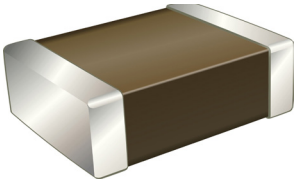
AGC SERIES
AUTOMOTIVE GRADE CHIP CAPACITORS

VENKEL LTD.



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

RoHS Compliant | REACH Compliant | HF Halogen FREE | Conflict Minerals FREE 3TG

PART NUMBER STRUCTURE

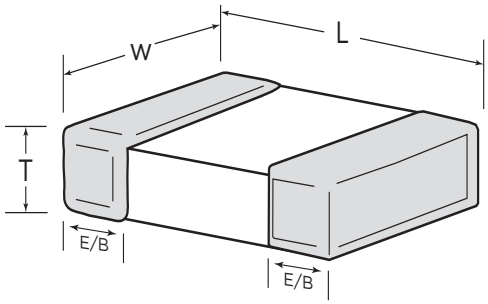
AGC	1206	X7R	500	-	473	K	N	P
Series	**Size** 0201 0402 0603 0805 1206 1210 1812 1825 2220 2225	**Temperature Characteristic (Dielectric)** C0G/NP0 X7R	**Rated Voltage** 1st two digits are significant followed by numberof zeroes. 100 = 10 VDC 160 = 16 VDC 250 = 25 VDC 500 = 50 VDC 101 = 100 VDC 201 = 200 VDC 251 = 250 VDC 501 = 500 VDC 631 = 630 VDC 102 = 1000 VDC 202= 2000 VDC 302= 3000 VDC		**Capacitance (picofarads)** 1st two digits are significant, followed by number of zeroes. R denotes decimal **e.g:** 101 = 100pF 104 = 100nF 6R8 = 6.8pF	**Tolerance** * A = ±0.05pF * B = ±0.1pF * C = ±0.25pF * D = ±0.5pF F ±1% G = ±2% J = ±5% K = ±10% M = ±20% * For values below 10pF only.	**Termination** N = 100% Matte Tin over Nickel over a conductive Polymer X= Soft/Flex termination (5mm)	**Packaging** E = Embossed Tape (7" reel) U = Embossed Tape (13" reel) P = Paper Tape (7" reel) R = Paper Tape (13" reel)

Example P/N: AGC1206X7R500-473KNP

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

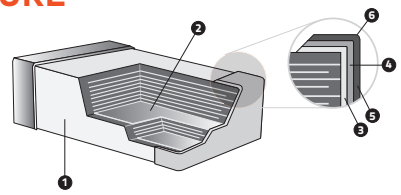
DIMENSIONS

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)	0.063 ± 0.008 (1.6 ± 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

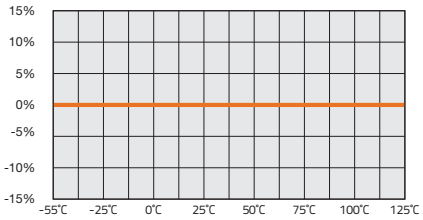


1	Ceramic Body (dielectric)	4	Silver Polymer
2	Inner Electrode	5	Nickel Plating
3	Inner Termination	6	100% Matte Tin (Sn)

ELECTRICAL SPECIFICATION & RANGE

C0G/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 ≤ 0.047uF
(whichever is less at 25°C, WDCV).
For Capacitance values > 0.047uF, the 500 Ω-F rule applies.
(The IR at 125°C is 10% of the value at 25°C)

Ageing: None

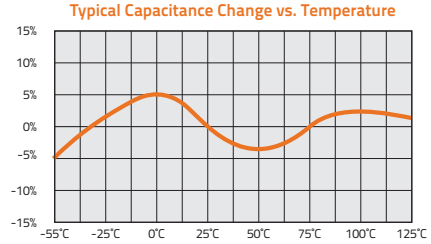
Withstanding Voltage: >2.5 times VDCW

Capacitance Tolerance: **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≥2.2μFF; 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

C0G (NP0) 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
0R1	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	0.50±0.05
0R2	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	0.50±0.05
0R3	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	0.50±0.05
0R4	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	0.50±0.05
0R5	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	0.50±0.05
0R6	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	0.50±0.05
0R7	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	0.50±0.05
0R8	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	0.50±0.05
0R9	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	0.50±0.05
151	150pF						0.50±0.05	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	0.50±0.05
221	220pF						0.50±0.05	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	0.50±0.05	
331	330pF						0.50±0.05	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	0.50±0.05	
471	470pF						0.50±0.05	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	0.50±0.05	
681	680pF						0.50±0.05	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	0.50±0.05	
102	1000pF						0.50±0.05	0.50±0.05	0.50±0.05	0.50±0.05	
122	1200pF										
152	1500pF										
182	1800pF										
222	2200pF										
272	2700pF										
332	3300pF										

CAPACITANCE CODE — CAPACITANCE VALUE

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

C0G (NP0) DIELECTRIC (0603)

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

Size (inches)		0603						
VDCW (MAX)		10V	16V	25V	50V	100V	200V	250V
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			

CAPACITANCE CODE

CAPACITANCE VALUE

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

C0G (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
0R5	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
0R6	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
0R7	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
0R8	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
0R9	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	0.60±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	0.60±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	0.60±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10
151	150pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	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	0.60±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
221	220pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
271	270pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
331	330pF	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
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±0.20	1.25±0.20
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±0.20	1.25±0.20
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±0.20	1.25±0.20
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±0.20	1.25±0.20
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±0.20	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±0.20	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±0.20	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±0.20	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±0.20	1.25±0.20
272	2700pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	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±0.10	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±0.10	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±0.10	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	1.25±0.10				
682	6800pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10				
822	8200pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10				
103	0.010uF	1.25±0.10	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	1.25±0.10				
153	0.015uF	1.25±0.10	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	1.25±0.10				
223	0.022uF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10				

CAPACITANCE CODE ↓ CAPACITANCE VALUE ↑

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

C0G (NP0) 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
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	

CAPACITANCE CODE — CAPACITANCE VALUE

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

C0G (NP0) 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	123	CAPACITANCE VALUE 0.012uF	1.25±0.20	1.25±0.20	1.25±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20			
	153	0.015uF	1.25±0.20	1.25±0.20	1.25±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20			
	183	0.018uF	1.25±0.20	1.25±0.20	1.25±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20			
	223	0.022uF	1.25±0.20	1.25±0.20	1.25±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20			
	273	0.027uF	1.25±0.20	1.25±0.20	1.25±0.20	1.60±0.20	1.60±0.20					
	333	0.033uF	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20					
	393	0.039uF	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20					
	473	0.047uF	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20					
	563	0.056uF	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20					
	683	0.068uF	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20					
	823	0.082uF	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20					
	104	0.10uF	1.60±0.20	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

C0G (NP0) 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		CAPACITANCE VALUE										
100		10pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
120		12pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
150		15pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
180		18pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
220		22pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
270		27pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
330		33pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
390		39pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
470		47pF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
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	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	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	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			1.60±0.20	1.60±0.20	1.60±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			1.60±0.20	1.60±0.20	1.60±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

C0G (NP0) 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	CAPACITANCE VALUE						
100	10pF						
120	12pF						
150	15pF						
180	18pF						
220	22pF						
270	27pF						
330	33pF						
390	39pF						
470	47pF						
560	56pF						
680	68pF						
820	82pF						
101	100pF						
121	120pF						
151	150pF						
181	180pF						
221	220pF						
271	270pF						
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	1.25±0.20
471	470pF			1.25±0.20	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	1.25±0.20
681	680pF			1.25±0.20	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	1.25±0.20
102	1000pF	1.60±0.20		1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20
122	1200pF	1.60±0.20		1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20
152	1500pF	2.00±0.20		1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20
182	1800pF	2.00±0.20		1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20
222	2200pF	2.00±0.20		1.25±0.20	1.25±0.20	1.25±0.20	1.25±0.20
272	2700pF	2.00±0.20		1.25±0.20	1.25±0.20	1.25±0.20	1.60±0.20
332	3300pF	2.00±0.20		1.25±0.20	1.25±0.20	1.25±0.20	1.60±0.20
392	3900pF	2.00±0.20		1.25±0.20	1.25±0.20	1.25±0.20	1.60±0.20
472	4700pF	2.00±0.20		1.25±0.20	1.25±0.20	1.25±0.20	2.00±0.20
562	5600pF	2.40±0.20		1.25±0.20	1.25±0.20	1.25±0.20	2.00±0.20
682	6800pF	2.40±0.20		1.25±0.20	1.25±0.20	1.25±0.20	2.40±0.20
822	8200pF			1.60±0.20	1.60±0.20	1.60±0.20	
103	0.010µF		1.25±0.20	1.60±0.20	1.60±0.20	1.60±0.20	
123	0.012µF		1.60±0.20	2.00±0.20	2.00±0.20	2.00±0.20	
153	0.015µF		1.60±0.20	2.00±0.20	2.00±0.20	2.00±0.20	
183	0.018µF		1.60±0.20	2.40±0.20	2.40±0.20	2.40±0.20	
223	0.022µF		2.00±0.20	2.40±0.20	2.40±0.20	2.40±0.20	
273	0.027µF		2.00±0.20	2.80±0.20	2.80±0.20	2.80±0.20	
333	0.033µF		2.00±0.20	3.20±0.20	3.20±0.20	3.20±0.20	
393	0.039µF		2.00±0.20	2.00±0.20	2.00±0.20		
473	0.047µF		2.40±0.20	2.00±0.20	2.00±0.20		
563	0.056µF			2.40±0.20	2.40±0.20		
683	0.068µF			2.40±0.20	2.40±0.20		
823	0.082µF			2.80±0.20	2.80±0.20		
104	0.1µF			2.80±0.20	2.80±0.20		

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	CAPACITANCE VALUE									
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.

VOLTAGE AND CAPACITANCE RANGE

X7R DIELECTRIC (0603, 0805)

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

SIZE (INCHES)			0603					0805								
VDCW (MAX)			10V	16V	25V	50V	100V	10V	16V	25V	50V	100V	200V	250V	500V	630V
CAPACITANCE CODE	CAPACITANCE VALUE															
101	100pF		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	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
121	120pF		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	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
151	150pF		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	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
181	180pF		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	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
221	220pF		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	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
271	270pF		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	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
331	330pF		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	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
391	390pF		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
471	470pF		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	0.80±0.10	0.80±0.10	0.80±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±0.10	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
681	680pF		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	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
821	820pF		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.10	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
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	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10
122	1200pF		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	0.80±0.10	0.80±0.10	0.80±0.10
152	1500pF		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	0.80±0.10	0.80±0.10	0.80±0.10
182	1800pF		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	0.80±0.10	0.80±0.10	0.80±0.10
222	2200pF		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	0.80±0.10	0.80±0.10	0.80±0.10
272	2700pF		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	0.80±0.10	0.80±0.10	0.80±0.10
332	3300pF		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	0.80±0.10	0.80±0.10	0.80±0.10
392	3900pF		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	0.80±0.10	0.80±0.10	0.80±0.10
472	4700pF		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	0.80±0.10	1.25±0.10	1.25±0.10
562	5600pF		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	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
682	6800pF		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	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
822	8200pF		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	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
103	0.010µF		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	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
123	0.012µF		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	1.25±0.10		
153	0.015µF		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	1.25±0.10		
183	0.018µF		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	1.25±0.10		
223	0.022µF		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	1.25±0.10		
273	0.027µF		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	1.25±0.10	1.25±0.20	1.25±0.20		
333	0.033µF		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10				
393	0.039µF		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10				
473	0.047µF		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10				
563	0.056µF		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10				
683	0.068µF		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10				
823	0.082µF		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10				
104	0.10µF		0.80±0.07	0.80±0.07	0.80±0.07	0.80±0.15	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10				
124	0.12µF		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	1.25±0.10	1.25±0.20				
154	0.15µF		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				
184	0.18µF		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				
224	0.22µF		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				
274	0.27µF		0.80±0.15	0.80±0.15	0.80±0.15			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20				
334	0.33µF		0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20				
394	0.39µF		0.80±0.15	0.80±0.15	0.80±0.15			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20				
474	0.47µF		0.80±0.15	0.80±0.15	0.80±0.15			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20				
564	0.56µF		0.80±0.15	0.80±0.15	0.80±0.15			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20				
684	0.68µF		0.80±0.15	0.80±0.15	0.80±0.15			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20				
824	0.82µF		0.80±0.15	0.80±0.15	0.80±0.15			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20				
105	1µF		0.80±0.15	0.80±0.15	0.80±0.15	0.80±0.15		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20				
225	2.2µF							1.25±0.15	1.25±0.15	1.25±0.15	1.25±0.20					
475	4.7µF							1.25±0.15	1.25±0.15							

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
CAPACITANCE CODE	CAPACITANCE VALUE											
101	100pF							1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.00±0.15
121	120pF							1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.00±0.15
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	1.00±0.15
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	1.00±0.15
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	1.00±0.15
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	1.00±0.15
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	1.00±0.15
391	390pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.00±0.15
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	1.00±0.15
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	1.00±0.15
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	1.00±0.15
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	1.00±0.15
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	1.60±0.20
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	1.60±0.20
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	1.60±0.20
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	1.60±0.20
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		1.60±0.20	1.60±0.20
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		1.60±0.20	1.60±0.20
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		1.60±0.20	1.60±0.20
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		1.60±0.20	1.60±0.20
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		1.25±0.20			
154	0.15µF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20		1.25±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		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		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
CAPACITANCE CODE	CAPACITANCE VALUE											
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	2.00±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	2.00±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	2.40±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	2.40±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	1.25±0.10	1.25±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	1.25±0.10	1.25±0.10			
823	0.082µF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.25±0.10	1.25±0.10			
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	1.60±0.20	1.60±0.20			
124	0.12µF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.20	2.00±0.20	1.60±0.20	1.60±0.20			
154	0.15µF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.20	2.00±0.20	2.00±0.20	2.00±0.20			
184	0.18µF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.20	2.00±0.20	2.00±0.20	2.00±0.20			
224	0.22µF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.20	2.00±0.20					
274	0.27µF	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.20						
334	0.33µF	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.20						
394	0.39µF	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.20						
474	0.47µF	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10	1.25±0.20						
564	0.56µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20						
684	0.68µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20						
824	0.82µF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20						
105	1µF	2.00±0.20	2.00±0.20	1.25±0.10	1.25±0.10	2.00±0.20						
155	1.5µF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20						
225	2.2µF	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30						
475	4.7µF	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30						
106	10µF	2.40±0.20	2.40±0.20	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	100V	630V	1000V	2000V	3000V	630V	1000V
CAPACITANCE CODE		CAPACITANCE VALUE										
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				2.40±0.20						
155		1.5µF				1.60±0.20						
225		2.2µF				1.60±0.20						
475		4.7µF	1.60±0.20			2.00±0.20						
106		10µF	1.60±0.20			2.80±0.20						
226		22µF	2.50±0.30									

RELIABILITY TEST CONDITIONS & REQUIREMENTS

<table>
<tr><th></th><th>ITEM</th><th>AEC-Q200 TEST CONDITION</th><th>REQUIREMENTS</th></tr>
<tr><td>1.</td><td>Visual and Mechanical</td><td>* Visual Inspection
* Measurement by precision caplipers</td><td>* No remarkable defect.
* Dimensions to conform to individual specification sheet.</td></tr>
<tr><td>2.</td><td>Electrical Characterization - Capacitance</td><td>Q/D.F. (Dissipation Factor)
Test Temp: Room Temperature.

Class I: (NP0)

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%

.</td><td>* Capacitance within the specified tolerance.
* Q/D.F. value:
NP0: 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></td></tr>
<tr><td>3.</td><td>Electrical Characterization- Insulation Resistance</td><td>Test Temp: Room Temperature.
To apply rated voltage(500V max.) for max. 120sec.</td><td>* 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="5">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><td></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></td></tr>
</table>

RELIABILITY TEST CONDITIONS & REQUIREMENTS

<table>
<tr><th></th><th>ITEM</th><th>AEC-Q200 TEST CONDITION</th><th>REQUIREMENTS</th></tr>
<tr><td>3.</td><td>Electrical Characterization-Dielectric Strength</td><td>* 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</td><td> No evidence of damage or flash over during test.

*Temperature Coefficient
Capacitance Change: NPO: Within ±30ppm/°C
X7R: Within ±15%</td></tr>
<tr><td>4.</td><td>High Temperature Exposure (Storage)

MIL-STD-202 Method 108</td><td>* 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.</td><td>* 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></td></tr>
</table>

RELIABILITY TEST CONDITIONS & REQUIREMENTS

<table>
<tr><th></th><th>ITEM</th><th>AEC-Q200 TEST CONDITION</th><th>REQUIREMENTS</th></tr>
<tr><td>5.</td><td>Temperature Cycling

JESD22
Method JA-104</td><td>* Conduct 1000 cycles according to the temperatures and time.

<table>
<tr><th>STEP</th><th>TEMP. (°C)</th><th>TIME (MIN.)</th></tr>
<tr><td>1</td><td>-55°C +0/-3</td><td>5±1</td></tr>
<tr><td>2</td><td>+125°C +3/-0</td><td>5±1</td></tr>
</table>

* Before initial measurement (X7R only): Perform 150+0/-10°CFOR 1hr and then set for 24±2 hrs at room temp.
* Measurement to be made after keeping at room temp. for 24±2 hrs.</td><td>* 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="5">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></td></tr>
</table>

RELIABILITY TEST CONDITIONS & REQUIREMENTS

<table>
<tr><th></th><th>ITEM</th><th>AEC-Q200 TEST CONDITION</th><th>REQUIREMENTS</th></tr>
<tr><td>6.</td><td>Moisture Resistance

MIL-STD-202
Method 106</td><td>* Test temp.: 25-65°C

* Humidity: 80-100% RH

* Test time: 10 cycles, t=24hrs/cycle.

* Measurement to be made after keeping at room temp. for 24±2 hrs.</td><td>* 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.: ≥ 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="5">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></td></tr>
</table>

RELIABILITY TEST CONDITIONS & REQUIREMENTS

<table>
<tr><th></th><th>ITEM</th><th>AEC-Q200 TEST CONDITION</th><th>REQUIREMENTS</th></tr>
<tr><td>7.</td><td>Biased Humidity

MIL-STD-202
Method 103</td><td>* 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.</td><td>* 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.
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) for rated voltage test
<table>
<tr><th>RATED VOLTAGE</th><th>INSULATION RESISTANCE</th></tr>
<tr><td>100V: All X7R; 1210≥3.3μF</td><td rowspan="5">500MΩ or
RxC ≥5Ω-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>
Class II (X7R) for 1.3-1.5Vdc
<table>
<tr><th>RATED VOLTAGE</th><th>INSULATION RESISTANCE</th></tr>
<tr><td>100V: All X7R; 1210≥3.3μF</td><td rowspan="5">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></td></tr>
</table>

RELIABILITY TEST CONDITIONS & REQUIREMENTS

<table>
<tr><th></th><th>ITEM</th><th>AEC-Q200 TEST CONDITION</th><th>REQUIREMENTS</th></tr>
<tr><td>8.</td><td>Operational Life

MIL-STD-202
Method 108</td><td>* 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.</td><td>* 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>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></td></tr>
<tr><td>9.</td><td>External Visual

MIL-STD-883
Method 2009</td><td>* Visual Inspection</td><td>* No remarkable defect.</td></tr>
<tr><td>10.</td><td>Physical Dimension

JESD22
Method JB-100</td><td>* Using by calipers</td><td>* Within the specified dimensions</td></tr>
</table>

RELIABILITY TEST CONDITIONS & REQUIREMENTS

<table>
<tr><th></th><th>ITEM</th><th>AEC-Q200 TEST CONDITION</th><th>REQUIREMENTS</th></tr>
<tr><td>11.</td><td>Resistance to Solvents

MIL-STD-202
Method 215</td><td>* Temperature.: 25±5°C

* Time: 3+0.5/-0 min.

* Solvent: Iso-propyl alcohol.</td><td>* No remarkable damage.
* Cap.: 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>
* 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</td><td rowspan="5">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>
</table>
<table>
<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></td></tr>
</table>

RELIABILITY TEST CONDITIONS & REQUIREMENTS

<table>
<tr><th></th><th>ITEM</th><th>AEC-Q200 TEST CONDITION</th><th>REQUIREMENTS</th></tr>
<tr><td>12.</td><td>Mechanical Shock

MIL-STD-202
Method 213</td><td>* Peak value: 1500g's

* Wave: 1/2 sine.

* Velocity: 15.4 ft/sec

* Three shocks in each direction should be applied along 3 mutually perpindicular axis of the test speicmen (18 shocks)</td><td>* No remarkable damage.
* Cap.: 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>
* 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</td><td rowspan="5">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>
</table>
<table>
<tr><th>RATED VOLTAGE</th><th>INSULATION RESISTANCE</th></tr>
<tr><td>100V: 1210≥3.3μF</td><td rowspan="5">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></td></tr>
</table>

RELIABILITY TEST CONDITIONS & REQUIREMENTS

<table>
<tr><th></th><th>ITEM</th><th>AEC-Q200 TEST CONDITION</th><th>REQUIREMENTS</th></tr>
<tr><td>13.</td><td>Vibration

MIL-STD-202
Method 204</td><td>* Vibration frequency: 10-2000Hz/min. (5g's for 20min)

* Total amplitude: 1.5mm.

* 12 cycles each of 3 orientations (36 times)</td><td>* No remarkable damage.
* Cap.: 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>
* I.R.: ≥ 10GΩ or RxC≥500Ω-F whichever is smaller
Class II (X7R) for rated voltage test
<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>
</table>
Class II (X7R) for 1.3-1.5Vdc
<table>
<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></td></tr>
</table>

RELIABILITY TEST CONDITIONS & REQUIREMENTS

<table>
<tr><th></th><th>ITEM</th><th>AEC-Q200 TEST CONDITION</th><th>REQUIREMENTS</th></tr>
<tr><td>14.</td><td>Resistance to Soldering Heat

MIL-STD-202
Method 210</td><td>* Solder temperature: 260±5°C

* Dipping time: 10±1 sec

* Before initial measurement (X7R only): Perform 150+0/-10°C for 1 hr and then set for 24±2 hrs at room temp.

* Measurement to be made after keeping at room temp. for 24±2 hrs</td><td>* No remarkable damage.
* Cap. change: NPO: within ±2.5% or 0.25pF whichever is larger
X7R: within ±7.5%
* 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>
* 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</td><td rowspan="5">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>
</table>
<table>
<tr><th>RATED VOLTAGE</th><th>INSULATION RESISTANCE</th></tr>
<tr><td>100V: 1210≥3.3µF</td><td rowspan="5">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></td></tr>
</table>

RELIABILITY TEST CONDITIONS & REQUIREMENTS

<table>
<tr><th></th><th>ITEM</th><th>AEC-Q200 TEST CONDITION</th><th>REQUIREMENTS</th></tr>
<tr><td>15.</td><td>Thermal Shock

MIL-STD-202
Method 107</td><td>* Conduct 300 cycles according to the temperatures and time.

<table><tr><th>STEP</th><th>TEMP. (°C)</th><th>TIME (MIN.)</th></tr><tr><td>1</td><td>-55°C +0/-3</td><td>15±3</td></tr><tr><td>2</td><td>+125°C +3/-0</td><td>15±3</td></tr></table>
* 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.</td><td>* 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></td></tr>
<tr><td>16.</td><td>Solerability

J-STD-002
JESD22-B102E</td><td>* 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.</td><td>* 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.</td></tr>
</table>

RELIABILITY TEST CONDITIONS & REQUIREMENTS

<table>
<tr><th></th><th>ITEM</th><th>AEC-Q200 TEST CONDITION</th><th>REQUIREMENTS</th></tr>
<tr><td>17.</td><td>ESD

AEC-Q200-002</td><td>* Per AEC-Q200-002</td><td>
* No remarkable damage.
* Cap. change: 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>
* 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</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>
</table>
<table>
<tr><th>RATED VOLTAGE</th><th>INSULATION RESISTANCE</th></tr>
<tr><td>100V: 1210≥3.3μF</td><td rowspan="5">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>
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RELIABILITY TEST CONDITIONS & REQUIREMENTS

<table>
<tr><th></th><th>ITEM</th><th>AEC-Q200 TEST CONDITION</th><th>REQUIREMENTS</th></tr>
<tr><td>18.</td><td>Terminal Strength

AEC-Q200-006</td><td>* Pressurizing force: 2N (0201 & 0402), 10N(0603), 18N(≥0805).

* Test time: 60±1 sec.</td><td>* 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></td></tr>
<tr><td>19.</td><td>Board Flex

AEC-Q200-005</td><td>* 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.</td><td>* No remarkable damage

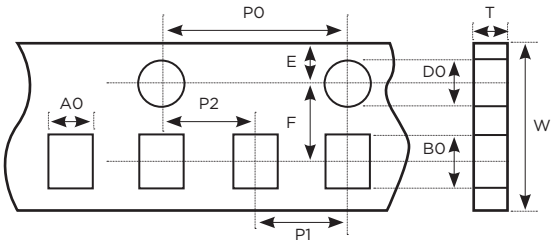
* Cap change: NPO: within ±5% or ±0.5pF whichever is larger.
X7R: within ±12.5%
(This capacitance change means the change of capacitance under specified flexure of substrate from the capacitance measured before the test.)</td></tr>
<tr><td>20.</td><td>Beam Load Test

AEC-Q200-003</td><td>* Break strength test

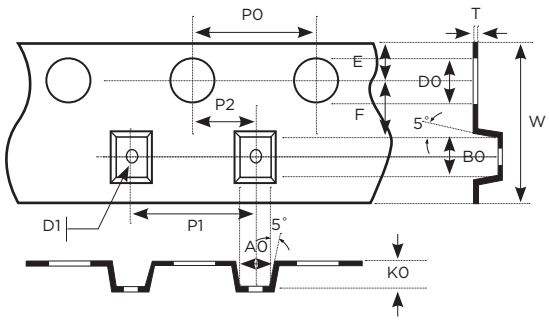
* Beam speed: 2.5±.25mm/sec</td><td>* The chip endures following force
(1) Chip length ≤2.5mm: Thickness>0.5mm (20N), ≤0.5mm (8N)
(2) Chip length ≥3.2mm: Thickness≥1.25mm (54.5N), <1.25mm (15N)</td></tr>
<tr><td>21.</td><td>Destructive Physical Analysis

EIA-469</td><td>* Per EIA-469</td><td>* No defects or abnormalities.</td></tr>
</table>

TAPE AND REEL SPECIFICATIONS



PAPER TAPE DIMENSIONS

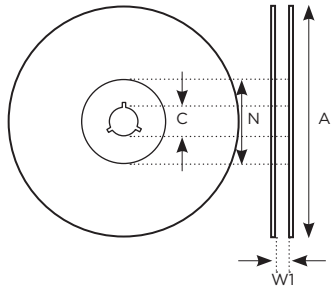


PLASTIC TAPE DIMENSIONS

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



REEL DIMENSIONS

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
	1.60+0.30/-0.1	-	-	2K	9K
1210	0.95±0.10	-	-	3K	10K
	1.25±0.10	-	-	3K	10K
	1.60±0.20	-	-	2K	8K
	2.00±0.20	-	-	1K	6K
	2.50±0.30	-	-	1K	6K
1812	1.25±0.20	-	-	1K	N/A
	1.60±0.20	-	-	1K	N/A
	2.00±0.20	-	-	1K	N/A
	2.40±0.20	-	-	700	N/A
1825	1.25±0.20	-	-	700	N/A
	1.60±0.20	-	-	700	N/A
	2.00±0.20	-	-	700	N/A
	2.40±0.20	-	-	400	N/A
2220	1.25±0.20	-	-	1K	N/A
	1.60±0.20	-	-	1K	N/A
	2.00±0.20	-	-	1K	N/A
	2.40±0.20	-	-	700	N/A
	3.20±0.20	-	-	700	N/A
2225	1.25±0.20	-	-	700	N/A
	1.60±0.20	-	-	700	N/A
	2.00±0.20	-	-	700	N/A
	2.40±0.20	-	-	400	N/A
	2.80±0.20	-	-	400	N/A