Microsemi
SCOTTSDALE DIVISION

POWERMITE®
Low Profile 1500 Watt
Transient Voltage Suppressor

DESCRIPTION

These 1500 watt transient voltage suppressors offer power-handling capabilities only found in larger packages. They are most often used for protecting against transients from inductive switching environments or induced secondary lightning effects as found in lower surge levels of IEC61000-4-5. With very fast response times, they are also effective in protection from ESD or EFT. Powermite® package features include a full metallic bottom that eliminates the possibility of solder-flux entrapment during assembly. They also provide unique locking tab acting as an integral heat sink. With its very short terminations, parasitic inductance is minimized to reduce voltage overshoots during fast-rise-time transients.

IMPORTANT: For the most current data, consult *MICROSEMI's* website: http://www.microsemi.com

APPEARANCE

FEATURES

- Very low profile surface mount package (1.1mm)
- Integral heat sink-locking tabs
- Compatible with automatic insertion equipment
- Full metallic bottom eliminates flux entrapment
- Voltage range 5 volts to 170 volts
- Available in both unidirectional or bi-directional (C suffix for bi-directional)

APPLICATIONS / BENEFITS

- Secondary lightning transient protection
- Inductive switching transient protection
- Small footprint
- Very low parasitic inductance for minimal voltage overshoot
- Compliant to IEC61000-4-2 and IEC61000-4-4 for ESD and EFT protection respectively and IEC61000-4-5 for surge levels defined herein

MAXIMUM RATINGS

- Operating Temperature: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- 1500 Watt peak pulse power (10 / 1000 µsec.)
- Forward Surge Current: 200 Amps at 8.3 ms (excluding bidirectional)
- Repetition surge rate (duty factor): 0.01%
- Thermal resistance: 2.5°C / watt junction to tab 130°C / watt junction to ambient with recommended footprint
- Lead and mounting temperature: 260°C for 10 sec

MECHANICAL AND PACKAGING

- Terminals tin-lead plated
- Two-leads on side internally connected together
- Cathode designated with band (unidirectional)
- Body marked with P/N without 3PMT prefix (ie. 5.0A, 5.0CA, 12A, 12CA, 170A, 170CA, etc.)
- Molded epoxy package meets UL94V-0
- Weight: 0.072 grams (approximate)
- Tape & Reel packaging per EIA-481-2 (16 mm - 6000 units/reel)

ELECTRICAL CHARACTERISTICS

MICROSEMI PART NUMBER	STANDOFF VOLTAGE V_{WM} VOLTS	BREAKDOWN VOLTAGE V_{BR} @1 mA VOLTS MIN	CLAMPING VOLTAGE V_C @ I_{PP} (FIGURE 4) VOLTS MAX	PEAK PULSE CURRENT I_{PP} (FIGURE 4) AMPS	STANDBY CURRENT I_D @ V_{WM} µA MAX	TEMPERATURE COEFFICIENT OF V_{BR} $\alpha_{V(BR)}$ %/°C MAX
3PMT5.0A	5	6.40	9.2	163.0	1000	.057
3PMT6.0A	6	6.67	10.3	145.6	1000	.059
3PMT6.5A	6.5	7.22	11.2	133.9	500	.061
3PMT7.0A	7	7.78	12.0	125.0	200	.065
3PMT7.5A	7.5	8.33	12.9	116.3	100	.067
3PMT8.0A	8	8.89	13.6	110.3	50	.070
3PMT8.5A	8.5	9.94	14.4	104.2	25	.073
3PMT9.0A	9.0	10.0	15.4	97.4	10	.076
3PMT10A	10	11.1	17.0	88.2	5	.078
3PMT11A	11	12.2	18.2	82.4	5	.081
3PMT12A	12	13.3	19.9	75.3	5	.082

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8700 E. Thomas Rd. PO Box 1390, Scottsdale, AZ 85252 USA, (480) 941-6300, Fax: (480) 947-1503

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3PMT13A	13	14.4	21.5	69.7	5	.084
3PMT14A	14	15.8	23.2	64.7	5	.086
3PMT15A	15	16.7	24.4	61.5	5	.087
3PMT16A	16	17.8	26.0	57.7	5	.088
3PMT17A	17	18.9	27.6	53.3	5	.090
3PMT18A	18	20.0	29.2	51.4	5	.092
3PMT20A	20	22.2	32.4	46.3	5	.093
3PMT22A	22	24.4	35.5	42.2	5	.094
3PMT24A	24	26.7	38.9	38.6	5	.096
3PMT26A	26	28.9	42.1	35.6	5	.097
3PMT28A	28	31.1	45.4	33.0	5	.098
3PMT30A	30	33.3	48.4	31.0	5	.099
3PMT33A	33	36.7	53.3	28.1	5	.100
3PMT36A	36	40.0	58.1	25.8	5	.101
3PMT40A	40	44.4	64.5	23.2	5	.101
3PMT43A	43	47.8	69.4	21.6	5	.102
3PMT45A	45	50.0	72.7	20.6	5	.102
3PMT48A	48	53.3	77.4	19.4	5	.103
3PMT51A	51	56.7	82.4	18.2	5	.103
3PMT54A	54	60.0	87.1	17.2	5	.104
3PMT58A	58	64.4	93.6	16.0	5	.104
3PMT60A	60	66.7	96.8	15.5	5	.104
3PMT64A	64	71.1	103.0	14.6	5	.105
3PMT70A	70	77.8	113	13.3	5	.105
3PMT75A	75	83.3	121	12.4	5	.105
3PMT78A	78	86.7	126	11.4	5	.106
3PMT85A	85	94.4	137	10.4	5	.106
3PMT90A	90	100	146	10.3	5	.107
3PMT100A	100	111	162	9.3	5	.107
3PMT110A	110	122	177	8.4	5	.107
3PMT120A	120	133	193	7.8	5	.107
3PMT130A	130	144	209	7.2	5	.108
3PMT150A	150	167	243	6.2	5	.108
3PMT160A	160	178	259	5.8	5	.108
3PMT170A	170	189	275	5.5	5	.108

For bi-directional indicate a C suffix after the part number (i.e.: 3PMT170CA). Capacitance will be ½ that shown in figure 3.
Part numbers in **italics** are preferred devices.

SYMBOLS & DEFINITIONS

Symbol	Definition
V_{RWM}	Working Peak Reverse Voltage: The maximum peak voltage that can be applied over the operating temperature range.
V_{BR}	Minimum Breakdown Voltage: The minimum voltage the device will exhibit at a specified current.
V_C	Minimum Clamping Voltage: The maximum voltage the device will exhibit at the peak pulse current.
I_D	Maximum Leakage Current: The maximum leakage current that will flow at the specified voltage and temperature.

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GRAPHS

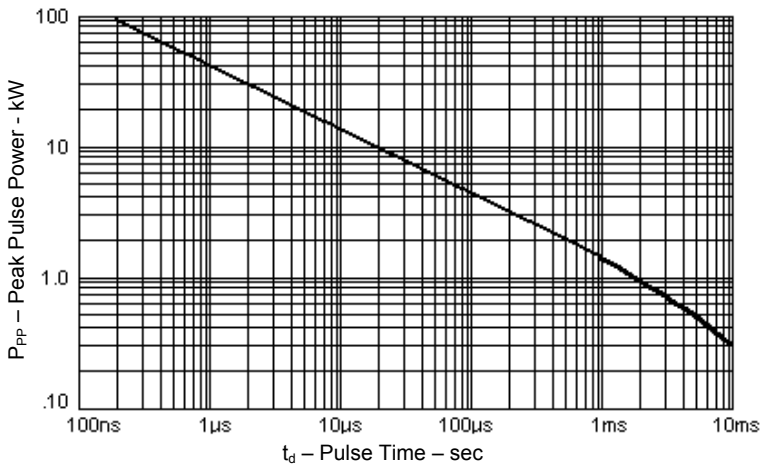

FIGURE 1

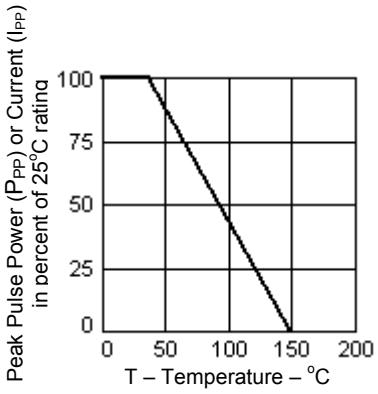

FIGURE 2

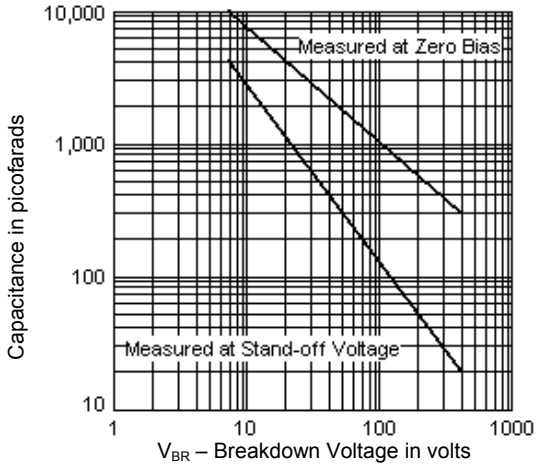

FIGURE 3

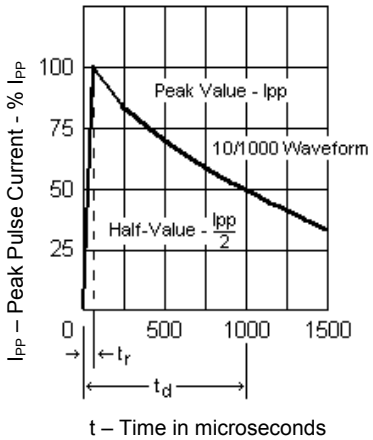

FIGURE 4

DIMENSIONS AND LAYOUT

	INCHES	MILLIMETERS
DIM	NOMINAL	NOMINAL
A	0.070	1.778
B	0.173	4.392
C	0.200	5.080
D	0.035	0.889
E	0.160	4.064
F	0.072	1.829
G	0.056	1.422
H	0.044	1.118
J	0.190	4.826
K	0.210	5.344
L	0.038	0.965
M	0.034	0.864
N	0.030	0.762
P	0.030	0.762