RoHS Available

Voidless Hermetically-Sealed Bidirectional Transient Voltage Suppressor, 5 to 48 Volts

DESCRIPTION

These bidirectional, high speed, voltage protection devices are ideally suited for applications where fast response is essential. The use of passivated die metallurgically bonded on both sides assures long term reliability. This series is especially useful in protecting microprocessors, MOS, CMOS, TTL, Schottky TTL, ECL, I^2L and linear integrated circuits from spurious transient disturbances including NEMP (Nuclear Electromagnetic Pulse) and electrostatic discharge.

Important: For the latest information, visit our website http://www.microsemi.com.

"A" Package

FEATURES

- Bidirectional.
- Rated at 150 W peak pulse power for a 10/1000 μs test pulse. (1000 watts P_{PP} for 8/20 μs pulse.)
- Clamping time in pico seconds.
- Metallurgically bonded construction.
- Voidless hermetically sealed glass package.
- RoHS compliant versions are available.

APPLICATIONS / BENEFITS

- High reliability transient protection.
- Extremely robust construction.
- Working peak "standoff" voltage (V_{WM}) from 5.0 to 48 volts.
- Flexible axial-leaded mounting terminals.

MAXIMUM RATINGS @ 25 ºC unless other wise noted

Parameters/Test Conditions	Symbol	Value	Unit
Junction and Storage Temperature	T_J and T_{STG}	-65 to +175	°C
Steady State Power Dissipation @ T_L = 75 ºC, lead length = 1/8 inch	P_D	2.5	W
Peak Pulse Power (10/1000 μs) Peak Pulse Power (8/20 μs)	P_{PP}	150 1000	W
Solder Temperature (10 s maximum)		260	°C

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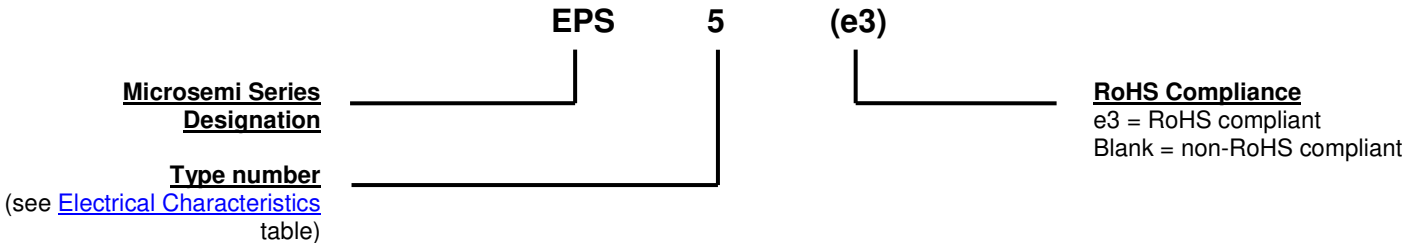
MECHANICAL and PACKAGING

- CASE: Hermetically sealed voidless hard glass with tungsten slugs.
- TERMINALS: Axial-leads are tin/lead or RoHS compliant matte/tin over copper.
- MARKING: Body paint and part number, etc.
- POLARITY: Cathode band.
- MOUNTING: Any position.
- TAPE & REEL option: Standard per EIA-296.
- WEIGHT: Approximately 340 milligrams.
- See Package Dimensions on last page.

PART NOMENCLATURE



SYMBOLS & DEFINITIONS

Symbol	Definition
$\alpha_{V(BR)}$	Temperature Coefficient of Breakdown Voltage: The change in breakdown voltage divided by the change in temperature that caused it expressed in %/°C or mV/°C.
I_D	Standby Current: The current through the device at rated stand-off voltage.
I_{PP}	Peak Impulse Current: The maximum rated random recurring peak impulse current or nonrepetitive peak impulse current that may be applied to a device. A random recurring or nonrepetitive transient current is usually due to an external cause, and it is assumed that its effect will have completely disappeared before the next transient arrives.
P_{PP}	Peak Pulse Power. The rated random recurring peak impulse power or rated nonrepetitive peak impulse power. The impulse power is the maximum-rated value of the product of I_{PP} and V_C.
$V_{(BR)}$	Breakdown Voltage: The voltage across the device at a specified current $I_{(BR)}$ in the breakdown region.
V_{WM}	Working Standoff Voltage: The maximum-rated value of dc or repetitive peak positive cathode-to-anode voltage that may be continuously applied over the standard operating temperature.
V_C	Clamping Voltage: The voltage across the device in a region of low differential resistance during the application of an impulse current (I_{PP}) for a specified waveform.

ELECTRICAL CHARACTERISTICS @ T_A = 25 °C unless otherwise noted.

TYPE	MINIMUM BREAKDOWN VOLTAGE $V_{(BR)}$ @ 1 mA	WORKING STAND-OFF VOLTAGE V_{WM}	MAXIMUM LEAKAGE CURRENT I_D	MAXIMUM CLAMPING VOLTAGE V_C @ 10 A (8/20 µs) (see Figure 2)	MAXIMUM PEAK PULSE CURRENT I_{PP} (8/20 µs)	MAXIMUM TEMP. COEF. of $V_{(BR)}$ $\alpha_{V(BR)}$
	V	V	µA	V (pk)	A (pk)	%/°C
EPS5	6.0	5	50	9.5	89.4	0.030
EPS8	9.0	8	2	13.7	62.1	0.040
EPS12	13.8	12	1	21.6	40.3	0.060
EPS15	16.7	15	1	26.0	33.9	0.070
EPS17	19.0	17	1	29.2	30.8	0.075
EPS24	28.4	24	1	43.2	22.0	0.080
EPS28	31.0	28	1	47.8	19.2	0.085
EPS33	36.8	33	1	56.7	16.4	0.090
EPS48	54.0	48	1	84.3	11.2	0.095

GRAPHS

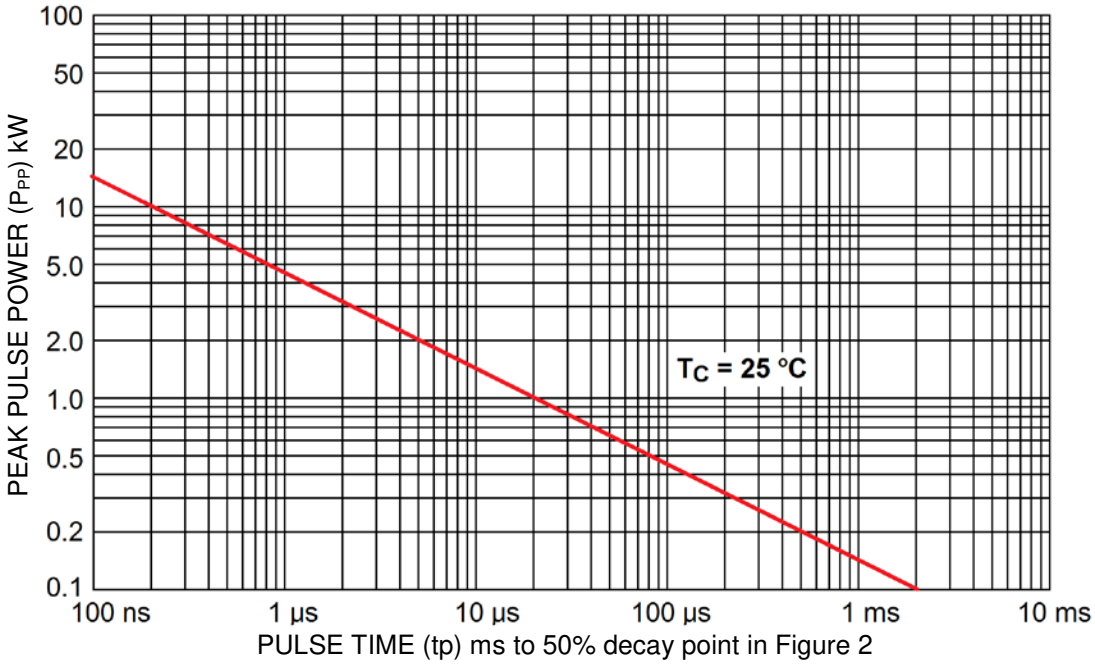


FIGURE 1
PEAK PULSE POWER VS. PULSE TIME

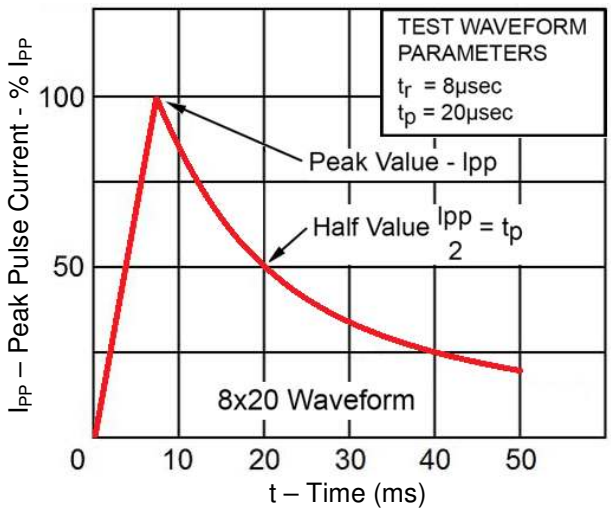


FIGURE 2
8/20 µs CURRENT IMPULSE WAVEFORM

GRAPHS

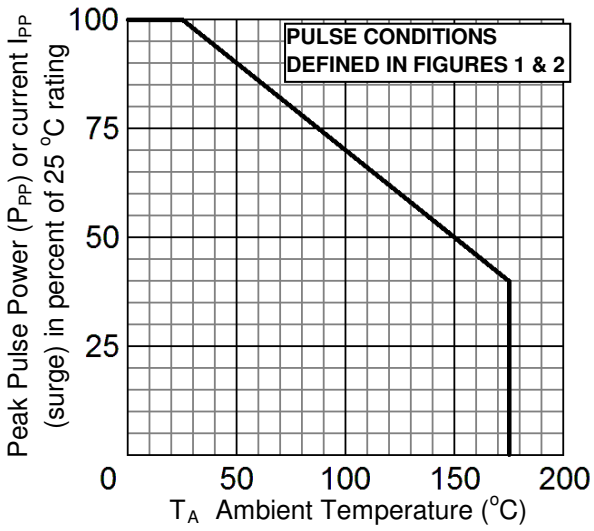


FIGURE 3
DERATING CURVE

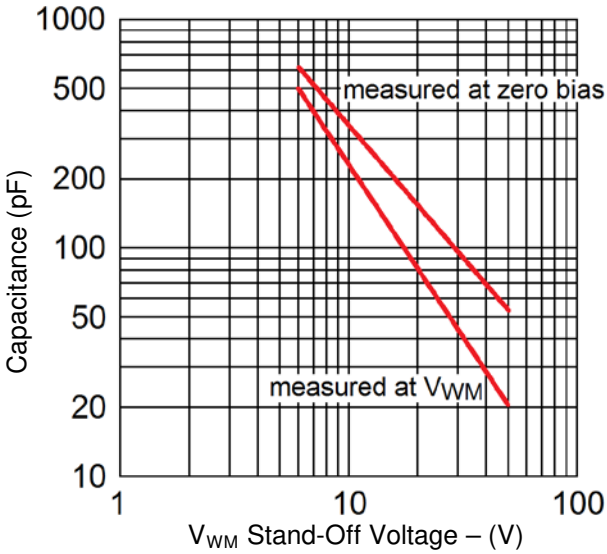
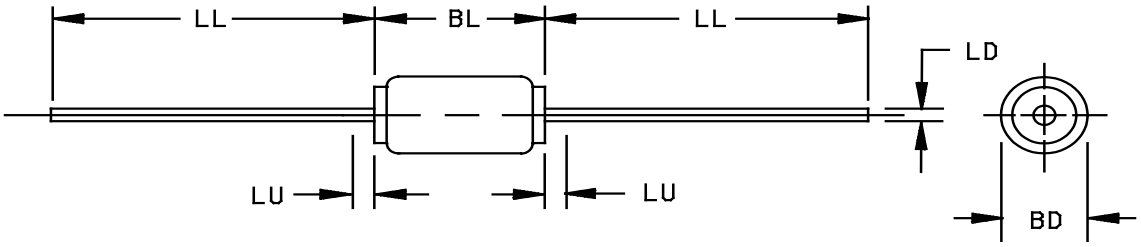


FIGURE 4
TYPICAL CAPACITANCE VS STAND-OFF VOLTAGE

PACKAGE DIMENSIONS



NOTES:

1. Dimensions are in inches.
2. Millimeters are given for information only.
3. Dimension BD shall be measured at the largest diameter.
4. Dimension LU lead diameter uncontrolled in this area.
5. In accordance with ASME Y14.5M, diameters are equivalent to Φx symbology.

Ltr	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
BD	0.060	0.085	1.52	2.16	3
BL	0.121	0.175	3.07	4.45	
LD	0.028	0.032	0.71	0.81	
LL	0.800	1.300	20.32	33.02	
LU	-	0.050	-	1.27	4