



**THE DATASHEET OF  
SR222A1R5CAR**



# 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 = ±.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

R = RoHS

#### Packaging

Blank: 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



### 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 (.150)	5.08 (.200)	5.08 (.200)	5.08 (.200)	6.604 (.260)	7.62 (.300)	10.16 (.400)	12.70 (.500)													
<b>Height (H)</b>	3.81 (.150)	5.08 (.200)	5.08 (.200)	5.08 (.200)	6.35 (.250)	7.62 (.300)	10.16 (.400)	12.70 (.500)													
<b>Thickness (T)</b>	2.54 (.100)	3.175 (.125)	3.175 (.125)	3.175 (.125)	4.06 (.160)	3.81 (.150)	3.81 (.150)	5.08 (.200)													
<b>Lead Spacing (L.S.)</b>	2.54 (.100)	2.54 (.100)	5.08 (.200)	6.35 (.250)	7.62 (.300)	5.08 (.200)	5.08 (.200)	10.16 (.400)													
<b>Lead Diameter (L.D.)</b>	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.635 (.025)													
Cap. in.* pF	Industry Preferred 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)

	Style	SR15			SR20			SR21			SR22			SR27			SR30			SR40			SR50		
		SR07	SR07	SR07	SR29	SR29	SR29	SR59	SR59	SR59	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 (.150)	3.81 (.150)	3.81 (.150)	5.08 (.200)	5.08 (.200)	5.08 (.200)	5.08 (.200)	5.08 (.200)	5.08 (.200)	5.08 (.200)	5.08 (.200)	6.604 (.260)	6.604 (.260)	6.604 (.260)	7.62 (.300)	7.62 (.300)	7.62 (.300)	10.16 (.400)	10.16 (.400)	10.16 (.400)	12.70 (.500)	12.70 (.500)	12.70 (.500)	
	Height (H)	3.81 (.150)	3.81 (.150)	3.81 (.150)	5.08 (.200)	5.08 (.200)	5.08 (.200)	5.08 (.200)	5.08 (.200)	5.08 (.200)	5.08 (.200)	5.08 (.200)	6.35 (.250)	6.35 (.250)	6.35 (.250)	7.62 (.300)	7.62 (.300)	7.62 (.300)	10.16 (.400)	10.16 (.400)	10.16 (.400)	12.70 (.500)	12.70 (.500)	12.70 (.500)	
	Thickness (T)	2.54 (.100)	2.54 (.100)	2.54 (.100)	3.175 (.125)	3.175 (.125)	3.175 (.125)	3.175 (.125)	3.175 (.125)	3.175 (.125)	3.175 (.125)	3.175 (.125)	4.06 (.160)	4.06 (.160)	4.06 (.160)	3.81 (.150)	3.81 (.150)	3.81 (.150)	3.81 (.150)	3.81 (.150)	3.81 (.150)	5.08 (.200)	5.08 (.200)	5.08 (.200)	
	Lead Spacing (L.S.)	2.54 (.100)	2.54 (.100)	2.54 (.100)	2.54 (.100)	2.54 (.100)	2.54 (.100)	5.08 (.200)	5.08 (.200)	5.08 (.200)	5.08 (.200)	5.08 (.200)	6.35 (.250)	6.35 (.250)	6.35 (.250)	5.08 (.200)	5.08 (.200)	5.08 (.200)	5.08 (.200)	5.08 (.200)	5.08 (.200)	5.08 (.200)	10.16 (.400)	10.16 (.400)	
	Lead Diameter (L.D.)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.635 (.025)	
Cap. in.* pF	Industry Preferred Values in Blue	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
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 (.150)	5.08 (.200)	5.08 (.200)	5.08 (.200)	6.604 (.260)	7.62 (.300)	10.16 (.400)	12.70 (.500)							
Height (H)	3.81 (.150)	5.08 (.200)	5.08 (.200)	5.08 (.200)	6.35 (.250)	7.62 (.300)	10.16 (.400)	12.70 (.500)							
Thickness (T)	2.54 (.100)	3.175 (.125)	3.175 (.125)	3.175 (.125)	4.06 (.160)	3.81 (.150)	3.81 (.150)	5.08 (.200)							
Lead Spacing (L.S.)	2.54 (.100)	2.54 (.100)	5.08 (.200)	6.35 (.250)	7.62 (.300)	5.08 (.200)	5.08 (.200)	10.16 (.400)							
Lead Diameter (L.D.)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.635 (.025)							
Cap. in.* pF	Industry Preferred 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 SR59	900 pF	.015 µF
SR13 SR21	1800 pF	.033 µF
SR30 SR61 SR65	7200 pF	.12 µF
SR40 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.



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# 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

## 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 (.150)	5.08 (.200)	5.08 (.200)	5.08 (.200)	6.604 (.260)	7.62 (.300)	10.16 (.400)	12.70 (.500)											
<b>Height (H)</b>	3.81 (.150)	5.08 (.200)	5.08 (.200)	5.08 (.200)	6.35 (.250)	7.62 (.300)	10.16 (.400)	12.70 (.500)											
<b>Thickness (T)</b>	2.54 (.100)	3.175 (.125)	3.175 (.125)	3.175 (.125)	4.06 (.160)	3.81 (.150)	3.81 (.150)	5.08 (.200)											
<b>Lead Spacing (L.S.)</b>	2.54 (.100)	2.54 (.100)	5.08 (.200)	6.35 (.250)	7.62 (.300)	5.08 (.200)	5.08 (.200)	10.16 (.400)											
<b>Lead Diameter (L.D.)</b>	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.635 (.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>			
	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 (.150)	5.08 (.200)	5.08 (.200)	5.08 (.200)	6.604 (.260)	7.62 (.300)	10.16 (.400)	12.70 (.500)							
<b>Height (H)</b>	3.81 (.150)	5.08 (.200)	5.08 (.200)	5.08 (.200)	6.35 (.250)	7.62 (.300)	10.16 (.400)	12.70 (.500)							
<b>Thickness (T)</b>	2.54 (.100)	3.175 (.125)	3.175 (.125)	3.175 (.125)	4.06 (.160)	3.81 (.150)	3.81 (.150)	5.08 (.200)							
<b>Lead Spacing (L.S.)</b>	2.54 (.100)	2.54 (.100)	5.08 (.200)	6.35 (.250)	7.62 (.300)	5.08 (.200)	5.08 (.200)	10.16 (.400)							
<b>Lead Diameter (L.D.)</b>	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.508 (.020)	.635 (.025)							
Cap. in.* pF	Industry Preferred 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	SL155E103ZAB														
47,000	SL.....E473ZAB														
100,000	SL215E104ZAB														
150,000	SL.....E154ZAB														
220,000	SL215E224ZAB														
330,000	SL215E334ZAB														
470,000	SL215E474ZAB														
680,000	SL.....E684ZAB														
1.0 µF	SL.....105ZAB														
1.5 µF	SL30E155ZAB														
2.2 µF	SL30E225ZAB														
3.3 µF	SL30E335ZAB														
4.7 µF	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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- ✓ Global Sourcing Solution
- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management