SV Style Radial Lead – Application Information





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.

COG Dielectric **General Specifications**

Capacitance Range

10 pF to 0.15 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 M Ω min. or 1000 M Ω - μ F min., whichever is less

Insulation Resistance (+125°C, at 500V)

10K M Ω min., or 100 M Ω - μ F min., whichever is less

Dielectric Strength

120% rated voltage, 5 seconds

Life Test

100% rated and +125°C

N1500 **General Specifications**

Capacitance Range

100 pF to $0.47 \mu F$ (+25°C, 1.0 ±0.2 Vrms (open circuit voltage) at 1kHz)

Capacitance Tolerances

±5%, ±10%, ±20% Operating Temperature Range -55°C to +125°C

Temperature Characteristic

-1500 ±250 ppm/°C

Voltage Ratings

600 VDC thru 5000 VDC (+125°C)

Dissipation Factor

0.15% max. (25°C, 1.0±0.2 Vrms (open circuit voltage) at 1 KHz)

Insulation Resistance (+25°C, at 500V)

100K MΩ min., or 1000 MΩ- μ F min., whichever is less

Insulation Resistance (+125°C, at 500V)

10K MΩ min., or 100 MΩ- μ F 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

(+25°C, 1.0 ±0.2 Vrms at 1kHz)

Insulation Resistance (+25°C, at 500V)

100K M Ω min., or 1000 M Ω - μ F min., whichever is less

Insulation Resistance (+125°C, at 500V)

10K MΩ min., or 100 MΩ- μ F min., whichever is less

Dielectric Strength

120% rated voltage, 5 seconds

Life Test

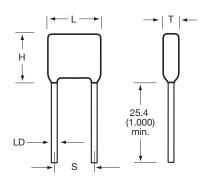
100% rated and +125°C

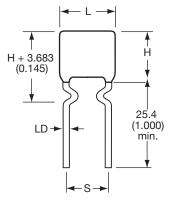
Performance of SMPS capacitors can be simulated by downloading SpiCalci software program http://www.avx.com/download/software/SpiCalci-AVX.zip Custom values, ratings and configurations are also available.











Not RoHS Compliant



For RoHS compliant products, please select correct termination style.

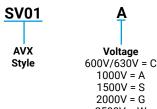
SV01 thru SV17

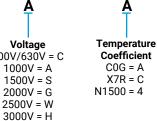
SV52 thru SV59 and SV63 thru SV67

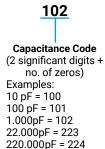
HIGH VOLTAGE RADIAL LEAD **HOW TO ORDER**

4000V = J

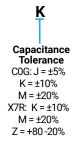
5000V = K

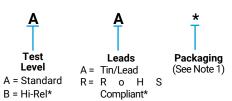






 $1 \mu F = 105$





AVX Styles: SV01 THRU SV67

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

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

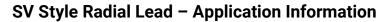
TAPE & REEL QUANTITY				
Part	Pieces			
SV01	1000			
SV02/SV52	1000			
SV03/SV53	1000			
SV04/SV54	1000			
SV05/SV55	1000			
SV06/SV56	500			
SV07/SV57	500			
SV08/SV58	500			
SV09/SV59	500			
SV10	N/A			
SV11	N/A			
SV12	N/A			
SV13/SV63	1000			
SV14/SV64	1000			
SV15/SV65	500			
SV16/SV66	500			
SV17/SV67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

TARE O REEL OLIANTITY

Korio				
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	Yes			
SV11	Yes			
SV12	Yes			
SV13/SV63	Yes			
SV14/SV64	Yes			
SV15/SV65	Yes			
SV16/SV66	Yes			
SV17/SV67	Yes			

RoHS

090518





CAPACITANCE VALUE

	COG							
Chile	600/630V	1000V	1500V	2000V	2500V	3000V	4000V	5000V
Style	min./max.	min./max.	min./max.	min./max.	min./max.	min./max.	min./max.	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
				N1500				
SV01	1000 pF / 2700 pF	1000 pF / 1800 pF	100 pF / 680 pF	100 pF / 470 pF	100 pF / 220 pF	100 pF / 150 pF	_	_
SV02/SV52	1000 pF / 0.012 μF	1000 pF / 8200 pF	1000 pF / 2700 pF	1000 pF / 1800 pF	100 pF / 1000 pF	100 pF / 680 pF	100 pF / 270 pF	100 pF / 150 pF
SV03/SV53	0.010 pF / 0.027 μF	0.010 pF / 0.018 μF	1000 pF / 5600 pF	1000 pF / 3900 pF	1000 pF / 2200 pF	1000 pF / 1500 pF	100 pF / 680 pF	100 pF / 470 pF
SV04/SV54	1000 pF / 8200 pF	1000 pF / 5600 pF	1000 pF / 1800 pF	100 pF / 1200 pF	100 pF / 560 pF	100 pF / 330 pF	100 pF / 220 pF	100 pF / 120 pF
SV05/SV55	0.010 µF / 0.068 µF			1000 pF / 0.010 μF	1000 pF / 5600 pF	1000 pF / 3300 pF	1000 pF /2200 pF	1000 pF /1200 pF
SV06/SV56	0.010 µF / 0.027 µF	<u> </u>	1000 pF / 5600 pF	1000 pF / 3900 pF	1000 pF / 2200 pF	1000 pF / 1500 pF	100 pF / 680 pF	100 pF / 470 pF
SV07/SV57	0.010 μF / 0.12 μF	0.010 μF / 0.10 μF	0.010 μF / 0.027 μF	0.010 μF / 0.018 μF	1000 pF /0.012 µF	1000 pF / 5600 pF	1000 pF /3900 pF	1000 pF /2200 pF
SV08/SV58	0.010 μF / 0.15 μF	0.010 μF / 0.12 μF	0.010 µF / 0.047 µF	0.010 pF / 0.033 μF	0.010 μF /0.018 μF	1000 pF / 0.010 μF	1000 pF /6800 pF	1000 pF /3900 pF
SV09/SV59	0.10 µF / 0.220 µF	0.10 μF / 0.18 μF	0.010 μF / 0.082 μF	0.010 μF / 0.047 μF	0.010 pF /0.033 μF	0.010 μF / 0.015 μF	1000 pF /8200 pF	1000 pF /6800 pF
SV10	0.10 μF / 0.18 μF	0.10 μF / 0.15 μF	0.010 µF / 0.047 µF	0.010 μF / 0.027 μF	0.010 μF /0.018 μF	1000 pF / 0.010 μF	1000 pF /5600 pF	1000 pF /3900 pF
SV11	0.10 μF / 0.33 μF	0.10 μF / 0.22 μF	0.010 µF / 0.082 µF	0.010 μF / 0.039 μF	0.010 μF /0.027 μF	0.010 μF / 0.018 μF	1000 pF /0.010 μF	1000 pF /6800 pF
SV12	0.10 μF / 0.47 μF	0.10 μF / 0.33 μF	0.10 μF / 0.12 μF	0.010 μF / 0.068 μF	0.010 pF /0.047 μF	0.010 μF / 0.027 μF	0.010 pF /0.015 μF	1000 pF /0.010 μF
SV13/SV63	0.010 µF / 0.039 µF		1000 pF / 8200 pF	1000 pF / 5600 pF	1000 pF / 3300 pF	1000 pF / 1800 pF	100 pF / 820 pF	100 pF / 680 pF
SV14/SV64	0.010 µF / 0.082 µF	0.010 μF / 0.056 μF	0.010 pF / 0.018 μF	1000 pF / 0.012 μF	1000 pF / 6800 pF	1000 pF / 3900 pF	1000 pF /1800 pF	1000 pF /1500 pF
SV15/SV65	0.010 μF / 0.10 μF	0.010 µF / 0.082 µF		0.010 pF / 0.018 μF	1000 pF /0.012 μF	1000 pF / 5600 pF	1000 pF /3300 pF	1000 pF /2700 pF
SV16/SV66	0.10 μF / 0.22 μF	0.10 μF / 0.18 μF	0.010 μF / 0.082 μF	0.010 μF / 0.039 μF	0.010 μF /0.027 μF	0.010 μF / 0.015 μF	1000 pF /8200 pF	1000 pF /6800 pF
SV17/SV67	0.10 μF / 0.33 μF	0.10 μF / 0.22 μF	0.010 μF / 0.10 μF	0.010 μF / 0.056 μF	0.010 μF /0.033 μF	0.010 μF / 0.022 μF	1000 pF /0.012 μF	1000 pF /0.010 μF
	,			X7R		<u> </u>		
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	_	_
SV02/SV52 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 / 0.032 μF	1000 pF / 6800 pF	1000 pF / 3900 pF	100 pF / 2200 pF	100 pF / 1800 pF	100 pF / 820 pF	_
SV04/3V54 SV05/SV55	0.01 μF / 0.470 μF	0.01 μF / 0.22 μF	1000 pF / 0.056 μF	1000 pF / 0.027 μF	100 pF /0.018 μF	1000 pF / 0.012 μF	100 pr / 620 pr	_
SV05/SV55	0.01 μF / 0.180 μF	0.01 μF / 0.10 μF	1000 pF / 0.030 μF	1000 pF / 0.027 μF	1000 pF / 8200 pF	1000 pF / 6800 pF	100 pF /2700 pF	100 pF /1200 pF
SV00/3V30	0.01 μF / 0.820 μF	0.01 μF / 0.10 μF 0.01 μF / 0.39 μF	0.01 μF / 0.10 μF	1000 pF / 0.012 μF	100 pF / 0.033 μF	100 pF / 0.027 μF	100 pF / 2700 pF 1000 pF / 0.01 μF	100 pF / 1200 pF
SV07/SV57	0.01 μF / 1.20 μF	0.01 μF / 0.68 μF	0.01 μF / 0.10 μF	1000 pF / 0.047 μF	1000 pF /0.033 μF	1000 pF / 0.027 μF	1000 pF / 0.018 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 / 0.047 μF	1000 pF /0.027 μF	1000 pF /0.012 μF
SV10	0.01 μF / 1.50 μF	0.01 μF / 0.82 μF	0.01 μF / 0.22 μF	0.01 μF / 0.12 μF	1000 pF /0.082 μF	1000 pF / 0.008 μF	1000 pF /0.027 μF	1000 pF /0.018 μF
SV10	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 /0.022 μF	1000 pF /0.022 μF
SV12	0.10 μF / 2.20 μF	0.10 μF / 2.20 μF	0.01 μF / 0.56 μF	0.01 μF / 0.18 μF 0.01 μF / 0.27 μF	0.01 μF / 0.13 μF	0.01 μF / 0.10 μF	1000 pF /0.039 μF	1000 pF /0.027 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	1000 pr /0.030 pr 100 pF /2700 pF	
SV13/SV63	0.01 μF / 0.470 μF	0.01 μF / 0.18 μF	1000 pF / 0.068 μF	1000 pF / 0.012 μF	1000 pF / 0.018 μF	1000 pF / 0.015 μF	100 pF /5600 pF	_
SV14/SV64	0.01 μF / 0.680 μF	0.01 μF / 0.33 μF	0.01 μF / 0.10 μF	1000 pF / 0.022 μF	1000 pF /0.027 μF	1000 pF / 0.013 μF	1000 pF /8200 pF	100 pF /4700 pF
SV15/SV65	0.01 μF / 1.80 μF	0.01 μF / 0.33 μF	0.01 μF / 0.10 μF	0.01 μF / 0.12 μF	0.01 μF / 0.10 μF	1000 pF / 0.022 μF	1000 pF /8200 pF 1000 pF /0.027 μF	100 pF /4/00 pF 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
	otom for other velte		0.01 μι / 0.05 μι	3.01 μι / 0.10 μι		.300 μι , 0.002 μι	. 300 βι 70.003 μι	.500 μι /0.02/ μι

Note: Contact factory for other voltage ratings or values.

DSCC Radials



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

Group A inspection

Inspection	Requirement paragraph of MIL-PRF-49467	Test method paragraph of MIL-PRF-49467	Sampling procedure
Subgroup 1	3.6	4.8.2.1	
Thermal Shock	3.6	4.8.2.2	100% inspection
Voltage Conditioning			
Subgroup 3			
Visual and mechanical examination:			
Material	3.4 and 3.4.1	4.8.4	
Physical dimensions	3.1		13 samples
Interface requirements			0 failures
(other than physical dimensions)	3.5		
Marking	3.25		
Workmanship	3.27		
Subgroup 4			5 samples
Solderability	3.13	4.8.9	0 failures

Group B inspection*

Inspection	Requirement paragraph of MIL-PRF-49467	Test method paragraph of MIL-PRF-49467	Number of sample units to be inspected	defectiv	Number of defectives permitted	
Subgroup 1						
Terminal strength	3.18	4.8.14	12	1		
Resistance to soldering heat	3.11	4.8.7	12			
Moisture resistance	3.19	4.8.15				
Subgroup 2] _	
Voltage-temperature limits**	3.14	4.8.10	6	1	1	
Low temperature storage	3.23	4.8.19	0	'		
Marking legibility	3.25.1	4.8.1.1				
Subqroup 3 Resistance to solvents	3.21	4.8.17	4	1		
Subgroup 4				1		
Life (at elevated ambient temperature)	3.22	4.8.18	10	'		

^{*}Customers may accept at their discretion, a certificate of compliance with group B requirements in lieu of performing group B tests.

^{**}For Steps E, F & G in Table VII of MIL-PRF-49467, 500 Vdc shall be applied.