HVC SERIES
HIGH VOLTAGE CERAMIC CAPACITORS

VENKEL LTD.

FEATURES:

- Capacitance range: 0.1pF to 2.2uF
- Voltage range: 200V to 5000V
- Ceramic monolithic structure provides excellent reliability
- High-speed automated placement capabilities

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

PART NUMBER STRUCTURE

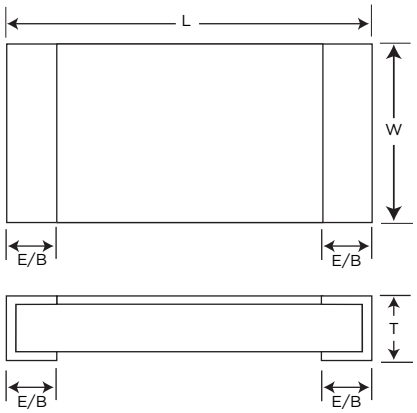
C	1808	X7R	202	—	102	K	N	E
Ceramic Capacitor	**Size** 0402 0603 0805 1206 1210 1808 1812 1825 2220 2225	**Temperature Characteristic** (Dielectric) C0G X7R X7T	**Rated Voltage** 1st two digits are significant followed by number of zeroes. 201 = 200V 251 = 250V 401 = 400V 451 = 450V 501 = 500V 601 = 600V 631 = 630V 102 = 1000V 202 = 2000V 302 = 3000V 402 = 4000V 502 = 5000V		**Capacitance** (picofarads) 1st two digits are significant, followed by number of zeroes. R denotes decimal **e.g:** 101 = 100pF R denotes decimal 6R8 = 6.8pF	**Tolerance** *B = ± 0.10pF *C = ± 0.25pF *D = ± 0.50pF F = ± 1% G = ± 2% J = ± 5% K = ± 10% M = ± 20% N = ± 30% * For values below 10pF only.	**Termination** N = 100% matte Tin (Sn) over nickel.	**Packaging** E = Embossed Tape P = Paper Tape

Example P/N: C1808X7R202-102KNE

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

DIMENSIONS

Unit: inch (mm)

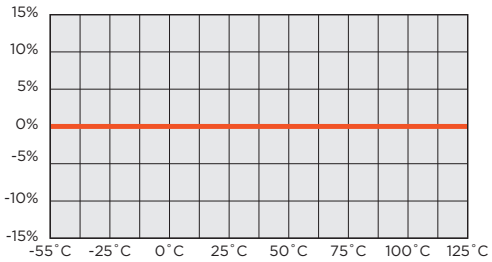


SIZE	L	W	T	E/B
0402	0.039 ± 0.004 (1.00 ± 0.10)	0.020 ± 0.004 (0.50 ± 0.10)	See Specific Value	0.010 ± 0.004 (0.25 ± 0.10)
0603	0.063 ± 0.008 (1.60 ± 0.20)	0.0315 ± 0.008 (0.80 ± 0.20)	See Specific Value	0.0158 ± 0.006 (0.40 ± 0.15)
0805	0.079 ± 0.008 (2.00 ± 0.20)	0.05 ± 0.008 (1.25 ± 0.20)	See Specific Value	0.020 ± 0.008 (0.50 ± 0.20)
1206	0.130 ± 0.012 (3.30 ± 0.30)	0.063 ± 0.008 (1.60 ± 0.20)	See Specific Value	0.0236 ± 0.008 (0.60 ± 0.20)
1210	0.130 ± 0.016 (3.30 ± 0.40)	0.0985 ± 0.012 (2.50 ± 0.30)	See Specific Value	0.0295 ± 0.014 (0.75 ± 0.35)
1808	0.177 ± 0.016 (4.50 ± 0.40)	0.080 ± 0.010 (2.03 ± 0.25)	See Specific Value	0.0295 ± 0.014 (0.75 ± 0.35)
1812	0.177 ± 0.016 (4.50 ± 0.40)	0.126 ± 0.016 (3.20 ± 0.40)	See Specific Value	0.0295 ± 0.014 (0.75 ± 0.35)
1825	0.177 ± 0.016 (4.50 ± 0.40)	0.252 ± 0.016 (6.40 ± 0.40)	See Specific Value	0.0295 ± 0.014 (0.75 ± 0.35)
2220	0.225 ± 0.016 (5.70 ± 0.40)	0.197 ± 0.016 (5.00 ± 0.40)	See Specific Value	0.0335 ± 0.014 (0.85 ± 0.35)
2225	0.225 ± 0.016 (5.70 ± 0.40)	0.248 ± 0.016 (6.30 ± 0.40)	See Specific Value	0.0335 ± 0.014 (0.85 ± 0.35)

ELECTRICAL SPECIFICATION

C0G (NP0)

Typical Capacitance Change vs. Temperature

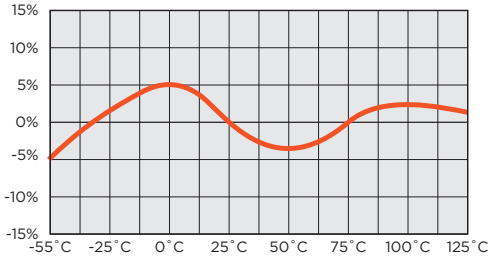


Operating Temperature Range:
-55°C to +125°C
Temperature Coefficient:
0 ±30PPM/°C
Temperature Voltage Coefficient:
0 ±30PPM/°C
Insulation Resistance:
>100 Ω-F or 10 GΩ, whichever is less at 25°C, WDCV.
(The IR at 125°C is 10% of the value at 25°C)
Withstanding Voltage:
See below
Capacitance Tolerance:
C, D, F, G, J, K

Dielectric Strength is equal to 1.5 times rated voltage (WVDC) for 500 volt capacitors and 1.2 times (WVDC) for 1,000 through 5,000 volt capacitors.
Circuit applications in excess of 1,000 volts may require a surface coating to prevent external arcing.

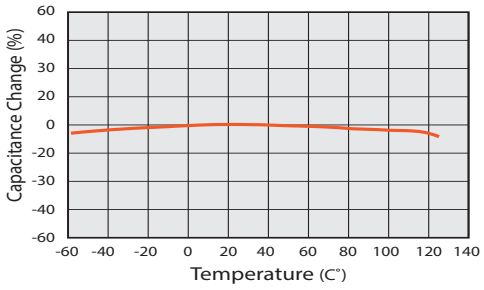
X7R

Typical Capacitance Change vs. Temperature



Operating Temperature Range:
-55°C to +125°C
Temperature Coefficient:
0 ±15%Δ°C MAX.
Temperature Voltage Coefficient:
X7R not applicable
Insulation Resistance:
>100 ohms F or 10 G ohms, whichever
is less at 25°C, WDCV.
(The IR at 125°C is 10% of the value at 25°C)
Withstanding Voltage:
1.5 x WVDC for 5 sec.
D.F. Specification:
≥50V, ≤2.5%
Capacitance Tolerance:
J,K,M,N

X7T



Operating Temperature Range:
-55°C to +125°C
Temperature Coefficient:
+22% ~ -33% ~ Δ°C MAX.
Temperature Voltage Coefficient:
X7T not applicable
Insulation Resistance:
>100 ohms F or 10 G ohms, whichever
is less at 25°C, WDCV.
(The IR at 125°C is 10% of the value at 25°C)
Withstanding Voltage:
1.5 x WVDC for 5 sec.
D.F. Specification:
≥50V, ≤2.5%
Capacitance Tolerance:
K,M,N

TEST PARAMETERS

Test parameters for Multilayer Ceramic Capacitors - X7R/X7T:	1KHz ± 50Hz at 1.0 ± 0.2 Vrms, 25°C
Test parameters for Multilayer Ceramic Capacitors - C0G (NP0):	1MHz ± 50KHz at 1.0 ± 0.2 Vrms ≤ 1000pF, 25°C 1KHz ± 50Hz at 1.0 ± 0.2 Vrms > 1000pF, 25°C

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

VOLTAGE AND CAPACITANCE RANGE

C0G (NP0) DIELECTRIC

Values that are typically available.

All measurements in mm

SIZE			0402		0603		0805				
VDCW (MAX)			200V	250V	200V	250V	200V	250V	500V	600V / 630V	1kV
CAPACITANCE CODE		CAPACITANCE VALUE									
0R1		0.1pF	0.50±0.05	0.50±0.05							
0R2		0.2pF	0.50±0.05	0.50±0.05							
0R3		0.3pF	0.50±0.05	0.50±0.05							
0R4		0.4pF	0.50±0.05	0.50±0.05							
0R5		0.5pF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
1R0		1.0pF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
1R2		1.2pF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
1R5		1.5pF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
1R8		1.8pF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
2R2		2.2pF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
2R7		2.7pF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
3R3		3.3pF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
3R9		3.9pF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
4R7		4.7pF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
5R6		5.6pF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
6R8		6.8pF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
8R2		8.2pF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
100		10pF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	0.85±0.15
120		12pF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
150		15pF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
180		18pF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
220		22pF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
270		27pF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
330		33pF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
390		39pF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
470		47pF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
560		56pF	0.50±0.05	0.50±0.05	0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
680		68pF	0.50±0.05		0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.60±0.10	0.60±0.10	1.25±0.10
820		82pF	0.50±0.05		0.80±0.07	0.80±0.07	0.60±0.10	0.60±0.10	0.80±0.10	0.80±0.10	1.25±0.10
101		100pF	0.50±0.05		0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10
121		120pF			0.80±0.07	0.80±0.07	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10
151		150pF			0.80±0.07	0.80±0.07	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
181		180pF			0.80±0.07	0.80±0.07	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
221		220pF			0.80±0.07	0.80±0.07	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
271		270pF			0.80±0.15	0.80±0.15	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
331		330pF			0.80±0.15	0.80±0.15	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
391		390pF			0.80±0.15	0.80±0.15	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
471		470pF			0.80±0.15	0.80±0.15	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20	
561		560pF			0.80±0.15	0.80±0.15	1.25±0.10	0.85±0.15	1.25±0.20	1.25±0.20	
681		680pF			0.80±0.15	0.80±0.15	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20	
821		820pF			0.80±0.15	0.80±0.15	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20	
102		1000pF			0.80±0.15	0.80±0.15	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20	
122		1200pF			0.80±0.15	0.80±0.15	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20	
152		1500pF			0.80±0.15	0.80±0.15	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20	
182		1800pF			0.80±0.15	0.80±0.15	0.85±0.15	0.85±0.15	1.25±0.20	1.25±0.20	
222		2200pF			0.80±0.15	0.80±0.15	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.20	
272		2700pF					1.25±0.20	1.25±0.20			
332		3300pF					1.25±0.20	1.25±0.20			
392		3900pF					1.25±0.20	1.25±0.20			
472		4700pF					1.25±0.20	1.25±0.20			
562		5600pF									
682		6800pF									
822		8200pF									
103		0.01uF									
123		0.012uF									
153		0.015uF									
183		0.018uF									
223		0.022uF									
273		0.027uF									
333		0.033uF									
393		0.039uF									
473		0.047uF									
563		0.056uF									
683		0.068uF									
823		0.082uF									
104		0.10uF									

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

VOLTAGE AND CAPACITANCE RANGE

C0G (NP0) DIELECTRIC

Values that are typically available.

All measurements in mm

SIZE			1206							1210				
VDCW (MAX)			200V	250V	500V	600V / 630V	1KV	2KV	3KV	200V	250V	500V	600V / 630V	1KV
CAPACITANCE CODE		CAPACITANCE VALUE												
0R1		0.1pF												
0R2		0.2pF												
0R3		0.3pF												
0R4		0.4pF												
0R5		0.5pF												
1R0		1.0pF												
1R2		1.2pF												
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						
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						
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						
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						
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	1.25±0.20					
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	1.25±0.20					
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	1.25±0.20					
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	1.25±0.20					
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	1.25±0.20					
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	1.25±0.20					
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	1.25±0.20	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±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	1.25±0.20	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±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	1.25±0.20	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±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	1.25±0.20	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±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	1.25±0.20	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±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	1.60±0.20	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
330		33pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	1.60±0.20	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
390		39pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	1.60±0.20	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
470		47pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.95±0.10	1.60±0.20	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
560		56pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
680		68pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.20		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
820		82pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10
101		100pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10
121		120pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.60±0.20		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10
151		150pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.20		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10
181		180pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.60±0.20	1.60±0.20		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.10
221		220pF	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	1.60±0.20	1.60±0.20		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20
271		270pF	0.80±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.60±0.30		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20
331		330pF	0.80±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.60±0.30		0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20
391		390pF	0.80±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20	1.60±0.20		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	1.60±0.20			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	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20			0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20
681		680pF	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20			0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.60±0.20
821		820pF	0.95±0.10	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20			0.95±0.10	0.95±0.10	0.95±0.10	0.95±0.10	1.25±0.20
102		1000pF	0.95±0.10	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20
122		1200pF	0.95±0.10	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
152		1500pF	1.25±0.10	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
182		1800pF	1.25±0.10	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
222		2200pF	1.25±0.10	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
272		2700pF	1.25±0.10	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
332		3300pF	1.25±0.10	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
392		3900pF	1.25±0.10	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
472		4700pF	1.00±0.10	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20			1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	2.00±0.20
562		5600pF	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20				1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	2.00±0.20
682		6800pF	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20				1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	2.00±0.20
822		8200pF	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20				1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20	2.00±0.20
103		0.01uF	1.60±0.20	1.60±0.20	1.60±0.20	1.60±0.20				1.60±0.20	1.60±0.20	2.00±0.20	2.00±0.20	2.00±0.20
123		0.012uF								2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30	2.50±0.30
153		0.015uF								2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30	2.50±0.30
183		0.018uF								2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30	2.50±0.30
223		0.022uF								2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30	2.50±0.30
273		0.027uF								2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30	
333		0.033uF								2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30	
393		0.039uF								2.00±0.20	2.00±0.20			
473		0.047uF								2.00±0.20	2.00±0.20			
563		0.056uF												
683		0.068uF												
823		0.082uF												
104		0.10uF												

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

VOLTAGE AND CAPACITANCE RANGE

C0G (NP0) DIELECTRIC

Values that are typically available.

All measurements in mm

SIZE			1808						1812						
VDCW (MAX)			500V	600V / 630V	1kV	2kV	3kV	5kV	200V	250V	500V	600V / 630V	1kV	2kV	3kV
CAPACITANCE CODE	CAPACITANCE VALUE														
0R1	0.1pF														
0R2	0.2pF														
0R3	0.3pF														
0R4	0.4pF														
0R5	0.5pF														
1R0	1.0pF														
1R2	1.2pF														
1R5	1.5pF														
1R8	1.8pF		1.25±0.10	1.25±0.10											
2R2	2.2pF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20							1.25±0.20
2R7	2.7pF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20							1.25±0.20
3R3	3.3pF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20							1.25±0.20
3R9	3.9pF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20							1.25±0.20
4R7	4.7pF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20							1.25±0.20
5R6	5.6pF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20							1.25±0.20
6R8	6.8pF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20							1.25±0.20
8R2	8.2pF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20							1.25±0.20
100	10pF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
120	12pF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
150	15pF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	2.00±0.20	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
180	18pF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
220	22pF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	2.00±0.20	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
270	27pF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
330	33pF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
390	39pF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
470	47pF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20
560	56pF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
680	68pF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
820	82pF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
101	100pF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
121	120pF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
151	150pF		1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
181	180pF		1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
221	220pF		1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
271	270pF		2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20
331	330pF		2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20
391	390pF		2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20
471	470pF		2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	1.60±0.20
561	560pF		2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.00±0.20
681	680pF		2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.00±0.20
821	820pF		2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.10			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.30
102	1000pF		2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20			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
122	1200pF		2.00±0.20	2.00±0.20	1.60±0.20	1.60±0.20			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20		
152	1500pF		2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20		
182	1800pF		2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20		
222	2200pF		2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20			1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20		
272	2700pF		2.00±0.20	2.00±0.20	2.00±0.20				1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20		
332	3300pF		2.00±0.20	2.00±0.20	2.00±0.20				1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20		
392	3900pF								1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.10	2.50±0.30		
472	4700pF								1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.10	2.00±0.20		
562	5600pF								1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.30		
682	6800pF								1.25±0.20	1.25±0.20	1.25±0.10	1.25±0.10			
822	8200pF										1.25±0.10	1.25±0.10			
103	0.01uF								1.25±0.20	1.25±0.20	1.25±0.10	1.25±0.10			
123	0.012uF										1.60±0.20	1.60±0.20			
153	0.015uF										1.60±0.20	1.60±0.20			
183	0.018uF										2.00±0.20	2.00±0.20			
223	0.022uF										2.00±0.20	2.00±0.20			
273	0.027uF														
333	0.033uF														
393	0.039uF														
473	0.047uF														
563	0.056uF														
683	0.068uF														
823	0.082uF														
104	0.10uF														

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

VOLTAGE AND CAPACITANCE RANGE

C0G (NP0) DIELECTRIC

Values that are typically available.

All measurements in mm

SIZE			1825						2220						
VDCW (MAX)			200V / 250V	500V	600V / 630V	1kV	2kV	3kV	200V / 250V	500V	600V / 630V	1KV	2KV	3kV	5KV
CAPACITANCE CODE		CAPACITANCE VALUE													
0R1		0.1pF													
0R2		0.2pF													
0R3		0.3pF													
0R4		0.4pF													
0R5		0.5pF													
1R0		1.0pF													
1R2		1.2pF													
1R5		1.5pF													
1R8		1.8pF													
2R2		2.2pF													1.25±0.20
2R7		2.7pF													1.25±0.20
3R3		3.3pF													1.25±0.20
3R9		3.9pF													1.25±0.20
4R7		4.7pF													1.25±0.20
5R6		5.6pF													1.25±0.20
6R8		6.8pF													1.25±0.20
8R2		8.2pF													1.25±0.20
100		10pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20
120		12pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20
150		15pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20
180		18pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20
220		22pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20
270		27pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20
330		33pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.60±0.20
390		39pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.60±0.20
470		47pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.60±0.20
560		56pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.60±0.20
680		68pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.60±0.20
820		82pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.60±0.20
101		100pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.60±0.20
121		120pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.60±0.20
151		150pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.60±0.20
181		180pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	
221		220pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	
271		270pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	
331		330pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	
391		390pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	
471		470pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	
561		560pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	
681		680pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	
821		820pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	
102		1000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	
122		1200pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30	2.50±0.30	
152		1500pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30		2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30	2.50±0.30	
182		1800pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30		2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30		
222		2200pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30		2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30		
272		2700pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30		2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30		
332		3300pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30		2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30		
392		3900pF	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30		2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30		
472		4700pF	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30		2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30		
562		5600pF	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30			2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30			
682		6800pF	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30			2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30			
822		8200pF	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30			2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30			
103		0.01uF	2.00±0.20	1.60±0.20	2.00±0.20	2.50±0.30			2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30			
123		0.012uF	2.00±0.20	2.00±0.20	2.00±0.20				2.00±0.20	2.00±0.20	2.00±0.20				
153		0.015uF	2.00±0.20	2.00±0.20	2.00±0.20				2.00±0.20	2.00±0.20	2.00±0.20				
183		0.018uF	2.00±0.20	2.00±0.20	2.00±0.20				2.00±0.20	2.00±0.20	2.00±0.20				
223		0.022uF	2.00±0.20	2.00±0.20	2.00±0.20				2.00±0.20	2.00±0.20	2.00±0.20				
273		0.027uF	2.00±0.20	2.00±0.20	2.00±0.20				2.00±0.20	2.00±0.20	2.00±0.20				
333		0.033uF	2.00±0.20	2.00±0.20	2.00±0.20				2.00±0.20	2.00±0.20	2.00±0.20	2.40±0.30			
393		0.039uF	2.00±0.20	2.50±0.30	2.50±0.30				2.00±0.20	2.00±0.20	2.00±0.20				
473		0.047uF	2.00±0.20						2.50±0.30	2.50±0.30	2.50±0.30				
563		0.056uF	2.50±0.30						2.50±0.30	2.50±0.30	2.50±0.30				
683		0.068uF	2.50±0.30						2.50±0.30	2.80±0.30	2.80±0.30				
823		0.082uF								2.80±0.30	2.80±0.30				
104		0.10uF								2.80±0.30	2.80±0.30				

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

VOLTAGE AND CAPACITANCE RANGE

C0G (NP0) DIELECTRIC

Values that are typically available.

All measurements in mm

SIZE			2225					
VDCW (MAX)			200V / 250V	500V	600V / 630V	1KV	2KV	3kV
CAPACITANCE CODE		CAPACITANCE VALUE						
0R1		0.1pF						
0R2		0.2pF						
0R3		0.3pF						
0R4		0.4pF						
0R5		0.5pF						
1R0		1.0pF						
1R2		1.2pF						
1R5		1.5pF						
1R8		1.8pF						
2R2		2.2pF						
2R7		2.7pF						
3R3		3.3pF						
3R9		3.9pF						
4R7		4.7pF						
5R6		5.6pF						
6R8		6.8pF						
8R2		8.2pF						
100		10pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
120		12pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
150		15pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
180		18pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
220		22pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
270		27pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
330		33pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
390		39pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
470		47pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
560		56pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
680		68pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
820		82pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
101		100pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
121		120pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
151		150pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
181		180pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
221		220pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20
271		270pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
331		330pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
391		390pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
471		470pF	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	2.00±0.20	2.00±0.20
561		560pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
681		680pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
821		820pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30
102		1000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30
122		1200pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	
152		1500pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	
182		1800pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	
222		2200pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.40±0.20
272		2700pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	
332		3300pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	
392		3900pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	
472		4700pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	
562		5600pF	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30	
682		6800pF	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30	
822		8200pF	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30	
103		0.01uF	2.00±0.20	1.60±0.20	2.00±0.20	2.50±0.30	2.50±0.30	
123		0.012uF	2.00±0.20	2.00±0.20	2.00±0.20			
153		0.015uF	2.00±0.20	2.00±0.20	2.00±0.20			
183		0.018uF	2.00±0.20	2.00±0.20	2.00±0.20			
223		0.022uF	2.00±0.20	2.00±0.20	2.00±0.20			
273		0.027uF	2.00±0.20	2.00±0.20	2.00±0.20			
333		0.033uF	2.00±0.20	2.00±0.20	2.00±0.20			
393		0.039uF	2.00±0.20	2.00±0.20	2.00±0.20			
473		0.047uF	2.00±0.20	2.00±0.20	2.00±0.20			
563		0.056uF	2.50±0.30	2.50±0.30	2.50±0.30			
683		0.068uF	2.50±0.30	2.50±0.30	2.50±0.30			
823		0.082uF	2.50±0.30	2.50±0.30				
104		0.10uF	2.50±0.30					

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

VOLTAGE AND CAPACITANCE RANGE

X7R DIELECTRIC

Values that are typically available.

All measurements in mm

SIZE			0603	0805					1206				
VDCW (MAX)			200V / 250V	200V	250V	500V	600V / 630V	1kV	200V / 250V	500V	600V / 630V	1kV	2kV
CAPACITANCE CODE		CAPACITANCE VALUE											
101		100pF	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	1.25±0.10	1.25±0.10	1.25±0.10
121		120pF	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	1.25±0.10	1.25±0.10	1.25±0.10
151		150pF	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	1.25±0.10	1.25±0.10	1.25±0.10
181		180pF	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	1.25±0.10	1.25±0.10	1.25±0.10
221		220pF	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	1.25±0.10	0.80±0.10	0.85±0.15
271		270pF	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	1.25±0.10	1.25±0.10	1.25±0.10
331		330pF	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	1.25±0.10	1.25±0.10	1.25±0.10
391		390pF	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	1.25±0.10	1.25±0.10	1.25±0.10
471		470pF	0.80±0.15	0.80±0.10	0.80±0.10	0.85±0.15	0.80±0.10	0.85±0.15	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
561		560pF	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.85±0.15	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
681		680pF	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.85±0.15	0.80±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10
821		820pF	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.85±0.15	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10
102		1000pF	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.85±0.15	0.85±0.15	0.85±0.15	1.25±0.10	1.25±0.10	1.25±0.10
122		1200pF	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	1.25±0.10	1.25±0.10	1.60±0.20
152		1500pF	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±0.10	0.80±0.10	0.80±0.10	1.25±0.10	1.60±0.20
182		1800pF	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±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20
222		2200pF	0.80±0.15	0.80±0.10	0.80±0.10	0.80±0.10	0.80±0.10	0.85±0.15	0.80±0.10	1.25±0.10	0.85±0.15	1.25±0.10	1.60±0.20
272		2700pF	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±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20
332		3300pF	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±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20
392		3900pF	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±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
472		4700pF	0.80±0.15	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
562		5600pF	0.80±0.15	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
682		6800pF	0.80±0.15	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
822		8200pF	0.80±0.15	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	
103		0.01uF	0.80±0.15	0.80±0.10	0.80±0.10	1.25±0.10	1.25±0.10	1.25±0.10	0.80±0.10	0.95±0.10	0.95±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	1.25±0.10	1.25±0.20	1.60±0.20	
153		0.015uF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10		1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	
183		0.018uF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10		1.25±0.10	1.25±0.10	1.25±0.10		
223		0.022uF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10		1.25±0.10	1.60±0.20	1.60±0.20		
273		0.027uF		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10		1.25±0.10	1.60±0.20	1.60±0.20		
333		0.033uF		1.25±0.10	1.25±0.10	1.25±0.10			1.60±0.20	1.60±0.20	1.60±0.20		
393		0.039uF		1.25±0.10	1.25±0.10				1.60±0.20	1.60±0.20	1.60±0.20		
473		0.047uF		1.25±0.20	1.25±0.10				0.85±0.15	1.25±0.20	1.60±0.20		
563		0.056uF		1.25±0.10	1.25±0.10				1.60±0.20	1.60±0.20	1.60±0.20		
683		0.068uF		1.25±0.10	1.25±0.10				1.60±0.20	1.60±0.20			
823		0.082uF		1.25±0.10					1.60±0.20				
104		0.10uF		1.25±0.10	0.85±0.15				1.60±0.20				
124		0.12uF							1.60±0.20				
154		0.15uF							1.60±0.20				
184		0.18uF							1.60±0.20				
224		0.22uF							1.60±0.20				
274		0.27uF											
334		0.33uF											
394		0.39uF											
474		0.47uF											
564		0.56uF											
684		0.68uF											
824		0.82uF											
105		1.0uF											
155		1.5uF											
225		2.2uF											

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

Values that are typically available.

All measurements in mm

SIZE			1210					1808					
CAPACITANCE CODE		CAPACITANCE VALUE	VDCW (MAX) 200V / 250V	500V	600V / 630V	1kV	2kV	500V	600V / 630V	1kV	2kV	3kV	4kV
101		100pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10						
121		120pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10						
151		150pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10		1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
181		180pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
221		220pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
271		270pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20
331		330pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20
391		390pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20
471		470pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	1.60±0.20
561		560pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20
681		680pF	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20
821		820pF	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20
102		1000pF	0.95±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	1.25±0.20	2.00±0.20
122		1200pF	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.30	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	
152		1500pF	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.00±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	1.25±0.20	
182		1800pF	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.30	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	
222		2200pF	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	2.00±0.20	
272		2700pF	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.30	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	2.00±0.20	
332		3300pF	0.95±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.30	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	2.00±0.20	
392		3900pF	0.95±0.10	1.25±0.10	1.25±0.10	1.60±0.20	2.50±0.30	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.60±0.20	
472		4700pF	0.95±0.10	1.25±0.10	1.25±0.10	1.60±0.20	1.60±0.20	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	
562		5600pF	0.95±0.10	1.25±0.10	1.25±0.10	1.60±0.20	2.50±0.30	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	
682		6800pF	0.95±0.10	1.25±0.10	1.25±0.10	1.60±0.20	2.50±0.30	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		
822		8200pF	0.95±0.10	1.25±0.10	1.25±0.10	1.60±0.20	2.50±0.30	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20		
103		0.01uF	0.95±0.10	1.25±0.10	1.25±0.10	1.60±0.20		2.00±0.20	2.00±0.20	2.00±0.20	1.60±0.20		
123		0.012uF	0.95±0.10	1.25±0.10	1.25±0.10	1.60±0.20		2.00±0.20	2.00±0.20	2.00±0.20			
153		0.015uF	0.95±0.10	1.25±0.10	1.25±0.10	1.60±0.20		2.00±0.20	2.00±0.20	2.00±0.20			
183		0.018uF	0.95±0.10	1.25±0.10	1.25±0.10	1.60±0.20		2.00±0.20	2.00±0.20	2.00±0.20			
223		0.022uF	0.95±0.10	1.25±0.10	1.25±0.10	1.60±0.20		2.00±0.20	2.00±0.20	2.00±0.20			
273		0.027uF	0.95±0.10	1.60±0.20	1.60±0.20	1.60±0.20		2.00±0.20	2.00±0.20	2.00±0.20			
333		0.033uF	0.95±0.10	1.00±0.10	1.60±0.20	1.60±0.20		2.00±0.20	2.00±0.20	2.00±0.20			
393		0.039uF	0.95±0.10	1.60±0.20	1.60±0.20	2.00±0.20		2.00±0.20	2.00±0.20	2.00±0.20			
473		0.047uF	1.25±0.10	1.60±0.20	1.60±0.20	2.50±0.30		2.00±0.20	2.00±0.20	2.00±0.20			
563		0.056uF	1.25±0.10	1.60±0.20	1.60±0.20			2.00±0.20	2.00±0.20	2.00±0.20			
683		0.068uF	1.60±0.20	2.00±0.20	2.00±0.20			2.00±0.20	2.00±0.20				
823		0.082uF	1.60±0.20	2.00±0.20	2.00±0.20			2.00±0.20	2.00±0.20				
104		0.10uF	1.60±0.20	2.00±0.20	2.00±0.20								
124		0.12uF	1.60±0.20	2.50±0.30	2.50±0.30								
154		0.15uF	2.50±0.30	2.50±0.30	2.50±0.30								
184		0.18uF	2.50±0.30										
224		0.22uF	1.25±0.20										
274		0.27uF	2.50±0.30										
334		0.33uF	2.50±0.30										
394		0.39uF	2.50±0.30										
474		0.47uF	2.50±0.30										
564		0.56uF	2.50±0.30										
684		0.68uF	2.50±0.30										
824		0.82uF											
105		1.0uF											
155		1.5uF											
225		2.2uF											

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

Values that are typically available.

All measurements in mm

SIZE			1812						1825				
CAPACITANCE CODE		CAPACITANCE VALUE	VDCW (MAX) 200V / 250V	500V	600V / 630V	1kV	2kV	3kV	200V / 250V	500V	600V / 630V	1kV	2kV
101		100pF											
121		120pF											
151		150pF											
181		180pF											
221		220pF											
271		270pF				1.25±0.10	1.25±0.10	1.25±0.20					
331		330pF				1.25±0.10	1.25±0.10	2.00±0.20					
391		390pF				1.25±0.10	1.25±0.10	2.00±0.20					
471		470pF				1.25±0.10	1.25±0.10	1.25±0.20					
561		560pF				1.25±0.10	1.25±0.10	2.00±0.20					
681		680pF				1.25±0.10	1.25±0.10	2.00±0.20					
821		820pF				1.25±0.10	1.25±0.10	2.00±0.20					
102		1000pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	1.25±0.10	1.25±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	
122		1200pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
152		1500pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
182		1800pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
222		2200pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.30	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
272		2700pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20	2.50±0.30	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
332		3300pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20		2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
392		3900pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.50±0.30	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
472		4700pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20	2.50±0.30	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
562		5600pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	2.50±0.30	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
682		6800pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	2.50±0.30	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
822		8200pF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.30		2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
103		0.01uF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.10	1.60±0.20		2.00±0.20	1.25±0.20	2.00±0.20	2.00±0.20	1.25±0.20
123		0.012uF	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20			2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30
153		0.015uF	1.25±0.10	1.25±0.10	1.25±0.10	2.00±0.20			2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30
183		0.018uF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20			2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30
223		0.022uF	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.30			2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30
273		0.027uF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20			2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.80±0.30
333		0.033uF	1.25±0.10	1.25±0.10	1.25±0.10	1.25±0.20	2.80±0.20		2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.80±0.30
393		0.039uF	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.30			2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.80±0.30
473		0.047uF	1.25±0.10	1.25±0.10	1.25±0.10	2.50±0.30			2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	2.80±0.30
563		0.056uF	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.30			2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	
683		0.068uF	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.30			2.00±0.20	1.25±0.20	2.00±0.20	2.00±0.20	
823		0.082uF	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.30			2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	
104		0.10uF	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.30			2.00±0.20	1.25±0.20	2.00±0.20	1.60±0.20	
124		0.12uF	1.25±0.10	2.50±0.30	2.50±0.30				2.00±0.20	2.00±0.20	2.00±0.20		
154		0.15uF	2.00±0.20	2.50±0.30	2.50±0.30				1.25±0.20	2.00±0.20	2.00±0.20		
184		0.18uF	2.00±0.20	2.50±0.30	2.50±0.30				2.00±0.20	2.00±0.20	2.00±0.20		
224		0.22uF	2.00±0.20	2.50±0.30	2.50±0.30				2.00±0.20	1.60±0.20	2.00±0.20		
274		0.27uF	2.00±0.20	2.50±0.30					2.00±0.20	2.00±0.20	2.00±0.20		
334		0.33uF	2.00±0.20	2.50±0.30					2.00±0.20	2.00±0.20	2.00±0.20		
394		0.39uF	2.00±0.20	2.50±0.30					2.00±0.20	2.00±0.20	2.00±0.20		
474		0.47uF	2.50±0.30	2.50±0.30					2.00±0.20	2.00±0.20	2.00±0.20		
564		0.56uF	2.50±0.30						2.00±0.20	2.50±0.30	2.50±0.30		
684		0.68uF	2.50±0.30						1.25±0.20				
824		0.82uF	2.50±0.30						2.00±0.20				
105		1.0uF	2.50±0.30						1.60±0.20				
155		1.5uF											
225		2.2uF											

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

Values that are typically available.

All measurements in mm

SIZE			2220					2225				
VDCW (MAX)			200V / 250V	500V	1kV	2kV	3kV	200V / 250V	500V	1kV	2kV	3kV
CAPACITANCE CODE		CAPACITANCE VALUE										
101		100pF										
121		120pF										
151		150pF										
181		180pF										
221		220pF										
271		270pF										
331		330pF										
391		390pF										
471		470pF										
561		560pF										
681		680pF										
821		820pF										
102		1000pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
122		1200pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
152		1500pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
182		1800pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
222		2200pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
272		2700pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
332		3300pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
392		3900pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20
472		4700pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20
562		5600pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30
682		6800pF	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.00±0.20	2.00±0.20	2.00±0.20	1.25±0.20	2.50±0.30
822		8200pF	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30
103		0.01uF	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30	2.00±0.20	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30
123		0.012uF	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.80±0.30	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30
153		0.015uF	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.80±0.30	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.50±0.30
183		0.018uF	2.00±0.20	2.00±0.20	2.00±0.20	2.80±0.30	2.80±0.30	2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	2.80±0.30
223		0.022uF	2.00±0.20	2.00±0.20	2.00±0.20	2.80±0.30		2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	
273		0.027uF	2.00±0.20	2.00±0.20	2.00±0.20	2.80±0.30		2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	
333		0.033uF	2.00±0.20	2.00±0.20	2.00±0.20	2.80±0.30		2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	
393		0.039uF	2.00±0.20	2.00±0.20	2.00±0.20	2.80±0.30		2.00±0.20	2.00±0.20	2.00±0.20	2.80±0.30	
473		0.047uF	2.00±0.20	2.00±0.20	2.00±0.20	2.80±0.30		2.00±0.20	2.00±0.20	1.25±0.20	2.80±0.30	
563		0.056uF	2.00±0.20	2.00±0.20	2.00±0.20	2.80±0.30		2.00±0.20	2.00±0.20	2.00±0.20	2.80±0.30	
683		0.068uF	2.00±0.20	2.00±0.20	2.50±0.30			2.00±0.20	2.00±0.20	2.00±0.20		
823		0.082uF	2.00±0.20	2.00±0.20	2.50±0.30			2.00±0.20	2.00±0.20	2.00±0.20		
104		0.10uF	2.00±0.20	2.00±0.20	2.50±0.30			2.00±0.20	2.00±0.20	2.50±0.30		
124		0.12uF	2.00±0.20	2.00±0.20	2.50±0.30			2.00±0.20	2.00±0.20	2.80±0.30		
154		0.15uF	2.00±0.20	2.00±0.20	2.80±0.30			2.00±0.20	2.00±0.20	2.80±0.30		
184		0.18uF	2.00±0.20	2.00±0.20	2.80±0.30			2.00±0.20	2.00±0.20	2.80±0.30		
224		0.22uF	2.00±0.20	2.00±0.20	2.80±0.30			2.00±0.20	1.25±0.20	2.80±0.30		
274		0.27uF	2.00±0.20	2.00±0.20				2.00±0.20	2.00±0.20			
334		0.33uF	2.00±0.20	1.60±0.20				2.00±0.20	2.00±0.20			
394		0.39uF	2.00±0.20	2.00±0.20				2.00±0.20	1.60±0.20			
474		0.47uF	2.00±0.20	2.00±0.20				2.00±0.20	2.00±0.20			
564		0.56uF	2.00±0.20	2.50±0.30				2.00±0.20	2.00±0.20			
684		0.68uF	2.00±0.20	2.50±0.30				2.00±0.20				
824		0.82uF	2.00±0.20	2.80±0.30				2.00±0.20				
105		1.0uF	1.25±0.20	2.80±0.30				1.25±0.20				
155		1.5uF	2.50±0.30					2.50±0.30				
225		2.2uF	2.40±0.20					2.50±0.30				

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

VOLTAGE AND CAPACITANCE RANGE

X7T DIELECTRIC

Values that are typically available.

All measurements in inches (mm)

SIZE			1206				1210			
VDCW (MAX)			250V	400V	450V	630V	250V	400V	450V	630V
CAPACITANCE CODE	182	1800pF								
	222	2200pF								
	272	2700pF								
	332	3300pF								
	392	3900pF								
	472	4700pF								
	562	5600pF								
	682	6800pF								
	822	8200pF								
	103	0.01uF	0.85±0.15	0.95±0.10	0.95±0.10	0.95±0.10				
	123	0.012uF		0.95±0.10	0.95±0.10	1.25±0.10				
	153	0.015uF	0.85±0.15	0.95±0.10	0.95±0.10	1.25±0.10				
	183	0.018uF		0.95±0.10	0.95±0.10	1.25±0.10				
	223	0.022uF	0.85±0.15	0.95±0.10	0.95±0.10	1.25±0.10				0.95±0.10
	273	0.027uF		1.25±0.10	1.25±0.10	1.60±0.20				1.25±0.10
	333	0.033uF	0.85±0.15	1.25±0.10	1.25±0.10	1.60±0.20		1.00+0.1/-0.05		1.25±0.10
	393	0.039uF	0.85±0.15	1.25±0.10	1.25±0.10	1.60±0.20				1.25±0.10
	473	0.047uF	0.95±0.10	1.60±0.20	1.60±0.20	1.60+0.30/-0.10		1.25±0.20		1.25±0.10
	563	0.056uF	0.95±0.10	1.60±0.20	1.60±0.20					1.60±0.20
	683	0.068uF	0.95±0.10	1.60±0.20	1.60±0.20	1.60±0.20		1.25±0.10	1.25±0.10	1.60±0.20
	823	0.082uF	1.25±0.10	1.60+0.30/-0.10	1.60+0.30/-0.10			1.25±0.10	1.25±0.10	1.60±0.20
	104	0.10uF	1.25±0.10	1.60±0.20	1.60±0.20		0.95±0.10	1.60±0.20	1.60±0.20	1.60±0.20
	124	0.12uF	1.60±0.20				0.95±0.10	1.60±0.20	1.60±0.20	2.00±0.20
	154	0.15uF	1.60±0.20				1.25±0.10	2.00±0.20	2.00±0.20	2.00±0.20
	184	0.18uF	1.60±0.20				1.25±0.10	2.00±0.20	2.00±0.20	
	224	0.22uF	1.60+0.30/-0.10				1.60±0.20	2.00±0.20	2.00±0.20	
	274	0.27uF					1.60±0.20			
	334	0.33uF					2.00±0.20	2.00±0.20		
	394	0.39uF					2.00±0.20			
	474	0.47uF								
	564	0.56uF								
	684	0.68uF								
	824	0.82uF								
	105	1.0uF								
	155	1.5uF								
	225	2.2uF								

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

X7T DIELECTRIC

Values that are typically available.

All measurements in inches (mm)

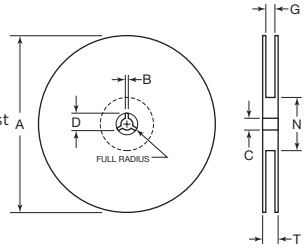
SIZE			1812				2220			
VDCW (MAX)			250V	400V	450V	630V	250V	400V	450V	630V
CAPACITANCE CODE	CAPACITANCE VALUE									
182	1800pF									
222	2200pF									
272	2700pF									
332	3300pF									
392	3900pF									
472	4700pF									
562	5600pF									
682	6800pF									
822	8200pF									
103	0.01uF									
123	0.012uF									
153	0.015uF									
183	0.018uF									
223	0.022uF									
273	0.027uF									
333	0.033uF									
393	0.039uF									
473	0.047uF									
563	0.056uF									
683	0.068uF					1.25±0.10				
823	0.082uF					1.25±0.10				
104	0.10uF					1.60±0.20				2.00±0.20
124	0.12uF					1.60±0.20				2.00±0.20
154	0.15uF		1.60±0.20	1.60±0.20	1.60±0.20					2.00±0.20
184	0.18uF		1.60±0.20	1.60±0.20	2.00±0.20					2.00±0.20
224	0.22uF	1.25±0.10	2.00±0.20	1.60±0.20	2.00±0.20		2.00±0.20	2.00±0.20	2.00±0.20	
274	0.27uF	1.25±0.10	2.00±0.20	2.00±0.20	2.50±0.30		2.00±0.20	2.00±0.20	2.00±0.20	
334	0.33uF	1.25±0.10	2.00±0.20	2.00±0.20			2.00±0.20	2.00±0.20	2.00±0.20	
394	0.39uF	1.60±0.20	2.50±0.30	2.50±0.30			2.00±0.20	2.00±0.20	2.50±0.30	
474	0.47uF	1.60±0.20	2.50±0.30	2.50±0.30		2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	
564	0.56uF	1.60±0.20				2.00±0.20	2.00±0.20	2.00±0.20	2.50±0.30	
684	0.68uF	1.60±0.20				2.00±0.20	2.00±0.20	2.00±0.20		
824	0.82uF	2.00±0.20				2.00±0.20	2.50±0.30	2.50±0.30		
105	1.0uF	2.50±0.30				2.00±0.20	2.50±0.30	2.50±0.30		
155	1.5uF					2.00±0.20				
225	2.2uF					2.50±0.30				

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

TAPE & REEL SPECIFICATIONS

Unit: mm (inch)

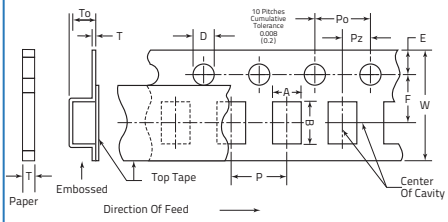
All tape and reel specifications must be adhered to per EIA-481-1-A.



REEL DIMENSIONS

TAPE	B min	C	A (7")	A (13")	D min	N min	G	T max
8mm	0.3 (.012)	13 ± .05 (.512 ± .02)	178 ± 2.0 (7± .079)	330 ± 2.0 (13 ± .08)	20.2 (.795)	50 (1.97)	10 ± 1.5 (.394 ± 1.059)	14.9 (.587)
12mm	0.3 (.012)	13 ± .05 (.512 ± .02)	178 ± 2.0 (7± .079)	330 ± 2.0 (13 ± .08)	20.2 (.795)	50 (1.97)	10 ± 1.5 (.394 ± 1.059)	14.9 (.587)

TAPING SPECIFICATIONS



7 IN. REEL QUANTITIES*

SIZE	0402	0603	0805	1206	1210	1812	2220
Tape Size	8mm	8mm	8mm	8mm	8mm	12mm	12mm
Min Qty per Reel	10000	3000	2000	2000	1000	1000	1000
Max Qty per eel	10000	4000	5000	5000	5000	3000	1000

* Quantity dependent on thickness

Unit: mm (inch)

PAPER TAPE CARRIER DIMENSIONS (8mm)

SIZE (inches)	A	B	W	F	E	Po	Pz	D	t	P
0402	0.70 ± 0.2 (.028 ± .008)	1.20 ± 0.2 (.047 ± .008)	8.0 ± 0.2 (.315 ± .008)	3.5 ± 0.1 (.138 ± .004)	1.75 ± 0.1 (.069 ± .004)	4.0 ± 0.1 (.157 ± .004)	2.0 ± 0.05 - 0.0 (.079 ± .002) - .000	1.5 ± 0.1 (.064 ± .004)	0.80 MAX (.031 MAX)	4.0 ± 0.1 (.157 ± .004)
0603	1.10 ± 0.2 (.043 ± .008)	1.90 ± 0.2 (.075 ± .008)	8.0 ± 0.2 (.315 ± .008)	3.5 ± 0.1 (.138 ± .004)	1.75 ± 0.1 (.069 ± .004)	4.0 ± 0.1 (.157 ± .004)	2.0 ± 0.05 - 0.0 (.079 ± .002) - .000	1.5 ± 0.1 (.064 ± .004)	1.15 MAX (.045 MAX)	4.0 ± 0.1 (.157 ± .004)
0805	1.16 ± 0.2 (.046 ± .008)	2.4 ± 0.2 (.095 ± .008)	8.0 ± 0.2 (.315 ± .008)	3.5 ± 0.1 (.138 ± .004)	1.75 ± 0.1 (.069 ± .004)	4.0 ± 0.1 (.157 ± .004)	2.0 ± 0.05 - 0.0 (.079 ± .002) - .000	1.5 ± 0.1 (.064 ± .004)	1.15 MAX (.045 MAX)	4.0 ± 0.1 (.157 ± .004)
1206	2.0 ± 0.2 (.079 ± .008)	3.6 ± 0.2 (.142 ± .008)	8.0 ± 0.2 (.315 ± .008)	3.5 ± 0.1 (.138 ± .004)	1.75 ± 0.1 (.069 ± .004)	4.0 ± 0.1 (.157 ± .004)	2.0 ± 0.05 - 0.0 (.079 ± .002) - .000	1.5 ± 0.1 (.064 ± .004)	1.15 MAX (.045 MAX)	4.0 ± 0.1 (.157 ± .004)

EMBOSSED CARRIER DIMENSIONS (8mm & 12mm)

SIZE (inches)	A	B	W	F	E	Po	Pz	D	To	T	P
0805	1.48 ± 0.2 (.058 ± .008)	2.3 ± 0.2 (.091 ± .008)	8.0 ± 0.2 (.315 ± .008)	3.5 ± 0.1 (.138 ± .004)	1.75 ± 0.1 (.069 ± .004)	4.0 ± 0.1 (.157 ± .004)	2.0 ± 0.05 (.079 ± .002)	1.5 ± 0.1 - 0.0 (.064 ± .004) - .000	2.5 MAX (.098 MAX)	0.6 MAX (.024 MAX)	4.0 ± 0.1 (.157 ± .004)
1206	2.0 ± 0.2 (.079 ± .008)	3.6 ± 0.2 (.142 ± .008)	8.0 ± 0.2 (.315 ± .008)	3.5 ± 0.1 (.138 ± .004)	1.75 ± 0.1 (.069 ± .004)	4.0 ± 0.1 (.157 ± .004)	2.0 ± 0.05 (.079 ± .002)	1.5 ± 0.1 - 0.0 (.064 ± .004) - .000	2.5 MAX (.098 MAX)	0.6 MAX (.024 MAX)	4.0 ± 0.1 (.157 ± .004)
1210	2.9 ± 0.2 (.114 ± .008)	3.6 ± 0.2 (.142 ± .008)	8.0 ± 0.2 (.315 ± .008)	3.5 ± 0.1 (.138 ± .004)	1.75 ± 0.1 (.069 ± .004)	4.0 ± 0.1 (.157 ± .004)	2.0 ± 0.05 (.079 ± .002)	1.5 ± 0.1 - 0.0 (.064 ± .004) - .000	2.5 MAX (.098 MAX)	0.6 MAX (.024 MAX)	4.0 ± 0.1 (.157 ± .004)
1808	2.5 ± 0.2 (.098 ± .008)	4.9 ± 0.2 (.193 ± .008)	12.0 ± 0.3 (.472 ± .012)	5.5 ± 0.5 (.22 ± .002)	1.75 ± 0.1 (.069 ± .004)	4.0 ± 0.1 (.157 ± .004)	2.0 ± 0.05 (.079 ± .002)	1.5 ± 0.1 - 0.0 (.064 ± .004) - .000	4.0 MAX (.16 MAX)	0.6 MAX (.024 MAX)	4.0 ± 0.1 (.157 ± .004)
1812	3.6 ± 0.2 (.142 ± .008)	4.9 ± 0.2 (.193 ± .008)	12.0 ± 0.3 (.472 ± .012)	5.6 ± 0.1 (.221 ± .004)	1.75 ± 0.1 (.069 ± .004)	4.0 ± 0.1 (.157 ± .004)	2.0 ± 0.05 (.079 ± .002)	1.5 ± 0.1 - 0.0 (.064 ± .004) - .000	4.0 MAX (.16 MAX)	0.6 MAX (.024 MAX)	8.0 ± 0.1 (.315 ± .004)
2220	5.4 ± 0.2 (.21 ± .008)	6.1 ± 0.2 (.24 ± .008)	12.0 ± 0.3 (.472 ± .012)	5.5 ± 0.5 (.22 ± .002)	1.75 ± 0.1 (.069 ± .004)	4.0 ± 0.1 (.157 ± .004)	2.0 ± 0.05 (.079 ± .002)	1.5 ± 0.1 - 0.0 (.064 ± .004) - .000	4.0 MAX (.16 MAX)	0.6 MAX (.024 MAX)	8.0 ± 0.1 (.315 ± .004)
2225	6.9 ± 0.2 (.27 ± .008)	6.1 ± 0.2 (.24 ± .008)	12.0 ± 0.3 (.472 ± .012)	5.5 ± 0.5 (.22 ± .002)	1.75 ± 0.1 (.069 ± .004)	4.0 ± 0.1 (.157 ± .004)	2.0 ± 0.05 (.079 ± .002)	1.5 ± 0.1 - 0.0 (.064 ± .004) - .000	4.0 MAX (.16 MAX)	0.6 MAX (.024 MAX)	8.0 ± 0.1 (.315 ± .004)

ENVIRONMENTAL CHARACTERISTICS

<table>
<tr><th>NO</th><th>ITEM</th><th colspan="2">TEST CONDITION</th><th>PERFORMANCE</th></tr>
<tr><td>1</td><td>APPEARANCE</td><td colspan="2">No abnormal exterior appearance</td><td>* No remarkable defect.
* Dimensions to conform to individual specification sheet.</td></tr>
<tr><td rowspan="2">2</td><td rowspan="2">INSULATION RESISTANCE</td><td>* Test temp.: Room Temperature.
Rated voltage: 200-630V</td><td>To apply rated voltage
(500V max.) for 60 sec.</td><td rowspan="2">≥10GΩ or RxC≥100Ω-F whichever is smaller</td></tr>
<tr><td>* Test temp.: Room Temperature.
Rated voltage: ≥630V</td><td>To apply 500V for 60 sec.</td></tr>
<tr><td>4</td><td>CAPACITANCE</td><td colspan="2" rowspan="2">* 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)
1.0±0.2Vrms, 1kHz±10%

*Before initial measurement (Class II only): To apply de-aging at 150°C for 1hr then set for 24±2 hrs at room temp .</td><td>Shall not exceed the limits given in the detailed spec.</td></tr>
<tr><td>5</td><td>Q</td><td>NP0: Cap≥30pF, Q≥1000; Cap<30pF, Q≥400+20C
X7R: ≤2.5%</td></tr>
<tr><td>6</td><td>DIELECTRIC STRENGTH</td><td colspan="2">* To apply voltage:

200V~300V ≥2 times VDC
400V~450V ≥1.2 times VDC
500V~999V ≥1.5 times VDC
1000V~3000V ≥1.2 times VDC
4000V ≥1.1 times VDC

* Duration: 1 to 5 sec.
* Charge & discharge current less than 50mA.</td><td>* No evidence of damage or flash over during test.</td></tr>
<tr><td>7</td><td>CAPACITANCE TEMPERATURE COEFFICIENT</td><td colspan="2">With no electrical load.
<table><tr><th>Dielectric</th><th>Operating Temp.</th></tr><tr><td>NP0</td><td>-55~125°C at 25°C</td></tr><tr><td>X7R</td><td>-55~125°C at 25°C</td></tr></table>
*Before initial measurement (Class II only): To apply de-aging at 150°C for 1hr then set for 24±2 hrs at room temp .</td><td><table><tr><th>T.C.</th><th>Capacitance Change</th></tr><tr><td>NP0</td><td>Within ±30ppm/°C</td></tr><tr><td>X7R</td><td>Within ±15%</td></tr></table></td></tr>
<tr><td>8</td><td>ADHESIVE STRENGTH OF TERMINATION</td><td colspan="2">* Pressurizing force:
5N (≤0603) and 10N (>0603)

* Test time: 10±1 sec.</td><td>* No remarkable damage or removal of the terminations.</td></tr>
<tr><td>9</td><td>VIBRATION RESISTANCE</td><td colspan="2">* Vibration frequency: 10~55 Hz/min.
* Total amplitude: 1.5mm
* Test time: 6 hrs. (Two hrs each in three mutually perpendicular directions.)
*Before initial measurement (Class II only): To apply de-aging at 150°C for 1hr then set for 24±2 hrs at room temp .
Cap./DF(Q) Measurement to be made after de-aging at 150°C for 1hr then set for 24±2 hrs at room temp.</td><td> No remarkable damage.
* Cap change and Q/D.F.: To meet initial spec.</td></tr>
<tr><td>10</td><td>SOLDERABILITY</td><td colspan="2">* Solder temperature: 235±5°C
* Dipping time: 2±0.5 sec.</td><td>95% min. coverage of all metalized area.</td></tr>
</table>

ENVIRONMENTAL CHARACTERISTICS

<table>
<tr><th>NO</th><th>ITEM</th><th>TEST CONDITION</th><th>PERFORMANCE</th></tr>
<tr><td>11</td><td>BENDING TEST</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 1 mm and then the pressure shall be maintained for 5±1 sec.

*Before initial measurement (Class II only): To apply de-aging at 150°C for 1hr then set for 24±2 hrs at room temp.

* Measurement to be made after keeping at room temp. for 24±2 hrs.</td><td>* No remarkable damage.

* Cap change:
NP0: within ±5.0% 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>12</td><td>RESISTANCE TO SOLDERING HEAT</td><td>* Solder temperature: 260±5°C
* Dipping time: 10±1 sec
* Preheating: 120 to 150°C for 1 minute before imme rse the capacitor in a eutectic solder.
*Before initial measurement (Class II only): To apply de-aging at 150°C for 1hr then set for 24±2 hrs at room temp .
Cap. / DF(Q) / I.R. Measurement to be made after de-aging at 150°C for 1hr then set for 24±2 hrs at room temp.</td><td> No remarkable damage.
* Cap change:
NP0: within ±2.5% or ±0.25pF whichever is larger.
X7R: within ±7.5%
* Q/D.F., I.R. and dielectric strength: To meet initial requirements.
* 25% max. leaching on each edge."</td></tr>
<tr><td>13</td><td>TEMPERATURE CYCLE</td><td>* Conduct the five 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>Min. operating temp. +0/-3</td><td>30±3</td></tr><tr><td>2</td><td>Room temp.</td><td>2-3</td></tr><tr><td>3</td><td>Max. operating temp. +3/-0</td><td>30±3</td></tr><tr><td>4</td><td>Room temp.</td><td>2-3</td></tr></table>
*Before initial measurement (Class II only): To apply de-aging at 150°C for 1hr then set for 24±2 hrs at room temp .
* Cap. / DF(Q) / I.R. Measurement to be made after de-aging at 150°C for 1hr then set for 24±2 hrs at room temp .</td><td>* No remarkable damage.
* Cap change:
NP0: within ±2.5% or ±0.25pF whichever is larger.
X7R: within ±7.5%
* Q/D.F., I.R. and dielectric strength: To meet initial requirements.</td></tr>
<tr><td>14</td><td>HUMIDITY (DAMP HEAT) STEADY STATE</td><td>* Test temp.: 40±2°C
* Humidity: 90-95% RH
* Test time: 500+24/-0hrs.
*Before initial measurement (Class II only): To apply de-aging at 150°C for 1hr then set for 24±2 hrs at room temp .
* Cap. / DF(Q) / I.R. Measurement to be made after de-aging at 150°C for 1hr then set for 24±2 hrs at room temp .</td><td>* No remarkable damage.
* Cap change:
NP0: within ±5.0% or ±0.5pF whichever is larger.
X7R: within ±12.5%
* Q/D.F. value:
NP0: Cap≥30pF, Q≥350; 10pF≤Cap<30pF, Q≥275+2.5C Cap<10pF; Q≥200+10C
X7R: ≤3.0%
* I.R.: ≥1GΩ or RxC≥50Ω-F whichever is smaller.</td></tr>
<tr><td>15</td><td>HUMIDITY (DAMP HEAT) LOAD</td><td>* Test temp.: 40±2°C
* Humidity: 90-95%RH
* Test time: 500+24/-0 hrs.
* To apply voltage: rated voltage (Max. 500V)
*Before initial measurement (Class II only): To apply de-aging at 150°C for 1hr then set for 24±2 hrs at room temp .
* Cap. / DF(Q) / I.R. Measurement to be made after de-aging at 150°C for 1hr then set for 24±2 hrs at room temp .</td><td>* No remarkable damage.
* Cap change:
NP0: within ±7.5% or ±0.75pF whichever is larger.
X7R: within ±12.5%

* Q/D.F. value:
NP0: Cap≥30pF, Q≥200; Cap<30pF, Q≥100+10/3C
X7R: ≤3.0%

* I.R.: ≥500MΩ or RxC≥25Ω-F whichever is smaller.</td></tr>
<tr><td>16</td><td>HIGH TEMPERATURE LOAD (ENDURANCE)</td><td>* Test temp.:
NP0, X7R: 125±3°C
* To apply voltage:
(1) 1206/NP0 (3kV) ≥1.5pF: 100% of rated voltage. 1812/NPO/472&1812/NPO/562(1KV): 100% of rated voltage.
(2) 200V-300V: 200% of rated voltage.
(3) 400V-450V: 120% of rated voltage.
(4) 500V: 150% of rated voltage.
(5) 630V-3000V: 120% of rated voltage.
(6) 4000V: 110% of rated voltage.

* Test time: 1000+24/-0 hrs.
*Before initial measurement (Class II only): To apply de-aging at 150°C for 1hr then set for 24±2 hrs at room temp .
* Cap. / DF(Q) / I.R. Measurement to be made after de-aging at 150°C for 1hr then set for 24±2 hrs at room temp.</td><td>* No remarkable damage.
* Cap change:
NP0: within ±3.0% or ±0.3pF whichever is larger.
X7R: within ±12.5%
* Q/D.F. value:
NP0: Cap≥30pF, Q≥350 10pF≤Cap<30pF, Q≥275+2.5C Cap<10pF Q≥200+10C
X7R: ≤3.0%
* I.R.: ≥1GΩ or RxC≥50Ω-F whichever is smaller.</td></tr>
</table>

*Room condition-- Temperature: 15° to 35°C, Relativ e humidity: 25 to 75%, Atmospheric pressure: 86 to 106kPa.