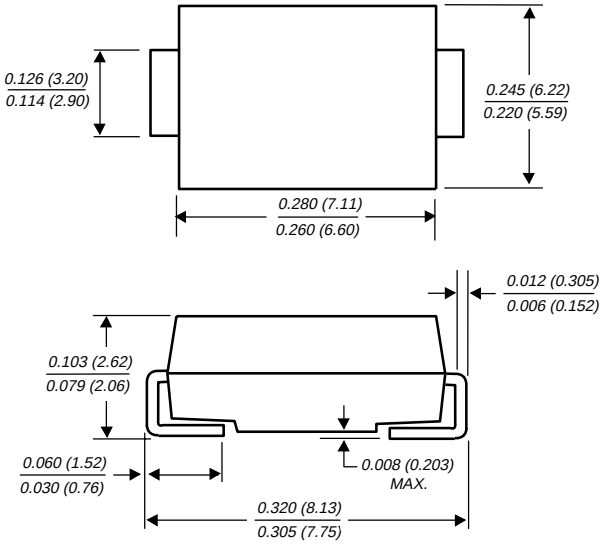
SM15T SERIES

TRANSZORB™ SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

Breakdown Voltage - *6.8 to 220 Volts* ***Peak Pulse Power -*** *1500 Watts*

DO-214AB



Dimensions in inches and (millimeters)

FEATURES



- For surface mounted applications in order to optimize board space
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- Repetition Rate (duty cycle): 0.05%
- Fast reponse time: typically less than 1ps from 0 volts to V_{BR} min.
- Typical I_D less than 1µA above 10V
- High temperature soldering: 250°C/10 seconds at terminals
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0

MECHANICAL DATA

Case: JEDEC DO-214AB (SMC) molded plastic over passivated junction
Terminals: Solder plated solderable per MIL-STD-750, Method 2026
Polarity: For uni-directional types: Color band denotes positive end (cathode)
Standard Packaging: 12mm tape (EIA STD RS-481)
Weight: 0.003 ounces, 0.093 gram

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified

	SYMBOLS	*VALUE*	*UNIT*
Peak Pulse Power Dissipation on 10/1000µs waveform (NOTES 1, 2, Fig. 1)	P_{PPM}	Minimum 1500	Watts
Peak Pulse Current on 10/1000µs waveform (NOTE 1, Fig. 3)	I_{PPM}	See Table 1	Amps
Power Dissipation on Infinite Heatsink, T_A=50°C	$P_{M(AV)}$	6.5	Watts
Peak Forward Surge Current, 10ms Single Half Sine-wave, Undirectional Only	I_{FSM}	200	Amps
Max. Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-65 to +175	°C
Thermal Resistance Junction to Ambient Air (NOTE 2)	$R_{\Theta JA}$	75	°C/W
Thermal Resistance Junction to Leads	$R_{\Theta JL}$	15	°C/W

NOTES:
(1) Non-repetitive current pulse, per Fig. 3 and derated above T_A=25°C per Fig. 2
(2) Mounted on 5.0mm² (.013mm thick) land areas.
(3) Measured on 8.3ms single half sine-wave or equivalent squarewave, duty cycle 4 pulses per minute maximum.

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ELECTRICAL CHARACTERISTICS RATINGS at (T_A=25ºC unless otherwise noted)

Type[1]	Device Marking Code		Standoff Voltage V_{RM}	Leakage Current[3] I_{RM} @ V_{RM}	Breakdown Voltage V_{BR} @ I_T[2] (Volts)		Test Current I_T	Clamping Voltage V_C @ I_{PP} 10/1000µs		Clamping Voltage V_C @ I_{PP} 8/20µs		α_T Max 10^{-4}/°C
	Uni	Bi	(Volts)	(µA)	Min	Max	(mA)	(Volts)	(Amps)	(Volts)	(Amps)	
SM15T6V8A	GDE7	GDE7	5.80	1000	6.45	7.14	10	10.5	143	13.4	746	5.7
SM15T7V5A	GDK7	BDK7	6.40	500	7.13	7.88	10	11.3	132	14.5	690	6.1
SM15T10A	GDT7	BDT7	8.55	10.0	9.50	10.5	1.0	14.5	103	18.6	538	7.3
SM15T12A	GDX7	BDX7	10.2	5.00	11.4	12.6	1.0	16.7	90.0	21.7	461	7.8
SM15T15A	GEG7	GEG7	12.8	5.00	14.3	15.8	1.0	21.2	71.0	27.2	368	8.4
SM15T18A	GEM7	BEM7	15.3	5.00	17.1	18.9	1.0	25.2	59.5	32.5	308	8.8
SM15T22A	GET7	BET7	18.8	5.00	20.9	23.1	1.0	30.6	49.0	39.3	254	9.2
SM15T24A	GEV7	GEV7	20.5	5.00	22.8	25.2	1.0	33.2	45.0	42.8	234	9.4
SM15T27A	GEX7	BEX7	23.1	5.00	25.7	28.4	1.0	37.5	40.0	48.3	207	9.6
SM15T30A	GFE7	BFE7	25.6	5.00	28.5	31.5	1.0	41.5	36.0	53.5	187	9.7
SM15T33A	GFG7	GFG7	28.2	5.00	31.4	34.7	1.0	45.7	33.0	59.0	169	9.8
SM15T36A	GFK7	BFK7	30.8	5.00	34.2	37.8	1.0	49.9	30.0	64.3	156	9.9
SM15T39A	GFM7	BFM7	33.3	5.00	37.1	41.0	1.0	53.9	28.0	69.7	143	10.0
SM15T68A	GGG7	GGG7	58.1	5.00	64.6	71.4	1.0	92.0	16.3	121	83	10.4
SM15T100A	GGV7	GGV7	85.5	5.00	95.0	105	1.0	137	11.0	178	56	10.6
SM15T150A	GHK7	GHK7	128	5.00	143	158	1.0	207	7.20	265	38	10.8
SM15T200A	GHR7	GHR7	171	5.00	190	210	1.0	274	5.50	353	28	10.8
SM15T220A	GHR8	GHR8	188	5.00	209	231	1.0	328	4.60	388	26	10.8

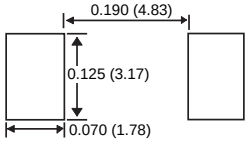
NOTES:
(1) For bi-directional devices add “C” for ±10% and “CA” for ±5% tolerance of V_{BR}
(2) V_{BR} measured after I_T applied for 300µs square wave pulse
(3) For bipolar devices with V_R=10 Volts or under, the I_T limit is doubled

APPLICATION NOTES

A 1500W (SMC) device is normally selected when the threat of transients is from lightning induced transients, conducted via external leads or I/O lines. It is also used to protect against switching transients induced by large coils or industrial motors. Source impedance at component level in a system is usually high enough to limit the current within the peak pulse current (I_{PP}) rating of this series. In an overstress condition, the failure mode is a short circuit.

RECOMMENDED PAD SIZES

The pad dimensions should be 0.010” (0.25mm) longer than the contact size, in the lead axis. This allows a solder fillet to form, see figure below. Contact factory for soldering methods



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RATINGS AND CHARACTERISTIC CURVES SM15T SERIES

FIG. 1 - PEAK PULSE POWER RATING CURVE

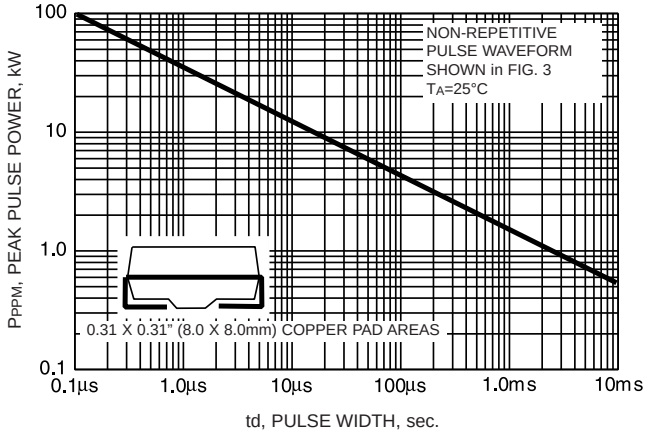


FIG. 2 - PULSE DERATING CURVE

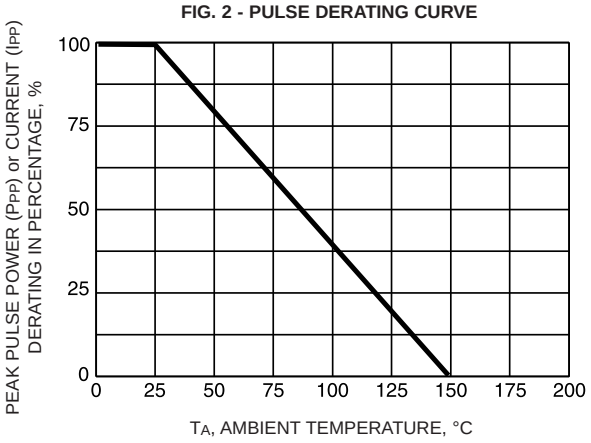


FIG. 3 - PULSE WAVEFORM

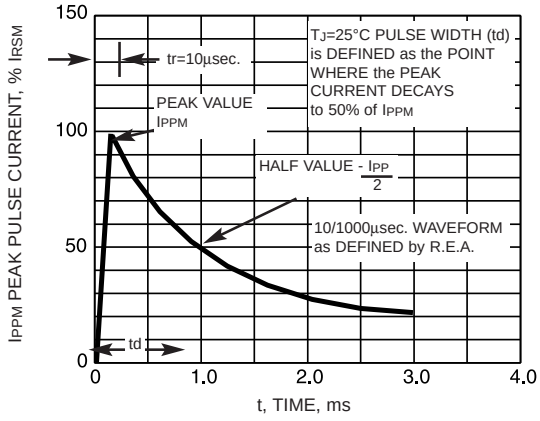


FIG. 4 - TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL

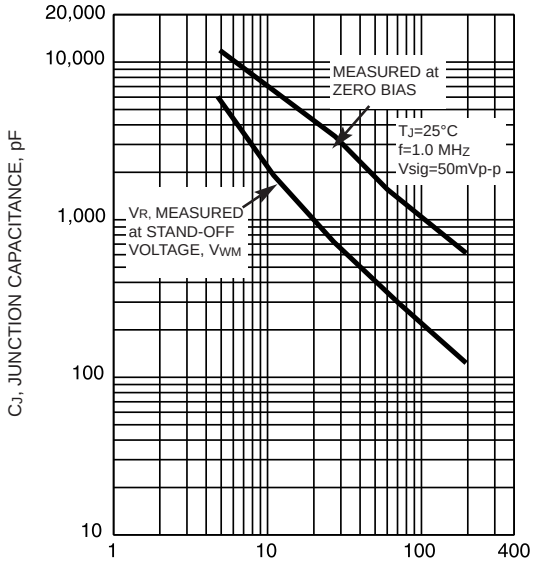


FIG. 5 - TYPICAL JUNCTION CAPACITANCE BIDIRECTIONAL

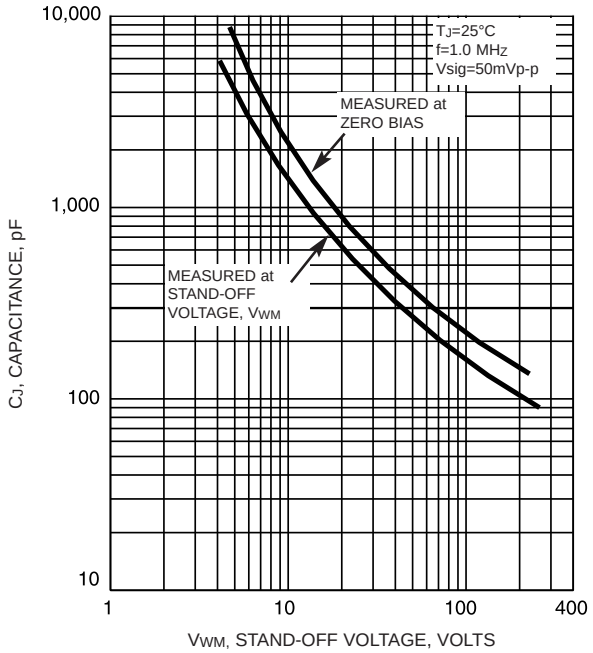
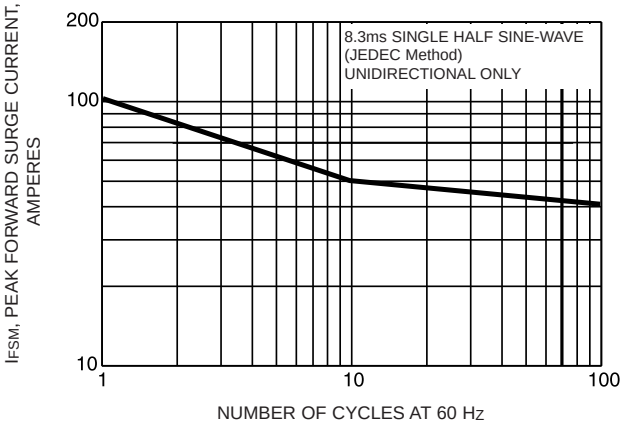


FIG. 6 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



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