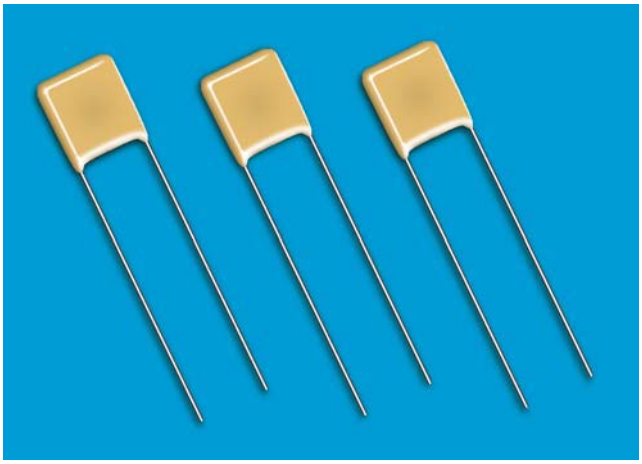
High Voltage MLC Radials (SV Style)

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.

C0G Dielectric

General Specifications

Capacitance Range
10 pF to .15 µF
(+25°C, 1.0 ±0.2 Vrms at 1kHz, for ≤100 pF use 1 MHz)

Capacitance Tolerances
±5%; ±10%; ±20%

Operating Temperature Range
-55°C to +125°C

Temperature Characteristic
0 ± 30 ppm/°C

Voltage Ratings
600 VDC thru 5000 VDC (+125°C)

Dissipation Factor
0.15% max.
(+25°C, 1.0 ±0.2 Vrms at 1kHz, for ≤100 pF use 1 MHz)

Insulation Resistance (+25°C, at 500V)
100K MΩ min. or 1000 MΩ-µF min., whichever is less

Insulation Resistance (+125°C, at 500V)
10K MΩ min., or 100 MΩ-µF min., whichever is less

Dielectric Strength
120% rated voltage, 5 seconds

Life Test
100% rated and +125°C

X7R Dielectric

General Specifications

Capacitance Range
100 pF to 2.2 µF
(+25°C, 1.0 ±0.2 Vrms at 1kHz)

Capacitance Tolerances
±10%; ±20%; +80%, -20%

Operating Temperature Range
-55°C to +125°C

Temperature Characteristic
±15% (0 VDC)

Voltage Ratings
600 VDC thru 5000 VDC (+125°C)

Dissipation Factor
2.5% max.
(+25°C, 1.0 ±0.2 Vrms at 1kHz)

Insulation Resistance (+25°C, at 500V)
100K MΩ min., or 1000 MΩ-µF min., whichever is less

Insulation Resistance (+125°C, at 500V)
10K MΩ min., or 100 MΩ-µF min., whichever is less

Dielectric Strength
120% rated voltage, 5 seconds

Life Test
100% rated and +125°C

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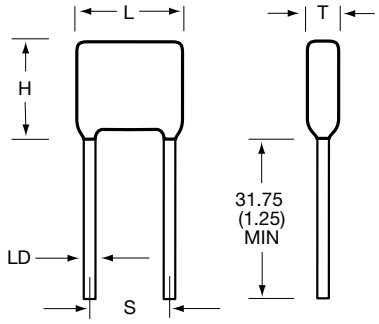
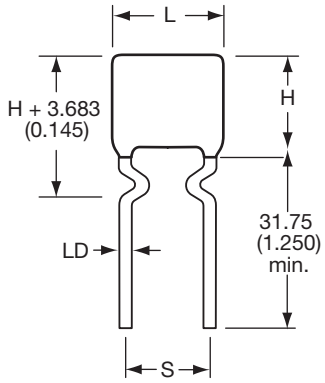


SV01 thru SV17



SV52 thru SV59 and SV63 thru SV67

HIGH VOLTAGE RADIAL LEAD

HOW TO ORDER

AVX Styles: SV01 THRU SV67

SV01	A	A	102	K	A	A	*
AVX Style	**Voltage** 600V/630V = C 1000V = A 1500V = S 2000V = G 2500V = W 3000V = H 4000V = J 5000V = K	**Temperature Coefficient** C0G = 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 µF = 105	**Capacitance Tolerance** C0G: J = ±5% K = ±10% M = ±20% X7R: K = ±10% M = ±20% Z = +80 -20%	**Test Level** A = Standard B = Hi-Rel*	**Leads** A = Tin/Lead R = RoHS Compliant	**Packaging** (See Note 1)

Note 1: No suffix signifies bulk packaging which is AVX standard packaging. Use suffix "TR1" if tape and reel is required. Parts are reel packaged per EIA-468.

Note: Capacitors with X7R dielectrics are not intended for applications across AC supply mains or AC line filtering with polarity reversal. Contact plant for recommendations.

*Hi-Rel screening consists of 100% Group A, Subgroup 1 per MIL-PRF-49467. (Except partial discharge testing is not performed and DWV is at 120% rated voltage).

DIMENSIONS

millimeters (inches)

AVX Style	Length (L) max	Height (H) max	Thickness (T) max	Lead Spacing ±.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/SV52	8.13 (0.320)	7.11 (0.280)	5.08 (0.200)	5.59 (0.220)	0.64 (0.025)
SV03/SV53	9.40 (0.370)	7.62 (0.300)	5.08 (0.200)	6.99 (0.275)	0.64 (0.025)
SV04/SV54	11.4 (0.450)	5.59 (0.220)	5.08 (0.200)	7.62 (0.300)	0.64 (0.025)
SV05/SV55	11.9 (0.470)	10.2 (0.400)	5.08 (0.200)	9.52 (0.375)	0.64 (0.025)
SV06/SV56	14.0 (0.550)	7.11 (0.280)	5.08 (0.200)	10.16 (0.400)	0.64 (0.025)
SV07/SV57	14.5 (0.570)	12.7 (0.500)	5.08 (0.200)	12.1 (0.475)	0.64 (0.025)
SV08/SV58	17.0 (0.670)	15.2 (0.600)	5.08 (0.200)	14.6 (0.575)	0.64 (0.025)
SV09/SV59	19.6 (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/SV63	7.62 (0.300)	9.14 (0.360)	5.08 (0.200)	5.08 (0.200)	0.51 (0.020)
SV14/SV64	10.2 (0.400)	11.7 (0.460)	5.08 (0.200)	5.08 (0.200)	0.51 (0.020)
SV15/SV65	12.7 (0.500)	14.2 (0.560)	5.08 (0.200)	10.2 (0.400)	0.64 (0.025)
SV16/SV66	22.1 (0.870)	16.8 (0.660)	5.08 (0.200)	20.1 (0.790)	0.81 (0.032)
SV17/SV67	23.6 (0.930)	19.8 (0.780)	6.35 (0.250)	20.3 (0.800)	0.81 (0.032)

RoHS COMPLIANT

TAPE & REEL QUANTITY	
Part	Pieces
SV01	1000
SV02/SV52	1000
SV03/SV53	1000
SV04/SV54	1000
SV05/SV55	1000
SV06/SV56	500
SV07/SV57	500
SV08/SV58	500
SV09/SV59	500
SV10	N/A
SV11	N/A
SV12	N/A
SV13/SV63	1000
SV14/SV64	1000
SV15/SV65	500
SV16/SV66	500
SV17/SV67	400

RoHS	
Part	Available
SV01	Yes
SV02/SV52	Yes
SV03/SV53	Yes
SV04/SV54	Yes
SV05/SV55	Yes
SV06/SV56	Yes
SV07/SV57	Yes
SV08/SV58	Yes
SV09/SV59	Yes
SV10	No
SV11	No
SV12	No
SV13/SV63	Yes
SV14/SV64	Yes
SV15/SV65	Yes
SV16/SV66	Yes
SV17/SV67	Yes

High Voltage MLC Radials (SV Style)

CAPACITANCE VALUE

C0G								
Style	**600/630V min./max.**	**1000V min./max.**	**1500V min./max.**	**2000V min./max.**	**2500V min./max.**	**3000V min./max.**	**4000V min./max.**	**5000V min./max.**
SV01	100 pF/ 1500 pF	100 pF/ 1000 pF	10 pF/ 330 pF	10 pF/ 220 pF	10 pF/ 120 pF	10 pF/ 82 pF	–	–
SV02/SV52	100 pF/ 6800 pF	100 pF/ 4700 pF	100 pF/ 1500 pF	10 pF/ 1000 pF	10 pF/ 680 pF	10 pF/ 560 pF	10 pF / 150 pF	10 pF / 100 pF
SV03/SV53	100 pF/0.012 µF	100 pF/ 8200 pF	100 pF/ 2700 pF	100 pF/ 1800 pF	10 pF/1000 pF	10 pF/ 680 pF	10 pF / 390 pF	10 pF / 220 pF
SV04/SV54	100 pF/ 3900 pF	100 pF/ 2700 pF	10 pF/ 820 pF	10 pF/ 560 pF	10 pF/ 270 pF	10 pF/ 180 pF	10 pF / 100 pF	10 pF / 68 pF
SV05/SV55	1000 pF/0.027 µF	1000 pF/0.018 µF	100 pF/ 6800 pF	100 pF/ 4700 pF	100 pF/2700 pF	100 pF / 1500 pF	10 pF /1000 pF	10 pF / 560 pF
SV06/SV56	100 pF/0.012 µF	100 pF/0.010 µF	100 pF/ 3300 pF	100 pF/ 2200 pF	10 pF/1200 pF	10 pF/ 820 pF	10 pF / 470 pF	10 pF / 390 pF
SV07/SV57	1000 pF/0.056 µF	1000 pF/0.033 µF	1000 pF/0.015 µF	100 pF/0.010 µF	100 pF/5600 pF	100 pF / 3900 pF	100 pF /2200 pF	10 pF /1200 pF
SV08/SV58	1000 pF/0.082 µF	1000 pF/0.047 µF	1000 pF/0.022 µF	1000 pF/0.015 µF	100 pF/0.010 µF	100 pF/ 6800 pF	100 pF /3300 pF	100 pF /2200 pF
SV09/SV59	1000 pF/0.150 µF	1000 pF/0.082 µF	1000 pF/0.039 µF	1000 pF/0.022 µF	1000 pF/0.015 µF	100 pF/ 8200 pF	100 pF /4700 pF	100 pF /3300 pF
SV10	1000 pF/0.100 µF	1000 pF/0.056 µF	1000 pF/0.022 µF	1000 pF/0.012 µF	100 pF/8200 pF	100 pF/ 5600 pF	100 pF /3300 pF	100 pF /2200 pF
SV11	1000 pF/0.150 µF	1000 pF/0.082 µF	1000 pF/0.039 µF	1000 pF/0.022 µF	1000 pF/0.015 µF	100 pF/ 8200 pF	100 pF /4700 pF	100 pF /3300 pF
SV12	0.01 µF/0.220 µF	0.01 µF/ 0.15 µF	1000 pF/0.056 µF	1000 pF/0.033 µF	1000 pF/0.022 µF	1000 pF /0.015 µF	100 pF /8200 pF	100 pF /5600 pF
SV13/SV63	100 pF/0.018 µF	100 pF/0.012 µF	100 pF/ 4700 pF	100 pF/ 2700 pF	100 pF/1800 pF	100 pF/ 1000 pF	10 pF / 470 pF	10 pF / 390 pF
SV14/SV64	1000 pF/0.039 µF	1000 pF/0.022 µF	100 pF/ 8200 pF	100 pF/ 5600 pF	100 pF/3300 pF	100 pF/ 1800 pF	10 pF / 820 pF	10 pF / 680 pF
SV15/SV65	1000 pF/0.056 µF	1000 pF/0.033 µF	1000 pF/0.015 µF	100 pF/ 0.01 µF	100 pF/5600 pF	100 pF / 2700 pF	100 pF /1800 pF	100 pF /1200 pF
SV16/SV66	1000 pF/0.120 µF	1000 pF/0.082 µF	1000 pF/0.039 µF	1000 pF/0.027 µF	1000 pF/0.015 µF	100 pF/ 8200 pF	100 pF /4700 pF	100 pF /3300 pF
SV17/SV67	1000 pF/0.150 µF	1000 pF/ 0.10 µF	1000 pF/0.056 µF	1000 pF/0.039 µF	1000 pF/0.022 µF	1000 pF /0.012 µF	100 pF /6800 pF	100 pF /4700 pF
X7R								
SV01	1000 pF/0.018 µF	1000 pF/0.012 µF	100 pF/ 5600 pF	100 pF/ 3900 pF	–	–	–	–
SV02/SV52	1000 pF/0.082 µF	1000 pF/0.047 µF	1000 pF/0.015 µF	100 pF/ 6800 pF	100 pF/3900 pF	100 pF/ 2700 pF	–	–
SV03/SV53	1000 pF/0.180 µF	1000 pF/0.082 µF	1000 pF/0.018 µF	1000 pF/ 0.01 µF	100 pF/6800 pF	100 pF/ 4700 pF	100 pF /1800 pF	–
SV04/SV54	1000 pF/0.056 µF	1000 pF/0.033 µF	100 pF/ 6800 pF	100 pF/ 3900 pF	100 pF/2200 pF	100 pF/ 1800 pF	100 pF / 820 pF	–
SV05/SV55	0.01 µF/0.470 µF	0.01 µF/ 0.22 µF	1000 pF/0.056 µF	1000 pF/0.027 µF	1000 pF/0.018 µF	1000 pF /0.012 µF	100 pF /4700 pF	–
SV06/SV56	0.01 µF/0.180 µF	0.01 µF/ 0.10 µF	1000 pF/0.033 µF	1000 pF/0.012 µF	100 pF/8200 pF	100 pF/ 6800 pF	100 pF /2700 pF	100 pF /1200 pF
SV07/SV57	0.01 µF/0.820 µF	0.01 µF/ 0.39 µF	0.01 µF/ 0.10 µF	1000 pF/0.047 µF	1000 pF/0.033 µF	1000 pF /0.027 µF	1000 pF / 0.01 µF	100 pF /6800 pF
SV08/SV58	0.01 µF/ 1.20 µF	0.01 µF/ 0.68 µF	0.01 µF/ 0.18 µF	1000 pF/0.082 µF	1000 pF/0.068 µF	1000 pF /0.047 µF	1000 pF /0.018 µF	1000 pF /0.012 µF
SV09/SV59	0.10 µF/ 1.80 µF	0.10 µF/ 1.00 µF	0.01 µF/ 0.27 µF	0.01 µF/ 0.12 µF	0.01 µF/ 0.10 µF	1000 pF /0.068 µF	1000 pF /0.027 µF	1000 pF /0.018 µF
SV10	0.01 µF/ 1.50 µF	0.01 µF/ 0.82 µF	0.01 µF/ 0.22 µF	0.01 µF/ 0.10 µF	1000 pF/0.082 µF	1000 pF /0.056 µF	1000 pF /0.022 µF	1000 pF /0.022 µF
SV11	0.10 µF/ 2.20 µF	0.10 µF/ 1.2 µF	0.01 µF/ 0.39 µF	0.01 µF/ 0.18 µF	0.01 µF/ 0.15 µF	0.01 µF/ 0.10 µF	1000 pF /0.039 µF	1000 pF /0.027 µF
SV12	0.10 µF/ 3.90 µF	0.10 µF/ 2.20 µF	0.01 µF/ 0.56 µF	0.01 µF/ 0.27 µF	0.01 µF/ 0.22 µF	0.01 µF/ 0.15 µF	1000 pF /0.056 µF	1000 pF /0.033 µF
SV13/SV63	0.01 µF/0.270 µF	0.01 µF/ 0.10 µF	1000 pF/0.033 µF	1000 pF/0.012 µF	1000 pF/ 0.01 µF	100 pF/ 6800 pF	100 pF /2700 pF	–
SV14/SV64	0.01 µF/0.470 µF	0.01 µF/ 0.18 µF	1000 pF/0.068 µF	1000 pF/0.022 µF	1000 pF/0.018 µF	1000 pF /0.015 µF	100 pF /5600 pF	–
SV15/SV65	0.01 µF/0.680 µF	0.01 µF/ 0.33 µF	0.01 µF/ 0.10 µF	1000 pF/0.033 µF	1000 pF/0.027 µF	1000 pF /0.022 µF	1000 pF /8200 pF	100 pF /4700 pF
SV16/SV66	0.01 µF/ 1.80 µF	0.01 µF/ 1.0 µF	0.01 µF/ 0.27 µF	0.01 µF/ 0.12 µF	0.01 µF/ 0.10 µF	1000 pF /0.068 µF	1000 pF /0.027 µF	1000 pF /0.018 µF
SV17/SV67	0.01 µF/ 2.20 µF	0.01 µF/ 1.2 µF	0.01 µF/ 0.39 µF	0.01 µF/ 0.15 µF	0.01 µF/ 0.12 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

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

Note: Customers may accept, at their discretion, a certificate of compliance with group B requirements in lieu of performing group B tests.