



**THE DATASHEET OF
SR221C223KAR**



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									
"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	VVDC			VVDC			VVDC			VVDC			VVDC		VVDC	
		200	100	50	200	100	50	200	100	50	200	100	50	100	50	100	50
1.0-9.9	SR151A1R0DAR																
10	SR151A100KAR																
15	SR.....A150KAR																
22	SR.....A220KAR																
33	SR.....A330KAR																
39	SR.....A390KAR																
47	SR.....A470KAR																
68	SR.....A680KAR																
100	SR151A101KAR																
150	SR.....A151KAR																
220	SR.....A221KAR																
330	SR.....A331KAR																
390	SR.....A391KAR																
470	SR.....A471KAR																
680	SR.....A681KAR																
1000	SR211A102KAR																
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)	10.16 (.400)	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)	.635 (.025)	.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.



The Important Information/Disclaimer is incorporated in the catalog where these specifications came from or available online at 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												
"Insertable"	SL07	SL29	SL59	N/A	N/A	SL65	SL75	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			
		200	100	50	200	100	50	200	100	50	200	100	50	200	100	50	200	100	50	
1.0-9.9	SL151A1R0DAB 10 SL151A100KAB 15 SI.....A150KAB																			
22	SL.....A220KAB																			
33	SL.....A330KAB																			
39	SL.....A390KAB																			
47	SL.....A470KAB																			
68	SL.....A680KAB																			
100	SL151A101KAB																			
150	SI.....A151KAB																			
220	SI.....A221KAB																			
330	SI.....A331KAB																			
390	SI.....A391KAB																			
470	SI.....A471KAB																			
680	SI.....A681KAB																			
1000	SL211A102KAB																			
1500	SI.....A152KAB																			
2200	SI.....A222KAB																			
3900	SI.....A392KAB																			
4700	SI.....A472KAB																			
6800	SI.....A682KAB																			
8200	SI.....A822KAB																			
10,000	SL305A103KAB																			
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											
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.* 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	200	100	50	
470 SL.....C471KAB																			
1000 SL155C102KAB																			
1500 SL.....C152KAB																			
2200 SL.....C222KAB																			
3300 SL.....C332KAB																			
4700 SL.....C472KAB																			
6800 SL.....C682KAB																			
10,000 SL215C103KAB																			
15,000 SL.....C153KAB																			
22,000 SL.....C223KAB																			
33,000 SL.....C333KAB																			
47,000 SL.....C473KAB																			
68,000 SL.....C683KAB																			
100,000 SL215C104KAB																			
150,000 SL.....C154KAB																			
220,000 SL215C224KAB																			
330,000 SL.....C334KAB																			
390,000 SL.....C394KAB																			
470,000 SL305C474KAB																			
1.0 uF SL305C105KAB																			
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							
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.*	Industry Preferred Values in Blue	WVDC		WVDC		WVDC		WVDC		WVDC		WVDC		WVDC	
pF		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.



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

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Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management