



## SM2T series

### Transient Voltage Suppressor: TRANSIL™

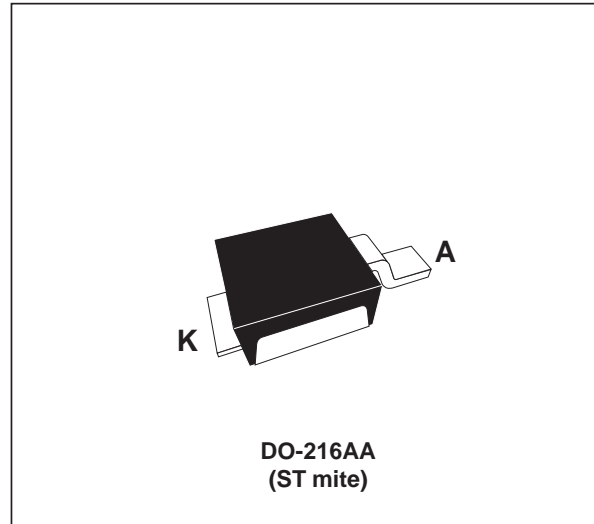
#### FEATURES AND BENEFITS

- High Peak pulse power:  
200 W (10/1000  $\mu$ s)  
1000 W (8/20  $\mu$ s)
- Stand-off voltage range 5 to 24V
- Unidirectional types
- Low clamping factor  $V_{CL}/V_{BR}$
- Fast response time
- 1.0mm overall component height

#### DESCRIPTION

The SM2T series are Transil diodes designed specifically for portable equipment and miniaturized electronics devices subject to ESD transient overvoltages.

Fully compatible with pick and place equipment and inspectable soldering joints.



#### ABSOLUTE RATINGS (Tamb = 25°C)

Symbol	Parameter		Value	Unit
P <sub>PP</sub>	Peak pulse power dissipation (see note 1)	T <sub>j</sub> initial = Tamb	200	W
P	Power dissipation on infinitive heatsink	Tamb = 100°C	2.5	W
I <sub>FSM</sub>	Non repetitive surge peak forward current	tp = 10 ms T <sub>j</sub> initial = Tamb	25	A
T <sub>stg</sub> T <sub>j</sub>	Storage temperature range Maximum operating junction temperature		- 65 to + 175 150	°C
TL	Lead solder temperature (10 seconds duration)		260	°C

Note 1: 10/1000  $\mu$ s pulse waveform.

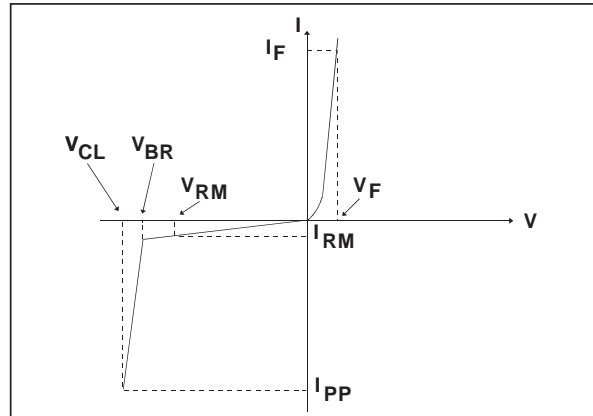
#### THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
R <sub>th</sub> (j-t)	Junction to tab	20	°C/W
R <sub>th</sub> (j-a)	Junction to ambient on PCB with recommended pad layout	250	°C/W

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## ELECTRICAL CHARACTERISTICS (Tamb = 25°C)

Symbol	Parameter
$V_{RM}$	Stand-off voltage
$V_{BR}$	Breakdown voltage
$V_{CL}$	Clamping voltage
$I_{RM}$	Leakage current @ $V_{RM}$
$I_{PP}$	Peak pulse current
$\alpha T$	Voltage temperature coefficient



Types	$I_{RM}$ max @ $V_{RM}$		$V_{BR}$ min @ $I_R$		$V_{CL}$ max @ $I_{PP}$ Note 1		$\alpha T$ max 10-4/°C	C typ at 0V
	$I_{RM}$	$V_{RM}$	$V_{BR}$	$I_R$	$V_{CL}$	$I_{PP}$		
SM2T6V8A	50µA	5V	6.4V	10 mA	9.2V	19.6A	5.7	1600pF
SM2T14A	1µA	12V	13.3V	1 mA	19.9V	9.0A	8.3	650pF
SM2T18A	1µA	16V	17.1V	1 mA	26V	7A	8.8	500pF
SM2T27A	1µA	24V	25.7V	1 mA	38.9V	4.6A	9.6	350pF

Note 1: 10/1000µs pulse waveform.

Fig. 1: Peak pulse power versus exponential pulse duration.

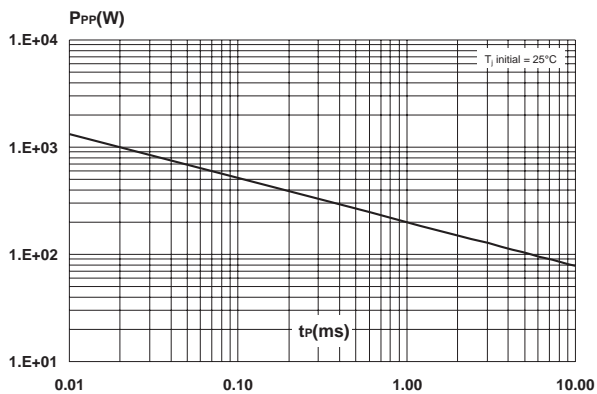
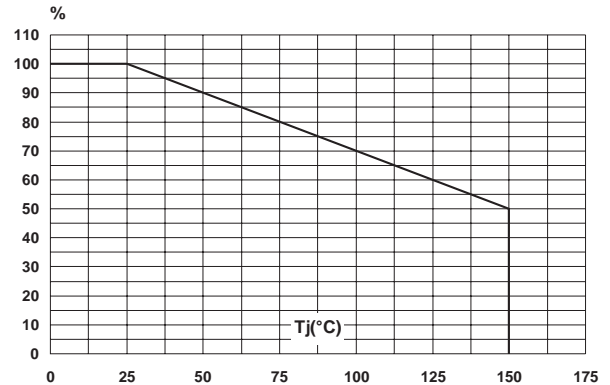
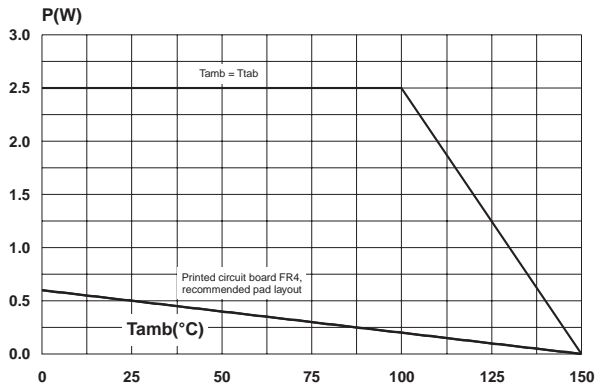


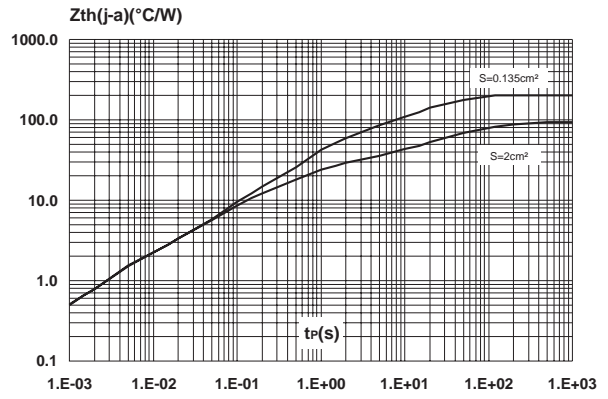
Fig. 2: Relative variation of peak pulse power versus initial junction temperature.



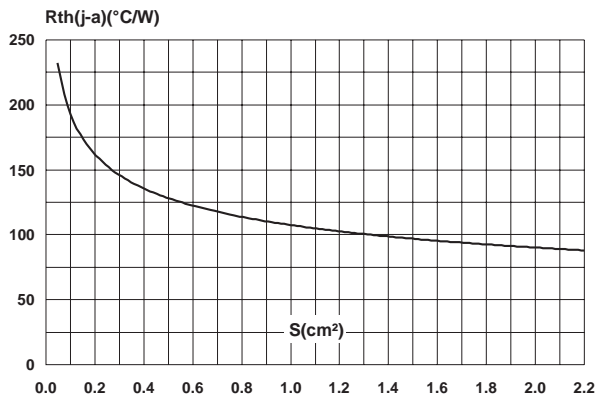
**Fig. 3:** Average power dissipation versus ambient temperature.



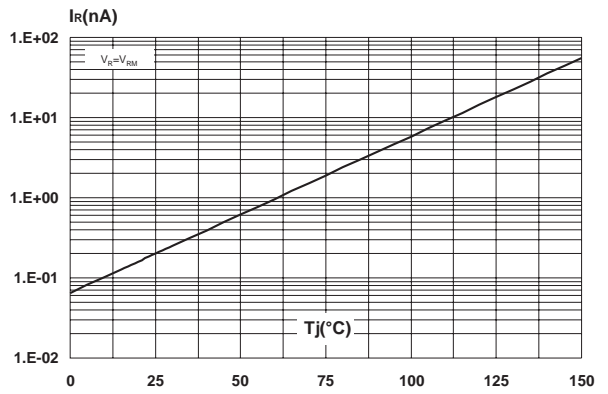
**Fig. 4:** Variation of thermal impedance junction to ambient versus pulse duration.



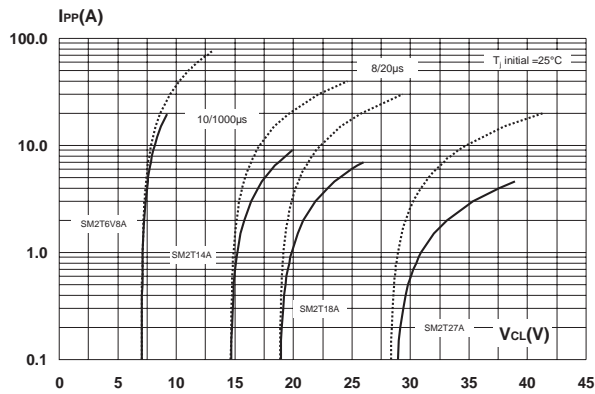
**Fig. 5:** Thermal resistance junction to ambient versus copper surface under tab.



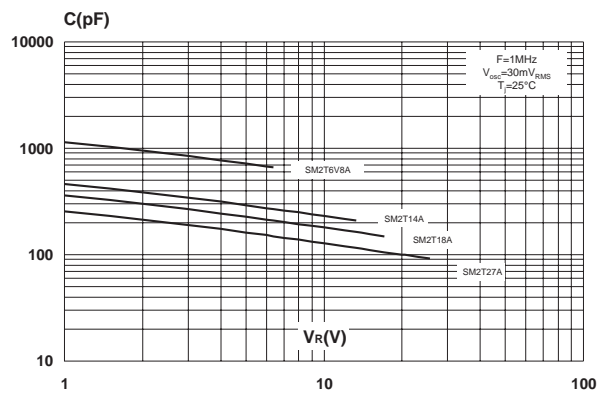
**Fig. 6:** Reverse leakage current versus junction temperature (typical values).



**Fig. 7:** Clamping voltage versus peak pulse current (maximum values).

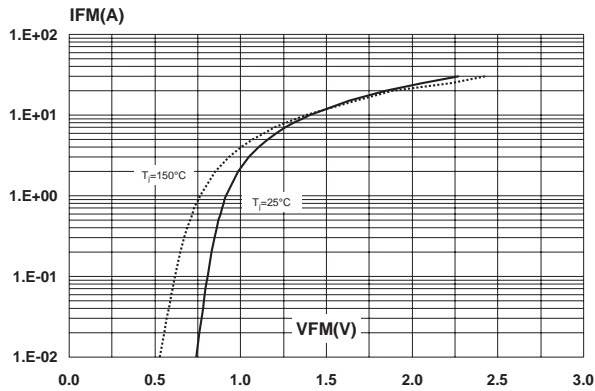


**Fig. 8:** Junction capacitance versus reverse voltage applied (typical values).

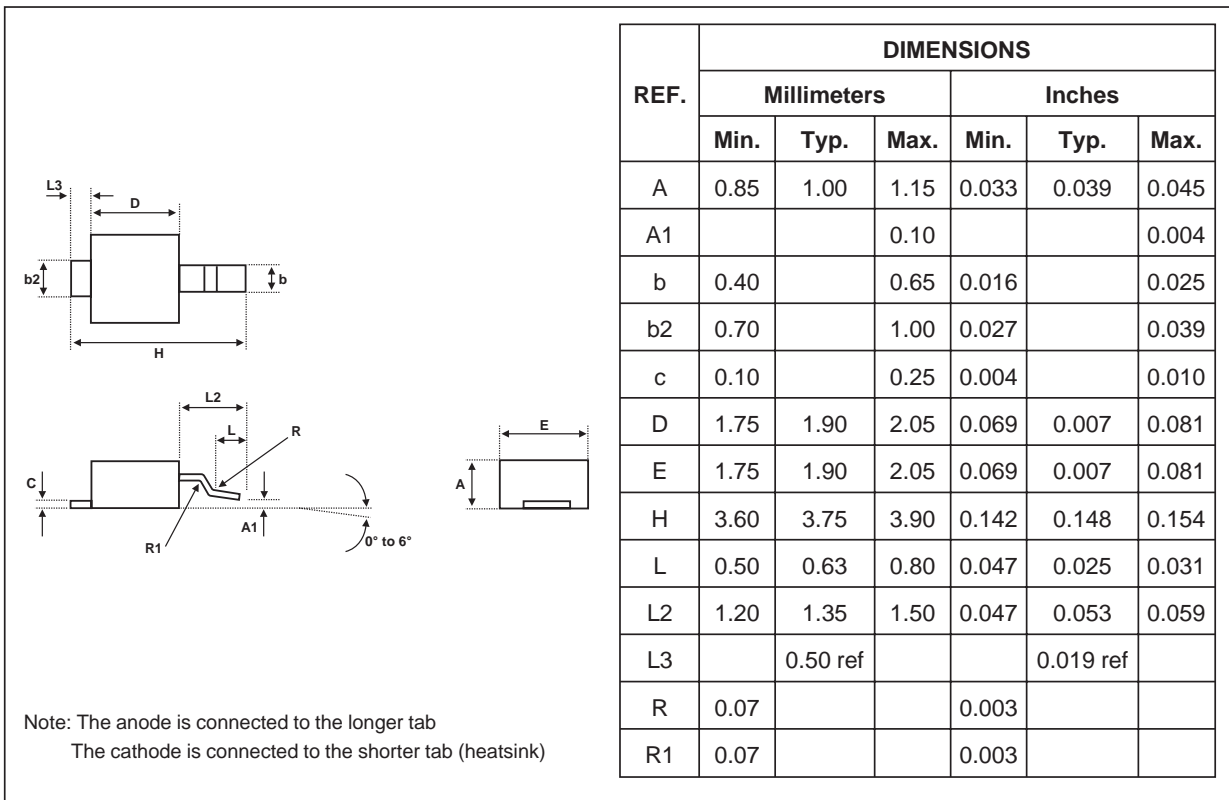


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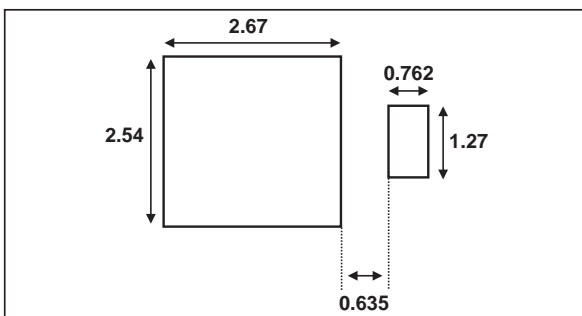
**Fig. 9:** Forward voltage drop versus forward current (typical values).



### PACKAGE MECHANICAL DATA DO216-AA (ST mite)



### RECOMMENDED LAYOUT



## OTHER INFORMATION

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
SM2T6V8A	MUA	ST mite	15.5 mg	12000	Tape & reel
SM2T14A	MUE	ST mite	15.5 mg	12000	Tape & reel
SM2T18A	MUG	ST mite	15.5 mg	12000	Tape & reel
SM2T27A	MUJ	ST mite	15.5 mg	12000	Tape & reel

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