

Capacitors

AC Safety, SMT - (UL / TUV Certified)

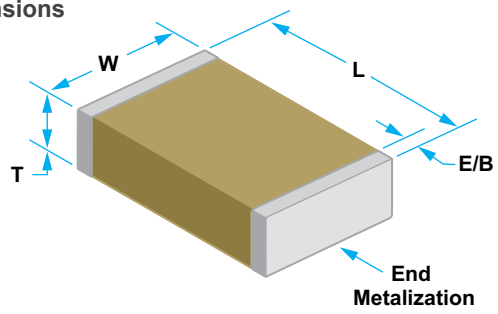
X1, X2 and Y2 Capacitor Type Safety ceramic chip are designed for AC voltage surge and lightning protection in line-to-ground interface applications in computer networks, modem, facsimile and other equipment. Johanson Dielectric's safety capacitor offering includes four different case sizes and NPO and X7R dielectric materials. These devices are surface mount ready with barrier terminations and tape and reel packaging. Information on capacitor safety ratings and certification details may be found below.

General Specifications:

- Case Sizes: 1808 - 2220
- Safety Ratings: X2, X1/Y2, Y2
- Dielectrics Type: NPO, X7R
- Capacitance Range: 2.4 pF - 4700 pF

Polyterm® soft termination option for demanding environments & processes available on select parts, please contact the factory.

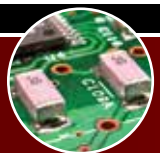
Dimensions



Safety Ratings

Safety Rating	Voltage Rating	Withstanding Voltage	Impulse Voltage	Case Size
X2	250 VAC	1,500 VAC	2,500 V	1808
STANDARDS: IEC/EN 60384-14:2013+A1:2016 • CERTIFICATIONS: TUV T 72210484 • UL File E472557				
X2	250 VAC	1,500 VAC	2,500 V	1812
STANDARDS: IEC/EN 60384-14:2013+A1:2016 • CERTIFICATIONS: TUV T 72210484 • UL File E472557				
X1/Y2	250 VAC	1,500 VAC	5,000 V	1808
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X1/Y2	250 VAC	1,500 VAC	5,000 V	1812
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X1/Y2	250 VAC	1,500 VAC	5,000 V	2220
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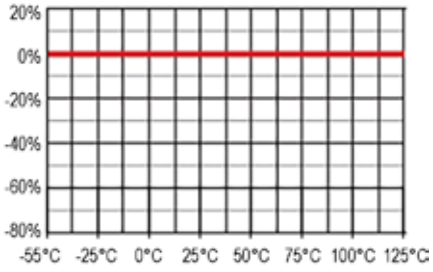
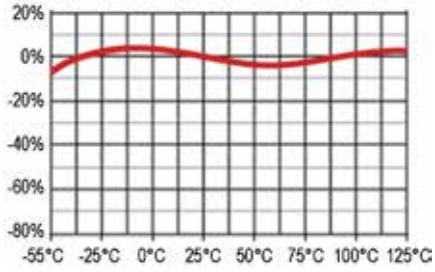
X Capacitors are defined as suitable for use in situations where failure of the capacitor would not lead to danger of electric shock.
Y Capacitors are defined as suitable for use in situations where failure of the capacitor could lead to danger of electric shock.



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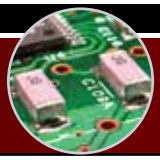
Electrical Characteristics

Parameter	NPO		X7R	
Temperature Coefficient	0 ± 30 ppm/°C	-55 to + 125°C	± 15%	-55 to + 125°C
				
Dissipation Factor	3.0% max		WVDC > 50 VDC, DF = 2.5% max WVDC = 25 VDC, DF = 3.0% max WVDC = 16 VDC, DF = 3.5% max	
Aging	None		2.5% / decade hour	
Insulation Resistance	1000ΩF or 100GΩ Whichever is less @ 25°C, WVDC		500ΩF or 50GΩ Whichever is less @ 25°C, WVDC	
Dielectric Strength	For Vrated = 6 - 200 VDC, DWV = 2.5 X WVDC, 25°C, 50mA max. For Vrated = 201 - 499 VDC, DWV = 2.0 X WVDC, 25°C, 50mA max. For Vrated = 500 - 999 VDC, DWV = 1.5 X WVDC, 25°C, 50mA max. For Vrated = 1000 + VDC, DWV = 1.2 X WVDC, 25°C, 50mA max.			
Test Parameters	C ≦ 100 pF 1MHz ± 50KHz; 1.0 ± 0.2 VRMS C > 100 pF 1KHz ± 50Hz; 1.0 ± 0.2 VRMS		1KHz ± 50Hz; 1.0 ± 0.2 VRMS	
Notes	TANCERAM IR = 100 ΩF or 10 GΩ, TANCERAM DF for Vrated > 50 VDC = 5% max., & TANCERAM DF for Vrated < 25 VDC, DF = 10% max.			

HOW TO ORDER

SC	DP	502	W	102	J	4	GF	001	E
Subfamily	**Size**	**Voltage**	**DTC**	**Capacitance**	**Tol**	**Mark**	**Termination**	**Special Code**	**Pack**
SC = AC Safety Caps	**DP** = 1808 **ED** = 2211 **DR** = 1812 **EF** = 2220	**302** = 250VAC [2500V Impulse] **502** = 250VAC [5000V Impulse	**G** = NP0/C0G **W** =X7R	1st two digits are significant; 3rd digit denotes number of zeros. **101** = 100 pF **103** = 0.01 µF **105** = 1.00 µF	**J** = ± 5% **K** = ± 10% **M** = ± 20%	**4** = Required safety mark	**GV** = Ni/Sn (RoHS) **GF** = Polyterm Sn (RoHS)	**001** = Default catalog item	**B** = Bulk **E** = 7" Reel Emb Tape **U** = 13" Reel Emb Tape

Example: **SCDP502W102J4GF001E** Capacitors Safety Caps - SC, X1/Y2, 1808, X7R, 5000V, 1000pF, ±5%, Polyterm Sn (RoHS), 7" Reel Embossed Tape



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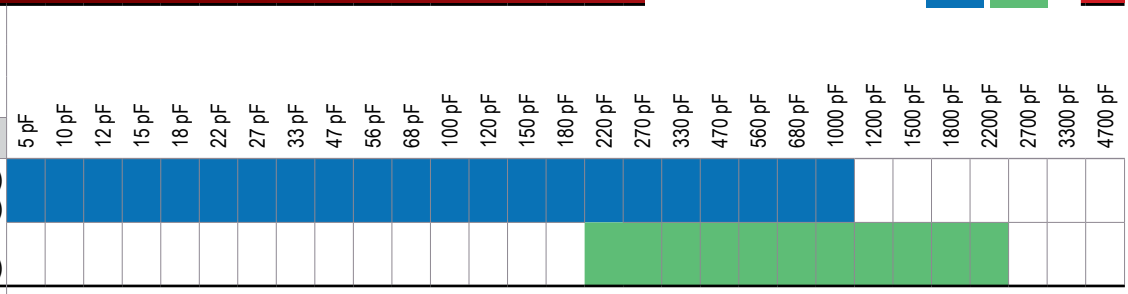
Ratings & Voltage

LEGEND: Dielectric NPO X7R

1808

X2

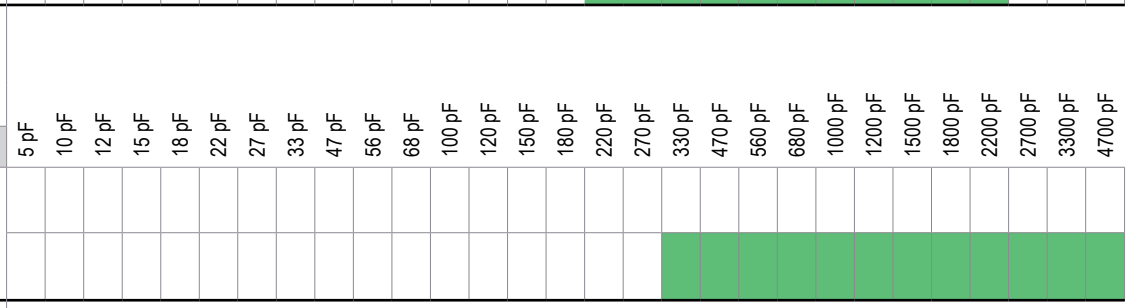
Size	Inches	(MM)
L	0.185 ± 0.015	(4.70 ± 0.38)
W	0.080 ± 0.012	(2.03 ± 0.30)
T	0.085 Max.	(2.16)
E/B	0.022 ± 0.008	(0.56 ± 0.20)



1812

X2

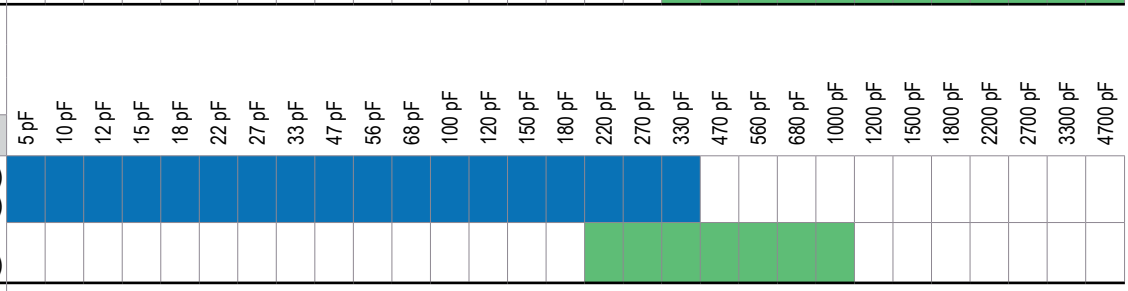
Size	Inches	(MM)
L	0.185 ± 0.015	(4.70 ± 0.38)
W	0.126 ± 0.012	(3.2 ± 0.30)
T	0.115 Max.	(2.92)
E/B	0.022 ± 0.008	(0.56 ± 0.20)



1808

X1 / Y2

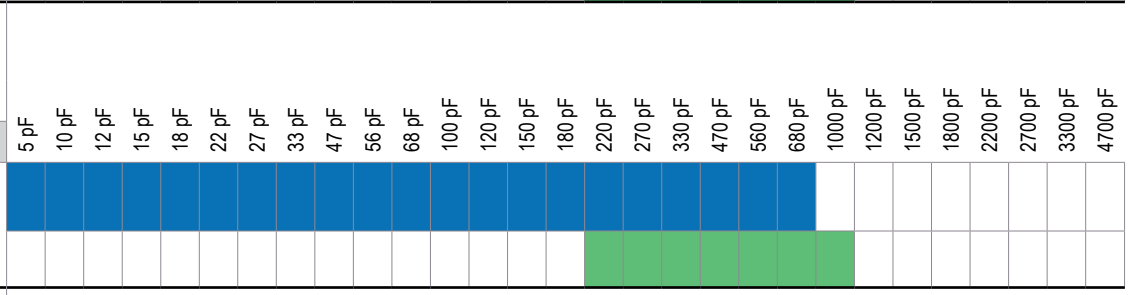
Size	Inches	(MM)
L	0.190 ± 0.020	(4.83 ± 0.51)
W	0.080 ± .012	(2.03 ± 0.30)
T	0.085 Max.	(2.16)
E/B	0.015 ± 0.005	(0.38 ± 0.13)



1812

X1 / Y2

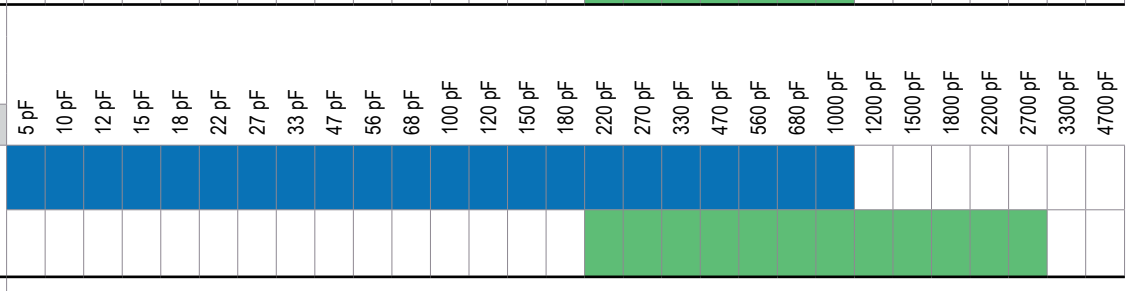
Size	Inches	(MM)
L	0.190 ± 0.020	(4.83 ± 0.51)
W	0.126 ± 0.012	(3.2 ± 0.30)
T	0.115 Max.	(2.92)
E/B	0.015 ± 0.005	(0.38 ± 0.13)



2211

X1 / Y2

Size	Inches	(MM)
L	0.225 ± 0.020	(5.72 ± 0.51)
W	0.110 ± 0.012	(2.79 ± 0.30)
T	0.120 Max.	(3.05)
E/B	0.020 ± 0.010	(0.51 ± 0.25)



2220

X1 / Y2

Size	Inches	(MM)
L	0.225 ± 0.020	(5.72 ± 0.51)
W	0.200 ± 0.012	(5.08 ± 0.30)
T	0.150 Max.	(3.81)
E/B	0.020 ± 0.010	(0.51 ± 0.25)

