



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			1st two digits are significant		(picofarads)	* B = ± 0.1pF	N = 100% matte Tin (Sn) over Nickel	E = Embossed Tape (7" Reel)	Leave blank for standard thickness.
0201		COG	followed by number of zeroes.		1st two digits are significant, followed by number of zeroes. e.g:	* C = ± 0.25pF	* P = Palladium Silver	P = Paper Tape (7" Reel)	Designate
0603		X7R	4R0 = 4.0 VDCW		101 = 100pF	* D = ± 0.5pF	* G = Gold over Nickel	R = Paper Tape (13" Reel)	"-" for Min.
0805		X7S	6R3 = 6.3 VDCW		R denotes decimal	F = ± 1%	Pb = 90% Tin (Sn) /10% Lead (Pb)	U = Embossed Tape (13" Reel)	"*" for Max.
1206		X6S	100 = 10 VDCW		6R8 = 6.8pF	G = ± 2%	* Pd/Ag & Gold terminations have limited values & sizes available.		followed by Thickness Code
1210		X5R	160 = 16 VDCW			J = ± 5%			e.g:
1812		Y5V	250 = 25 VDCW			K = ± 10%			- E (min. thickness of .026")
2220		Z5U	500 = 50 VDCW			M = ± 20%			* E (max. thickness of .026")
2225			630 = 63 VDCW			N = ± 30%			
			101 = 100 VDCW			Z = +80 - 20%			
						* For values below 10pF only.			

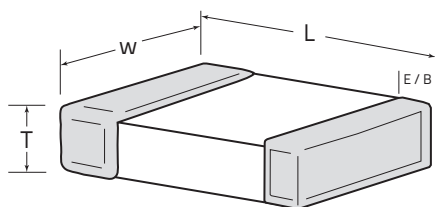
Example P/N: C0805COG500-101JNP

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

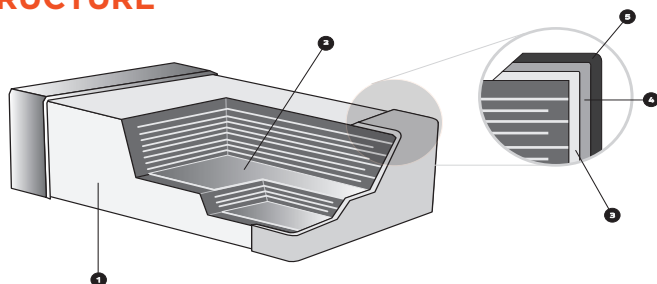
Unit: inches (mm)



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

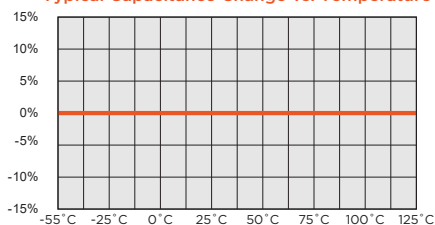


1	Ceramic Body (dielectric)	4	Nickel Plating
2	Inner Electrode	5	Outer Termination
3	Inner Termination		

ELECTRICAL SPECIFICATIONS

COG(NP0)

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

Ageing:

None

Withstanding Voltage:

>2.5 times VDCW

Capacitance Tolerance:

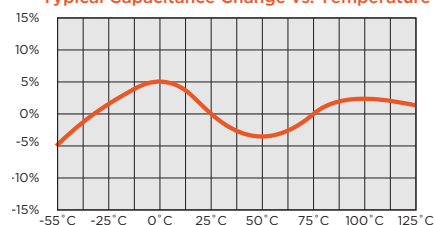
B,C,D,F,G,J,K

Dissipation Factor:

0.1% max

X7R

Typical Capacitance Change vs. Temperature



Operating Temperature Range:

-55°C to +125°C

Temperature Coefficient:

0 ±15%Δ°C MAX.

Temperature Voltage Coefficient:

X7R not applicable

Insulation Resistance:

>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

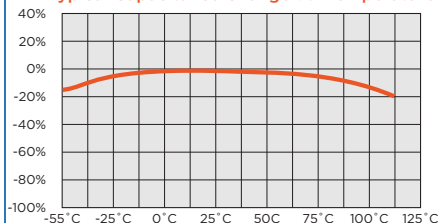
Capacitance Tolerance:

J,K,M

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

>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:

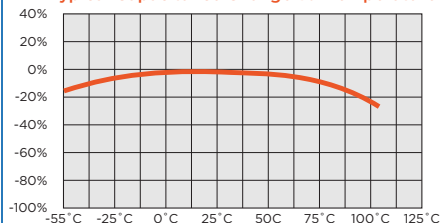
K,M

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

ELECTRICAL SPECIFICATIONS

X6S

Typical Capacitance Change vs. Temperature

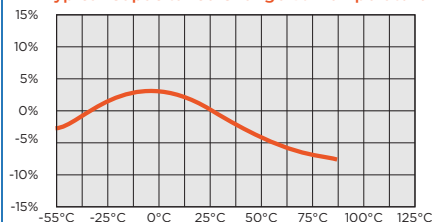


Operating Temperature Range:
-55°C to +105°C
Temperature Coefficient:
0 $\pm 22\%$ $\Delta^\circ\text{C}$ MAX.
Insulation Resistance:
>100 $\Omega\cdot\text{F}$ or 10 G Ω , whichever is less at 25°C, VDCW. (The IR at 125°C is 10% of the value at 25°C)
Ageing:
2.5% per decade hour, typical
Withstanding Voltage:
>2.5 times VDCW
Capacitance Tolerance:
K,M

RATED VOLTAGE	D.F.	EXCEPTION OF D.F.	
$\geq 50\text{V}$	$\leq 2.5\%$	$\leq 3\%$	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 $\geq 22\mu\text{F}$
$\leq 10\text{V}$	$\leq 5\%$	$\leq 10\%$	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 $\geq 22\mu\text{F}$
4V/6.3V	$\leq 10\%$		

X5R

Typical Capacitance Change vs. Temperature

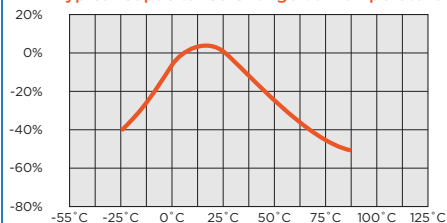


Operating Temperature Range:
-55°C to +85°C
Temperature Coefficient:
0 $\pm 15\%$ $\Delta^\circ\text{C}$ MAX.
Insulation Resistance:
>100 $\Omega\cdot\text{F}$ or 10 G Ω , whichever is less at 25°C, VDCW. (The IR at 125°C is 10% of the value at 25°C)
Ageing:
2.5% per decade hour, typical
Withstanding Voltage:
>2.5 times VDCW
Capacitance Tolerance:
K,M

RATED VOLTAGE	D.F.	EXCEPTION OF D.F.	
$\geq 50\text{V}$	$\leq 2.5\%$	$\leq 3\%$	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 $\geq 22\mu\text{F}$
$\leq 10\text{V}$	$\leq 5\%$	$\leq 10\%$	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	$\leq 10\%$		

Z5U

Typical Capacitance Change vs. Temperature

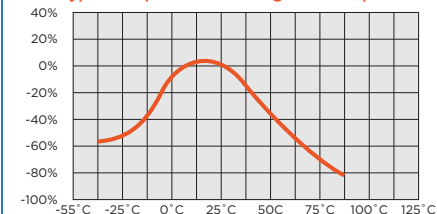


Operating Temperature Range:
+10°C to +85°C
Temperature Coefficient:
+22% - 56% $\Delta^\circ\text{C}$ MAX.
Insulation Resistance:
>100 $\Omega\cdot\text{F}$ or 10 G Ω , whichever is less at 25°C, VDCW. (The IR at 125°C is 10% of the value at 25°C)
Ageing:
5% per decade hour, typical
Withstanding Voltage:
>2.5 times VDCW
Capacitance Tolerance:
M,Z

RATED VOLTAGE	D.F.	EXCEPTION OF D.F.	
$\geq 50\text{V}$	$\leq 5\%$	$\leq 9\%$	0603 $\geq 0.1\mu\text{F}$; 0805 $\geq 0.47\mu\text{F}$; 1206 $\geq 4.7\mu\text{F}$;
25V	$\leq 5\%$	$\leq 9\%$	0402 $\geq 0.047\mu\text{F}$; 0603 $\geq 0.1\mu\text{F}$; 0805 $\geq 0.33\mu\text{F}$; 1206 $\geq 1\mu\text{F}$; 1210 $\geq 4.7\mu\text{F}$
16V	$\leq 9\%$	$\leq 12.5\%$	0603 $\geq 2.2\mu\text{F}$; 0805 $\geq 3.3\mu\text{F}$; 1206 $\geq 10\mu\text{F}$; 1210 $\geq 22\mu\text{F}$; 1812 $\geq 47\mu\text{F}$
10V	$\leq 12.5\%$	$\leq 16\%$	0603 $\geq 2.2\mu\text{F}$; 0805 $\geq 3.3\mu\text{F}$; 1206 $\geq 4.7\mu\text{F}$; 1210 $\geq 10\mu\text{F}$; 1812 $\geq 47\mu\text{F}$
6.3V	$\leq 16\%$		

Y5V

Typical Capacitance Change vs. Temperature



Operating Temperature Range:
-30°C to +85°C
Temperature Coefficient:
+22% - 82% $\Delta^\circ\text{C}$ MAX.
Insulation Resistance:
>100 $\Omega\cdot\text{F}$ or 10 G Ω , 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.	
$\geq 50\text{V}$	$\leq 5\%$	$\leq 9\%$	0603 $\geq 0.1\mu\text{F}$; 0805 $\geq 0.47\mu\text{F}$; 1206 $\geq 4.7\mu\text{F}$;
25V	$\leq 5\%$	$\leq 9\%$	0402 $\geq 0.047\mu\text{F}$; 0603 $\geq 0.1\mu\text{F}$; 0805 $\geq 0.33\mu\text{F}$; $\geq 1206 \geq 1\mu\text{F}$; 1210 $\geq 4.7\mu\text{F}$
16V	$\leq 9\%$	$\leq 12.5\%$	0603 $\geq 2.2\mu\text{F}$; 0805 $\geq 3.3\mu\text{F}$; 1206 $\geq 10\mu\text{F}$; 1210 $\geq 22\mu\text{F}$; 1812 $\geq 47\mu\text{F}$
10V	$\leq 12.5\%$	$\leq 16\%$	0603 $\geq 2.2\mu\text{F}$; 0805 $\geq 3.3\mu\text{F}$; 1206 $\geq 4.7\mu\text{F}$; 1210 $\geq 10\mu\text{F}$; 1812 $\geq 47\mu\text{F}$
6.3V	$\leq 16\%$		

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	
CAPACITANCE CODE-->	CAPACITANCE VALUE-->	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	0.50±0.05	0.50±0.05	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	0.50±0.05	0.50±0.05	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	0.50±0.05	0.50±0.05	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	0.50±0.05	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
		160	16				0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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	0.50±0.05	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																
682	6800																
822	8200																
103	0.01uF																
123	0.012																
153	0.015																
183	0.018																
223	0.																

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				
VDCW (MAX)		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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	0.60±0.10
121	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	1000pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	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		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		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		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		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						
683	0.068	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						
104	0.1uF	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.

COG(NPO) DIELECTRIC

Unit: mm

Values that are typically available.

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

VOLTAGE AND CAPACITANCE RANGE

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
CAPACITANCE CODE 101 121 151 181 221 271 331 391 471 561 681 821 102 122 152 182 222 272 332 392 472 562 682 822 103 123 153 183 223 273 333 393 473 563 683 823 104 124 154 184 224 274 334 394 474 564 684 824 105 125 155 185 225 335 475 685 106	CAPACITANCE VALUE 100pF 120 150 180 220 270 330 390 470 560 680 820 1000pF 1200 1500 1800 2200 2700 3300 3900 4700 5600 6800 8200 .01uF .012 .015 .018 .022 .027 .033 .039 .047 .056 .068 .082 0.1uF 0.12 0.15 0.18 0.22 0.27 0.33 0.39 0.47 0.56 0.68 0.82 1.00uF 1.25 1.55 1.85 2.20 3.30 4.70 6.80 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	
				0.30±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
				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
				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
		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	0.50±0.05
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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
				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±0.0		

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
CAPACITANCE CODE 101 121 151 181 221 271 331 391 471 561 681 821 102 122 152 182 222 272 332 392 472 562 682 822 103 123 153 183 223 273 333 393 473 563 683 823 104 124 154 184 224 274 334 394 474 564 684 824 105 125 155 185 225 335 475 685 106	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
	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	0.80±0.10
	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	0.80±0.10
	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	0.80±0.10
	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
	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
	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
	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
	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
	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
	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
	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
	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	0.80±0.10
	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	0.80±0.10
	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	0.80±0.10
	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	0.80±0.10
	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	0.80±0.10
	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	0.80±0.10
	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	0.80±0.10
	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	0.80±0.10
	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	0.80±0.10
	6800	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
	8200	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
	0.01uF	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
	.012	0.80±0.07	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
	.015	0.80±0.07	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
	.018	0.80±0.07	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
	.022	0.80±0.07	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
	.027	0.80±0.07	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
	.033	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
	.039	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
	.047	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
	.056	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
	.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
	.082	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
	0.1uF	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
	0.12	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
	0.15	0.80±0.07	0.80±0.07	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
	0.18	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
	0.22	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±0.10	1.25±0.20
	0.27	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±0.20	1.25±0.20
	0.33	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	1.25±0.20
	0.39	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±0.20	1.25±0.20
	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	1.25±0.20
	0.56	0.80±0.15	0.80±0.15	0.80±0.15				1.25±0.10	1.25±0.10	1.25±0.10			
	0.68	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±0.20	
	0.82	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		
	1.00uF	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
	1.25							1.25±0.20	1.25±0.20				
	1.55							1.25±0.20	1.25±0.20	1.25±0.20			
	1.85												
	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	
	3.30							1.25±0.20	1.25±0.20	1.25±0.20			
	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	
	6.80												
	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	101	CAPACITANCE VALUE	100pF												
	121		120												
	151		150		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10						
	181		180		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10						
	221		220		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10						
	271		270		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10						
	331		330		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10						
	391		390		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10						
	471		470		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10						
	561		560		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10						
	681		680		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10						
	821		820		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10						
	102		1000pF		0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10		0.95±0.10	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		0.80±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		8200		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
	103		.01uF		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
	123		.012		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		.015		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		.018		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		.022		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		.027		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		.033		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		.047		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		.056		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		.068		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		.082		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
	104		0.1uF		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
	124		.12		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
	154		.15		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		.18		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		0.22		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		0.27		0.95±0.10	0.95±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		0.33		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		0.39		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		0.47		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		0.56		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		0.68		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		0.82		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
	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	2.00±0.20
	125		1.25												
	155		1.55	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		1.85												
	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	2.50±0.30	2.50±0.30
	335		3.30	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		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	2.00±0.20
	685		6.80												
	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	2.00±0.20	2.50±0.30
	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	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	2.50±0.30	2.50±0.30		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	3.10±0.30(M)
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±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±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	1.25±0.20
	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	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	1.25±0.20
	225	2.2	0.80±0.10	0.80±0.10	0.85±0.15	0.80±0.15		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	
	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	0.95±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
	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	1.25±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	1.25±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	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
	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	2.50±0.30	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	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±0.30	2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30	2.00±0.20
	106	10.0uF	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
	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	1.60±0.20
	225	2.2	2.50±0.30					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
	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
	156	15.0uF						2.80±0.30	2.50±0.30-M
	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			
VDCW (MAX)		4V	6.3V	10V	16V
<-----CAPACITANCE CODE----->	104	0.10uF	0.30±0.03	0.30±0.03	0.30±0.03
	224	0.22	0.30±0.03	0.30±0.03	
	474	0.47			
	105	1.00uF	0.30±0.09-M	0.30±0.09-M	0.30±0.09-M
	225	2.2	0.30±0.09-M	0.50±0.05-M	
	475	4.7			
	106	10.0uF			
	226	22.0uF			
	476	47.0uF			
	107	100.0uF			

SIZE		0402					
VDCW (MAX)		4V	6.3V	10V	16V	25V	50V
<-----CAPACITANCE CODE----->	104	0.10uF	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
	224	0.22	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	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.10	
	225	2.2	0.50±0.20	0.50±0.20	0.50±0.20	0.50±0.10	
	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						
VDCW (MAX)		2.5V	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
	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
	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
	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
	225	2.2	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10		
	475	4.7	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.15		
	106	10.0uF	0.80±0.20-M	0.80±0.20-M	0.80±0.20-M	0.80±0.20-M		
	226	22.0uF	0.80±0.15-M	0.80±0.15-M	0.85±0.20-M			
	476	47.0uF	0.80±0.20-M	0.80±0.20-M				
	107	100uF	0.80±0.30-M					

SIZE		0805						
VDCW (MAX)		2.5V	4V	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
	224	0.22	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	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	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	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	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	1.25±0.15	1.25±0.15	1.25±0.15	1.25±0.15	1.25±0.20	
	226	22.0uF	1.25±0.15-M	1.25±0.15-M	1.25±0.15-M	1.25±0.20-M	1.25±0.20-M	
	476	47.0uF	1.25±0.20-M	1.25±0.20-M	1.25±0.20-M			
	107	100uF	1.25±0.20-M	1.25±0.20-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

X6S DIELECTRIC

Unit: mm

Values that are typically available

SIZE		1206					
VDCW (MAX)		4V	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
	224	0.22	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
	105	1.00uF	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20
	225	2.2	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20
	335	3.3					
	475	4.7	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20
	106	10.0uF	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20
	156	15.0uF					
	226	22.0uF	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	
	476	47.0uF	1.60±0.20	1.60±0.20			
	107	100.0uF	1.60±0.30-M				

SIZE		1210					
VDCW (MAX)		6.3V	10V	16V	25V	50V	
CAPACITANCE CODE	104	0.10uF	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
	474	0.47	1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20
	105	1.00uF	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	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	2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30
	106	10.0uF	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	2.50±0.20-M	2.50±0.20-M	2.50±0.20-M	2.50±0.20-M	
	476	47.0uF	2.50±0.20-M	2.50±0.20-M	2.50±0.20-M		
	107	100.0uF	2.50±0.30-M				

SIZE		1812				
VDCW (MAX)		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
	224	0.22	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
	474	0.47	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
	105	1.00uF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
	225	2.2	2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30
	335	3.3				
	475	4.7	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	
	156	15.0uF				
	226	22.0uF	2.40±0.20	2.40±0.20		
	476	47.0uF				
	107	100.0uF				

SIZE		2220			
VDCW (MAX)		16V	25V	50V	100V
CAPACITANCE CODE	104	0.10uF	2.00±0.20	2.00±0.20	2.00±0.20
	224	0.22	2.00±0.20	2.00±0.20	2.00±0.20
	474	0.47	2.00±0.20	2.00±0.20	2.00±0.20
	105	1.00uF	2.00±0.20	2.00±0.20	1.60±0.20
	225	2.2	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
	106	10.0uF	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
	226	22.0uF	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	CAPACITANCE VALUE -----> -----<-----	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	0.30±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	0.30±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	0.30±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	0.30±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	0.30±0.03	0.30±0.03	0.30±0.09				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±0.05 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±0.07	0.50±0.07	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±0.05 (M)						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

X5R DIELECTRIC Unit: mm

Values that are typically available.

SIZE		0603							0805						
VDCW (MAX)		4V	6.3V	10V	16V	25V	35V	50V	4V	6.3V	10V	16V	25V	35V	50V
CAPACITANCE CODE -----CAPACITANCE VALUE-----	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±0.15	0.80±0.15	0.80±0.15	0.80±0.15	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	0.80±0.20 M	0.80±0.20 M	0.80±0.25 M					1.25±0.15	1.25±0.20 M	1.25±0.20	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							1.25±0.20 M	1.25±0.20 M					
	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 -----CAPACITANCE VALUE-----	105	1uF	1.60±0.20	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	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±0.30	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		
	476	47	1.60±0.20	1.60±0.20	1.60±0.20 M	1.60±0.30 M			2.50±0.30	2.50±0.30	2.50±0.30	2.50±0.30	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	0.95±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	0.95±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	0.95±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	0.95±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	0.95±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	0.95±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	0.95±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	0.95±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	0.95±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	0.95±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	0.95±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	0.95±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	0.95±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	0.95±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	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	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	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	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	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	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	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	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
	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
	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	
CAPACITANCE CODE -----CAPACITANCE VALUE-----	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			
	685	6.80											
	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±0.20	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	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.

VOLTAGE AND CAPACITANCE RANGE

Y5V DIELECTRIC Unit: mm

Values that are typically available.

SIZE		1210					1812		
VDCW (MAX)		6.3V	10V	16V	25V	50V	6.3V	10V	25V
CAPACITANCE CODE <-----CAPACITANCE VALUE----->	104	.100uF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			
	124	.120	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			
	154	.150	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			
	184	.180	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			
	224	.220	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			
	274	.270	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10			
	334	.330	1.25±0.10	1.25±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±0.10			
	474	.470	1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20			
	564	.560	1.25±0.10	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	1.25±0.10			
	824	.820	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10			
	105	1.00uF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10		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				
	185	1.80							
	225	2.20		1.60±0.20	2.50±0.30			2.50±0.30	2.50±0.30
	335	3.30		2.50±0.30	2.50±0.30			2.50±0.30	2.50±0.30
	395	3.90							
	475	4.70		2.50±0.30	2.50±0.30			2.00±0.20	2.00±0.20
	685	6.80							
CAPACITANCE CODE <-----CAPACITANCE VALUE----->	106	10.0uF		2.00±0.20	2.00±0.20	2.00±0.20		2.50±0.30	2.50±0.30
	156	15.0uF							
	226	22.0uF		2.50±0.20	2.50±0.20		2.00±0.20	2.00±0.20	
	476	47.0uF	2.50±0.20	2.50±0.20			2.80±0.30-M	2.80±0.30-M	
	107	100uF	2.50±0.30-M				2.80±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.

TEST PARAMETERS

Test parameters for Multilayer Ceramic Capacitors
- X7R, X7S, X6S, X5R and Y5V:

1KHz ± 100Hz at 1.0 ± 0.2 Vrms < 10uF (10 V min.)
1KHz ± 100Hz at 1.0 ± 0.1 Vrms < 10uF (6.3V max.)
120Hz ± 24Hz at 1.0 ± 0.1 Vrms ≥ 10uF

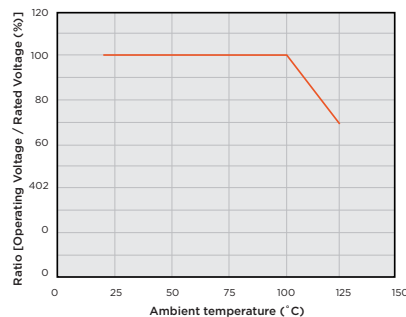
Test parameters for Multilayer Ceramic Capacitors
- COG:

1MHz ± 100KHz at 1.0 ± 0.2 Vrms ≤ 1000pF, 25°C
1KHz ± 100Hz at 1.0 ± 0.2 Vrms > 1000pF, 25°C

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

NOTE: 0201, X7R, 0.1uF; When the operating temperature range is between 100°C and 125°C, it is recommended to apply the following voltage derating as shown in the diagram below.

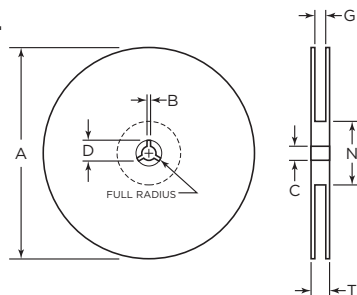
DERATING CURVE FOR 0201, 0.1UF, X7R ONLY



TAPE & REEL SPECIFICATIONS

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

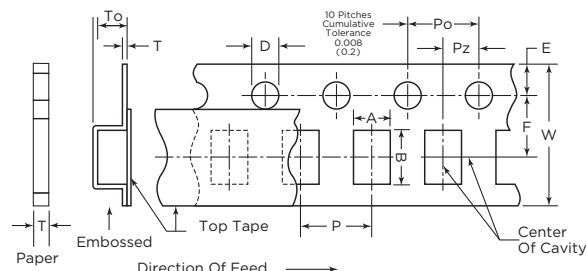
REEL



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)

Unit: mm (inch)

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*	20,000*	15,000	5,000	3,000	2,000	2,000	1,000	1,000	1,000
Max Qty Per Reel	40,000*	20,000*	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.

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	$\frac{1.5 \pm 0.1}{(0.064 \pm 0.004)}$	$\frac{1.15 \text{ max}}{(0.045 \text{ max})}$	$\frac{2.0 \pm 0.05}{(0.079 \pm 0.002)}$
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	$\frac{1.5 \pm 0.1}{(0.064 \pm 0.004)}$	$\frac{1.15 \text{ max}}{(0.045 \text{ max})}$	$\frac{2.0 \pm 0.05}{(0.079 \pm 0.002)}$
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	$\frac{1.5 \pm 0.1}{(0.064 \pm 0.004)}$	$\frac{1.15 \text{ max}}{(0.045 \text{ max})}$	$\frac{2.0 \pm 0.05}{(0.079 \pm 0.002)}$
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	$\frac{1.5 \pm 0.1}{(0.064 \pm 0.004)}$	$\frac{1.15 \text{ max}}{(0.045 \text{ max})}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$
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	$\frac{1.5 \pm 0.1}{(0.064 \pm 0.004)}$	$\frac{1.15 \text{ max}}{(0.045 \text{ max})}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$
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	$\frac{1.5 \pm 0.1}{(0.064 \pm 0.004)}$	$\frac{1.15 \text{ max}}{(0.045 \text{ max})}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$

Unit: mm (inch)

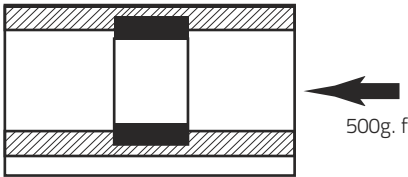
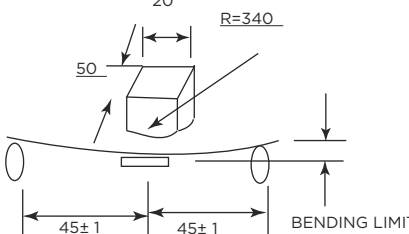
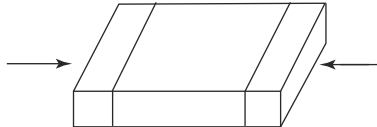
Embossed Carrier Dimensions (4mm, 8mm & 12mm)

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	$\frac{1.05 \pm 0.15}{(0.042 \pm 0.006)}$	$\frac{1.90 \pm 0.15}{(0.075 \pm 0.006)}$	$\frac{8.0 \pm 0.3}{(0.315 \pm 0.012)}$	$\frac{3.5 \pm 0.1}{(0.138 \pm 0.004)}$	$\frac{1.75 \pm 0.1}{(0.069 \pm 0.004)}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$	$\frac{2.0 \pm 0.05}{(0.079 \pm 0.002)}$	$\frac{1.5 \pm 0.1}{-0.0}$ $\frac{-0.0}{(0.06 \pm 0.004)}$ -0.000	$\frac{0.75 \text{ max}}{(0.03 \text{ max})}$	$\frac{0.6 \text{ max}}{(0.024 \text{ max})}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$
0805	$\frac{1.48 \pm 0.2}{(0.058 \pm 0.008)}$	$\frac{2.3 \pm 0.3}{(0.091 \pm 0.008)}$	$\frac{8.0 \pm 0.3}{(0.315 \pm 0.008)}$	$\frac{3.5 \pm 0.1}{(0.138 \pm 0.004)}$	$\frac{1.75 \pm 0.1}{(0.069 \pm 0.004)}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$	$\frac{2.0 \pm 0.05}{(0.079 \pm 0.002)}$	$\frac{1.5 \pm 0.1}{-0.0}$ $\frac{-0.0}{(0.06 \pm 0.004)}$ -0.000	$\frac{2.5 \text{ max}}{(0.098 \text{ max})}$	$\frac{0.6 \text{ max}}{(0.024 \text{ max})}$	$\frac{4.0 \pm 0.1}{(0.157 \pm 0.004)}$
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 μF PRODUCT WHICHEVER IS SMALLER (RATED VOLTAGE IS BELOW 16V: 10,000M OR 100M μF)		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 ±10%	0.5 - 5 Vrms	
					MORE THAN 1,000 pF		1kHz ± 10%		
		CLASS II	WITHIN THE SPECIFIED TOLERANCE		CAPACITANCE		FREQUENCY	VOLTAGE	
					4.7μF AND BELOW		1kHz ± 10%	1.0 ± 0.2Vrms	
					MORE THAN 4.7μF		120Hz ± 20%	1.0 ± 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 ±10%	0.5 - 5 Vrms	
					MORE THAN 1,000 pF		1kHz ± 10%		
6	DISSIPATION FACTOR (Tanθ CLASS II)	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%					

ENVIRONMENTAL CHARACTERISTICS

NO	ITEM		PERFORMANCE		TEST CONDITION				
7	CAPACITANCE TEMPERATURE COEFFICIENT	CLASS I	CHARACTERISTIC	TEMP. COEFFICIENT (PPM/°C)	THESE SYMMETRICAL TOLERANCE APPLY TO 2 POINT MEASURE- MENT OF TEMPERATURE COEFFICIENT: ONE AT -25°C AND AT 85°C				
			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 (%)					
			X	X7R	±15%	1	25 ± 2	25 ± 2	
				X6S	±22%	2	-55 ± 2	-25 ± 2	
				X5R	±15%	3	25 ± 2	25 ± 2	
			Y	Y5V	-82% ~ +22%	4	125 ± 2	85 ± 2	
				Z5U	-56% ~ +22%	5	25 ± 2	25 ± 2	
						$\frac{C2 - C1}{C1} \times 100\%$			
						C1: CAPACITANCE AT STANDARD TEMPERATURE (25°C) C2: CAPACITANCE AT EACH TEMPERATURE			
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				
			CLASS II	X (X7R, X6S, X5R)	WITHIN ±12.5%				
				Y (Y5V,Z5U)	WITHIN ±30%				
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		DIP : SOLDER TEMPERATURE OF 270± 5 °C DIP TIME :10±1 SEC. EACH TERMINATION SHALL BE FULLY IMMERSED AND PREHEATED AS FOLLOWING: <table><tr><th>STEP</th><th>TEMP. (°C)</th><th>TIME (SEC.)</th></tr><tr><td>1</td><td>80-100</td><td>60</td></tr><tr><td>2</td><td>150-180</td><td>60</td></tr></table> MEASURE AT ROOM TEMP. AFTER COOLING FOR CLASS I : 24 ± 2 HOURS CLASS II : 48 ± 4 HOURS	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										
		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		THE CAPACITOR SHALL BE SUBJECTED TO A HARMONIC MOTION HAVING A TOTAL AMPLITUDE of 1.5mm THE ENTIRE FREQUENCY RANGE, FROM 10 TO 55Hz AND RETURN TO 10Hz SHALL BE TRAVERSED IN 1 MINUTE. THIS CYCLE SHALL BE PERFORMED 2 HOURS IN EACH THREE MUTUALLY PERPENDICULAR DIRECTION, FOR TOTAL PERIOD of 6 HOURS.									
		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											

ENVIRONMENTAL CHARACTERISTICS

NO	ITEM	PERFORMANCE				TEST CONDITION		
14	HUMIDITY (STEADY STATE)	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%
					≤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				
			≤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	
		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: 100 M OR 25M μF PRODUCT, WHICHEVER IS SMALLER	

ENVIRONMENTAL CHARACTERISTICS

NO	ITEM	PERFORMANCE				TEST CONDITION					
16	HIGH TEMPERATURE RESISTANCE	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%					CHAR.	TEMP.
		Y		WITHIN ±30%		CLASS I	125 ±3 °C				
		QCLASS I	30pF AND OVER : Q 350 10 - 30 pF : Q 275 + 2.5xC LESS THAN 10pF :Q 200 + 10xC				CLASS II	X	125 ±3 °C		
							Y	85 ±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;								
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		
17	TEMPERATURE CYCLE	APPEARANCE	NO MECHANICAL DAMAGE SHALL OCCUR				CAPACITORS SHALL BE SUBJECTED TO FIVE CYCLES OF THE TEMPERATURE CYCLE AS FOLLOWING			
		CAPACITANCE	CHARACTERISTIC		CAP. CHANGE					
			CLASS I		WITHIN ±2.5% OR ±0.25pF WHICHEVER IS LARGER					
			CLASS II	X	WITHIN ±7.5%					
				Y	WITHIN ±20%					
		QCLASS I	30 pF AND OVER : Q 1000 LESS THAN 3OpF:Q 400 +20xC				STEP	TEMP.(°C)	TIME (MIN)	
		TAN CLASS II	X7R, X6S, X5R				1	MIN. RATED TEMP. +0/-3	30	
			Rated Voltage	D.F.	Exception of D.F.		2	25	2 - 3	
							3	MAX. RATED TEMP. +3/-0	30	
			≥50V	≤2.5%	≤3%	0201 (50V); 0603≥0.047uF 0805≥0.22uF; 1206≥0.47uF		4	25	2 - 3
					≤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				MEASURE AT ROOM TEMPERATURE AFTER COOLING FOR CLASS I : 24±2 Hr. CLASS II : 48±4 Hr. SEE(FIG.3)			
			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	TO SATISFY THE SPECIFIED INITIAL VALUE							

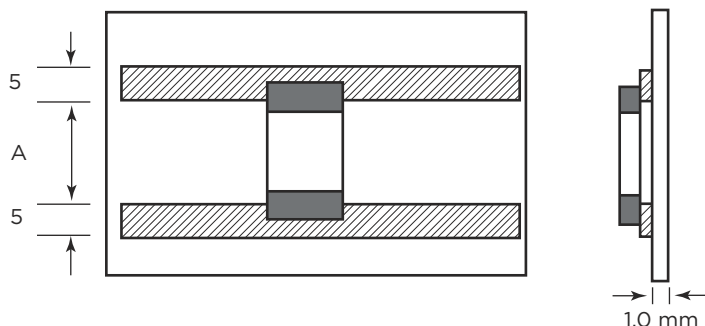
ENVIRONMENTAL CHARACTERISTICS

NO	ITEM	TEST CONDITION	REQUIREMENTS																																																																																																																				
18	HIGH TEMPERATURE Load-Endurance (Life Testing)	*Test Temperature: C0G, 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: <table> <tr> <th>SIZE</th><th>DIELECTRIC</th><th>RATED VOLTAGE</th><th>CAPACITANCE</th></tr> <tr> <td rowspan="2">0201</td><td rowspan="2">X5R/X7R/X6S</td><td>≤10V</td><td>C≥0.1μF</td></tr> <tr> <td>≥16V</td><td>C>0.1μF</td></tr> <tr> <td rowspan="6">0402</td><td rowspan="2">X5R</td><td>≤16V</td><td>C>0.1μF</td></tr> <tr> <td>25V, 50V</td><td>C≥0.1μF</td></tr> <tr> <td rowspan="2">X6S</td><td>6.3V, 10V</td><td>C>0.1μF</td></tr> <tr> <td>16V, 25V</td><td>C≥0.1μF</td></tr> <tr> <td rowspan="2">X7R/X7S/Y5V</td><td>25V</td><td>C≥0.1μF</td></tr> <tr> <td>35V</td><td>C≥0.1μF</td></tr> <tr> <td rowspan="4">0603</td><td rowspan="2">X5R/X7R/X6S/X7S</td><td>4V</td><td>C≥22μF</td></tr> <tr> <td>6.3V, 10V</td><td>C≥4.7μF</td></tr> <tr> <td>X5R/X7R/X6S</td><td>25V</td><td>C≥0.1μF</td></tr> <tr> <td>X7R</td><td>35V</td><td>C≥0.1μF</td></tr> <tr> <td rowspan="5">0805</td><td rowspan="3">X5R/X7R/X6S/X7S</td><td>4V</td><td>C≥47μF</td></tr> <tr> <td>6.3V</td><td>C≥22μF</td></tr> <tr> <td>10V, 50V</td><td>C≥10μF</td></tr> <tr> <td>X7R/X6S</td><td rowspan="2">16V, 25V</td><td>C≥10μF</td></tr> <tr> <td>X5R</td><td>C≥22μF</td></tr> <tr> <td>1206</td><td>X5R/X7R/X6S</td><td>≤6.3V</td><td>C≥47μF</td></tr> <tr> <td rowspan="2">1210</td><td>X5R/X7R/X6S</td><td>16V</td><td>C≥47μF</td></tr> <tr> <td>X7R</td><td>100V</td><td>C≥43.3μF</td></tr> </table> *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.	SIZE	DIELECTRIC	RATED VOLTAGE	CAPACITANCE	0201	X5R/X7R/X6S	≤10V	C≥0.1μF	≥16V	C>0.1μF	0402	X5R	≤16V	C>0.1μF	25V, 50V	C≥0.1μF	X6S	6.3V, 10V	C>0.1μF	16V, 25V	C≥0.1μF	X7R/X7S/Y5V	25V	C≥0.1μF	35V	C≥0.1μF	0603	X5R/X7R/X6S/X7S	4V	C≥22μF	6.3V, 10V	C≥4.7μF	X5R/X7R/X6S	25V	C≥0.1μF	X7R	35V	C≥0.1μF	0805	X5R/X7R/X6S/X7S	4V	C≥47μF	6.3V	C≥22μF	10V, 50V	C≥10μF	X7R/X6S	16V, 25V	C≥10μF	X5R	C≥22μF	1206	X5R/X7R/X6S	≤6.3V	C≥47μF	1210	X5R/X7R/X6S	16V	C≥47μF	X7R	100V	C≥43.3μF	• No remarkable damage. CAP CHANGE: C0G: ±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: C0G: More than 30pF, Q≥350 10pF≤30pF, Q≥275+2.5C Less than 10pF, Q≥200+10C X7R, X5R, X6S, X7S: <table> <tr> <th>RATED VOLTAGE</th><th>D.F.</th><th colspan="2">EXCEPTIONS OF D.F. ≤</th></tr> <tr> <td rowspan="3">≥100V</td><td rowspan="3">≤3%</td><td>≤6%</td><td>1206≥0.47μF</td></tr> <tr> <td>≤7.5%</td><td>0603≥0.068μF; 0805>0.1μF; 1206≥1μF; 1210≥2.2μF</td></tr> <tr> <td>≤20%</td><td>0805>2.2μF; 1210≤3.3μF</td></tr> <tr> <td rowspan="3">50V</td><td rowspan="3">≤3%</td><td>≤6%</td><td>0201(50V); 0603>0.047μF; 0805≥0.18μF; 1206≥0.47μF</td></tr> <tr> <td>≤10%</td><td>0201≥0.01μF; 1210≥3.3μF</td></tr> <tr> <td>≤20%</td><td>0402≥0.012μF; 0603>0.1μF; 0805≥1.0μF (0805/X7R>0.47μF); 1206≥2.2μF; 1210≥10μF</td></tr> <tr> <td>35V</td><td>≤5%</td><td>≤20%</td><td>0603≥1.0μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥10μF</td></tr> <tr> <td rowspan="4">25V</td><td rowspan="4">≤5%</td><td>≤10%</td><td>0201=0.01μF; 0805≥1.0μF; 1210≥10μF</td></tr> <tr> <td>≤14%</td><td>0603≥0.33μF</td></tr> <tr> <td>≤15%</td><td>0201>0.01μF; 0402>0.10μF (0402/X7R≥0.056μF); 0603>0.47μF; 0805≥2.2μF; 1206≥0.47μF; 1210≥22μF (1210/X5R≥10μF)</td></tr> <tr> <td>≤20%</td><td>0402≥0.47μF</td></tr> <tr> <td rowspan="2">16V</td><td rowspan="2">≤5%</td><td>≤10%</td><td>0603≥0.15μF; 0805≥0.68μF; 1206≥2.2μF; 1210≥4.7μF</td></tr> <tr> <td>≤15%</td><td>0201≥0.01μF (0201/X7R≥0.022μF); 0402≥0.033μF 0603>0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF</td></tr> <tr> <td rowspan="2">10V</td><td rowspan="2">≤7.5%</td><td>≤15%</td><td>0201≥0.012μF; 0402≥0.22μF; 0603≥0.33μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥22μF</td></tr> <tr> <td>≤20%</td><td>0201≥0.01μF; 0402≥1.0μF; 0603/X5R≥10μF; 01R5/X5R</td></tr> <tr> <td>6.3V</td><td>≤15%</td><td>≤30%</td><td>0201≥0.01μF; 0402≥1.0μF (0402/X6S≥0.47μF); 0603≥10μF; 0805≥4.7μF; 1206≥47μF; 1210≥100μF</td></tr> <tr> <td>4V</td><td>≤20%</td><td>-</td><td>-</td></tr> </table>	RATED VOLTAGE	D.F.	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18	HIGH TEMPERATURE Load-Endurance (Life Testing)	(3) 150% of rated voltage for below range.	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 $\pm 25\%$ $\text{Y5V} \geq 10\text{V}$, within $\pm 30\%$; $\leq 6.3\text{V}$, within $+30\%$ /-40% Q/D.F. VALUE: COG: More than 30pF, $\text{Q} \geq 350$ $10\text{pF} \leq 30\text{pF}$, $\text{Q} \geq 275 + 2.5\text{C}$ Less than 10pF, $\text{Q} \geq 200 + 10\text{C}$																																																																																												
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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			

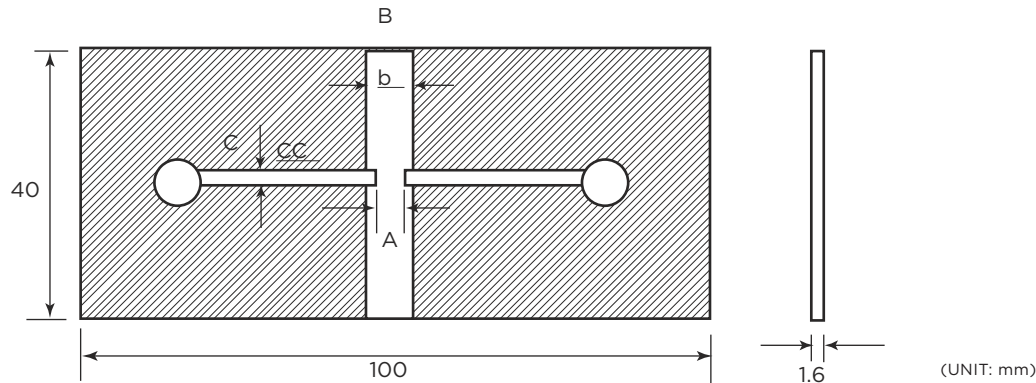


Material: Alumina Substrate (Al₂O₃ 95% Min) or Glass Epoxy Substrate



Copper Foil (T = 0.035mm)

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

MATERIAL: GLASS EPOXY SUBSTRATE

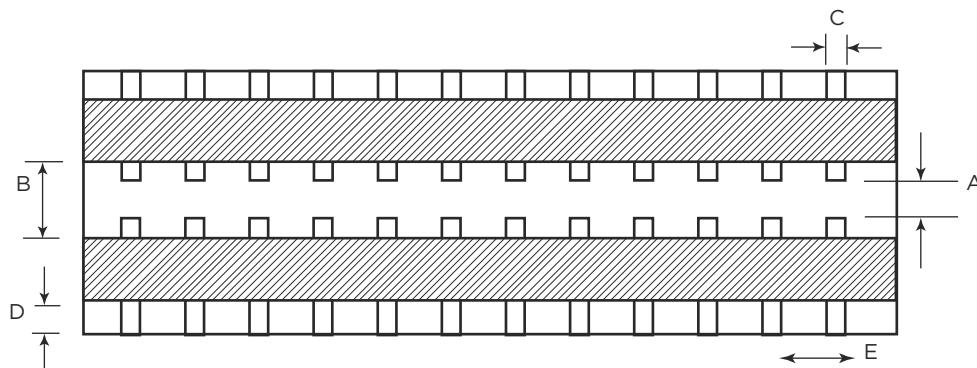


COPPER FOIL (t = 0.035mm)



SOLDER RESIST

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