

# SEMTECH PREMIUM DIELECTRIC HIGH VOLTAGE CAPACITORS MONOLITHIC CERAMIC TYPE

● **X7R DIELECTRIC**

● **1 TO 5 KV VOLTAGE RANGE**

● **200°C CAPABILITY**

Semtech's Premium Dielectric Capacitors demonstrate minimum capacitance change over the operating voltage and temperature range, high current carrying capability and high volumetric efficiency. This X7R body has been designed into the most demanding applications: from the one extreme of satellite, missile, space shuttle, and avionics programs to the other extreme of "down hole" oil exploration equipment.

**CAPABILITY MATRIX**

SIZE	1 kV					2 kV					3 kV					4 kV					5 kV					EIA CODE
	2	3	4	5	6	2	3	4	5	6	2	3	4	5	6	2	3	4	5	6	2	3	4	5	6	
180 pF																										181
220 pF																										221
270 pF																										271
330 pF																										331
390 pF																										391
470 pF																										471
560 pF																										561
680 pF																										681
820 pF																										821
1000 pF																										102
1200 pF																										122
1500 pF																										152
1800 pF																										182
2200 pF																										222
2700 pF																										272
3300 pF																										332
3900 pF																										392
4700 pF																										472
5600 pF																										562
6800 pF																										682
8200 pF																										822
.01 μFd																										103
.012 μFd																										123
.015 μFd																										153
.018 μFd																										183
.022 μFd																										223
.027 μFd																										273
.033 μFd																										333
.039 μFd																										393
.047 μFd																										473
.056 μFd																										563
.068 μFd																										683
.082 μFd																										823
.100 μFd																										104
.12 μFd																										124
.15 μFd																										154
.18 μFd																										184
.22 μFd																										224
.27 μFd																										274
.33 μFd																										334
.39 μFd																										394

▨ STANDARD RANGE, K TOLERANCE AVAILABLE FROM STOCK

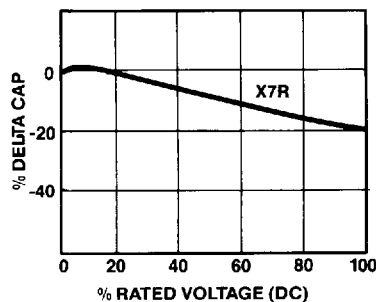
■ NON STANDARD CAPABILITIES

**GENERAL SPECIFICATIONS**

- **OPERATING TEMPERATURE RANGE**  
-55°C to 125°C
- **AGING RATE**  
< 1.0% per decade hour
- **INSULATION RESISTANCE**  
100K meg Ω or 1000 meg Ω – microfarads, whichever is less, at 500 VDC, 25°C
- **DISSIPATION FACTOR**  
2.5% Max at 1 kHz, 1 VAC, 25°C
- **DIELECTRIC WITHSTANDING VOLTAGE**  
1.2 × Rated Voltage at 25°C (Test conducted with charging current limited to 10 mA and discharge current limited to 10 A.)
- **TEMPERATURE COEFFICIENT**  
±15% over -55°C to 125°C range

**PREMIUM DIELECTRIC**

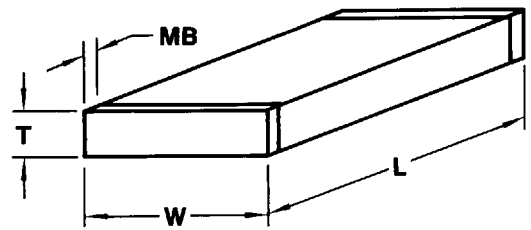
**DC VOLTAGE COEFFICIENT**



## DRAWING G53

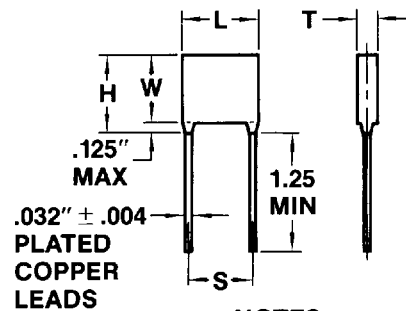
SIZE	L		W		T	MB
	MIN	MAX	MIN	MAX	MAX	±.010
2	.254	.286	.234	.266	.250	.030
3	.354	.386	.334	.366	.250	.030
4	.445	.495	.425	.475	.300	.030
5	.538	.602	.518	.582	.300	.030
6	.638	.702	.618	.682	.300	.030

## DRAWING G53



## DRAWING G54

SIZE	L	W	T	S	H
	MAX	MAX	MAX	±.032	REF
2	.400	.350	.275	.300	.475
3	.500	.450	.300	.400	.575
4	.600	.550	.375	.500	.675
5	.700	.650	.375	.600	.775
6	.800	.750	.375	.700	.875
NOTES					①



## DRAWING G54

## NOTES:

- ① Maximum mounting height—leads shall be solderable beyond the point.

## ORDERING INSTRUCTIONS

3	A	X	103	K	2	
PART SIZE CODE	FORM	DIELECTRIC MATERIAL	CAPACITANCE (EIA CODE)	CAPACITANCE TOLERANCE	VOLTAGE RATING	
2	<b>CHIP</b>	<b>LEADED</b>	X=X7R	Last digit indicates number of zeroes following the first two digits.	K=10% M=20% V=+100%-0% Z=+80%-20%	1 KV 2 KV 3 KV 4 KV 5 KV
3	A=Silver	E=Epoxy				
4	Termination	Encapsulated				
5	D=Palladium	L=Leaded Only				
6	Silver Termination	H=High Temperature version for 200° C operation (silicone rubber encapsulation with gold plated copper leads)		Ex. 103=10000 pF		