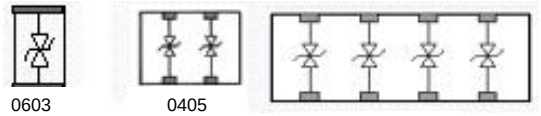
CAN BUS Varistor

GENERAL DESCRIPTION

The CAN BUS varistor is a zinc oxide (ZnO) based ceramic semiconductor devices with non-linear voltage-current characteristics (bi-directional) similar to back-to-back Zener diodes and an EMC capacitor in parallel (see equivalent circuit model). They have the added advantage of greater current and energy handling capabilities as well as EMI/RFI attenuation. Devices are fabricated by a ceramic sintering process that yields a structure of conductive ZnO grains surrounded by electrically insulating barriers, creating varistor like behavior.

HOW TO ORDER

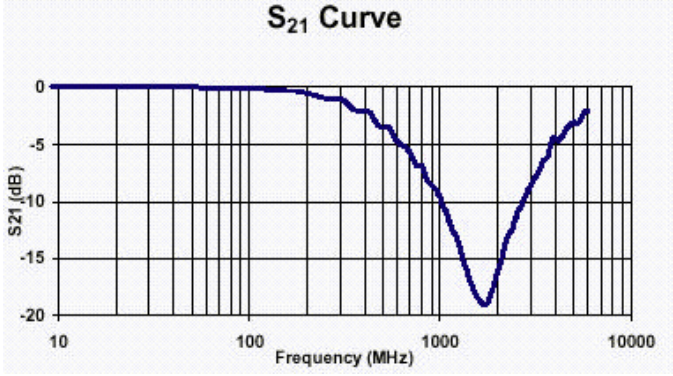
CAN	0001	D	P
Style	**Case Size**	**Packaging Code (Reel Size)**	**Termination**
Controlled Area Network Varistor Series	0001 = 0603 Discrete 0002 = 0405 2-Element 0004 = 0612 4-Element	D = 7" reel (1,000 pcs) R = 7" reel (4,000 pcs) T = 13" reel (10,000 pcs)	P = Plated (Ni/Sn Alloy)



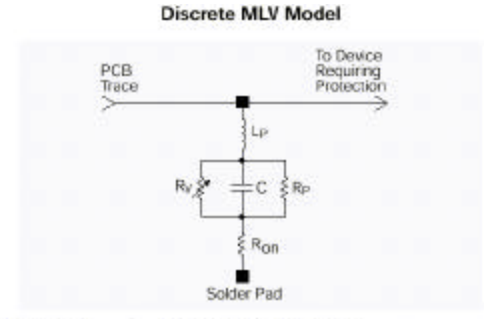
0603 Discrete | 0405 Array | 0612 Array

PERFORMANCE CHARACTERISTICS

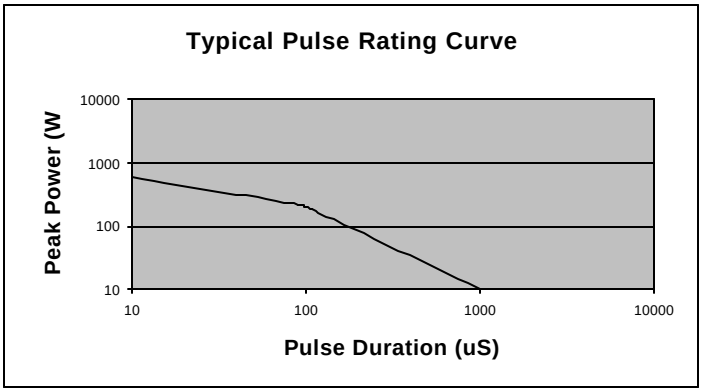
PARAMETER	
Working Voltage	up to 18V
Breakdown Voltage	65-75 V
Transient Energy	0.015 J (max) @ 10/1000 μS
Capacitance	22 pF @ 1 kHz
Peak Current	4A @ 8/20 μS
Turn On Time	$\leq$600 pS



EQUIVALENT CIRCUIT MODEL



Where: R_V = Voltage Variable resistance (per VI curve)
$R_p \geq 10^{12}\ \Omega$
C = defined by voltage rating and energy level
R_{on} = turn on resistance
L_p = parallel body inductance



CAN BUS Varistor

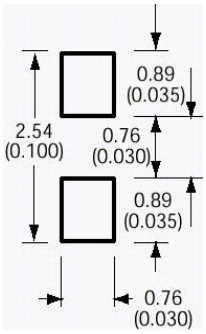
PHYSICAL DIMENSIONS

mm (inches)

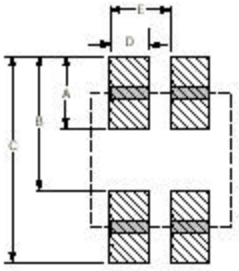
	0603 Discrete	0405 Array	0612 Array
Length	1.6 ± 0.15 (0.063 ± 0.006)	1.00 ± 0.15 (0.039 ± 0.006)	3.20 ± 0.2 (0.126 ± 0.008)
Width	0.8 ± 0.15 (0.032 ± 0.006)	1.37 ± 0.15 (0.054 ± 0.006)	1.6 ± 0.2 (0.063 ± 0.008)
Thickness	0.9 MAX (0.035 MAX)	0.66 MAX (0.026 MAX)	1.22 MAX (0.048 MAX)
Term Band Width	0.35 ± 0.15 (0.014 ± 0.006)	0.36 ± 0.10 (0.014 ± 0.004)	0.41 ± 0.10 (0.016 ± 0.010)
Term Separation	0.7 (0.028)	0.32 ± 0.10 (0.013 ± 0.004)	0.38 ± 0.10 (0.015 ± 0.004)

SOLDER PAD DIMENSIONS

mm (inches)

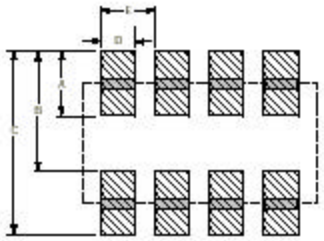


0603 Discrete



0405 Array

A	B	C	D	E
0.46 (0.018)	0.74 (0.029)	1.2 (0.047)	0.38 (0.015)	0.64 (0.025)



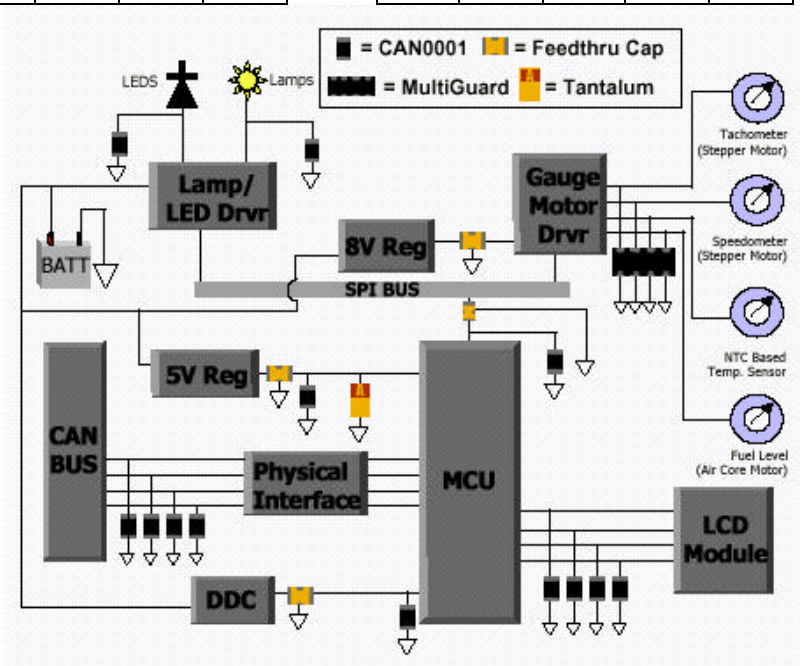
0612 Array

A	B	C	D	E
0.89 (0.035)	1.65 (0.065)	2.54 (0.100)	0.46 (0.018)	0.79 (0.030)

APPLICATION

AVX CAN BUS varistors offer significant advantages in general areas of a typical CAN network as shown on the right. Some of the advantages over diodes include:

- space savings
- higher ESD capability @ 25kv contact
- higher in rush current (4A) 8 x 20μS
- FIT rate $\leq$0.1 failures (per billion hours)



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