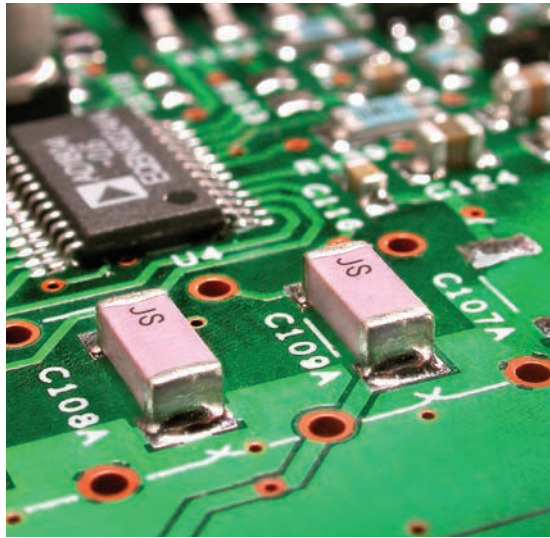


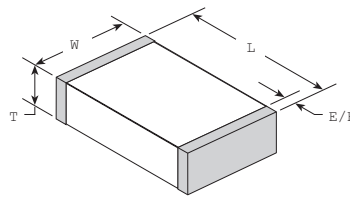


Johanson Dielectrics Type SC ceramic chip capacitors are designed for AC voltage surge and lightning protection in line-to-ground interface applications in computer networks, modem, facsimile and other equipment.

Johanson's safety capacitor offering includes four different case sizes and NP0 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 |
| STANDARDS: IEC/EN 60384-14:2013, EN 60950 2001 • UL 60950-01 CERTIFICATIONS: TUV Rheinland R 50227900 • UL File E212609 |                |                      |                 |           |                       |
| X2                                                                                                                      | 250 VAC        | 1,500 VAC            | 2,500 V         | 1812      | 302S43____V3E-****-SC |
| STANDARDS: IEC/EN 60384-14:2013, EN 60950:2001 CERTIFICATIONS: TUV Rheinland R 50227900                                 |                |                      |                 |           |                       |
| X1/Y2                                                                                                                   | 250 VAC        | 1,500 VAC            | 5,000 V         | 1808      | 502R29____V3E-****-SC |
| STANDARDS: IEC/EN 60384-14:2013 • UL 60950-01 CERTIFICATIONS: TUV Rheinland R 50227900 / UL File E212609                |                |                      |                 |           |                       |
| X1/Y2                                                                                                                   | 250 VAC        | 1,500 VAC            | 5,000 V         | 2211      | 502R30____V3E-****-SC |
| STANDARDS: IEC/EN 60384-14:2013 • UL 60950-01 CERTIFICATIONS: TUV Rheinland R 50227900 • UL File: E212609               |                |                      |                 |           |                       |
| X1/Y2                                                                                                                   | 250 VAC        | 1,500 VAC            | 5,000 V         | 2220      | 502S47____V3E-****-SC |
| STANDARDS: IEC/EN 60384-14:2013 • UL 60950-01 CERTIFICATIONS: TUV Rheinland R 50227900 • UL File: 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

| 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       |    | L<br>W<br>T<br>E/B | .185 ±.015<br>.080 ±.010<br>.085 Max.<br>.020 ±.010 | (4.70 ±.38)<br>(2.03 ±.25)<br>(2.16)<br>(0.51±.25) |  |      |      |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |         |         |         |         |         |         |         |         |  |  |
| X2               |                                                                                     |                    |                                                     |                                                    |  |      |      |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |         |         |         |         |         |         |         |         |  |  |
| S43 / 1812       |    | L<br>W<br>T<br>E/B | .175 ±.010<br>.125 ±.010<br>.115 Max.<br>.025 ±.015 | (4.45 ±.25)<br>(3.18 ±.25)<br>(2.92)<br>(0.64±.38) |  |      |      |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |         |         |         |         |         |         |         |         |  |  |
| X2               |                                                                                     |                    |                                                     |                                                    |  |      |      |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |         |         |         |         |         |         |         |         |  |  |
| R29 / 1808       |    | L<br>W<br>T<br>E/B | .185 ±.015<br>.080 ±.015<br>.085 Max.<br>.012 ±.015 | (4.70 ±.38)<br>(2.03 ±.38)<br>(2.16)<br>(0.30±.38) |  |      |      |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |         |         |         |         |         |         |         |         |  |  |
| X1/Y2            |                                                                                     |                    |                                                     |                                                    |  |      |      |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |         |         |         |         |         |         |         |         |  |  |
| S43 / 1812       |    | L<br>W<br>T<br>E/B | .175 ±.010<br>.125 ±.010<br>.115 Max.<br>.025 ±.015 | (4.45 ±.25)<br>(3.18 ±.25)<br>(2.92)<br>(0.64±.38) |  |      |      |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |         |         |         |         |         |         |         |         |  |  |
| X1/Y2            |                                                                                     |                    |                                                     |                                                    |  |      |      |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |         |         |         |         |         |         |         |         |  |  |
| R30 / 2211       |  | L<br>W<br>T<br>E/B | .225 ±.016<br>.110 ±.010<br>.115 Max.<br>.020 ±.010 | 5.72 ±.40)<br>(2.80 ±.25)<br>(2.92)<br>(0.51±.25)  |  |      |      |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |         |         |         |         |         |         |         |         |  |  |
| X1/Y2            |                                                                                     |                    |                                                     |                                                    |  |      |      |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |         |         |         |         |         |         |         |         |  |  |
| S47 / 2220       |  | L<br>W<br>T<br>E/B | .225 ±.015<br>.200 ±.015<br>.150 Max.<br>.025 ±.015 | (5.72 ±.38)<br>(5.08 ±.38)<br>(3.81)<br>(0.64±.38) |  |      |      |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |         |         |         |         |         |         |         |         |  |  |
| X1/Y2            |                                                                                     |                    |                                                     |                                                    |  |      |      |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        |        |        |        |        |         |         |         |         |         |         |         |         |  |  |

## 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<br>[2500V Impulse]<br>502 = 250VAC<br>[5000V Impulse] | R29=1808<br>R30=2211<br>S43=1812<br>S47=2220<br>AC2=2220 | N = NP0<br>W = X7R | 1st two digits are<br>significant; third digit<br>denotes number of<br>zeros, R = decimal.<br>102 = 1000 pF<br>104 = 0.10 µF<br>5R0 = 5.0pF | J = ± 5%<br>K = ± 10%<br>M = ± 20% | V = NI Barrier with<br>100% Sn Plating<br>(Matte)<br>F = Polyterm<br>flexible termination | 3 = Required<br>Safety Mark | E = Embossed 7"<br>No code = bulk<br>Tape specs.<br>per EIA RS481 | SC = Safety<br>Certified |



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## Johanson:

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[502R29W221KV3ESC](#) [502R29N180JV3ESC](#) [302R29N101JV3ESC](#) [302R29N100JV3ESC](#) [502R29W102KV3ESC](#)  
[502R29W681KV3ESC](#) [302R29N330JV3ESC](#) [302R29W152KV3ESC](#) [502R30W222KV3ESC](#) [302R29W681KV3ESC](#)  
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