



**THE DATASHEET OF  
SR591A180GAAAP1**



# RADIAL LEADS

## SkyCap®/SR Series

### GENERAL INFORMATION

#### SR Series

Conformally Coated Radial Leaded MLC

Temperature Coefficients: COG (NP0), X7R, Z5U

200, 100, 50 Volts (300V, 400V & 500V also available)

Case Material: Epoxy

Lead Material: RoHS Compliant, 100% Tin



### HOW TO ORDER

**SR21**

**5**

**E**

**104**

**M**

**A**

**R**

**TR1**

#### Style

SR15  
SR20  
SR21  
SR22  
SR27  
SR30  
SR40  
SR50

#### Voltage

5 = 50V  
1 = 100V  
2 = 200V  
9 = 300V  
8 = 400V  
7 = 500V

#### Temperature Coefficient

A = COG (NP0)  
C = X7R  
E = Z5U

#### Capacitance

First two digits are the significant figures of capacitance. Third digit indicates the additional number of zeros. For example, order 100,000 pF as 104. (For values below 10pF use "R" in place of decimal point, e.g., 1R4 = 1.4pF)

#### Capacitance Tolerance

COG (NP0):  
C =  $\pm 0.25\text{pF}$   
D =  $\pm 0.5\text{pF}$   
F =  $\pm 1\%$  (>50pF only)  
G =  $\pm 2\%$  (>25pF only)  
J =  $\pm 5\%$   
K =  $\pm 10\%$   
X7R:  
J =  $\pm 5\%$   
K =  $\pm 10\%$   
M =  $\pm 20\%$   
Z5U:  
M =  $\pm 20\%$   
Z =  $+80\%$  -20%

#### Failure Rate

A = Not Applicable

#### Leads

R = RoHS

#### Packaging

Blank: Bulk Packaging 1.0" minimum of lead length  
T: Trimmed leads .230"  $\pm$  .030"  
Bulk packaging  
TR1: Tape and Reel Packaging  
AP1: Ammopack packaging

See packaging specification pages 33-34



### MARKING

#### FRONT



#### BACK



### PACKAGING REQUIREMENTS

|                          | Quantity per Bag |
|--------------------------|------------------|
| SR15, 20, 21, 22, 27, 30 | 1000 Pieces      |
| SR40, 50                 | 500 Pieces       |

Note: SR15, SR20, SR21, SR30, and SR40 available on tape and reel per EIA specifications RS-468. See Pages 33 and 34.

# RADIAL LEADS

## COG (NP0) Dielectric



### SIZE AND CAPACITANCE SPECIFICATIONS

EIA Characteristic

Dimensions: Millimeters (Inches)

| Style                       | SR15                                 | SR20            | SR21            | SR22            | SR27            | SR30           | SR40            | SR50            |     |    |      |     |    |      |     |    |      |    |     |    |  |
|-----------------------------|--------------------------------------|-----------------|-----------------|-----------------|-----------------|----------------|-----------------|-----------------|-----|----|------|-----|----|------|-----|----|------|----|-----|----|--|
| <b>"Insertable"</b>         | <b>SR07</b>                          | <b>SR29</b>     | <b>SR59</b>     | <b>N/A</b>      | <b>N/A</b>      | <b>SR65</b>    | <b>SR75</b>     | <b>N/A</b>      |     |    |      |     |    |      |     |    |      |    |     |    |  |
| <b>Width (W)</b>            | 3.81<br>(.150)                       | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 6.604<br>(.260) | 7.62<br>(.300) | 10.16<br>(.400) | 12.70<br>(.500) |     |    |      |     |    |      |     |    |      |    |     |    |  |
| <b>Height (H)</b>           | 3.81<br>(.150)                       | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 6.35<br>(.250)  | 7.62<br>(.300) | 10.16<br>(.400) | 12.70<br>(.500) |     |    |      |     |    |      |     |    |      |    |     |    |  |
| <b>Thickness (T)</b>        | 2.54<br>(.100)                       | 3.175<br>(.125) | 3.175<br>(.125) | 3.175<br>(.125) | 4.06<br>(.160)  | 3.81<br>(.150) | 3.81<br>(.150)  | 5.08<br>(.200)  |     |    |      |     |    |      |     |    |      |    |     |    |  |
| <b>Lead Spacing (L.S.)</b>  | 2.54<br>(.100)                       | 2.54<br>(.100)  | 5.08<br>(.200)  | 6.35<br>(.250)  | 7.62<br>(.300)  | 5.08<br>(.200) | 5.08<br>(.200)  | 10.16<br>(.400) |     |    |      |     |    |      |     |    |      |    |     |    |  |
| <b>Lead Diameter (L.D.)</b> | .508<br>(.020)                       | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020) | .508<br>(.020)  | .635<br>(.025)  |     |    |      |     |    |      |     |    |      |    |     |    |  |
| Cap. in.*<br>pF             | Industry Preferred<br>Values in Blue | WVDC            |                 |                 | WVDC            |                |                 | WVDC            |     |    | WVDC |     |    | WVDC |     |    | WVDC |    |     |    |  |
|                             |                                      | 200             | 100             | 50              | 200             | 100            | 50              | 200             | 100 | 50 | 200  | 100 | 50 | 200  | 100 | 50 | 100  | 50 | 100 | 50 |  |
| 1.0-9.9                     | SR151A1R0DAR                         |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 10                          | <b>SR151A100KAR</b>                  |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 15                          | SR.....A150KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 22                          | SR.....A220KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 33                          | SR.....A330KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 39                          | SR.....A390KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 47                          | SR.....A470KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 68                          | SR.....A680KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 100                         | <b>SR151A101KAR</b>                  |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 150                         | SR.....A151KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 220                         | SR.....A221KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 330                         | SR.....A331KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 390                         | SR.....A391KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 470                         | SR.....A471KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 680                         | SR.....A681KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 1000                        | <b>SR211A102KAR</b>                  |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 1500                        | SR.....A152KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 2200                        | SR.....A222KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 3900                        | SR.....A392KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 4700                        | SR.....A472KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 6800                        | SR.....A682KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 8200                        | SR.....A822KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 10,000                      | SR.....A103KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 15,000                      | SR.....A153KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 22,000                      | SR.....A223KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 33,000                      | SR.....A333KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 39,000                      | SR.....A393KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 47,000                      | SR.....A473KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 68,000                      | SR.....A683KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |
| 100,000                     | SR.....A104KAR                       |                 |                 |                 |                 |                |                 |                 |     |    |      |     |    |      |     |    |      |    |     |    |  |

For other styles, voltages, tolerances and lead lengths see Part No. Codes or contact factory.

\*Other capacitance values available upon special request.

- = Industry preferred values
- = SR20 only

Capacitance ranges available for SR12 and SR07 same as SR15  
 SR62 and SR59 same as SR21  
 SR64 and SR65 same as SR30  
 SR75 same as SR40  
 SR13 same as SR21

**NOTE:** For others voltages, tolerances, electrical specifications and NPO typical characteristics, see the KYOCERA AVX Multilayer Ceramic Leaded Capacitors Catalog.

# RADIAL LEADS

## X7R Dielectric



### SIZE AND CAPACITANCE SPECIFICATIONS

EIA Characteristic

Dimensions: Millimeters (Inches)

| EIA Characteristic   | Style                                | SR15           |                |                | SR20            |                 |                 | SR21            |                 |                 | SR22            |                 |                 | SR27            |                 |                | SR30           |                |                 | SR40            |                 |                 | SR50            |                 |                 |      |     |    |
|----------------------|--------------------------------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------|-----|----|
|                      | "Insertable"                         | SR07           | SR07           | SR07           | SR29            | SR29            | SR29            | SR59            | SR59            | SR59            | N/A             | N/A             | N/A             | N/A             | N/A             | N/A            | SR65           | SR65           | SR65            | SR75            | SR75            | SR75            | N/A             | N/A             | N/A             |      |     |    |
| Width (W)            |                                      | 3.81<br>(.150) | 3.81<br>(.150) | 3.81<br>(.150) | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 6.604<br>(.260) | 6.604<br>(.260) | 6.604<br>(.260) | 7.62<br>(.300) | 7.62<br>(.300) | 7.62<br>(.300) | 10.16<br>(.400) | 10.16<br>(.400) | 10.16<br>(.400) | 12.70<br>(.500) | 12.70<br>(.500) | 12.70<br>(.500) | 12.70<br>(.500) |      |     |    |
| Height (H)           |                                      | 3.81<br>(.150) | 3.81<br>(.150) | 3.81<br>(.150) | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 6.35<br>(.250)  | 6.35<br>(.250)  | 6.35<br>(.250)  | 7.62<br>(.300) | 7.62<br>(.300) | 7.62<br>(.300) | 10.16<br>(.400) | 10.16<br>(.400) | 10.16<br>(.400) | 12.70<br>(.500) | 12.70<br>(.500) | 12.70<br>(.500) | 12.70<br>(.500) |      |     |    |
| Thickness (T)        |                                      | 2.54<br>(.100) | 2.54<br>(.100) | 2.54<br>(.100) | 3.175<br>(.125) | 3.175<br>(.125) | 3.175<br>(.125) | 3.175<br>(.125) | 3.175<br>(.125) | 3.175<br>(.125) | 3.175<br>(.125) | 3.175<br>(.125) | 4.06<br>(.160)  | 4.06<br>(.160)  | 4.06<br>(.160)  | 3.81<br>(.150) | 3.81<br>(.150) | 3.81<br>(.150) | 3.81<br>(.150)  | 3.81<br>(.150)  | 3.81<br>(.150)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  |      |     |    |
| Lead Spacing (L.S.)  |                                      | 2.54<br>(.100) | 2.54<br>(.100) | 2.54<br>(.100) | 2.54<br>(.100)  | 2.54<br>(.100)  | 2.54<br>(.100)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 6.35<br>(.250)  | 6.35<br>(.250)  | 7.62<br>(.300)  | 7.62<br>(.300)  | 7.62<br>(.300)  | 5.08<br>(.200) | 5.08<br>(.200) | 5.08<br>(.200) | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 10.16<br>(.400) | 10.16<br>(.400) | 10.16<br>(.400) | 10.16<br>(.400) |      |     |    |
| Lead Diameter (L.D.) |                                      | .508<br>(.020) | .508<br>(.020) | .508<br>(.020) | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020) | .508<br>(.020) | .508<br>(.020) | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .635<br>(.025)  |      |     |    |
| Cap. in.*<br>pF      | Industry Preferred<br>Values in Blue | WVDC           |                |                | WVDC            |                 |                 | WVDC            |                 |                 | WVDC            |                 |                 | WVDC            |                 |                | WVDC           |                |                 | WVDC            |                 |                 | WVDC            |                 |                 | WVDC |     |    |
|                      |                                      | 200            | 100            | 50             | 200             | 100             | 50              | 200             | 100             | 50              | 200             | 100             | 50              | 200             | 100             | 50             | 200            | 100            | 50              | 200             | 100             | 50              | 200             | 100             | 50              | 200  | 100 | 50 |
| 470                  | SR...C471KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |
| 1000                 | SR155C102KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |
| 1500                 | SR...C152KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |
| 2200                 | SR...C222KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |
| 3300                 | SR...C332KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |
| 4700                 | SR...C472KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |
| 6800                 | SR...C682KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |
| 10,000               | SR215C103KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |
| 15,000               | SR...C153KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |
| 22,000               | SR...C223KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |
| 33,000               | SR...C333KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |
| 47,000               | SR...C473KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |
| 68,000               | SR...C683KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |
| 100,000              | SR215C104KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |
| 150,000              | SR...C154KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |
| 220,000              | SR215C224KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |
| 330,000              | SR...C334KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |
| 390,000              | SR...C394KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |
| 470,000              | SR305C474KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |
| 1.0 uF               | SR305C105KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |
| 2.2 uF               | SR405C225KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |
| 2.7 uF               | SR505C275KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |
| 4.7 uF               | SR505C475KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |
| 10.0 uF              | SR655C106KAR                         |                |                |                |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                |                |                |                 |                 |                 |                 |                 |                 |                 |      |     |    |

For other styles, voltages, tolerances and lead lengths see Part No. Codes or contact factory.

- = Industry preferred values
- = Extended range
- = Extended range with 0.150" thickness maximum

# RADIAL LEADS

## Z5U Dielectric



### SIZE AND CAPACITANCE SPECIFICATIONS

EIA Characteristic

Dimensions: Millimeters (Inches)

| Style                | SR15                                 | SR20            | SR21            | SR22            | SR27            | SR30           | SR40            | SR50            |    |      |    |      |    |      |    |
|----------------------|--------------------------------------|-----------------|-----------------|-----------------|-----------------|----------------|-----------------|-----------------|----|------|----|------|----|------|----|
| "Insertable"         | SR07                                 | SR29            | SR59            | N/A             | N/A             | SR65           | SR75            | N/A             |    |      |    |      |    |      |    |
| Width (W)            | 3.81<br>(.150)                       | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 6.604<br>(.260) | 7.62<br>(.300) | 10.16<br>(.400) | 12.70<br>(.500) |    |      |    |      |    |      |    |
| Height (H)           | 3.81<br>(.150)                       | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 6.35<br>(.250)  | 7.62<br>(.300) | 10.16<br>(.400) | 12.70<br>(.500) |    |      |    |      |    |      |    |
| Thickness (T)        | 2.54<br>(.100)                       | 3.175<br>(.125) | 3.175<br>(.125) | 3.175<br>(.125) | 4.06<br>(.160)  | 3.81<br>(.150) | 3.81<br>(.150)  | 5.08<br>(.200)  |    |      |    |      |    |      |    |
| Lead Spacing (L.S.)  | 2.54<br>(.100)                       | 2.54<br>(.100)  | 5.08<br>(.200)  | 6.35<br>(.250)  | 7.62<br>(.300)  | 5.08<br>(.200) | 5.08<br>(.200)  | 10.16<br>(.400) |    |      |    |      |    |      |    |
| Lead Diameter (L.D.) | .508<br>(.020)                       | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020) | .508<br>(.020)  | .635<br>(.025)  |    |      |    |      |    |      |    |
| Cap. in.*<br>pF      | Industry Preferred<br>Values in Blue | WVDC            |                 | WVDC            |                 | WVDC           |                 | WVDC            |    | WVDC |    | WVDC |    | WVDC |    |
|                      |                                      | 100             | 50              | 100             | 50              | 100            | 50              | 100             | 50 | 100  | 50 | 100  | 50 | 100  | 50 |
| 10,000               | SR155E103ZAR                         |                 |                 |                 |                 |                |                 |                 |    |      |    |      |    |      |    |
| 47,000               | SR.....E473ZAR                       |                 |                 |                 |                 |                |                 |                 |    |      |    |      |    |      |    |
| 100,000              | SR215E104ZAR                         |                 |                 |                 |                 |                |                 |                 |    |      |    |      |    |      |    |
| 150,000              | SR.....E154ZAR                       |                 |                 |                 |                 |                |                 |                 |    |      |    |      |    |      |    |
| 220,000              | SR215E224ZAR                         |                 |                 |                 |                 |                |                 |                 |    |      |    |      |    |      |    |
| 330,000              | SR215E334ZAR                         |                 |                 |                 |                 |                |                 |                 |    |      |    |      |    |      |    |
| 470,000              | SR215E474ZAR                         |                 |                 |                 |                 |                |                 |                 |    |      |    |      |    |      |    |
| 680,000              | SR.....E684ZAR                       |                 |                 |                 |                 |                |                 |                 |    |      |    |      |    |      |    |
| 1.0 µF               | SR.....105ZAR                        |                 |                 |                 |                 |                |                 |                 |    |      |    |      |    |      |    |
| 1.5 µF               | SR30E155ZAR                          |                 |                 |                 |                 |                |                 |                 |    |      |    |      |    |      |    |
| 2.2 µF               | SR30E225ZAR                          |                 |                 |                 |                 |                |                 |                 |    |      |    |      |    |      |    |
| 3.3 µF               | SR30E335ZAR                          |                 |                 |                 |                 |                |                 |                 |    |      |    |      |    |      |    |
| 4.7 µF               | SR30E475ZAR                          |                 |                 |                 |                 |                |                 |                 |    |      |    |      |    |      |    |

For other styles, voltages, tolerances and lead lengths see Part No. Codes or contact factory.

\*Other capacitance values available upon special request.

- = Industry preferred values
- = SR20 only

Capacitance ranges available for SR12 and SR07 same as SR15  
 SR62 and SR59 same as SR21  
 SR64 and SR65 same as SR30  
 SR75 same as SR40  
 SR13 same as SR21

**NOTE:** For others voltages, tolerances, electrical specifications and NPO typical characteristics, see the KYOCERA AVX Multilayer Ceramic Leaded Capacitors Catalog.

### 500 VOLT SKYCAPS\*\*

| STYLE*               | MAXIMUM CAPACITANCE VALUE |         |
|----------------------|---------------------------|---------|
|                      | C0G (NPO)                 | X7R     |
| SR29                 | 900 pF                    | .015 µF |
| SR20                 | 1800 pF                   | .033 µF |
| SR28<br>SR59         | 900 pF                    | .015 µF |
| SR13<br>SR21         | 1800 pF                   | .033 µF |
| SR30<br>SR61<br>SR65 | 7200 pF                   | .12 µF  |
| SR40<br>SR75         | .015 µF                   | .27 µF  |
| SR22                 | 1800 pF                   | .033 µF |
| SR27                 | 1800 pF                   | .033 µF |
| SR76                 | .015 µF                   | .27 µF  |

\*Consult pages 27 and 28 for style sizes.

\*\*Voltage rating based on DWV of 150% of rated voltage.



The Important Information/Disclaimer is incorporated in the catalog where these specifications came from or available online at [www.avx.com/disclaimer/](http://www.avx.com/disclaimer/) by reference and should be reviewed in full before placing any order.

# RADIAL LEADS

## SkyCap®/SL Series

### GENERAL INFORMATION

#### SL Series

#### Conformally Coated Radial Leaded MLC

Temperature Coefficients: COG (NP0), X7R, Z5U

200, 100, 50 Volts (300V, 400V & 500V also available)

Case Material: Epoxy

Lead Material: Solderable Sn/Pb



Drawings are for illustrative purposes only. Actual lead form shape could vary within stated tolerances based on body size.

### HOW TO ORDER

**SL21**

**5**

**E**

**104**

**M**

**A**

**B**

**TR1**

#### Style

SL15  
SL20  
SL21  
SL22  
SL27  
SL30  
SL40  
SL50

#### Voltage

5 = 50V  
1 = 100V  
2 = 200V  
9 = 300V  
8 = 400V  
7 = 500V

#### Temperature Coefficient

A = COG (NP0)  
C = X7R  
E = Z5U

#### Capacitance

First two digits are the significant figures of capacitance. Third digit indicates the additional number of zeros. For example, order 100,000 pF as 104. (For values below 10pF use "R" in place of decimal point, e.g., 1R4 = 1.4pF.)

#### Capacitance Tolerance

COG (NP0):  
C = ±.25pF  
D = ±.5pF  
F = ±1% (>50pF only)  
G = ±2% (>25pF only)  
J = ±5%  
K = ±10%

X7R:  
J = ±5%  
K = ±10%  
M = ±20%

Z5U:  
M = ±20%  
Z = +80% -20%

#### Failure Rate

A = Not Applicable

#### Leads

B = Leads Sn/Pb Blank: (Tin lead product)

#### Packaging

Bulk Packaging 1.0" minimum of lead length  
T: Trimmed leads .230" ± .030"  
Bulk packaging  
TR1: Tape and Reel Packaging  
AP1: Ammopack packaging

See packaging specification pages 33-34

**Not RoHS Compliant**

### MARKING

#### FRONT



#### BACK



### PACKAGING REQUIREMENTS

|                          | Quantity per Bag |
|--------------------------|------------------|
| SL15, 20, 21, 22, 27, 30 | 1000 Pieces      |
| SL40, 50                 | 500 Pieces       |

Note: SL15, SL20, SL21, SL30, and SL40 available on tape and reel per EIA specifications RS-468. See Pages 33 and 34.

# RADIAL LEADS

## COG (NP0) Dielectric



### SIZE AND CAPACITANCE SPECIFICATIONS

EIA Characteristic

Dimensions: Millimeters (Inches)

| Style                       | SL15  | SL20            | SL21            | SL22            | SL27            | SL30           | SL40            | SL50            |
|-----------------------------|---|-----------------|-----------------|-----------------|-----------------|----------------|-----------------|-----------------|
| <b>"Insertable"</b>         | <b>SL07</b>   | <b>SL29</b>     | <b>SL59</b>     | <b>N/A</b>      | <b>N/A</b>      | <b>SL65</b>    | <b>SL75</b>     | <b>N/A</b>      |
| <b>Width (W)</b>            | 3.81<br>(.150)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 6.604<br>(.260) | 7.62<br>(.300) | 10.16<br>(.400) | 12.70<br>(.500) |
| <b>Height (H)</b>           | 3.81<br>(.150)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 6.35<br>(.250)  | 7.62<br>(.300) | 10.16<br>(.400) | 12.70<br>(.500) |
| <b>Thickness (T)</b>        | 2.54<br>(.100)  | 3.175<br>(.125) | 3.175<br>(.125) | 3.175<br>(.125) | 4.06<br>(.160)  | 3.81<br>(.150) | 3.81<br>(.150)  | 5.08<br>(.200)  |
| <b>Lead Spacing (L.S.)</b>  | 2.54<br>(.100)  | 2.54<br>(.100)  | 5.08<br>(.200)  | 6.35<br>(.250)  | 7.62<br>(.300)  | 5.08<br>(.200) | 5.08<br>(.200)  | 10.16<br>(.400) |
| <b>Lead Diameter (L.D.)</b> | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020) | .508<br>(.020)  | .635<br>(.025)  |
| <b>Cap. in.*<br/>pF</b>     | <b>Industry Preferred<br/>Values in Blue</b>                | <b>WVDC</b>     | <b>WVDC</b>     | <b>WVDC</b>     | <b>WVDC</b>     | <b>WVDC</b>    | <b>WVDC</b>     | <b>WVDC</b>     |
|                             |   | 200   100   50  | 200   100   50  | 200   100   50  | 200   100   50  | 200   100   50 | 200   100   50  | 200   100   50  |
| 1.0-9.9                     | SL151A1R0DAB<br><b>10 SL151A100KAB</b><br>15 SL.....A150KAB |                 |                 |                 |                 |                |                 |                 |
| 22                          | SL.....A220KAB  |                 |                 |                 |                 |                |                 |                 |
| 33                          | SL.....A330KAB  |                 |                 |                 |                 |                |                 |                 |
| 39                          | SL.....A390KAB  |                 |                 |                 |                 |                |                 |                 |
| 47                          | SL.....A470KAB  |                 |                 |                 |                 |                |                 |                 |
| 68                          | SL.....A680KAB  |                 |                 |                 |                 |                |                 |                 |
| <b>100 SL151A101KAB</b>     |   |                 |                 |                 |                 |                |                 |                 |
| 150                         | SI.....A151KAB  |                 |                 |                 |                 |                |                 |                 |
| 220                         | SI.....A221KAB  |                 |                 |                 |                 |                |                 |                 |
| 330                         | SI.....A331KAB  |                 |                 |                 |                 |                |                 |                 |
| 390                         | SI.....A391KAB  |                 |                 |                 |                 |                |                 |                 |
| 470                         | SI.....A471KAB  |                 |                 |                 |                 |                |                 |                 |
| 680                         | SI.....A681KAB  |                 |                 |                 |                 |                |                 |                 |
| <b>1000 SL211A102KAB</b>    |   |                 |                 |                 |                 |                |                 |                 |
| 1500                        | SI.....A152KAB  |                 |                 |                 |                 |                |                 |                 |
| 2200                        | SI.....A222KAB  |                 |                 |                 |                 |                |                 |                 |
| 3900                        | SI.....A392KAB  |                 |                 |                 |                 |                |                 |                 |
| 4700                        | SI.....A472KAB  |                 |                 |                 |                 |                |                 |                 |
| 6800                        | SI.....A682KAB  |                 |                 |                 |                 |                |                 |                 |
| 8200                        | SI.....A822KAB  |                 |                 |                 |                 |                |                 |                 |
| <b>10,000 SL305A103KAB</b>  |   |                 |                 |                 |                 |                |                 |                 |
| 15,000                      | SI.....A153KAB  |                 |                 |                 |                 |                |                 |                 |
| 22,000                      | SI.....A223KAB  |                 |                 |                 |                 |                |                 |                 |
| 33,000                      | SI.....A333KAB  |                 |                 |                 |                 |                |                 |                 |
| 39,000                      | SI.....A393KAB  |                 |                 |                 |                 |                |                 |                 |
| 47,000                      | SI.....A473KAB  |                 |                 |                 |                 |                |                 |                 |
| 68,000                      | SI.....A683KAB  |                 |                 |                 |                 |                |                 |                 |
| 100,000                     | SI.....A104KAB  |                 |                 |                 |                 |                |                 |                 |

For other styles, voltages, tolerances and lead lengths see Part No. Codes or contact factory.

\*Other capacitance values available upon special request.

- = Industry preferred values
- = SL20 only

**NOTE:** Capacitance ranges available for  
 SL12 same as SL15  
 SL62 same as SL21  
 SL64 same as SL30  
 SL89 same as SL21

# RADIAL LEADS

## X7R Dielectric



### SIZE AND CAPACITANCE SPECIFICATIONS

EIA Characteristic

Dimensions: Millimeters (Inches)

| Style  | SL15           | SL20            | SL21            | SL22            | SL27            | SL30           | SL40            | SL50            |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
|--|----------------|-----------------|-----------------|-----------------|-----------------|----------------|-----------------|-----------------|----|-------------|-----|----|-------------|-----|----|-------------|-----|----|-------------|-----|----|--|
| "Insertable"                                       | SL07           | SL29            | SL59            | N/A             | N/A             | SL65           | SL75            | N/A             |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| <b>Width (W)</b>                                   | 3.81<br>(.150) | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 6.604<br>(.260) | 7.62<br>(.300) | 10.16<br>(.400) | 12.70<br>(.500) |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| <b>Height (H)</b>                                  | 3.81<br>(.150) | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 6.35<br>(.250)  | 7.62<br>(.300) | 10.16<br>(.400) | 12.70<br>(.500) |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| <b>Thickness (T)</b>                               | 2.54<br>(.100) | 3.175<br>(.125) | 3.175<br>(.125) | 3.175<br>(.125) | 4.06<br>(.160)  | 3.81<br>(.150) | 3.81<br>(.150)  | 5.08<br>(.200)  |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| <b>Lead Spacing (L.S.)</b>                         | 2.54<br>(.100) | 2.54<br>(.100)  | 5.08<br>(.200)  | 6.35<br>(.250)  | 7.62<br>(.300)  | 5.08<br>(.200) | 5.08<br>(.200)  | 10.16<br>(.400) |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| <b>Lead Diameter (L.D.)</b>                        | .508<br>(.020) | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020) | .508<br>(.020)  | .635<br>(.025)  |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| <b>Cap. in.* Industry Preferred Values in Blue</b> | <b>WVDC</b>    |                 |                 | <b>WVDC</b>     |                 |                | <b>WVDC</b>     |                 |    | <b>WVDC</b> |     |    | <b>WVDC</b> |     |    | <b>WVDC</b> |     |    | <b>WVDC</b> |     |    |  |
|  | 200            | 100             | 50              | 200             | 100             | 50             | 200             | 100             | 50 | 200         | 100 | 50 | 200         | 100 | 50 | 200         | 100 | 50 | 200         | 100 | 50 |  |
| 470 SL.....C471KAB                                 |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| <b>1000 SL155C102KAB</b>                           |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| 1500 SL.....C152KAB                                |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| 2200 SL.....C222KAB                                |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| 3300 SL.....C332KAB                                |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| 4700 SL.....C472KAB                                |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| 6800 SL.....C682KAB                                |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| <b>10,000 SL215C103KAB</b>                         |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| 15,000 SL.....C153KAB                              |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| 22,000 SL.....C223KAB                              |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| 33,000 SL.....C333KAB                              |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| 47,000 SL.....C473KAB                              |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| 68,000 SL.....C683KAB                              |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| <b>100,000 SL215C104KAB</b>                        |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| 150,000 SL.....C154KAB                             |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| 220,000 <b>SL215C224KAB</b>                        |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| 330,000 SL.....C334KAB                             |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| 390,000 SL.....C394KAB                             |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| <b>470,000 SL305C474KAB</b>                        |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| <b>1.0 uF SL305C105KAB</b>                         |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| 2.2 uF SL405C225KAB                                |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| 2.7 uF SL505C275KAB                                |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| 4.7 uF SL505C475KAB                                |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |
| 10.0 uF SL655C106KAB                               |                |                 |                 |                 |                 |                |                 |                 |    |             |     |    |             |     |    |             |     |    |             |     |    |  |

For other styles, voltages, tolerances and lead lengths see Part No. Codes or contact factory.

-  = Industry preferred values
-  = Extended range
-  = Extended range with 0.150" thickness maximum

# RADIAL LEADS

## Z5U Dielectric



### SIZE AND CAPACITANCE SPECIFICATIONS

EIA Characteristic

Dimensions: Millimeters (Inches)

| Style                       | SL15                                     | SL20            | SL21            | SL22            | SL27            | SL30           | SL40            | SL50            |           |             |           |             |           |             |           |
|-----------------------------|--|-----------------|-----------------|-----------------|-----------------|----------------|-----------------|-----------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|
| "Insertable"                | SL07                                     | SL29            | SL59            | N/A             | N/A             | SL65           | SL75            | N/A             |           |             |           |             |           |             |           |
| <b>Width (W)</b>            | 3.81<br>(.150)                           | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 6.604<br>(.260) | 7.62<br>(.300) | 10.16<br>(.400) | 12.70<br>(.500) |           |             |           |             |           |             |           |
| <b>Height (H)</b>           | 3.81<br>(.150)                           | 5.08<br>(.200)  | 5.08<br>(.200)  | 5.08<br>(.200)  | 6.35<br>(.250)  | 7.62<br>(.300) | 10.16<br>(.400) | 12.70<br>(.500) |           |             |           |             |           |             |           |
| <b>Thickness (T)</b>        | 2.54<br>(.100)                           | 3.175<br>(.125) | 3.175<br>(.125) | 3.175<br>(.125) | 4.06<br>(.160)  | 3.81<br>(.150) | 3.81<br>(.150)  | 5.08<br>(.200)  |           |             |           |             |           |             |           |
| <b>Lead Spacing (L.S.)</b>  | 2.54<br>(.100)                           | 2.54<br>(.100)  | 5.08<br>(.200)  | 6.35<br>(.250)  | 7.62<br>(.300)  | 5.08<br>(.200) | 5.08<br>(.200)  | 10.16<br>(.400) |           |             |           |             |           |             |           |
| <b>Lead Diameter (L.D.)</b> | .508<br>(.020)                           | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020)  | .508<br>(.020) | .508<br>(.020)  | .635<br>(.025)  |           |             |           |             |           |             |           |
| <b>Cap. in.*</b>            | <b>Industry Preferred Values in Blue</b> | <b>WVDC</b>     |                 | <b>WVDC</b>     |                 | <b>WVDC</b>    |                 | <b>WVDC</b>     |           | <b>WVDC</b> |           | <b>WVDC</b> |           | <b>WVDC</b> |           |
| <b>pF</b>                   |  | <b>100</b>      | <b>50</b>       | <b>100</b>      | <b>50</b>       | <b>100</b>     | <b>50</b>       | <b>100</b>      | <b>50</b> | <b>100</b>  | <b>50</b> | <b>100</b>  | <b>50</b> | <b>100</b>  | <b>50</b> |
| <b>10,000</b>               | <b>SL155E103ZAB</b>                      |                 |                 |                 |                 |                |                 |                 |           |             |           |             |           |             |           |
| <b>47,000</b>               | SL.....E473ZAB                           |                 |                 |                 |                 |                |                 |                 |           |             |           |             |           |             |           |
| <b>100,000</b>              | <b>SL215E104ZAB</b>                      |                 |                 |                 |                 |                |                 |                 |           |             |           |             |           |             |           |
| <b>150,000</b>              | SL.....E154ZAB                           |                 |                 |                 |                 |                |                 |                 |           |             |           |             |           |             |           |
| <b>220,000</b>              | <b>SL215E224ZAB</b>                      |                 |                 |                 |                 |                |                 |                 |           |             |           |             |           |             |           |
| <b>330,000</b>              | <b>SL215E334ZAB</b>                      |                 |                 |                 |                 |                |                 |                 |           |             |           |             |           |             |           |
| <b>470,000</b>              | <b>SL215E474ZAB</b>                      |                 |                 |                 |                 |                |                 |                 |           |             |           |             |           |             |           |
| <b>680,000</b>              | SL.....E684ZAB                           |                 |                 |                 |                 |                |                 |                 |           |             |           |             |           |             |           |
| <b>1.0 µF</b>               | <b>SL.....105ZAB</b>                     |                 |                 |                 |                 |                |                 |                 |           |             |           |             |           |             |           |
| <b>1.5 µF</b>               | SL30E155ZAB                              |                 |                 |                 |                 |                |                 |                 |           |             |           |             |           |             |           |
| <b>2.2 µF</b>               | SL30E225ZAB                              |                 |                 |                 |                 |                |                 |                 |           |             |           |             |           |             |           |
| <b>3.3 µF</b>               | SL30E335ZAB                              |                 |                 |                 |                 |                |                 |                 |           |             |           |             |           |             |           |
| <b>4.7 µF</b>               | SL30E475ZAB                              |                 |                 |                 |                 |                |                 |                 |           |             |           |             |           |             |           |

For other styles, voltages, tolerances and lead lengths see Part No. Codes or contact factory.

\*Other capacitance values available upon special request.

- = Industry preferred values
- = SL20 only

### 500 VOLT SKYCAPS\*\*

| STYLE* | MAXIMUM CAPACITANCE VALUE |         |
|--------|---------------------------|---------|
|        | COG (NP0)                 | X7R     |
| SL29   | 900 pF                    | .015 µF |
| SL20   | 1800 pF                   | .033 µF |
| SL28   | 900 pF                    | .015 µF |
| SL59   |                           |         |
| SL13   | 1800 pF                   | .033 µF |
| SL21   |                           |         |
| SL30   | 7200 pF                   | .12 µF  |
| SL61   |                           |         |
| SL65   |                           |         |
| SL40   | .015 µF                   | .27 µF  |
| SL75   |                           |         |
| SL22   | 1800 pF                   | .033 µF |
| SL27   | 1800 pF                   | .033 µF |
| SL76   | .015 µF                   | .27 µF  |
| SL50   | .036 µF                   | .59 µF  |

\*Consult pages 27 and 28 for style sizes.

\*\*Voltage rating based on DWV of 150% of rated voltage.



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