2012)	2.0 x 1.25	1.2	4.0	1.0	7.5	4.2
1206 (3216)	3.2 x 1.6	2.2	5.0	1.3	7.5	4.6
1210 (3225)	3.2 x 2.5	2.2	5.0	2.0	7.5	5.5
1812 (4532)	4.5 x 3.2	3.5	7.0	2.7	7.5	6.2
2220 (5750)	5.7 x 5.08	4.7	8.5	3.4	7.5	7.0

MATERIAL: GLASS EPOXY SUBSTRATE



COPPER FOIL (t = 0.035mm)



SOLDER RESIST