



FEATURES:

- AEC-Q200 certified/qualified
- Capacitance range: 0.1pF to 10uF
- Voltage range: 10V to 3000V DC
- Terminations: 100% matte Tin (Sn)
- 3mm minimum bending strength specification



PART NUMBER STRUCTURE

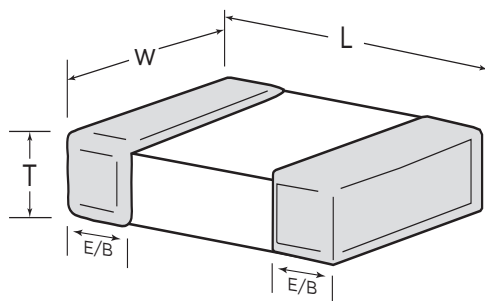
AGC	1206	X7R	500	-	473	K	N	P
Series	Size	Temperature Characteristic (Dielectric)	Rated Voltage		Capacitance (picofarads)	Tolerance	Termination	Packaging
0201	0402	COG/NPO	1st two digits are significant followed by number of zeroes.		1st two digits are significant, followed by number of zeroes. R denotes decimal	* A = $\pm 0.05\text{pF}$ * B = $\pm 0.1\text{pF}$ * C = $\pm 0.25\text{pF}$ * D = $\pm 0.5\text{pF}$ F $\pm 1\%$ G = $\pm 2\%$ J = $\pm 5\%$ K = $\pm 10\%$ M = $\pm 20\%$ * For values below 10pF only.	N = 100% Matte Tin over Nickel over a conductive Polymer X = Soft/Flex termination (5mm)	E = Embossed Tape (7" reel) U = Embossed Tape (13" reel) P = Paper Tape (7" reel) R = Paper Tape (13" reel)
0603	0805	X7R	100 = 10 VDC 160 = 16 VDC 250 = 25 VDC 500 = 50 VDC 101 = 100 VDC 201 = 200 VDC 251 = 250 VDC 501 = 500 VDC 631 = 630 VDC 102 = 1000 VDC 202 = 2000 VDC 302 = 3000 VDC		e.g: 101 = 100pF 104 = 100nF 6R8 = 6.8pF			
1206	1812							
1825	2220							
2225								

Example P/N: AGC1206X7R500-473KNP

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

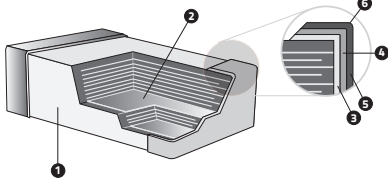
DIMENSIONS

Unit: inches (mm)



SIZE	L	W	E/B	T
0201	0.024 ± 0.001 (0.60 ± 0.03)	0.012 ± 0.001 (0.30 ± 0.03)	0.006 ± 0.002 (0.15 ± 0.05)	Refer to pages 3-13 for item specific thickness
0402	0.039 ± 0.002 (1.00 ± 0.05)	0.020 ± 0.002 (0.5 ± 0.05)	0.010 +0.002/-0.004) (0.25 +0.05/-0.10)	
0603	0.063 ± 0.004 (1.6 ± 0.10)	0.031 ± 0.004 (0.8 ± 0.10)	0.016 ± 0.006 (0.40 ± 0.15)	
	0.063 ± 0.006/-0.004 (1.6 +0.15/-0.10)	0.031 ± 0.006/-0.004 (0.8 + 0.15/-0.10)		
0805	0.079 ± 0.006 (2.0 ± 0.15)	0.049 ± 0.004 (1.25 ± 0.10)	0.020 ± 0.008 (0.50 ± 0.20)	
	0.079 ± 0.008 (2.0 ± 0.20)	0.049 ± 0.008 (1.25 ± 0.20)		
1206	0.126 ± 0.006 (3.2 ± 0.15)	0.063 ± 0.006 (1.6 ± 0.15)	0.024 ± 0.008 (0.60 ± 0.20)	
	0.126 ± 0.008 (3.2 ± 0.20)			
	0.126 ± 0.012/-0.004 (3.2 ± 0.30/-0.10)	0.063 ± 0.012/-0.004 (1.60 ± 0.30/-0.10)		
1210	0.126 ± 0.012 (3.2 ± 0.30)	0.098 ± 0.008 (2.5 ± 0.20)	0.030 ± 0.010 (0.75 ± 0.25)	
	0.126 ± 0.016 (3.2 ± 0.40)	0.098 ± 0.012 (2.5 ± 0.30)		
1812	0.181 ± 0.012 (4.60 ± 0.30)	0.126 ± 0.012 (3.20 ± 0.30)	0.012 (0.30)	
1825	0.181 ± 0.012 (4.60 ± 0.30)	0.250 ± 0.016 (6.35 ± 0.40)	0.012 (0.30)	
2220	0.224 ± 0.016 (5.70 ± 0.40)	0.197 ± 0.016 (5.00 ± 0.40)	0.012 (0.30)	
2225	0.224 ± 0.016 (5.70 ± 0.40)	0.250 ± 0.016 (6.35 ± 0.40)	0.012 (0.30)	

STRUCTURE

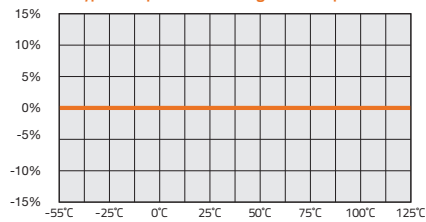


1	Ceramic Body (dielectric)	4	Silver Polymer
2	Inner Electrode	5	Nickel Plating
3	Inner Termination	6	100% Matte Tin (Sn)

ELECTRICAL SPECIFICATION & RANGE

COG/NPO

Typical Capacitance Change vs. Temperature



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

Temperature Coefficient:
0 ±30PPM/°C

Temperature Voltage Coefficient:
0 ±30PPM/°C

Insulation Resistance:
>1000Ω-F or 100GΩ, for values ≤ 0.047μF
(whichever is less at 25°C, VDCV).
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

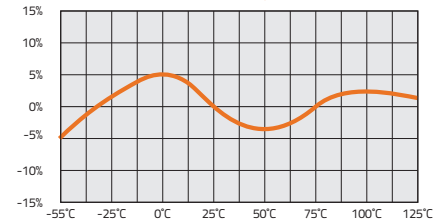
Withstanding Voltage: >2.5 times VDCW

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

Dissipation Factor: 0.1% max

X7R

Typical Capacitance Change vs. Temperature



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

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

Temperature Voltage Coefficient:
X7R not applicable

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

Ageing:
2.5% per decade hour, typical

Withstanding Voltage:
>2.5 times VDCW

Capacitance Tolerance:
J,K,M

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

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

VOLTAGE AND CAPACITANCE RANGE

COG (NPO) DIELECTRIC (0201 - 0402)

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

Size (inches)			0201					0402				
VDCW (MAX)			10V	16V	25V	50V	100V	10V	16V	25V	50V	100V
<-----CAPACITANCE CODE----->	<-----CAPACITANCE VALUE----->	OR1	0.1pF	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
		OR2	0.2pF	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
		OR3	0.3pF	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
		OR4	0.4pF	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
		OR5	0.5pF	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
		OR6	0.6pF	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
		OR7	0.7pF	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
		OR8	0.8pF	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
		OR9	0.9pF	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
		1R0	1.0pF	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
		1R2	1.2pF	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
		1R5	1.5pF	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
		1R8	1.8pF	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
		2R2	2.2pF	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
		2R7	2.7pF	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
		3R3	3.3pF	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
		3R9	3.9pF	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
		4R7	4.7pF	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
		5R6	5.6pF	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
		6R8	6.8pF	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
		8R2	8.2pF	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
		100	10pF	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
		120	12pF	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
		150	15pF	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
		180	18pF	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
		220	22pF	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
		270	27pF	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
		330	33pF	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
		390	39pF	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
		470	47pF	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
		560	56pF	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
		680	68pF	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
		820	82pF	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
		101	100pF	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
		121	120pF	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
		151	150pF						0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
		181	180pF						0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
		221	220pF						0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
		271	270pF						0.50±0.05	0.50±0.05	0.50±0.05	
		331	330pF						0.50±0.05	0.50±0.05	0.50±0.05	
		391	390pF						0.50±0.05	0.50±0.05	0.50±0.05	
		471	470pF						0.50±0.05	0.50±0.05	0.50±0.05	
		561	560pF						0.50±0.05	0.50±0.05	0.50±0.05	
		681	680pF						0.50±0.05	0.50±0.05	0.50±0.05	
		821	820pF						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	
		122	1200pF									
		152	1500pF									
		182	1800pF									
		222	2200pF									
		272	2700pF									
		332	3300pF									

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 (0603)

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

Size (inches)				0603						
VDCW (MAX)				10V	16V	25V	50V	100V	200V	250V
<----- CAPACITANCE CODE ----->	<----- CAPACITANCE VALUE ----->	0R1	0.1pF							
		0R2	0.2pF							
		0R3	0.3pF							
		0R4	0.4pF							
		0R5	0.5pF	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±0.07
		0R6	0.6pF	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±0.07
		0R7	0.7pF	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±0.07
		0R8	0.8pF	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±0.07
		0R9	0.9pF	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±0.07
		1R0	1.0pF	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±0.07
		1R2	1.2pF	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±0.07
		1R5	1.5pF	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±0.07
		1R8	1.8pF	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±0.07
		2R2	2.2pF	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±0.07
		2R7	2.7pF	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±0.07
		3R3	3.3pF	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±0.07
		3R9	3.9pF	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±0.07
		4R7	4.7pF	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±0.07
		5R6	5.6pF	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±0.07
		6R8	6.8pF	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±0.07
		8R2	8.2pF	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±0.07
		100	10pF	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±0.07
		120	12pF	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±0.07
		150	15pF	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±0.07
		180	18pF	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±0.07
		220	22pF	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±0.07
		270	27pF	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±0.07
		330	33pF	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±0.07
		390	39pF	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±0.07
		470	47pF	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±0.07
		560	56pF	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±0.07
		680	68pF	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±0.07
		820	82pF	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±0.07
		101	100pF	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07
		121	120pF	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±0.07
		151	150pF	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±0.07
		181	180pF	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±0.07
		221	220pF	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±0.07
		271	270pF	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80+0.15/-0.10	0.80+0.15/-0.10
		331	330pF	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80+0.15/-0.10	0.80+0.15/-0.10
		391	390pF	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80+0.15/-0.10	0.80+0.15/-0.10
		471	470pF	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80+0.15/-0.10	0.80+0.15/-0.10
		561	560pF	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80+0.15/-0.10	0.80+0.15/-0.10
		681	680pF	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80+0.15/-0.10	0.80+0.15/-0.10
		821	820pF	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80+0.15/-0.10	0.80+0.15/-0.10
		102	1000pF	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07		
		122	1200pF	0.80+0.15/-0.10	0.80+0.15/-0.10	0.80+0.15/-0.10	0.80+0.15/-0.10	0.80+0.15/-0.10		
		152	1500pF	0.80+0.15/-0.10	0.80+0.15/-0.10	0.80+0.15/-0.10	0.80+0.15/-0.10	0.80+0.15/-0.10		
		182	1800pF	0.80+0.15/-0.10	0.80+0.15/-0.10	0.80+0.15/-0.10	0.80+0.15/-0.10	0.80+0.15/-0.10		
		222	2200pF	0.80+0.15/-0.10	0.80+0.15/-0.10	0.80+0.15/-0.10	0.80+0.15/-0.10			
		272	2700pF	0.80+0.15/-0.10	0.80+0.15/-0.10	0.80+0.15/-0.10	0.80+0.15/-0.10			
		332	3300pF	0.80+0.15/-0.10	0.80+0.15/-0.10	0.80+0.15/-0.10	0.80+0.15/-0.10			

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

VOLTAGE AND CAPACITANCE RANGE

COG (NP0) DIELECTRIC (0805)

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

SIZE (INCHES)		0805									
VDCW (MAX)		10V	16V	25V	50V	100V	200V	250V	500V	630V	
CAPACITANCE CODE	OR5	0.5pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	OR6	0.6pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	OR7	0.7pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	OR8	0.8pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	OR9	0.9pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	1R0	1.0pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	1R2	1.2pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	1R5	1.5pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	1R8	1.8pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	2R2	2.2pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	2R7	2.7pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	3R3	3.3pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	3R9	3.9pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	4R7	4.7pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	5R6	5.6pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	6R8	6.8pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	8R2	8.2pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	100	10pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	120	12pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	150	15pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	180	18pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	220	22pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	270	27pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	330	33pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	390	39pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	470	47pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	560	56pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	680	68pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10
	820	82pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	101	100pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	121	120pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10
	151	150pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
	181	180pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
	221	220pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
	271	270pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
	331	330pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
	391	390pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
	471	470pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20	1.25±0.20
	561	560pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20	1.25±0.20
	681	680pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20	1.25±0.20
	821	820pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20	1.25±0.20
	102	1000pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20	1.25±0.20
	122	1200pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20	1.25±0.20
	152	1500pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20	1.25±0.20
	182	1800pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20	1.25±0.20
	222	2200pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20	1.25±0.20
	272	2700pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20			
	332	3300pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20			
	392	3900pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20			
	472	4700pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20			
	562	5600pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10					
	682	6800pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10					
	822	8200pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10					
	103	0.010uF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10					
	123	0.012uF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10					
	153	0.015uF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10					
	183	0.018uF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10					
	223	0.022uF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10					

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

VOLTAGE AND CAPACITANCE RANGE

COG (NPO) DIELECTRIC (1206)

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

SIZE (INCHES)			1206									
VDCW (MAX)			10V	16V	25V	50V	100V	200V	250V	500V	630V	1000V
CAPACITANCE CODE ↑ ↓	1R0	1.0pF										
	1R2	1.2pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	
	1R5	1.5pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	1R8	1.8pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	2R2	2.2pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	2R7	2.7pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	3R3	3.3pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	3R9	3.9pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	4R7	4.7pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	5R6	5.6pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	6R8	6.8pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	8R2	8.2pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	100	10pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	120	12pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	150	15pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	180	18pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
	220	22pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10
	270	27pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10
	330	33pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10
	390	39pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10
	470	47pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10
	560	56pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10
	680	68pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10
	820	82pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10
	101	100pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10
	121	120pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10
	151	150pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10
	181	180pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.60±0.20
	221	220pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.60±0.20
	271	270pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20
	331	330pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20
	391	390pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20
	471	470pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20
	561	560pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20
	681	680pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20
	821	820pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	1.10±0.15	1.10±0.15	1.10±0.15	1.60±0.20
	102	1000pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	1.10±0.15	1.10±0.15	1.10±0.15	1.60±0.20
	122	1200pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	1.10±0.15	1.10±0.15	1.10±0.15	
	152	1500pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.10±0.15	1.10±0.15	1.10±0.15	
	182	1800pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.10±0.15	1.10±0.15	1.10±0.15	
	222	2200pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.10±0.15	1.10±0.15	1.10±0.15	
	272	2700pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.10±0.15	1.10±0.15	1.10±0.15	
	332	3300pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.10±0.15	1.10±0.15	1.10±0.15	
	392	3900pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.10±0.15	1.10±0.15	1.10±0.15	
	472	4700pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.10±0.15	1.10±0.15	1.10±0.15	
	562	5600pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.60±0.20	1.10±0.15	1.10±0.15	1.10±0.15	
	682	6800pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.10±0.15	1.10±0.15	1.10±0.15	
	822	8200pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	
	103	0.010uF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	

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

VOLTAGE AND CAPACITANCE RANGE

COG (NPO) DIELECTRIC (1210)

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

SIZE (INCHES)			1210										
VDCW (MAX)			10V	16V	25V	50V	100V	200V	250V	500V	630V	1000V	
CAPACITANCE CODE	100	CAPACITANCE VALUE	10pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	
	120		12pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	
	150		15pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	
	180		18pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	
	220		22pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	
	270		27pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	
	330		33pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	
	390		39pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	
	470		47pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	
	560		56pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	
	680		68pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	
	820		82pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	
	101		100pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10
	121		120pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10
	151		150pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10
	181		180pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10
	221		220pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20
	271		270pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20
	331		330pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20
	391		390pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20
	471		470pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20
	561		560pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20
	681		680pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20
	821		820pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20
	102		1000pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20
	122		1200pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
	152		1500pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
	182		1800pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
	222		2200pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
	272		2700pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
	332		3300pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
	392		3900pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
472	4700pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	2.00±0.20		
562	5600pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	2.00±0.20		
682	6800pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	2.00±0.20		
822	8200pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	2.00±0.20		
103	0.010μF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.60±0.20	2.00±0.20	2.00±0.20	2.50±0.30		
123	0.012μF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30	2.50±0.30		
153	0.015μF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30	2.50±0.30		
183	0.018μF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20			1.60±0.20	1.60±0.20	1.60±0.20		
223	0.022μF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20			1.60±0.20	1.60±0.20	1.60±0.20		
273	0.027μF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20							
333	0.033μF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20							
393	0.039μF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20							
473	0.047μF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20							

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

VOLTAGE AND CAPACITANCE RANGE

COG (NPO) DIELECTRIC (1812, 1825, 2220)

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

SIZE (INCHES)			1812	1825	2220			
VDCW (MAX)			1000V	500V	500V	630V	1000V	2000V
CAPACITANCE CODE ----->>>&								

VOLTAGE AND CAPACITANCE RANGE

X7R DIELECTRIC (0201, 0402)

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

SIZE (INCHES)			0201				0402			
VDCW (MAX)			10V	16V	25V	50V	10V	16V	25V	50V
CAPACITANCE CODE ----->	101	100pF	0.30±0.03	0.30±0.03	0.30±0.03	0.30±0.03	0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
	121	120pF	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
	151	150pF	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
	181	180pF	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
	221	220pF	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
	271	270pF	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
	331	330pF	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
	391	390pF	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
	471	470pF	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
	561	560pF	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
	681	680pF	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
	821	820pF	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
	102	1000pF	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
	122	1200pF	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
	152	1500pF	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
	182	1800pF	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
	222	2200pF	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
	272	2700pF	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
	332	3300pF	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
	392	3900pF	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
	472	4700pF	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
	562	5600pF	0.30±0.03	0.30±0.03	0.30±0.03		0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
	682	6800pF	0.30±0.03				0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
	822	8200pF	0.30±0.03				0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
	103	0.010μF	0.30±0.03	0.30±0.03			0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
	123	0.012μF					0.50±0.05	0.50±0.05	0.50±0.05	
	153	0.015μF					0.50±0.05	0.50±0.05	0.50±0.05	
	183	0.018μF					0.50±0.05	0.50±0.05	0.50±0.05	
	223	0.022μF					0.50±0.05	0.50±0.05	0.50±0.05	
	273	0.027μF					0.50±0.05	0.50±0.05	0.50±0.05	
	333	0.033μF					0.50±0.05	0.50±0.05	0.50±0.05	
	393	0.039μF					0.50±0.05	0.50±0.05	0.50±0.05	
	473	0.047μF					0.50±0.05	0.50±0.05	0.50±0.05	
	563	0.056μF					0.50±0.05	0.50±0.05	0.50±0.05	
	683	0.068μF					0.50±0.05	0.50±0.05	0.50±0.05	
	823	0.082μF					0.50±0.05	0.50±0.05	0.50±0.05	
	104	0.10μF					0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05
	124	0.12μF								
	154	0.15μF								
	184	0.18μF								
	224	0.22μF							0.50±0.05	
	334	0.33μF								

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.

X7R DIELECTRIC (0603, 0805)

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

CAPACITANCE CODE		CAPACITANCE VALUE	
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	275	335
395	475	565	685
825	106	126	156
186	226	276	336
396	476	566	686
826	107	127	157
187	227	277	337
397	477	567	687
827	108	128	158
188	228	278	338
398	478	568	688
828	109	129	159
189	229	279	339
399	479	569	689
829	110	130	160
190	230	280	340
340	480	570	690
830	111	131	161
191	231	281	341
341	481	571	691
831	112	132	162
192	232	282	342
342	482	572	692
832	113	133	163
193	233	283	343
343	483	573	693
833	114	134	164
194	234	284	344
344	484	574	694
834	115	135	165
195	235	285	345
345	485	575	695
835	116	136	166
196	236	286	346
346	486	576	696
836	117	137	167
197	237	287	347
347	487	577	697
837	118	138	168
198	238	288	348
348	488	578	698
838	119	139	169
199	239	289	349
349	489	579	699
839	120	140	170
200	240	290	350
350	490	580	700
840	121	141	171
201	241	291	351
351	491	581	701
841	122	142	172
202	242	292	352
352	492	582	702
842	123	143	173
203	243	293	353
353	493	583	703
843	124	144	174
204	244	294	354
354	494	584	704
844	125	145	175
205	245	295	355
355	495	585	705
845	126	146	176
206	246	296	356
356	496	586	706
846	127	147	177
207	247	297	357
357	497	587	707
847	128	148	178
208	248	298	358
358	498	588	708
848	129	149	179
209	249	299	359
359	499	589	709
849	130	150	180
210	250	300	360
360	500	590	710
850	131	151	181
211	251	301	361
361	501	591	711
851	132	152	182
212	252	302	362
362	502	592	712
852	133	153	183
213	253	303	363
363	503	593	713
853	134	154	184
214	254	304	364
364	504	594	714
854	135	155	185
215	255	305	365
365	505	595	715
855	136	156	186
216	256	306	366
366	506	596	716
856	137	157	187
217	257	307	367
367	507	597	717
857	138	158	188
218	258	308	368
368			

VOLTAGE AND CAPACITANCE RANGE

X7R DIELECTRIC (1206)

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

SIZE (INCHES)		1206									
VDCW (MAX)		10V	16V	25V	50V	100V	200V	250V	500V	630V	1000V
101	100pF						1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
121	120pF						1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
151	150pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
181	180pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
221	220pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
271	270pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
331	330pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
391	390pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
471	470pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
561	560pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
681	680pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
821	820pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
102	1000pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20
122	1200pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20
152	1500pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20
182	1800pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20
222	2200pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20
272	2700pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20
332	3300pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20
392	3900pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20
472	4700pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20
562	5600pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
682	6800pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
822	8200pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
103	0.010μF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
123	0.012μF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10			
153	0.015μF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10			
183	0.018μF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10			
223	0.022μF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10			
273	0.027μF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10		0.85±0.15			
333	0.033μF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10		0.85±0.15			
393	0.039μF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10		0.85±0.15			
473	0.047μF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10		1.00±0.10			
563	0.056μF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10		1.00±0.10			
683	0.068μF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10		1.25±0.20			
823	0.082μF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10		1.25±0.20			
104	0.10μF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10		1.60±0.20			
124	0.12μF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10					
154	0.15μF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20					
184	0.18μF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20					
224	0.22μF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20					
274	0.27μF	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.60±0.20					
334	0.33μF	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.60±0.20					
394	0.39μF	0.95±0.10	0.95±0.10	1.15±0.15	1.60±0.3/-0.1	1.60±0.20					
474	0.47μF	1.15±0.15	1.15±0.15	1.15±0.15	1.60±0.3/-0.1	1.60±0.20					
564	0.56μF	1.15±0.15	1.15±0.15	1.15±0.15	1.60±0.3/-0.1	1.60±0.20					
684	0.68μF	1.15±0.15	1.15±0.15	1.15±0.15	1.60±0.3/-0.1	1.60±0.20					
824	0.82μF	1.15±0.15	1.15±0.15	1.15±0.15	1.60±0.3/-0.1	1.60±0.20					
105	1μF	1.15±0.15	1.15±0.15	1.15±0.15	1.60±0.3/-0.1	1.60±0.20					
225	2.2μF		1.15±0.15	1.60±0.20	1.60±0.3/-0.1	1.60±0.3/-0.1					
475	4.7μF			1.60±0.20	1.60±0.20						
106	10μF		1.60±0.30	1.60±0.30							

VOLTAGE AND CAPACITANCE RANGE

X7R DIELECTRIC (1210)

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

SIZE (INCHES)		1210									
VDCW (MAX)		10V	16V	25V	50V	100V	250V	500V	630V	1000V	2000V
101	100pF						1.25±0.10	1.25±0.10		1.25±0.10	
121	120pF						1.25±0.10	1.25±0.10		1.25±0.10	
151	150pF						1.25±0.10	1.25±0.10		1.25±0.10	
181	180pF						1.25±0.10	1.25±0.10		1.25±0.10	
221	220pF						1.25±0.10	1.25±0.10		1.25±0.10	1.00±0.10
271	270pF						1.25±0.10	1.25±0.10		1.25±0.10	1.00±0.10
331	330pF						1.25±0.10	1.25±0.10		1.25±0.10	1.00±0.10
391	390pF						1.25±0.10	1.25±0.10		1.25±0.10	1.00±0.10
471	470pF						1.25±0.10	1.25±0.10		1.25±0.10	1.00±0.10
561	560pF						1.25±0.10	1.25±0.10		1.25±0.10	1.00±0.10
681	680pF						0.95±0.10	1.25±0.10		1.25±0.10	1.00±0.10
821	820pF						0.95±0.10	1.25±0.10		1.25±0.10	1.00±0.10
102	1000pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10		1.25±0.10	1.25±0.20
122	1200pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10		1.25±0.10	1.25±0.20
152	1500pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10		1.25±0.10	1.60±0.20
182	1800pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10		1.25±0.10	1.60±0.20
222	2200pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10		1.25±0.10	1.60±0.20
272	2700pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10		1.25±0.10	
332	3300pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10		1.25±0.10	
392	3900pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10		1.60±0.20	
472	4700pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.00±0.10	1.60±0.20	
562	5600pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.00±0.10	1.60±0.20	
682	6800pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.00±0.10	1.60±0.20	
822	8200pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.20	1.60±0.20	
103	0.010μF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.20	1.60±0.20	
123	0.012μF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.20		
153	0.015μF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.20		
183	0.018μF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.20		
223	0.022μF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.20		
273	0.027μF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.60±0.20		
333	0.033μF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	2.00±0.20	2.00±0.20		
393	0.039μF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	2.00±0.20	2.00±0.20		
473	0.047μF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	2.40±0.20	2.40±0.20		
563	0.056μF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.00±0.10				
683	0.068μF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.20				
823	0.082μF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20				
104	0.10μF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	2.00±0.20				
124	0.12μF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10		2.00±0.20				
154	0.15μF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10		2.00±0.20				
184	0.18μF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10		2.00±0.20				
224	0.22μF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10		2.00±0.20				
274	0.27μF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10						
334	0.33μF	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10						
394	0.39μF	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10						
474	0.47μF	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10						
564	0.56μF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10						
684	0.68μF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10						
824	0.82μF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10						
105	1μF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10						
155	1.5μF		2.00±0.20	2.00±0.20	2.00±0.20						
225	2.2μF		2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30					
475	4.7μF			2.00±0.20	2.50±0.30	2.50±0.30					
106	10μF			2.40±0.20	2.50±0.30						

VOLTAGE AND CAPACITANCE RANGE

X7R DIELECTRIC (1812, 2220, 2225)

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

SIZE (INCHES)		1812			2220				2225	
VDCW (MAX)		25V	1000V	2000V	630V	1000V	2000V	3000V	630V	1000V
101	100pF									
121	120pF									
151	150pF							1.25±0.20		
181	180pF							1.25±0.20		
221	220pF		1.25±0.20					1.25±0.20		
271	270pF		1.25±0.20					1.25±0.20		
331	330pF	1.25±0.20	1.25±0.20					1.25±0.20		
391	390pF	1.25±0.20	1.25±0.20					1.25±0.20		
471	470pF	1.25±0.20	1.25±0.20					1.25±0.20		
561	560pF	1.25±0.20	1.25±0.20					1.25±0.20		
681	680pF	1.25±0.20	1.25±0.20					1.25±0.20		
821	820pF	1.25±0.20	1.25±0.20					1.25±0.20		
102	1000pF	1.25±0.20	1.25±0.20				2.00±0.20	1.25±0.20		
122	1200pF	1.25±0.20	1.25±0.20				2.00±0.20	1.25±0.20		
152	1500pF	1.25±0.20	1.25±0.20				2.00±0.20	1.25±0.20		
182	1800pF	1.25±0.20	1.25±0.20				2.00±0.20	1.25±0.20		
222	2200pF	1.25±0.20	1.25±0.20			2.00±0.20	1.25±0.20			
272	2700pF	1.25±0.20	1.25±0.20		1.25±0.20	2.00±0.20	1.60±0.20		1.25±0.20	
332	3300pF	1.25±0.20	1.25±0.20		1.25±0.20	2.00±0.20	1.60±0.20		1.25±0.20	
392	3900pF	1.25±0.20	1.25±0.20		1.25±0.20	2.00±0.20	1.60±0.20		1.25±0.20	
472	4700pF	1.25±0.20	1.60±0.20		1.25±0.20	2.00±0.20	1.60±0.20		1.25±0.20	
562	5600pF	1.60±0.20	1.60±0.20		1.25±0.20	2.00±0.20	2.00±0.20		1.25±0.20	
682	6800pF	1.60±0.20	1.60±0.20		1.25±0.20	2.00±0.20	2.00±0.20		1.25±0.20	
822	8200pF	1.60±0.20	2.00±0.20		1.25±0.20	2.00±0.20	2.00±0.20		1.25±0.20	
103	0.010μF	1.60±0.20	2.00±0.20		1.60±0.20	2.00±0.20	2.00±0.20		1.25±0.20	
123	0.012μF		2.00±0.20		1.60±0.20	2.40±0.20			1.25±0.20	
153	0.015μF				1.60±0.20	2.40±0.20			1.25±0.20	
183	0.018μF				1.60±0.20	2.40±0.20			1.25±0.20	
223	0.022μF			1.25±0.20	1.60±0.20	2.40±0.20		1.25±0.20	1.25±0.20	
273	0.027μF			1.25±0.20	1.60±0.20			1.25±0.20	1.25±0.20	
333	0.033μF			1.25±0.20	1.60±0.20			1.25±0.20	1.25±0.20	
393	0.039μF			1.25±0.20	1.60±0.20			1.25±0.20	1.25±0.20	
473	0.047μF			1.25±0.20	1.60±0.20			1.25±0.20	1.60±0.20	
563	0.056μF			1.25±0.20	1.60±0.20			1.25±0.20	1.60±0.20	
683	0.068μF			1.25±0.20	1.60±0.20			1.25±0.20	1.60±0.20	
823	0.082μF			1.25±0.20	2.00±0.20			1.25±0.20	1.60±0.20	
104	0.10μF			1.60±0.20	2.00±0.20			1.60±0.20	2.00±0.20	
124	0.12μF			2.00±0.20				2.00±0.20		
154	0.15μF			2.00±0.20				2.00±0.20		
184	0.18μF							2.00±0.20		
224	0.22μF							2.00±0.20		
274	0.27μF							2.40±0.20		
334	0.33μF							2.40±0.20		
394	0.39μF							2.80±0.20		
474	0.47μF							2.80±0.20		
564	0.56μF									
824	0.82μF									
105	1μF									
155	1.5μF									
225	2.2μF									
475	4.7μF	1.60±0.20								
106	10μF	1.60±0.20								
226	22μF	2.50±0.30								

RELIABILITY TEST CONDITIONS & REQUIREMENTS

ITEM		AEC-Q200 TEST CONDITION	REQUIREMENTS																																																	
1.	Visual and Mechanical	* Visual Inspection * Measurement by precision caplipers	* No remarkable defect. * Dimensions to conform to individual specification sheet.																																																	
2.	Electrical Characterization - Capacitance	Q/D.F. (Dissipation Factor) Test Temp: Room Temperature. Class I: (NPO) Cap≤1000pF, 1.0±0.2Vrms, 1MHz±10% Cap>1000pF, 1.0±0.2Vrms, 1KHz±10% Class II: (X7R) Cap<10μF, 1.0±0.2Vrms, 1KHz±10% Cap≥10μF, 0.5±0.2Vrms, 120Hz±20%	* Capacitance within the specified tolerance. * Q/D.F. value: NPO: Cap≥30pF, Q≥1000; Cap<30pF, Q≥400+20C. X7R: <table><tr><th>RATED VOL.</th><th>D.F.≤</th><th colspan="2">EXCEPTION OF D.F.≤</th></tr><tr><td rowspan="3">≥100V</td><td rowspan="3">≤2.5%</td><td>≤3%</td><td>1206≥0.47μF</td></tr><tr><td>≤5%</td><td>0603≥0.068μF; 0805>0.1μF; 1206≥1μF; 1210≥2.2μF</td></tr><tr><td>≤10%</td><td>0805>0.22μF; 1210≥3.3μF</td></tr><tr><td rowspan="3">50V</td><td rowspan="3">≤2.5%</td><td>≤3%</td><td>0201(50V);0603≥0.047μF; 0805≥0.18μF; 1206≥0.47μF</td></tr><tr><td>≤5%</td><td>0201≥0.01uF;1210≥3.3μF</td></tr><tr><td>≤10%</td><td>0402≥0.012μF; 0603>0.1μF; 0805≥0.47μF; 1206≥2.2μF; 1210≥10μF</td></tr><tr><td>35V</td><td>≤3.5%</td><td>≤10%</td><td>0603≥1μF; 0805≥2.2μF ;1206≥2.2μF; 1210≥10μF</td></tr><tr><td rowspan="4">25V</td><td rowspan="4">≤3.5%</td><td>≤5%</td><td>0201≥0.01μF; 0805≥1μF; 1210≥10μF</td></tr><tr><td>≤7%</td><td>0603≥0.33μF</td></tr><tr><td>≤10%</td><td>0201≥0.1μF; 0402≥0.056μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF</td></tr><tr><td>≤12.5%</td><td>0402≥0.47μF</td></tr><tr><td rowspan="2">16V</td><td rowspan="2">≤3.5%</td><td>≤5%</td><td>0201≥0.01μF; 0402≥0.033μF; 0603≥0.15μF; 0805≥0.68μF; 1206≥2.2μF; 1210≥4.7μF</td></tr><tr><td>≤10%</td><td>0201≥0.022μF; 0402≥0.15uF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF</td></tr><tr><td rowspan="2">10V</td><td rowspan="2">≤5%</td><td>≤10%</td><td>0201≥0.012μF; 0402≥0.15μF; 0603≥0.33μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥22μF</td></tr><tr><td>≤15%</td><td>0201≥0.1μF; 0402≥1μF</td></tr></table>				RATED VOL.	D.F.≤	EXCEPTION OF D.F.≤		≥100V	≤2.5%	≤3%	1206≥0.47μF	≤5%	0603≥0.068μF; 0805>0.1μF; 1206≥1μF; 1210≥2.2μF	≤10%	0805>0.22μF; 1210≥3.3μF	50V	≤2.5%	≤3%	0201(50V);0603≥0.047μF; 0805≥0.18μF; 1206≥0.47μF	≤5%	0201≥0.01uF;1210≥3.3μF	≤10%	0402≥0.012μF; 0603>0.1μF; 0805≥0.47μF; 1206≥2.2μF; 1210≥10μF	35V	≤3.5%	≤10%	0603≥1μF; 0805≥2.2μF ;1206≥2.2μF; 1210≥10μF	25V	≤3.5%	≤5%	0201≥0.01μF; 0805≥1μF; 1210≥10μF	≤7%	0603≥0.33μF	≤10%	0201≥0.1μF; 0402≥0.056μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF	≤12.5%	0402≥0.47μF	16V	≤3.5%	≤5%	0201≥0.01μF; 0402≥0.033μF; 0603≥0.15μF; 0805≥0.68μF; 1206≥2.2μF; 1210≥4.7μF	≤10%	0201≥0.022μF; 0402≥0.15uF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF	10V	≤5%	≤10%	0201≥0.012μF; 0402≥0.15μF; 0603≥0.33μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥22μF	≤15%	0201≥0.1μF; 0402≥1μF
RATED VOL.	D.F.≤	EXCEPTION OF D.F.≤																																																		
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		≤15%	0201≥0.1μF; 0402≥1μF																																																	
3.	Electrical Characterization- Insulation Resistance	Test Temp: Room Temperature. To apply rated voltage(500V max.) for max. 120sec.	* IR. ≥10GΩ or RxC≥500Ω-F whichever is smaller. Class II (X7R) <table><tr><th>Rated Voltage</th><th>Insulation Resistance</th></tr><tr><td>100V: All X7R</td><td rowspan="6">10GΩ or RxC ≥100Ω-F whichever is smaller</td></tr><tr><td>50V: 0402≥0.01μF; 0603≥1μF; 0805≥1μF; 1206≥4.7μF; 1210≥4.7μF</td></tr><tr><td>35V: 0805≥2.2μF; 1206≥2.2μF; 1210≥10μF</td></tr><tr><td>25V: 0402≥1μF; 0603≥2.2μF; 0805≥2.2μF; 1206≥10μF; 1210≥10μF</td></tr><tr><td>16V: 0201≥0.1μF; 0402≥0.22μF; 0603≥1μF; 0805≥2.2μF; 1206≥10μF; 1210≥47μF</td></tr><tr><td>10V: 0201≥47nF; 0402≥0.47μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥47μF</td></tr><tr><th>Rated Voltage</th><th>Insulation Resistance</th></tr><tr><td>100V: 1210≥3.3μF</td><td rowspan="6">RxC ≥50Ω-F</td></tr><tr><td>50V: 0402≥0.1μF; 0603≥2.2μF; 0805≥10μF; 1206≥10μF</td></tr><tr><td>35V: 0603≥1μF</td></tr><tr><td>25V: 0201≥0.1μF; 0402≥2.2μF; 0603≥10μF; 0805≥10μF; 1206≥22μF</td></tr><tr><td>16V: 0201≥0.22μF; 0402≥1μF; 0603≥10μF</td></tr><tr><td>10V: 0201≥0.1μF; 0402≥1μF; 0603≥10μF; 0805≥47μF</td></tr></table>				Rated Voltage	Insulation Resistance	100V: All X7R	10GΩ or RxC ≥100Ω-F whichever is smaller	50V: 0402≥0.01μF; 0603≥1μF; 0805≥1μF; 1206≥4.7μF; 1210≥4.7μF	35V: 0805≥2.2μF; 1206≥2.2μF; 1210≥10μF	25V: 0402≥1μF; 0603≥2.2μF; 0805≥2.2μF; 1206≥10μF; 1210≥10μF	16V: 0201≥0.1μF; 0402≥0.22μF; 0603≥1μF; 0805≥2.2μF; 1206≥10μF; 1210≥47μF	10V: 0201≥47nF; 0402≥0.47μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥47μF	Rated Voltage	Insulation Resistance	100V: 1210≥3.3μF	RxC ≥50Ω-F	50V: 0402≥0.1μF; 0603≥2.2μF; 0805≥10μF; 1206≥10μF	35V: 0603≥1μF	25V: 0201≥0.1μF; 0402≥2.2μF; 0603≥10μF; 0805≥10μF; 1206≥22μF	16V: 0201≥0.22μF; 0402≥1μF; 0603≥10μF	10V: 0201≥0.1μF; 0402≥1μF; 0603≥10μF; 0805≥47μF																												
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RELIABILITY TEST CONDITIONS & REQUIREMENTS

	ITEM	AEC-Q200 TEST CONDITION	REQUIREMENTS																																																							
3.	Electrical Characterization-Dielectric Strength	* To apply voltage: ≤100V: ≥250% of rated voltage. 200V ~ 300V: ≥200% of rated voltage. 400V ~ 450V: ≥120% of rated voltage. 500V ~ 999V: ≥150% of rated voltage. 1000V ~ 3000V: ≥120% of rated voltage. *Duration: 1 to 5 sec. *Charge & discharge current less than 50mA. *Temperature Coefficient (with no electrical load) *Operation Temperature: -55-125°C at 25°C	* No evidence of damage or flash over during test. *Temperature Coefficient Capacitance Change: NPO: Within ±30ppm/°C X7R: Within ±15%																																																							
4.	High Temperature Exposure (Storage) MIL-STD-202 Method 108	* Test temp: 150±3°C * Unpowered * Test time: 1000+24/-0 hrs. * Measurement to be made after keeping at room temp. for 24±2 hrs.	* No remarkable damage. * Cap change: NPO: within ±2.5% or ±0.25pF whichever is larger. X7R: within ±10% *Q/D.F. value: NPO: Cap≥30pF, Q≥1000; Cap<30pF, Q≥400+20C. X7R: <table><tr><th>RATED VOLTAGE</th><th>D.F. ≤</th><th colspan="2">EXCEPTION 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>0.22μF; 1210≥3.3μF</td></tr><tr><td rowspan="3">50V</td><td rowspan="3">≤3%</td><td>≤6%</td><td>0201(50V): 0603≥0.047μF; 0805≥0.18μF; 1206≥0.47μF</td></tr><tr><td>≤10%</td><td>0201≥0.01μF; 1210≥3.3μF</td></tr><tr><td>≤20%</td><td>0402≥0.012μF; 0603≥0.1μF; 0805≥0.47μF; 1206≥2.2μF; 1210≥10μF</td></tr><tr><td>35V</td><td>≤5%</td><td>≤20%</td><td>0603≥1μF; 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≥1μF; 1210≥10μF</td></tr><tr><td>≤14%</td><td>0603≥0.33μF</td></tr><tr><td>≤15%</td><td>0201≥0.1μF; 0402≥0.056μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF</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≥0.22μF; 0402≥0.33μF; 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≥0.15μF; 0603≥0.33μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥22μF</td></tr><tr><td>≤20%</td><td>0201≥0.1μF; 0402≥1μF</td></tr></table> * I.R.: ≥ 10GΩ or RxC≥500Ω-F whichever is smaller Class II (X7R) <table><tr><th>RATED VOLTAGE</th><th>INSULATION RESISTANCE</th></tr><tr><td>100V: All X7R; 1210≥3.3μF</td><td rowspan="6">1GΩ or RxC ≥10Ω-F whichever is smaller</td></tr><tr><td>50V: 0402≥0.01μF; 0603≥1μF; 0805≥1μF; 1206≥4.7μF; 1210≥4.7μF</td></tr><tr><td>35V: 0603≥1μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥10μF</td></tr><tr><td>25V: 0201≥0.1μF; 0402≥0.22μF; 0603≥2.2μF; 0805≥2.2μF; 1206≥10μF; 1210≥10μF</td></tr><tr><td>16V: 0201≥0.1μF; 0402≥0.22μF; 0603≥1μF; 0805≥2.2μF; 1206≥10μF; 1210≥47μF</td></tr><tr><td>10V: 0201≥47nF; 0402≥0.47μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥47μF</td></tr></table>	RATED VOLTAGE	D.F. ≤	EXCEPTION OF D.F. ≤		≥100V	≤3%	≤6%	1206≥0.47μF	≤7.5%	0603≥0.068μF; 0805>0.1μF; 1206≥1μF; 1210≥2.2μF	≤20%	0805>0.22μF; 1210≥3.3μF	50V	≤3%	≤6%	0201(50V): 0603≥0.047μF; 0805≥0.18μF; 1206≥0.47μF	≤10%	0201≥0.01μF; 1210≥3.3μF	≤20%	0402≥0.012μF; 0603≥0.1μF; 0805≥0.47μF; 1206≥2.2μF; 1210≥10μF	35V	≤5%	≤20%	0603≥1μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥10μF	25V	≤5%	≤10%	0201≥0.01μF; 0805≥1μF; 1210≥10μF	≤14%	0603≥0.33μF	≤15%	0201≥0.1μF; 0402≥0.056μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF	≤20%	0402≥0.47μF	16V	≤5%	≤10%	0603≥0.15μF; 0805≥0.68μF; 1206≥2.2μF; 1210≥4.7μF	≤15%	0201≥0.22μF; 0402≥0.33μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF	10V	≤7.5%	≤15%	0201≥0.012μF; 0402≥0.15μF; 0603≥0.33μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥22μF	≤20%	0201≥0.1μF; 0402≥1μF	RATED VOLTAGE	INSULATION RESISTANCE	100V: All X7R; 1210≥3.3μF	1GΩ or RxC ≥10Ω-F whichever is smaller	50V: 0402≥0.01μF; 0603≥1μF; 0805≥1μF; 1206≥4.7μF; 1210≥4.7μF	35V: 0603≥1μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥10μF	25V: 0201≥0.1μF; 0402≥0.22μF; 0603≥2.2μF; 0805≥2.2μF; 1206≥10μF; 1210≥10μF	16V: 0201≥0.1μF; 0402≥0.22μF; 0603≥1μF; 0805≥2.2μF; 1206≥10μF; 1210≥47μF	10V: 0201≥47nF; 0402≥0.47μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥47μF
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6. Moisture Resistance MIL-STD-202 Method 106	* Test temp.: 25-65°C	* No remarkable damage. * Cap change: NPO: within ±3.0% or ±0.30pF whichever is larger. X7R: within ±12.5% *Q/D.F. value: NPO: More than 30pF Q≥350; 10pF≤Cap<30pF, Q≥275+2.5C. Less than 10pF Q≥200+10C X7R: <table><tr><th>RATED VOLTAGE</th><th>D.F. ≤</th><th colspan="2">EXCEPTION 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>0.22μF; 1210≥3.3μF</td></tr><tr><td rowspan="3">50V</td><td rowspan="3">≤3%</td><td>≤6%</td><td>0201(50V): 0603≥0.047μF; 0805≥0.18μF; 1206≥0.47μF</td></tr><tr><td>≤10%</td><td>0201≥0.01μF; 1210≥3.3μF</td></tr><tr><td>≤20%</td><td>0402≥0.012μF; 0603≥0.1μF; 0805≥0.47μF; 1206≥2.2μF; 1210≥10μF</td></tr><tr><td>35V</td><td>≤5%</td><td>≤20%</td><td>0603≥1μF; 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≥1μF; 1210≥10μF</td></tr><tr><td>≤14%</td><td>0603≥0.33μF</td></tr><tr><td>≤15%</td><td>0201≥0.1μF; 0402≥0.056μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF</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≥0.022μF; 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≥0.15μF; 0603≥0.33μF; 0805≥2.2μF;1206≥2.2μF;1210≥22μF</td></tr><tr><td>≤20%</td><td>0201≥0.1μF; 0402≥1μF</td></tr></table>	RATED VOLTAGE	D.F. ≤	EXCEPTION OF D.F. ≤		≥100V	≤3%	≤6%	1206≥0.47μF	≤7.5%	0603≥0.068μF; 0805>0.1μF; 1206≥1μF; 1210≥2.2μF	≤20%	0805>0.22μF; 1210≥3.3μF	50V	≤3%	≤6%	0201(50V): 0603≥0.047μF; 0805≥0.18μF; 1206≥0.47μF	≤10%	0201≥0.01μF; 1210≥3.3μF	≤20%	0402≥0.012μF; 0603≥0.1μF; 0805≥0.47μF; 1206≥2.2μF; 1210≥10μF	35V	≤5%	≤20%	0603≥1μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥10μF	25V	≤5%	≤10%	0201≥0.01μF; 0805≥1μF; 1210≥10μF	≤14%	0603≥0.33μF	≤15%	0201≥0.1μF; 0402≥0.056μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF	≤20%	0402≥0.47μF	16V	≤5%	≤10%	0603≥0.15μF; 0805≥0.68μF; 1206≥2.2μF; 1210≥4.7μF	≤15%	0201≥0.022μF; 0402≥0.033μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF	10V	≤7.5%	≤15%	0201≥0.012μF; 0402≥0.15μF; 0603≥0.33μF; 0805≥2.2μF;1206≥2.2μF;1210≥22μF	≤20%	0201≥0.1μF; 0402≥1μF
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* I.R.: ≥ 10GΩ or RxC≥500Ω-F whichever is smaller

Class II (X7R)

RATED VOLTAGE	INSULATION RESISTANCE
100V: All X7R; 1210≥3.3μF	1GΩ or RxC ≥10Ω-F whichever is smaller
50V: 0402≥0.01μF; 0603≥1μF; 0805≥1μF; 1206≥4.7μF; 1210≥4.7μF	
35V: 0603≥1μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥10μF	
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16V: 0201≥0.1μF; 0402≥0.22μF; 0603≥1μF; 0805≥2.2μF: 1206≥10μF; 1210≥47μF	
10V: 0201≥47nF; 0402≥0.47μF; 0603≥0.47μF; 0805≥2.2μF: 1206≥4.7μF; 1210≥47μF	

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7.	Biased Humidity MIL-STD-202 Method 103	* Test temp.: 85±3°C * Humidity: 85% RH * Test time: 1000+24/-0 hrs. * To apply voltage: rated voltage and 1.3-1.5Vdc. (add 100k ohm resistor). * Before initial measurement (Class II only): To apply test voltage for 1hr at test temp. and then set for 24±2hrs at room temp. * Measurement to be made after keeping at room temp. for 24±2 hrs.	* No remarkable damage. * Cap change: NPO: within ±3.0% or ±0.30pF whichever is larger. X7R: within ±12.5% *Q/D.F. value: NPO: Cap≥30pF, Q≥200; Cap<30pF, Q≥100+10/3C. 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RELIABILITY TEST CONDITIONS & REQUIREMENTS

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8.	Operational Life MIL-STD-202 Method 108	* Test temp.: 125±3°C * To apply voltage: (1) 10V≤Ur≤250V: 200% of rated voltage. (2) 150% of rated voltage: a) 500V b) 0603/X7R/50V/Cap.≥0.1μF c) 0805/X7R/50V/Cap.≥0.68μF d) 1206/X7R/100V/Cap.≥1.0μF e) 1210/X7R/50V&100V/Cap.≥2.2μF (3) 630V≤Ur≤1000V: 120% of rated voltage. * Test time: 1000+24/-0 hrs. * Before initial measurement (X7R only): To apply test voltage for 1hr at 125°C. Remove and let set for 24±2 hrs at room temp. * Measurement to be made after keeping at room temp. for 24±2 hrs.	* No remarkable damage. * Cap change: NPO: within ±3.0% or ±0.30pF whichever is larger. X7R: within ±12.5% * Q/D.F. value: NPO: More than 30pF Q≥350; 10pF≤Cap<30pF, Q≥275+2.5C. Less than 10pF Q≥200+10C X7R: <table><tr><th>RATED VOLTAGE</th><th>D.F. ≤</th><th colspan="2">EXCEPTION 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>0.22μF; 1210≥3.3μF</td></tr><tr><td rowspan="3">50V</td><td rowspan="3">≤3%</td><td>≤6%</td><td>0201(50V): 0603≥0.047μF; 0805≥0.18μF; 1206≥0.47μF</td></tr><tr><td>≤10%</td><td>0201≥0.01μF; 1210≥3.3μF</td></tr><tr><td>≤20%</td><td>0402≥0.012μF; 0603≥0.1μF; 0805≥0.47μF; 1206≥2.2μF; 1210≥10μF</td></tr><tr><td>35V</td><td>≤5%</td><td>≤20%</td><td>0603≥1μF; 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≥1μF; 1210≥10μF</td></tr><tr><td>≤14%</td><td>0603≥0.33μF</td></tr><tr><td>≤15%</td><td>0201≥0.1μF; 0402≥0.056μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF</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≥0.022μF; 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≥0.15μF; 0603≥0.33μF; 0805≥2.2μF;1206≥2.2μF;1210≥22μF</td></tr><tr><td>≤20%</td><td>0201≥0.1μF; 0402≥1μF</td></tr></table> * I.R.: ≥ 1GΩ or RxC≥50Ω-F whichever is smaller Class II (X7R) <table><tr><th colspan="2">RATED VOLTAGE</th><th>INSULATION RESISTANCE</th></tr><tr><td colspan="2">100V: All X7R; 1210≥3.3μF</td><td rowspan="6">1GΩ or RxC ≥10Ω-F whichever is smaller</td></tr><tr><td colspan="2">50V: 0402≥0.01μF; 0603≥1μF; 0805≥1μF; 1206≥4.7μF; 1210≥4.7μF</td></tr><tr><td colspan="2">35V: 0603≥1μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥10μF</td></tr><tr><td colspan="2">25V: 0201≥0.1μF; 0402≥0.22μF; 0603≥2.2μF; 0805≥2.2μF; 1206≥10μF; 1210≥10μF</td></tr><tr><td colspan="2">16V: 0201≥0.1μF; 0402≥0.22μF; 0603≥1μF; 0805≥2.2μF; 1206≥10μF; 1210≥47μF</td></tr><tr><td colspan="2">10V: 0201≥47nF; 0402≥0.47μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥47μF</td></tr></table>	RATED VOLTAGE	D.F. ≤	EXCEPTION OF D.F. ≤		≥100V	≤3%	≤6%	1206≥0.47μF	≤7.5%	0603≥0.068μF; 0805>0.1μF; 1206≥1μF; 1210≥2.2μF	≤20%	0805>0.22μF; 1210≥3.3μF	50V	≤3%	≤6%	0201(50V): 0603≥0.047μF; 0805≥0.18μF; 1206≥0.47μF	≤10%	0201≥0.01μF; 1210≥3.3μF	≤20%	0402≥0.012μF; 0603≥0.1μF; 0805≥0.47μF; 1206≥2.2μF; 1210≥10μF	35V	≤5%	≤20%	0603≥1μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥10μF	25V	≤5%	≤10%	0201≥0.01μF; 0805≥1μF; 1210≥10μF	≤14%	0603≥0.33μF	≤15%	0201≥0.1μF; 0402≥0.056μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF	≤20%	0402≥0.47μF	16V	≤5%	≤10%	0603≥0.15μF; 0805≥0.68μF; 1206≥2.2μF; 1210≥4.7μF	≤15%	0201≥0.022μF; 0402≥0.033μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF	10V	≤7.5%	≤15%	0201≥0.012μF; 0402≥0.15μF; 0603≥0.33μF; 0805≥2.2μF;1206≥2.2μF;1210≥22μF	≤20%	0201≥0.1μF; 0402≥1μF	RATED VOLTAGE		INSULATION RESISTANCE	100V: All X7R; 1210≥3.3μF		1GΩ or RxC ≥10Ω-F whichever is smaller	50V: 0402≥0.01μF; 0603≥1μF; 0805≥1μF; 1206≥4.7μF; 1210≥4.7μF		35V: 0603≥1μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥10μF		25V: 0201≥0.1μF; 0402≥0.22μF; 0603≥2.2μF; 0805≥2.2μF; 1206≥10μF; 1210≥10μF		16V: 0201≥0.1μF; 0402≥0.22μF; 0603≥1μF; 0805≥2.2μF; 1206≥10μF; 1210≥47μF		10V: 0201≥47nF; 0402≥0.47μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥47μF	
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9.	External Visual MIL-STD-883 Method 2009	* Visual Inspection	* No remarkable defect.																																																														
10.	Physical Dimension JESD22 Method JB-100	* Using by calipers	* Within the specified dimensions																																																														

RELIABILITY TEST CONDITIONS & REQUIREMENTS

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11.	Resistance to Solvents MIL-STD-202 Method 215	* Temperature.: 25±5°C * Time: 3+0.5/-0 min. * Solvent: Iso-propyl alcohol.	* No remarkable damage. * Cap.: within the specified tolerance. * Q/D.F. value: NPO: Cap≥30pF, Q≥1000; Cap<30pF, Q≥400+20C. X7R:																																																	
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12.	Mechanical Shock MIL-STD-202 Method 213	* Peak value: 1500g's	* No remarkable damage. * Cap.: within the specified tolerance. * Q/D.F. value: NPO: Cap≥30pF, Q≥1000; Cap<30pF, Q≥400+20C. X7R:																																														
		* Wave: 1/2 sine.																																															
		* Velocity: 15.4 ft/sec																																															
		* Three shocks in each direction should be applied along 3 mutually perpendicular axis of the test specimen (18 shocks)																																															
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RELIABILITY TEST CONDITIONS & REQUIREMENTS

ITEM		AEC-Q200 TEST CONDITION	REQUIREMENTS																																														
13.	Vibration MIL-STD-202 Method 204	* Vibration frequency: 10-2000Hz/min. (5g's for 20min) * Total amplitude: 1.5mm. * 12 cycles each of 3 orientations (36 times)	* No remarkable damage. * Cap.: within the specified tolerance. * Q/D.F. value: NPO: Cap≥30pF, Q≥1000; Cap<30pF, Q≥400+20C. X7R:																																														
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RELIABILITY TEST CONDITIONS & REQUIREMENTS

ITEM	AEC-Q200 TEST CONDITION	REQUIREMENTS																																														
14. Resistance to Soldering Heat MIL-STD-202 Method 210	* Solder temperature: 260±5°C	* No remarkable damage.																																														
	* Dipping time: 10±1 sec	* Cap. change: NPO: within ±2.5% or 0.25pF whichever is larger X7R: within ±7.5%																																														
	* Before initial measurement (X7R only): Perform 150+0/-10°C for 1 hr and then set for 24±2 hrs at room temp.	* Q/D.F. value: NPO: Cap≥30pF, Q≥1000; Cap<30pF, Q≥400+20C. X7R:																																														
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RELIABILITY TEST CONDITIONS & REQUIREMENTS

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15.	Thermal Shock MIL-STD-202 Method 107	STEP TEMP. (°C) TIME (MIN.) 1 -55°C +0/-3 15±3 2 +125°C +3/-0 15±3 * Before initial measurement (X7R only): Perform 150+0/-10°C for 1hr and then set for 24±2 hrs at room temp. * Measurement to be made after keeping at room temp. for 24±2 hrs. * Max. transfer time: 20 sec.	* No remarkable damage. * Cap change: NPO: within ±2.5% or ±0.25pF whichever is larger. X7R: within ±10% * Q/D.F. value: NPO: Cap≥30pF, Q≥1000; Cap<30pF, Q≥400+20C. X7R: <table><tr><th>RATED VOLTAGE</th><th>D.F. ≤</th><th colspan="2">EXCEPTION 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>0.22μF; 1210≥3.3μF</td></tr><tr><td rowspan="3">50V</td><td rowspan="3">≤3%</td><td>≤6%</td><td>0201(50V): 0603≥0.047μF; 0805≥0.18μF; 1206≥0.47μF</td></tr><tr><td>≤10%</td><td>0201≥0.01μF; 1210≥3.3μF</td></tr><tr><td>≤20%</td><td>0402≥0.012μF; 0603≥0.1μF; 0805≥0.47μF; 1206≥2.2μF; 1210≥10μF</td></tr><tr><td>35V</td><td>≤5%</td><td>≤20%</td><td>0603≥1μF; 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≥1μF; 1210≥10μF</td></tr><tr><td>≤14%</td><td>0603≥0.33μF</td></tr><tr><td>≤15%</td><td>0201≥0.1μF; 0402≥0.056μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF</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≥0.022μF; 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≥0.15μF; 0603≥0.33μF; 0805≥2.2μF;1206≥2.2μF;1210≥22μF</td></tr><tr><td>≤20%</td><td>0201≥0.1μF; 0402≥1μF</td></tr></table> * I.R.: ≥ 10GΩ or RxC≥500Ω-F whichever is smaller Class II (X7R) <table><tr><th>RATED VOLTAGE</th><th>INSULATION RESISTANCE</th></tr><tr><td>100V: All X7R; 1210≥3.3μF</td><td rowspan="6">1GΩ or RxC ≥10Ω-F whichever is smaller</td></tr><tr><td>50V: 0402≥0.01μF; 0603≥1μF; 0805≥1μF; 1206≥4.7μF; 1210≥4.7μF</td></tr><tr><td>35V: 0603≥1μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥10μF</td></tr><tr><td>25V: 0201≥0.1μF; 0402≥0.22μF; 0603≥2.2μF; 0805≥2.2μF; 1206≥10μF; 1210≥10μF</td></tr><tr><td>16V: 0201≥0.1μF; 0402≥0.22μF; 0603≥1μF; 0805≥2.2μF; 1206≥10μF; 1210≥47μF</td></tr><tr><td>10V: 0201≥47nF; 0402≥0.47μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥47μF</td></tr></table>	RATED VOLTAGE	D.F. ≤	EXCEPTION OF D.F. ≤		≥100V	≤3%	≤6%	1206≥0.47μF	≤7.5%	0603≥0.068μF; 0805>0.1μF; 1206≥1μF; 1210≥2.2μF	≤20%	0805>0.22μF; 1210≥3.3μF	50V	≤3%	≤6%	0201(50V): 0603≥0.047μF; 0805≥0.18μF; 1206≥0.47μF	≤10%	0201≥0.01μF; 1210≥3.3μF	≤20%	0402≥0.012μF; 0603≥0.1μF; 0805≥0.47μF; 1206≥2.2μF; 1210≥10μF	35V	≤5%	≤20%	0603≥1μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥10μF	25V	≤5%	≤10%	0201≥0.01μF; 0805≥1μF; 1210≥10μF	≤14%	0603≥0.33μF	≤15%	0201≥0.1μF; 0402≥0.056μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF	≤20%	0402≥0.47μF	16V	≤5%	≤10%	0603≥0.15μF; 0805≥0.68μF; 1206≥2.2μF; 1210≥4.7μF	≤15%	0201≥0.022μF; 0402≥0.033μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF	10V	≤7.5%	≤15%	0201≥0.012μF; 0402≥0.15μF; 0603≥0.33μF; 0805≥2.2μF;1206≥2.2μF;1210≥22μF	≤20%	0201≥0.1μF; 0402≥1μF	RATED VOLTAGE	INSULATION RESISTANCE	100V: All X7R; 1210≥3.3μF	1GΩ or RxC ≥10Ω-F whichever is smaller	50V: 0402≥0.01μF; 0603≥1μF; 0805≥1μF; 1206≥4.7μF; 1210≥4.7μF	35V: 0603≥1μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥10μF	25V: 0201≥0.1μF; 0402≥0.22μF; 0603≥2.2μF; 0805≥2.2μF; 1206≥10μF; 1210≥10μF	16V: 0201≥0.1μF; 0402≥0.22μF; 0603≥1μF; 0805≥2.2μF; 1206≥10μF; 1210≥47μF	10V: 0201≥47nF; 0402≥0.47μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥47μF
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16.	Solerability J-STD-002 JESD22-B102E	* Condition A Un-mounted chips 4hrs/155°C* dry then completely immersed for 5±.5 sec in solder bath at 235±5°C. * Condition B Un-mounted chips steam 8hrs then completely immersed for 10±1 sec in solder bath at 215±5/-0°C. * Condition C Un-mounted chips steam 8hrs then completely immersed for 10±1 sec in solder bath at 260±0/-5°C.	* All terminations shall exhibit a continuous solder coating free from defects from a minimum of 95% of the critical surface area of any individual termination.																																																							

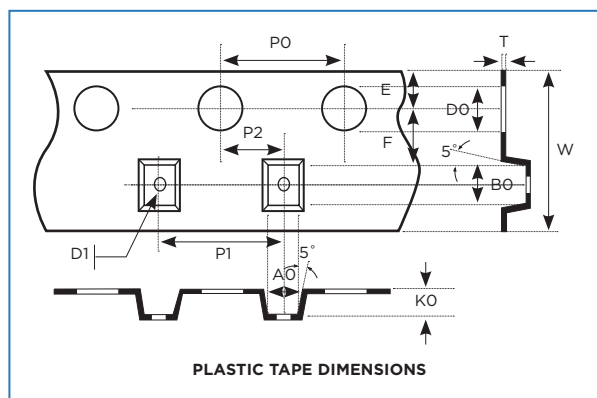
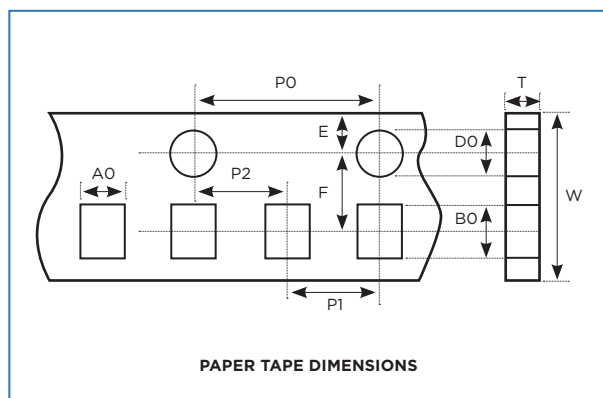
RELIABILITY TEST CONDITIONS & REQUIREMENTS

ITEM		AEC-Q200 TEST CONDITION	REQUIREMENTS																																														
17.	ESD AEC-Q200-002	* Per AEC-Q200-002	* No remarkable damage. * Cap. change: within the specified tolerance. * Q/D.F. value: NPO: Cap≥30pF, Q≥1000; Cap<30pF, Q≥400+20C. X7R:																																														
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RELIABILITY TEST CONDITIONS & REQUIREMENTS

	ITEM	AEC-Q200 TEST CONDITION	REQUIREMENTS																																														
18.	Terminal Strength AEC-Q200-006	* Pressurizing force: 2N (0201 & 0402), 10N(0603), 18N(≥0805). * Test time: 60±1 sec.	* No remarkable damage or removal of the terminations. * Capacitance within the specified tolerance. * Q/D.F. value: NPO: Cap≥30pF, Q≥1000; Cap<30pF, Q≥400+20C. X7R: <table> <tr> <th>RATED VOLTAGE</th><th>D.F. ≤</th><th colspan="2">EXCEPTION OF D.F. ≤</th></tr> <tr> <td rowspan="3">≥100V</td><td rowspan="3">≤2.5%</td><td>≤3%</td><td>1206≥0.47μF</td></tr> <tr> <td>≤5%</td><td>0603≥0.068μF; 0805>0.1μF; 1206≥1μF; 1210≥2.2μF</td></tr> <tr> <td>≤10%</td><td>0805>0.22μF; 1210≥3.3μF</td></tr> <tr> <td rowspan="3">50V</td><td rowspan="3">≤2.5%</td><td>≤3%</td><td>0201(50V): 0603≥0.047μF; 0805≥0.18μF; 1206≥0.47μF</td></tr> <tr> <td>≤5%</td><td>0201≥0.01μF; 1210≥3.3μF</td></tr> <tr> <td>≤10%</td><td>0402≥0.012μF; 0603≥0.1μF; 0805≥0.47μF; 1206≥2.2μF; 1210≥10μF</td></tr> <tr> <td>35V</td><td>≤3.5%</td><td>≤10%</td><td>0603≥1μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥10μF</td></tr> <tr> <td rowspan="4">25V</td><td rowspan="4">≤3.5%</td><td>≤5%</td><td>0201≥0.01μF; 0805≥1μF; 1210≥10μF</td></tr> <tr> <td>≤7%</td><td>0603≥0.33μF</td></tr> <tr> <td>≤10%</td><td>0201≥0.1μF; 0402≥0.056μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF</td></tr> <tr> <td>≤12.5%</td><td>0402≥0.47μF</td></tr> <tr> <td rowspan="2">16V</td><td rowspan="2">≤3.5%</td><td>≤5%</td><td>0201≥0.01μF; 0402≥0.033μF; 0603≥0.15μF; 0805≥0.68μF; 1206≥2.2μF; 1210≥4.7μF</td></tr> <tr> <td>≤10%</td><td>0201≥0.022μF; 0402≥0.15μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF</td></tr> <tr> <td rowspan="2">10V</td><td rowspan="2">≤5%</td><td>≤10%</td><td>0201≥0.012μF; 0402≥0.15μF; 0603≥0.33μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥22μF</td></tr> <tr> <td>≤15%</td><td>0201≥0.1μF; 0402≥1μF</td></tr> </table>	RATED VOLTAGE	D.F. ≤	EXCEPTION OF D.F. ≤		≥100V	≤2.5%	≤3%	1206≥0.47μF	≤5%	0603≥0.068μF; 0805>0.1μF; 1206≥1μF; 1210≥2.2μF	≤10%	0805>0.22μF; 1210≥3.3μF	50V	≤2.5%	≤3%	0201(50V): 0603≥0.047μF; 0805≥0.18μF; 1206≥0.47μF	≤5%	0201≥0.01μF; 1210≥3.3μF	≤10%	0402≥0.012μF; 0603≥0.1μF; 0805≥0.47μF; 1206≥2.2μF; 1210≥10μF	35V	≤3.5%	≤10%	0603≥1μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥10μF	25V	≤3.5%	≤5%	0201≥0.01μF; 0805≥1μF; 1210≥10μF	≤7%	0603≥0.33μF	≤10%	0201≥0.1μF; 0402≥0.056μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF	≤12.5%	0402≥0.47μF	16V	≤3.5%	≤5%	0201≥0.01μF; 0402≥0.033μF; 0603≥0.15μF; 0805≥0.68μF; 1206≥2.2μF; 1210≥4.7μF	≤10%	0201≥0.022μF; 0402≥0.15μF; 0603≥0.47μF; 0805≥2.2μF; 1206≥4.7μF; 1210≥22μF	10V	≤5%	≤10%	0201≥0.012μF; 0402≥0.15μF; 0603≥0.33μF; 0805≥2.2μF; 1206≥2.2μF; 1210≥22μF	≤15%	0201≥0.1μF; 0402≥1μF
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19.	Board Flex AEC-Q200-005	* The middle part of substrate shall be pressurized by means of the pressurizing rod at a rate of about 1 mm per second until the deflection becomes 3mm (2mm for X7R) and then the pressure shall be maintained for 60±1 sec. * Measurement to be made after keeping at room temp. for 24±2 hrs.	* No remarkable damage * Cap change: NPO: within ±5% or ±0.5pF whichever is larger. X7R: within ±12.5% (This capacitance change means the change of capacitance under specified flexure of substrate from the capacitance measured before the test.)																																														
20.	Beam Load Test AEC-Q200-003	* Break strength test * Beam speed: 2.5±.25mm/sec	* The chip endures following force (1) Chip length ≤2.5mm: Thickness>0.5mm (20N), ≤0.5mm (8N) (2) Chip length ≥3.2mm: Thickness≥1.25mm (54.5N), <1.25mm (15N)																																														
21.	Destructive Physical Analysis EIA-469	* Per EIA-469	* No defects or abnormalities.																																														

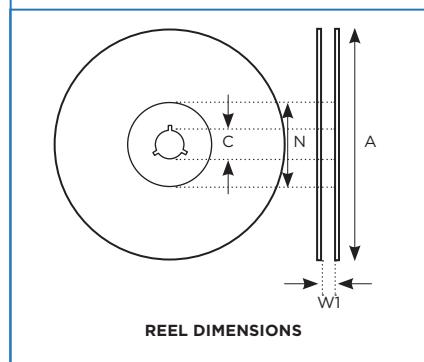
TAPE AND REEL SPECIFICATIONS



SIZE	0201	0402	0603	0805			1206			1210	
Thickness (mm)	0.30±0.03	0.50±0.05	0.80±0.07/ 0.80±0.15/-0.1	0.60±0.10	0.80±0.10	1.25±0.10/ 1.25±0.20	0.80±0.10	0.95±0.10/ 1.15±0.15/ 1.25±0.10	1.60±0.20/ 1.60±0.30/-0.1	0.95±0.10/ 1.25±0.10/ 1.60±0.20/ 2.00±0.20	2.50±0.30
A0	0.40±0.10	0.70±0.20	1.05±0.30	1.50±0.20	1.50±0.20	< 1.80	1.90±0.50	< 2.00	< 2.30	< 3.05	< 3.20
B0	0.70±0.10	1.20±0.20	1.80±0.30	2.30±0.20	2.30±0.20	< 2.70	3.50±0.50	< 3.70	< 4.00	< 3.80	< 4.00
T	≤0.55	≤0.80	≤1.20	≤1.15	≤1.20	0.23±0.1	≤1.20	0.23±0.1	0.23±0.1	0.23±0.1	0.23±0.1
K0	-	-	-	-	-	< 2.50	-	< 2.50	< 2.50	< 2.50	< 3.20
W	8.00±0.30	8.00±0.30	8.00±0.30	8.00±0.30	8.00±0.30	8.00±0.30	8.00±0.30	8.00±0.30	8.00±0.30	8.00±0.30	8.00±0.30
P0	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10
P1	2.00±0.05	2.00±0.05	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10
P2	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05
D0	1.50+0.1/-0	1.50+0.1/-0	1.50+0.1/-0	1.50+0.1/-0	1.50+0.1/-0	1.50+0.1/-0	1.50+0.1/-0	1.50+0.1/-0	1.50+0.1/-0	1.50+0.1/-0	1.50+0.1/-0
D1	-	-	-	-	-	1.00±0.10	-	1.00±0.10	1.00±0.10	1.00±0.10	1.00±0.10
E	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10
F	3.50±0.05	3.50±0.05	3.50±0.05	3.50±0.05	3.50±0.05	3.50±0.05	3.50±0.05	3.50±0.05	3.50±0.05	3.50±0.05	3.50±0.05

SIZE	1812	1825	2220	2225
Thickness (mm)	1.25±0.20 1.60±0.20 2.00±0.20 2.40±0.20	1.25±0.20 1.60±0.20 2.00±0.20 2.40±0.20	1.25±0.20 1.60±0.20 2.00±0.20 2.40±0.20 3.20±0.20	1.25±0.20 1.60±0.20 2.00±0.20 2.40±0.20 2.80±0.20
A0	3.60±0.20	6.90±0.20	5.40±0.20	6.90±0.20
B0	4.90±0.20	4.90±0.20	6.10±0.20	6.10±0.20
T	≤0.30	≤0.30	≤0.30	≤0.30
K0	≤4.00	≤4.00	≤4.00	≤4.00
W	12.00±0.30	12.00±0.30	12.00±0.30	12.00±0.30
P0	4.00±0.10	4.00±0.10	4.00±0.10	4.00±0.10
P1	8.00±0.10	8.00±0.10	8.00±0.10	8.00±0.10
P2	2.00±0.05	2.00±0.05	2.00±0.05	2.00±0.05
D0	1.50+0.1/-0	1.50+0.1/-0	1.50+0.1/-0	1.50+0.1/-0
D1	1.50±0.10	1.50±0.10	1.50±0.10	1.50±0.10
E	1.75±0.10	1.75±0.10	1.75±0.10	1.75±0.10
F	5.50±0.05	5.50±0.05	5.50±0.05	3.50±0.05

TAPE AND REEL SPECIFICATIONS



SIZE	0201, 0402, 0603, 0805, 1206, 1210	
Reel Size	7"	13"
C	13.0±0.5	13.0±0.5
W1	10.0±1.5	10.0±1.5
A	178.0±2.0	330.0±2.0
N	60.0+1.0/-0	50 min

SIZE	1812, 1825, 2220, 2225
Reel Size	7"
C	13.0±0.5
W1	13.0±0.3
A	178.0±2.0
N	60.0+1.0/-0

SIZE	THICKNESS	PAPER TAPE		PLASTIC TAPE	
		7" REEL	13" REEL	7" REEL	13" REEL
0201	0.30±0.03	15K	70K	-	-
0402	0.50±0.05	10K	50K	-	-
0603	0.80±0.07	4K	15K	-	-
	0.80+0.15/-0.1	4K	15K	-	-
0805	0.60±0.10	4K	15K	-	-
	0.80±0.10	4K	15K	-	-
	1.25±0.10	-	-	3K	10K
	1.25±0.20	-	-	3K	10K
1206	0.80±0.10	4K	15K	-	-
	0.95±0.10	-	-	3K	10K
	1.15±0.15	-	-	3K	10K
	1.25±0.10	-	-	3K	10K
	1.60±0.20	-	-	2K	10K
1210	1.60+0.30/-0.1	-	-	2K	9K
	0.95±0.10	-	-	3K	10K
	1.25±0.10	-	-	3K	10K
	1.60±0.20	-	-	2K	8K
	2.00±0.20	-	-	1K	6K
1812	2.50±0.30	-	-	1K	6K
	1.25±0.20	-	-	1K	N/A
	1.60±0.20	-	-	1K	N/A
	2.00±0.20	-	-	1K	N/A
1825	2.40±0.20	-	-	700	N/A
	1.25±0.20	-	-	700	N/A
	1.60±0.20	-	-	700	N/A
	2.00±0.20	-	-	700	N/A
2220	2.40±0.20	-	-	400	N/A
	3.20±0.20	-	-	700	N/A
	1.25±0.20	-	-	1K	N/A
	1.60±0.20	-	-	1K	N/A
	2.00±0.20	-	-	1K	N/A
2225	2.40±0.20	-	-	700	N/A
	2.80±0.20	-	-	400	N/A
	1.25±0.20	-	-	700	N/A
	1.60±0.20	-	-	700	N/A
	2.00±0.20	-	-	700	N/A