

POWERMITE®
1500 Watt Transient Absorption Zener
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>

POWERMITE®

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

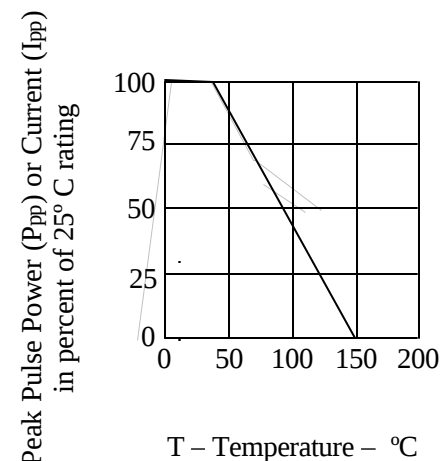
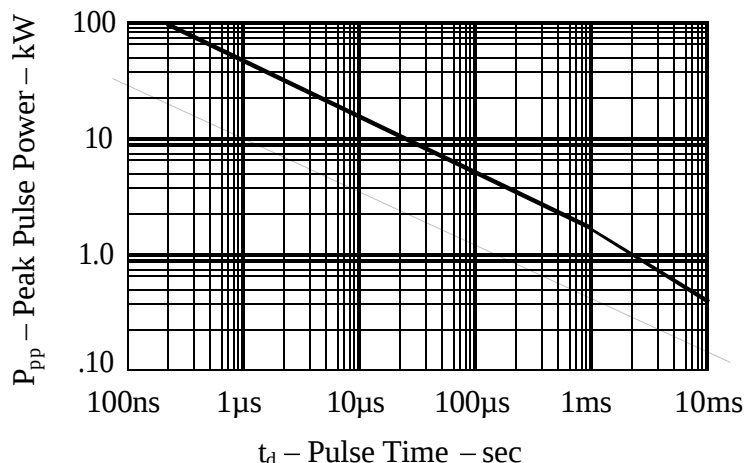
- Secondary lightning transient protection
- Inductive switching transient protection
- Small footprint
- Very low parasitic inductance for minimal voltage overshoot
- Compliant to IEC61000-4-2 and IEC61000-4-4 for ESD and EFT protection respectively and IEC61000-4-5 for surge levels defined herein

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 (8.3 ms) (excluding bidirectional)
- Repetition surge rate (duty factor): 0.01%
- Lead and mounting temperature: 260°C for 10 sec

MECHANICAL AND PACKAGING

- Terminals tin-lead plated
- Two-lead side internally connected together
- Cathode designated with band (unidirectional)
- Molded epoxy package meets UL94V-0
- Weight: 0.072 grams (approximate)
- Thermal resistance: 2.5°C / watt junction to tab
- 130°C / watt junction to ambient with recommended footprint
- Tape & Reel packaging per EIA-481-2 (16 mm - 6000 units/reel)

PEAK PULSE POWER RATINGS




Microsemi
SCOTTSDALE DIVISION

3PMT5.0 thru 3PMT170

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ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless otherwise specified

MICROSEMI PART NUMBER	STAND OFF VOLTAGE V _{WM} VOLTS	BREAKDOWN VOLTAGE V _{BR} @ 1 mA VOLTS MIN	CLAMPING VOLTAGE V _C @ I _{FP} (FIGURE 2) VOLTS MAX	PEAK PULSE CURRENT I _{PP} (FIGURE 2) AMPS	STANDBY CURRENT I _D @ V _{WM} μA MAX	TEMPERATURE COEFFICIENT OF V _{BR} a _{VBR} %/°C MAX
3PMT5.0	5	6.40	9.60	156.2	1000	.057
3PMT6.0	6	6.67	11.4	131.6	1000	.059
3PMT6.5	6.5	7.22	12.3	122.0	500	.061
3PMT7.0	7	7.78	13.3	112.8	200	.065
3PMT7.5	7.5	8.33	14.3	104.9	100	.067
3PMT8.0	8	8.89	15.0	100.0	50	.070
3PMT8.5	8.5	9.94	15.9	94.3	25	.073
3PMT9.0	9.0	10.0	16.9	88.7	10	.076
3PMT10	10	11.1	18.8	79.8	5	.078
3PMT11	11	12.2	20.1	74.6	5	.081
3PMT12	12	13.3	22.0	68.2	5	.082
3PMT13	13	14.4	23.8	63.0	5	.084
3PMT14	14	15.8	25.8	58.1	5	.086
3PMT15	15	16.7	26.9	55.8	5	.087
3PMT16	16	17.8	28.8	52.1	5	.088
3PMT17	17	18.9	30.5	49.2	5	.090
3PMT18	18	20.0	32.2	46.6	5	.092
3PMT20	20	22.2	35.8	41.9	5	.093
3PMT22	22	24.4	39.4	48.1	5	.094
3PMT24	24	26.7	43.0	34.9	5	.096
3PMT26	26	28.9	46.6	32.2	5	.097
3PMT28	28	31.1	50.0	30.0	5	.098
3PMT30	30	33.3	53.5	28.0	5	.099
3PMT33	33	36.7	59.0	25.2	5	.100
3PMT36	36	40.0	64.3	23.3	5	.101
3PMT40	40	44.4	71.4	21.0	5	.101
3PMT43	43	47.8	76.7	19.6	5	.102
3PMT45	45	50.0	80.3	18.7	5	.102
3PMT48	48	53.3	85.5	17.5	5	.103
3PMT51	51	56.7	91.1	16.5	5	.103
3PMT54	54	60.0	96.3	15.6	5	.104
3PMT58	58	64.4	103	14.6	5	.104
3PMT60	60	66.7	107	14.0	5	.104
3PMT64	64	71.1	114	13.2	5	.105
3PMT70	70	77.8	125	12.0	5	.105
3PMT75	75	83.3	134	11.2	5	.105
3PMT78	78	86.7	139	10.8	5	.106
3PMT85	85	94.4	151	9.9	5	.106
3PMT90	90	100	160	9.4	5	.107
3PMT100	100	111	179	8.4	5	.107
3PMT110	110	122	196	7.7	5	.107
3PMT120	120	133	214	7.0	5	.107
3PMT130	130	144	231	6.5	5	.108
3PMT150	150	167	268	5.6	5	.108
3PMT160	160	178	287	5.2	5	.108
3PMT170	170	189	304	4.9	5	.108

For bi-directional indicate a C suffix after the part number (i.e.: 3PMT170C). Capacitance will be ½ that shown in figure 1.

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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.

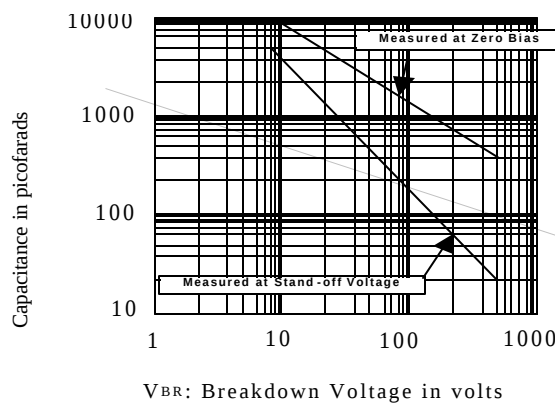


figure 1

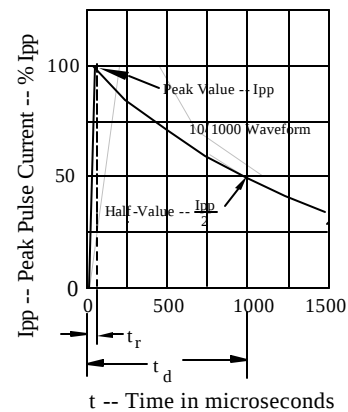


figure 2

OUTLINE AND PAD LAYOUT

DIM	INCHES NOMINAL	MILLIMETERS 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

