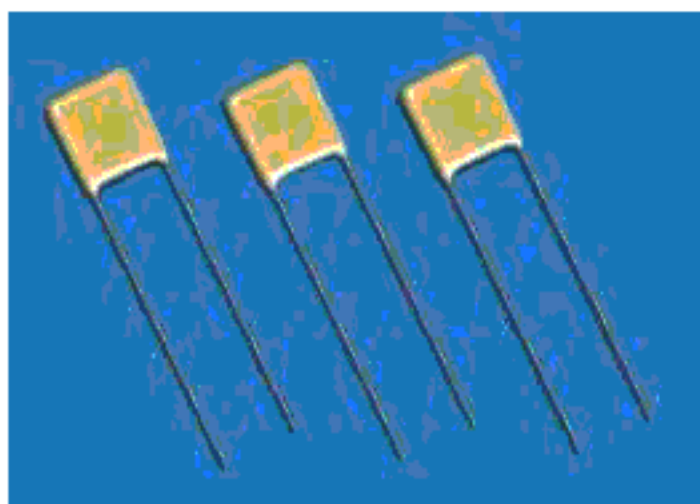


# High Voltage MLC Radials (SV Style)



## Application Information on High Voltage MLC Capacitors



High value, low leakage and small size are difficult parameters to obtain in capacitors for high voltage systems. AVX special high voltage MLC radial leaded capacitors meet these performance characteristics. The added advantage of these capacitors lies in special internal design minimizing the electric field stresses within the MLC. These special design criteria result in significant reduction of partial discharge activity within the dielectric and having, therefore, a major impact on long-term reliability of the product. The SV high voltage radial capacitors are conformally coated with high insulation resistance, high dielectric strength epoxy eliminating the possibility of arc flashover.

The SV high voltage radial MLC designs exhibit low ESRs at high frequency. The same criteria governing the high voltage design carries the added benefits of extremely low ESR in relatively low capacitance and small packages. These

capacitors are designed and are ideally suited for applications such as snubbers in high frequency power converters, resonators in SMPS, and high voltage coupling/DC blocking.

Also because these MLCs are designed for high voltage applications, as input resonator capacitors they are well safeguarded against transient requirements.

## COG Dielectric General Specifications

### Capacitance Range

10 pF to .15  $\mu$ F (1.0 Vrms, 1 KHz)

### Capacitance Tolerances

$\pm 5\%$ ;  $\pm 10\%$ ;  $\pm 20\%$

### Operating Temperature Range

$-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$

### Temperature Characteristic

$0 \pm 30$  ppm/ $^{\circ}\text{C}$

### Voltage Ratings

1000 VDC thru 5000 VDC ( $+125^{\circ}\text{C}$ )

### Dissipation Factor

0.15% max. ( $+25^{\circ}\text{C}$ )  
1.0 Vrms, 1 KHz

### Insulation Resistance ( $+25^{\circ}\text{C}$ , at 500V)

100K M $\Omega$  min. or 1000 M $\Omega$ - $\mu$ F min.,  
whichever is less

### Insulation Resistance ( $+125^{\circ}\text{C}$ , at 500V)

10K M $\Omega$  min., or 100 M $\Omega$ - $\mu$ F min.,  
whichever is less

### Dielectric Strength

120% rated voltage, 5 seconds

### Life Test

100% rated and  $+125^{\circ}\text{C}$

## X7R Dielectric General Specifications

### Capacitance Range

100 pF to 2.2  $\mu$ F (1.0 Vrms, 1 KHz)

### Capacitance Tolerances

$\pm 10\%$ ;  $\pm 20\%$ ;  $+80\%$ ,  $-20\%$

### Operating Temperature Range

$-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$

### Temperature Characteristic

$\pm 15\%$  (0 VDC)

### Voltage Ratings

1000 VDC thru 5000 VDC ( $+125^{\circ}\text{C}$ )

### Dissipation Factor

2.5% max. ( $+25^{\circ}\text{C}$ , 1.0 Vrms, 1 KHz)

### Insulation Resistance ( $+25^{\circ}\text{C}$ , at 500V)

100K M $\Omega$  min., or 1000 M $\Omega$ - $\mu$ F min.,  
whichever is less

### Insulation Resistance ( $+125^{\circ}\text{C}$ , at 500V)

10K M $\Omega$  min., or 100 M $\Omega$ - $\mu$ F min.,  
whichever is less

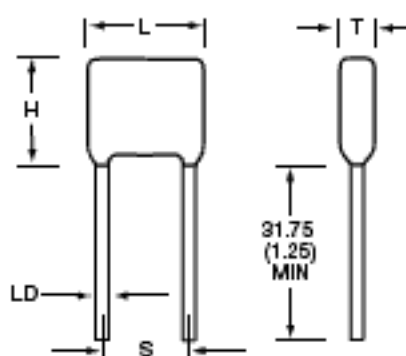
### Dielectric Strength

120% rated voltage, 5 seconds

### Life Test

100% rated and  $+125^{\circ}\text{C}$

# High Voltage MLC Radials (SV Style)



## HIGH VOLTAGE RADIAL LEAD

### HOW TO ORDER

AVX Styles: SV01 THRU SV16

<b>SV01</b>	<b>A</b>	<b>A</b>	<b>102</b>	<b>K</b>	<b>A</b>	<b>A</b>
AVX Style	Voltage 1000V = A 2000V = G 3000V = H 4000V = J 5000V = K	Temperature Coefficient COG = A X7R = C	Capacitance Code (2 significant digits + no. of zeros) Examples: 10 pF = 100 100 pF = 101 1,000 pF = 102 22,000 pF = 223 220,000 pF = 224 1 $\mu$ F = 105	Capacitance Tolerance COG: J = $\pm$ 5% K = $\pm$ 10% M = $\pm$ 20% X7R: K = $\pm$ 10% M = $\pm$ 20% Z = +80 -20%	A = Does not apply	A = Does not apply

Note: Capacitors with X7R Dielectrics are not intended for AC line filtering applications. Contact Plant for recommendations.

## DIMENSIONS

millimeters (inches)

AVX Style	Length (L) max	Height (H) max	Thickness (T) max	Lead Spacing $\pm$ .762 (.030) (S)	LD (Nom)
SV01	6.35 (0.250)	5.59 (0.220)	5.08 (0.200)	4.32 (0.170)	0.64 (0.025)
SV02	8.13 (0.320)	7.11 (0.280)	5.08 (0.200)	5.59 (0.220)	0.64 (0.025)
SV03	9.40 (0.370)	7.62 (0.300)	5.08 (0.200)	6.99 (0.275)	0.64 (0.025)
SV04	11.4 (0.450)	5.59 (0.220)	5.08 (0.200)	7.62 (0.300)	0.64 (0.025)
SV05	11.9 (0.470)	10.2 (0.400)	5.08 (0.200)	9.52 (0.375)	0.64 (0.025)
SV06	14.0 (0.550)	7.11 (0.280)	5.08 (0.200)	10.16 (0.400)	0.64 (0.025)
SV07	14.5 (0.570)	12.7 (0.500)	5.08 (0.200)	12.1 (0.475)	0.64 (0.025)
SV08	17.0 (0.670)	15.2 (0.600)	5.08 (0.200)	14.6 (0.575)	0.64 (0.025)
SV09	19.8 (0.770)	18.3 (0.720)	5.08 (0.200)	17.1 (0.675)	0.64 (0.025)
SV10	26.7 (1.050)	12.7 (0.500)	5.08 (0.200)	22.9 (0.900)	0.64 (0.025)
SV11	31.8 (1.250)	15.2 (0.600)	5.08 (0.200)	27.9 (1.100)	0.64 (0.025)
SV12	36.8 (1.450)	18.3 (0.720)	5.08 (0.200)	33.0 (1.300)	0.64 (0.025)
SV13	7.62 (0.300)	9.14 (0.360)	5.08 (0.200)	5.08 (0.200)	0.51 (0.020)
SV14	10.2 (0.400)	11.7 (0.460)	5.08 (0.200)	5.08 (0.200)	0.51 (0.020)
SV15	12.7 (0.500)	14.2 (0.560)	5.08 (0.200)	10.2 (0.400)	0.64 (0.025)
SV16	22.1 (0.870)	16.8 (0.660)	5.08 (0.200)	20.1 (0.790)	0.81 (0.032)
SV17	23.8 (0.930)	19.8 (0.780)	6.35 (0.250)	20.3 (0.800)	0.81 (0.032)

## CAPACITANCE VALUE

C0G					
Style	1000V min./max.	2000V min./max.	3000V min./max.	4000V min./max.	5000V min./max.
SV01	100 pF / 1000 pF	10 pF / 180 pF	10 pF / 82 pF	—	—
SV02	100 pF / 3300 pF	10 pF / 680 pF	10 pF / 270 pF	10 pF / 150 pF	10 pF / 100 pF
SV03	100 pF / 5600 pF	100 pF / 1200 pF	10 pF / 470 pF	10 pF / 270 pF	10 pF / 180 pF
SV04	100 pF / 2200 pF	10 pF / 470 pF	10 pF / 180 pF	10 pF / 100 pF	10 pF / 68 pF
SV05	1000 pF / 0.015 µF	100 pF / 3300 pF	100 pF / 1200 pF	10 pF / 680 pF	10 pF / 470 pF
SV06	100 pF / 6800 pF	100 pF / 1500 pF	10 pF / 560 pF	10 pF / 330 pF	10 pF / 220 pF
SV07	1000 pF / 0.027 µF	100 pF / 5600 pF	100 pF / 2200 pF	100 pF / 1200 pF	10 pF / 820 pF
SV08	1000 pF / 0.039 µF	1000 pF / 0.01 µF	100 pF / 3900 pF	100 pF / 2200 pF	100 pF / 1500 pF
SV09	1000 pF / 0.068 µF	1000 pF / 0.015 µF	100 pF / 6800 pF	100 pF / 3900 pF	100 pF / 2700 pF
SV10	1000 pF / 0.056 µF	1000 pF / 0.012 µF	100 pF / 5600 pF	100 pF / 3300 pF	100 pF / 2200 pF
SV11	1000 pF / 0.082 µF	1000 pF / 0.022 µF	100 pF / 8200 pF	100 pF / 4700 pF	100 pF / 3300 pF
SV12	.01 µF / 0.15 µF	1000 pF / 0.033 µF	1000 pF / 0.015 µF	100 pF / 8200 pF	100 pF / 5600 pF
SV13	100 pF / 8200 pF	100 pF / 1800 pF	100 pF / 820 pF	10 pF / 390 pF	10 pF / 270 pF
SV14	1000 pF / 0.015 µF	100 pF / 4700 pF	100 pF / 1500 pF	10 pF / 820 pF	10 pF / 560 pF
SV15	1000 pF / 0.033 µF	100 pF / 0.01 µF	100 pF / 2700 pF	100 pF / 1800 pF	100 pF / 1200 pF
SV16	1000 pF / 0.068 µF	1000 pF / 0.018 µF	100 pF / 6800 pF	100 pF / 3900 pF	100 pF / 2700 pF
SV17	1000 pF / 0.10 µF	1000 pF / 0.039 µF	1000 pF / 0.012 µF	100 pF / 6800 pF	100 pF / 4700 pF
X7R					
SV01	1000 pF / 0.012 µF	100 pF / 1500 pF	—	—	—
SV02	1000 pF / 0.047 µF	100 pF / 5600 pF	100 pF / 2700 pF	—	—
SV03	1000 pF / 0.082 µF	1000 pF / 0.01 µF	100 pF / 4700 pF	100 pF / 1800 pF	—
SV04	1000 pF / 0.033 µF	100 pF / 3900 pF	100 pF / 1800 pF	100 pF / 820 pF	—
SV05	.01 µF / 0.22 µF	1000 pF / 0.027 µF	1000 pF / 0.012 µF	100 pF / 4700 pF	—
SV06	.01 µF / 0.10 µF	1000 pF / 0.012 µF	100 pF / 6800 pF	100 pF / 2700 pF	100 pF / 1200 pF
SV07	.01 µF / 0.39 µF	1000 pF / 0.047 µF	1000 pF / 0.027 µF	1000 pF / 0.01 µF	100 pF / 6800 pF
SV08	.01 µF / 0.68 µF	1000 pF / 0.082 µF	1000 pF / 0.047 µF	1000 pF / 0.018 µF	1000 pF / 0.012 µF
SV09	.10 µF / 1.00 µF	.01 µF / 0.12 µF	1000 pF / 0.068 µF	1000 pF / 0.027 µF	1000 pF / 0.018 µF
SV10	.01 µF / 0.82 µF	.01 µF / 0.10 µF	1000 pF / 0.056 µF	1000 pF / 0.022 µF	1000 pF / 0.018 µF
SV11	.10 µF / 1.2 µF	.01 µF / 0.18 µF	.01 µF / 0.10 µF	1000 pF / 0.039 µF	1000 pF / 0.027 µF
SV12	.10 µF / 2.20 µF	.01 µF / 0.27 µF	.01 µF / 0.15 µF	1000 pF / 0.056 µF	1000 pF / 0.033 µF
SV13	.01 µF / 0.10 µF	1000 pF / 0.012 µF	100 pF / 6800 pF	100 pF / 2700 pF	—
SV14	.01 µF / 0.18 µF	1000 pF / 0.022 µF	1000 pF / 0.015 µF	100 pF / 5600 pF	—
SV15	.01 µF / 0.27 µF	1000 pF / 0.033 µF	1000 pF / 0.022 µF	1000 pF / 8200 pF	100 pF / 4700 pF
SV16	.01 µF / 1.0 µF	.01 µF / 0.12 µF	1000 pF / 0.068 µF	1000 pF / 0.027 µF	1000 pF / 0.018 µF
SV17	.01 µF / 1.2 µF	.01 µF / 0.15 µF	1000 pF / 0.082 µF	1000 pF / 0.039 µF	1000 pF / 0.027 µF

Note: Contact factory for other voltage ratings or values.

## AVX IS QUALIFIED TO THE FOLLOWING DSCC DRAWINGS

Specification #	Description	Capacitance Range
87046	C0G-1000 VDC	10 pF - 0.025 µF
87043	X7R-1000 VDC	100 pF - 0.47 µF
87040	X7R-2000 VDC	100 pF - 0.22 µF
87114	C0G-3000 VDC	10 pF - 8200 pF
87047	X7R-3000 VDC	100 pF - 0.1 µF
87076	C0G-4000 VDC	10 pF - 6800 pF
89044	X7R-4000 VDC	100 pF - 0.056 µF
87077	C0G-5000 VDC	10 pF - 5600 pF
87070	X7R-5000 VDC	100 pF - 0.033 µF
87081	X7R-10000 VDC	470 pF - 0.01 µF

These specifications require group A and B testing per MIL-PRF-49467