

POWER DISCRETES**Description**

**Semtech Premium Dielectric
High Voltage Capacitors
Monolithic Ceramic type**

Semtech's premium dielectric capacitors demonstrate minimum capacitance change over the operation 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.

Features

- ◆ X7R dielectric
- ◆ 1kV to 5kV voltage range

General Specifications

- ◆ Operating temperature range -55°C to 125°C
- ◆ Aging rate <1.0% per decade hour
- ◆ Insulation resistance: 100k meg Ω or 1000meg Ω microfarads, whichever is less, at 500VDC, 25°C
- ◆ Dissipation factor: 2.5% max at 1kHz 1 VAC, 25°C
- ◆ Dielectric withstanding voltage: 1.2 x rated voltage at 25°C (Test conducted with charging current limited to 10mA and discharge current limited to 10A)
- ◆ Temperature coefficient: $\pm 15\%$ over -55°C to 125°C range
- ◆ "S" size package type available

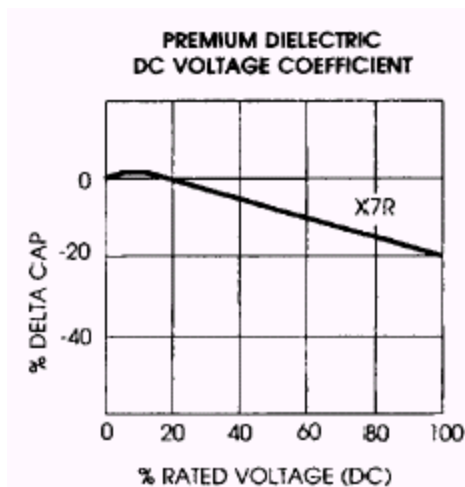
POWER DISCRETES

Capability Matrix

	1kV					2kV					3kV					4kV					5kV					EIA CODE
SIZE	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	
VALUE																										
180pF																										181
220pF																										221
270pF																										271
330pF																										331
390pF																										391
470pF																										471
560pF																										561
680pF																										681
820pF																										821
1000pF																										102
1200pF																										122
1500pF																										152
1800pF																										182
2200pF																										222
2700pF																										272
3300pF																										332
3900pF																										392
4700pF																										472
5600pF																										562
6800pF																										682
8200pF																										822
.010uF																										103
.012uF																										123
.015uF																										153
.018uF																										183
.022uF																										223
.027uF																										273
.033uF																										333
.039uF																										393
.047uF																										473
.056uF																										563
.068uF																										683
.082uF																										823
.10uF																										104
.12uF																										124
.15uF																										154
.18uF																										184
.22uF																										224
.27uF																										274
.33uF																										334
.39uF																										394

 = Standard range K tolerance available from stock.

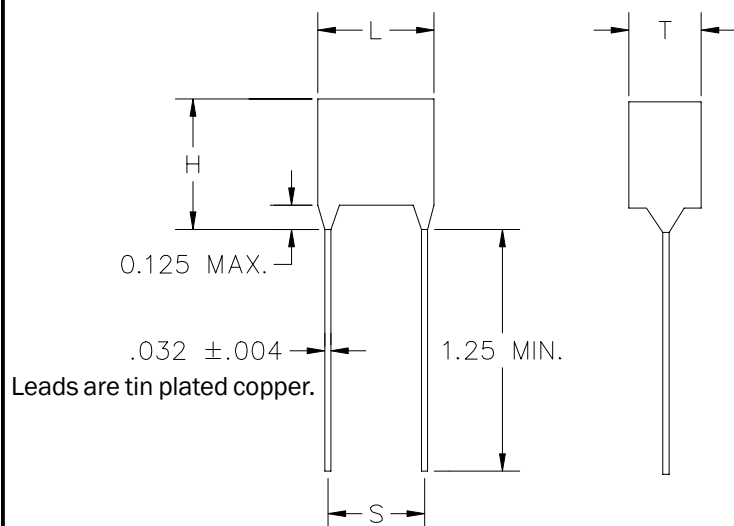
 = Non standard capabilities

POWER DISCRETES
Typical Characteristic

Ordering Information

3	A		X	103	K	2
PART SIZE CODE	FORM		DIELECTRIC MATERIAL	CAPACITANCE (EIA CODE)	CAPACITANCE TOLERANCE	VOLTAGE RATING
2	CHIP	LEADED	X = X7R	Last digit indicates number of zeroes following the first two digits Example: 103=10000pF	K = 10% M = 20% V = +100% - 0% Z = +80% - 20%	1 = 1kV 2 = 2kV 3 = 3kV 4 = 4kV 5 = 5kV
3	A = Silver Termination	E = Epoxy Encapsulated L = Leaded only				
4	D = Palladium Silver Termination					
5	H = Capable of handling temperature excursions of up to 200°C					
6						

Note:

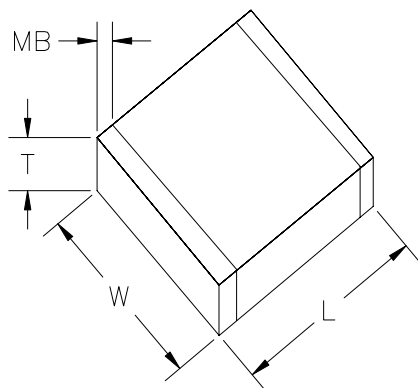
- For "S" size package type, please order part as "SXXXXXXXX" e.g. S3AX103K2.

POWER DISCRETES
Outline Drawing - Encapsulated

Notes:

1. Maximum mounting height. Leads shall be solderable beyond this point.
2. When ordering "S" size package type please see Dimension Table "S".

Dimensions				
Size Code	L(Max) In. (mm)	S In.(mm)	T(Max) In.(mm)	H(Ref) ⁽¹⁾ In.(mm)
2	.400 (10.2)	.300 ± .032 (7.62 ± .82)	.275 (7.00)	.475 (12.1)
3	.500 (12.7)	.400 ± .032 (10.2 ± .82)	.300 (7.62)	.575 (14.6)
4	.600 (15.3)	.500 ± .032 (12.7 ± .82)	.375 (9.53)	.675 (17.1)
5	.700 (17.8)	.600 ± .032 (15.3 ± .82)	.375 (9.53)	.775 (19.7)
6	.800 (20.4)	.700 ± .032 (17.8 ± .82)	.375 (9.53)	.875 (22.2)

Dimensions for "S" Size ⁽²⁾				
Size Code	L(Max) In. (mm)	S In.(mm)	T(Max) In.(mm)	H(Ref) ⁽¹⁾ In.(mm)
S2	0.42 (10.7)	.275 ± .03 (6.96 ± .76)	0.35 (8.89)	0.3 (8.89)
S3	0.49 (12.4)	.375 ± .03 (9.52 ± .76)	0.35 (8.89)	0.4 (10.16)
S4	0.59 (14.9)	.475 ± .03 (12.06 ± .76)	0.35 (8.89)	0.5 (12.7)
S5	0.69 (17.5)	.575 ± .03 (14.6 ± .76)	0.35 (8.89)	0.6 (15.24)
S6	0.79 (20.0)	.675 ± .03 (17.14 ± .76)	0.35 (8.89)	0.72 (18.28)

POWER DISCRETES
Outline Drawing - Chip


Dimensions				
Size Code	L(Nom) In. (mm)	W(Nom) In.(mm)	T(Max) In.(mm)	MB(Max) In.(mm)
2	.270 (6.90)	.250 (6.40)	.250 (6.40)	.040 (1.10)
3	.370 (9.40)	.350 (8.90)	.250 (6.40)	.040 (1.10)
4	.470 (12.0)	.450 (11.5)	.300 (7.60)	.040 (1.10)
5	.570 (14.5)	.550 (14.0)	.300 (7.60)	.040 (1.10)
6	.670 (17.0)	.650 (16.6)	.300 (7.60)	.040 (1.10)

Note:

1. When ordering "S" size package type please see Dimension Table "S".

Dimensions for "S" Size ⁽¹⁾				
Size Code	L(Nom) In. (mm)	W(Nom) In.(mm)	T(Max) In.(mm)	MB(Max) In.(mm)
S2	.25 (6.35)	.2 (5.08)	.25 (6.35)	.03 (0.76)
S3	.36 (9.14)	.31 (7.87)	.25 (6.35)	.03 (0.76)
S4	.45 (11.43)	.4 (10.16)	.25 (6.35)	.03 (0.76)
S5	.56 (14.22)	.52 (13.2)	.25 (6.35)	.03 (0.76)
S6	.66 (16.76)	.62 (15.74)	.25 (6.35)	.03 (0.76)

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