

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

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Capability Matrix

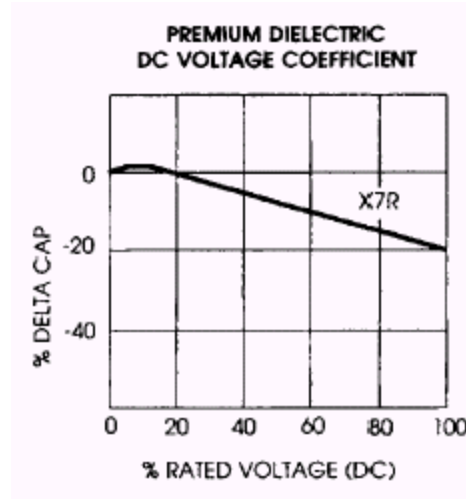
SIZE	1kV					2kV					3kV					4kV					5kV					EIA CODE					
	2	3	4	5	6	2	3	4	5	6	2	3	4	5	6	2	3	4	5	6	2	3	4	5	6						
VALUE																															
180pF																█	█	█	█	█	█	█	█	█	█						181
220pF																█	█	█	█	█	█	█	█	█	█						221
270pF											█	█	█	█	█																271
330pF											█	█	█	█	█																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
.010μF																															103
.012μF																															123
.015μF																															153
.018μF																															183
.022μF																															223
.027μF																															273
.033μF																															333
.039μF																															393
.047μF																															473
.056μF																															563
.068μF																															683
.082μF																															823
.10μF																															104
.12μF																															124
.15μF																															154
.18μF																															184
.22μF																															224
.27μF																															274
.33μF																															334
.39μF																															394

█ = Standard range K tolerance available from stock.

█ = Non standard capabilities

POWER DISCRETES

Typical Characteristic



Ordering Information

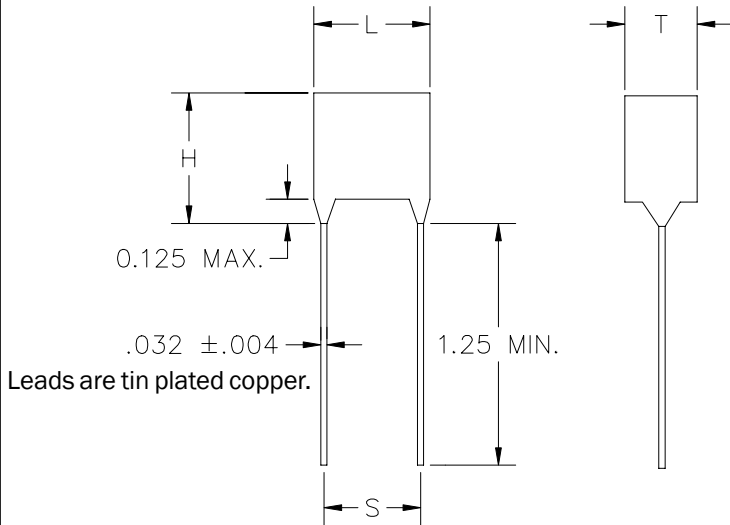
3	A		X	103	K	2
PART SIZE CODE	FORM		DIELECTRIC MATERIAL	CAPACITANCE (EIA CODE)	CAPACITANCE TOLERANCE	VOLTAGE RATING
2	CHIP	LEADED	X = X7R	Last digit indicates number of zeroes following the first two digits Example: 103=10000pF	K = 10% M = 20% V = +100% - 0% Z = +80% - 20%	1 = 1kV 2 = 2kV 3 = 3kV 4 = 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:

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

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Outline Drawing - Encapsulated



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)

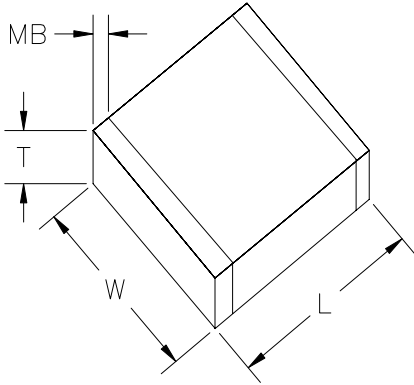
Notes:

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

Dimensions 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)

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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)

Contact Information

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