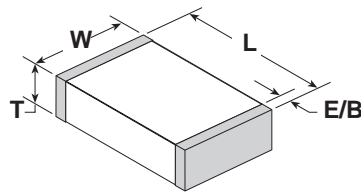


Johanson Dielectrics Type SC ceramic chip capacitors are designed for AC voltage surge and lightning protection in line-to-ground interface applications in computer networks, modem, facsimile and other equipment.

Johanson's safety capacitor offering includes four different case sizes in 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.




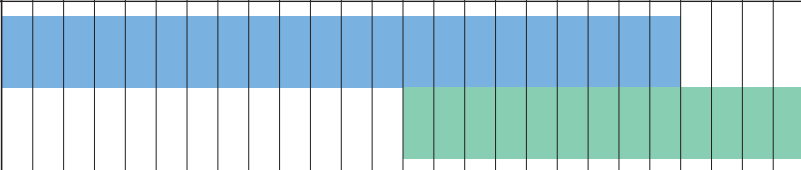










Polyterm® soft termination option for demanding environments & processes available on select parts, please contact the factory.

SAFETY RATING	VOLTAGE RATING	WITHSTANDING VOLTAGE	IMPULSE VOLTAGE	CASE SIZE	JOHANSON ORDERING P/N
X2	250 VAC	1,500 VAC	2,500 V	1808	302R29____V3E-****-SC
<b>STANDARDS:</b> IEC/EN 60384-14:2013 EN 60950 2006 • UL 60384-14, UL 60950-01 <b>CERTIFICATIONS:</b> TUV R 50227900 & T 72140662 • UL File E472557 & E212609					
X2	250 VAC	1,500 VAC	2,500 V	1812	302S43____V3E-****-SC
<b>STANDARDS:</b> IEC/EN 60384-14:2013 EN 60950 2006 • UL 60384-14, UL 60950-01 <b>CERTIFICATIONS:</b> TUV R 50227900 & T 72140662 • UL File E472557 & E212609					
X1/Y2	250 VAC	1,500 VAC	5,000 V	1808	502R29____V3E-****-SC
<b>STANDARDS:</b> IEC/EN 60384-14:2013 EN 60950 2006 • UL 60384-14, UL 60950-01 <b>CERTIFICATIONS:</b> TUV R 50227900 & T 72140662 • UL File E472557 & E212609					
X1/Y2	250 VAC	1,500 VAC	2,500 V	1812	502S43____V3E-****-SC
<b>STANDARDS:</b> IEC/EN 60384-14:2013 EN 60950 2006 • UL 60384-14, UL 60950-01 <b>CERTIFICATIONS:</b> TUV R 50227900 & T 72140662 • UL File E472557 & E212609					
X1/Y2	250 VAC	1,500 VAC	5,000 V	2211	502R30____V3E-****-SC
<b>STANDARDS:</b> IEC/EN 60384-14:2013 EN 60950 2006 • UL 60384-14, UL 60950-01 <b>CERTIFICATIONS:</b> TUV R 50227900 & T 72140662 • UL File E472557 & E212609					
X1/Y2	250 VAC	1,500 VAC	5,000 V	2220	502S47____V3E-****-SC
<b>STANDARDS:</b> IEC/EN 60384-14:2013 EN 60950 2006 • UL 60384-14, UL 60950-01 <b>CERTIFICATIONS:</b> TUV R 50227900 & T 72140662 • UL File E472557 & E212609					

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.

## SAFETY CERTIFIED

		INCHES	(MM)	5 pF	10 pF	12 pF	15 pF	18 pF	22 pF	27 pF	33 pF	47 pF	56 pF	68 pF	100 pF	120 pF	150 pF	180 pF	220 pF	270 pF	330 pF	470 pF	560 pF	680 pF	1000 pF	1200 pF	1500 pF	1800 pF	2200 pF	2700 pF	3300 pF	4700 pF
R29 / 1808  X2	L	.185 ±.015	(4.70 ±.38)																									DIELECTRIC				
	W	.080 ±.010	(2.03 ±.25)																									NPO				
	T	.085 Max.	(2.16)			X7R																										
	E/B	.020 ±.010	(0.51±.25)																													
S43 / 1812  X2	L	.175 ±.010	(4.45 ±.25)																									DIELECTRIC				
	W	.125 ±.010	(3.18 ±.25)																									NPO				
	T	.115 Max.	(2.92)			X7R																										
	E/B	.025 ±.015	(0.64±.38)																													
R29 / 1808  X1/Y2	L	.185 ±.015	(4.70 ±.38)																									DIELECTRIC				
	W	.080 ±.015	(2.03 ±.38)																									NPO				
	T	.085 Max.	(2.16)			X7R																										
	E/B	.020 ±.010	(0.51±.25)																													
S43 / 1812  X1/Y2	L	.175 ±.010	(4.45 ±.25)																									DIELECTRIC				
	W	.125 ±.010	(3.18 ±.25)																									NPO				
	T	.115 Max.	(2.92)			X7R																										
	E/B	.025 ±.015	(0.64±.38)																													
R30 / 2211  X1/Y2	L	.225 ±.016	(5.72 ±.40)																									DIELECTRIC				
	W	.110 ±.010	(2.80 ±.25)																									NPO				
	T	.115 Max.	(2.92)			X7R																										
	E/B	.020 ±.010	(0.51±.25)																													
S47 / 2220  X1/Y2	L	.225 ±.015	(5.72 ±.38)																									DIELECTRIC				
	W	.200 ±.015	(5.08 ±.38)																									NPO				
	T	.150 Max.	(3.81)			X7R																										
	E/B	.025 ±.015	(0.64±.38)																													

### HOW TO ORDER AC SAFETY CAPACITORS

P/N written: 302R29W102MV3E-\*\*\*\*-SC

502	R29	W	102	M	V	3	E	****-SC
VOLTAGE	SIZE	DIELECTRIC	CAPACITANCE	TOLERANCE	TERMINATION	MARKING	PACKING	TYPE
302 = 250VAC [2500V Impulse] 502 = 250VAC [5000V Impulse]	R29=1808 R30=2211 S43=1812 S47=2220 AC2=2220	N = NPO W = X7R	1st two digits are significant; third digit denotes number of zeros, R = decimal. 102 = 1000 pF 104 = 0.10 μF 5R0 = 5.0pF	J = ± 5% K = ± 10% M = ± 20%	V = NI Barrier with 100% Sn Plating (Matte)  F = Polyterm flexible termination	3 = Required Safety Mark	E = Embossed 7" U = Embossed 13"  No code = bulk  Tape specs. per EIA RS481	SC = Safety Certified



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