

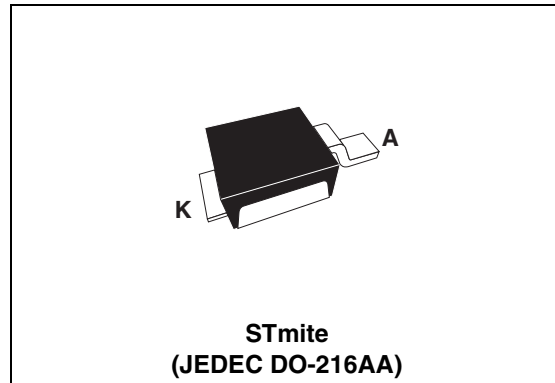
FEATURES

- High Peak pulse power:
200 W (10/1000 μ s)
1000 W (8/20 μ 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 over-voltages.

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


Table 1: Order Codes

Part Number	Marking
SM2T6V8A	MUA
SM2T14A	MUE
SM2T18A	MUG
SM2T27A	MUJ

Table 2: Absolute Ratings ($T_{amb} = 25^{\circ}\text{C}$)

Symbol	Parameter	Value	Unit
P_{PP}	Peak pulse power dissipation (see note ¹)	$T_j \text{ initial} = T_{amb}$ 200	W
P	Power dissipation on infinite heatsink	$T_{amb} = 100^{\circ}\text{C}$ 2.5	W
I_{FSM}	Non repetitive surge peak forward current	$t_p = 10 \text{ ms}$ $T_j \text{ initial} = T_{amb}$ 25	A
T_{stg}	Storage temperature range	-65 to 175	$^{\circ}\text{C}$
T_j	Maximum junction temperature	150	$^{\circ}\text{C}$
T_L	Maximum lead temperature for soldering during 10 s.	260	$^{\circ}\text{C}$

Note 1: 10/1000 μ s pulse waveform.

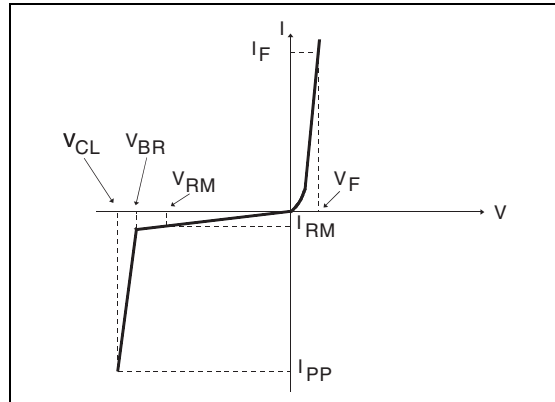
Table 3: Thermal Resistances

Symbol	Parameter	Value	Unit
$R_{th(j-t)}$	Junction to tab	20	$^{\circ}\text{C}/\text{W}$
$R_{th(j-a)}$	Junction to ambient on PCB with recommended pad layout	250	$^{\circ}\text{C}/\text{W}$

SM2T

Table 4: Electrical Characteristics ($T_{amb} = 25^{\circ}\text{C}$)

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
αT	Voltage temperature coefficient
V_F	Forward voltage drop



Types	I_{RM} @ V_{RM}		V_{BR} @ I_R		V_{CL} @ I_{PP}		αT	C
	max		min		max note1		max	typ @ 0V
	μA	V	V	mA	V	A	$10^{-4}/^{\circ}\text{C}$	pF
SM2T6V8A	50	5	6.4	10	9.2	19.6	5.7	1600
SM2T14A	1	12	13.3	1	19.9	9	8.3	650
SM2T18A	1	16	17.1	1	26	7	8.8	500
SM2T27A	1	24	25.7	1	28.9	4.6	9.6	350

Note 1: 10/1000 μs pulse waveform.

Figure 1: Peak pulse power versus exponential pulse duration

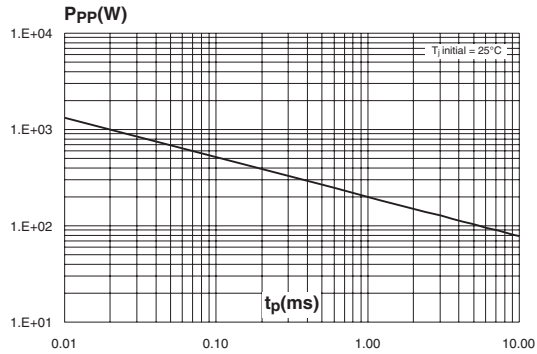


Figure 2: Relative variation of peak pulse power versus initial junction temperature

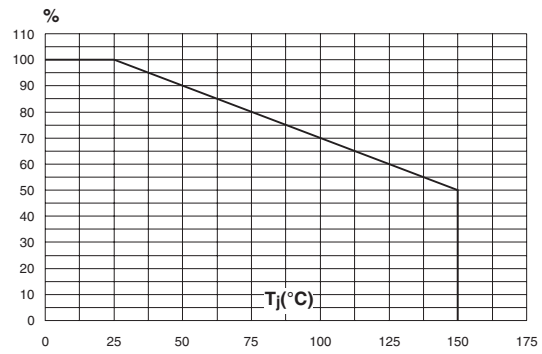


Figure 3: Average power dissipation versus ambient temperature

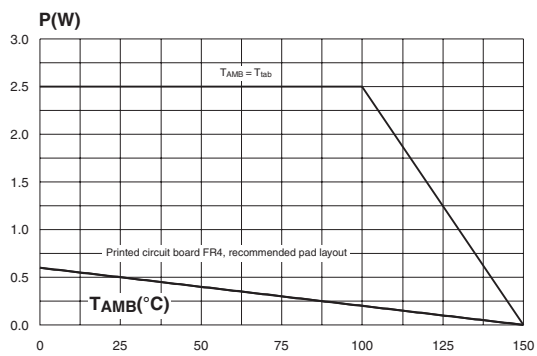


Figure 4: Variation of thermal impedance junction to ambient versus pulse duration

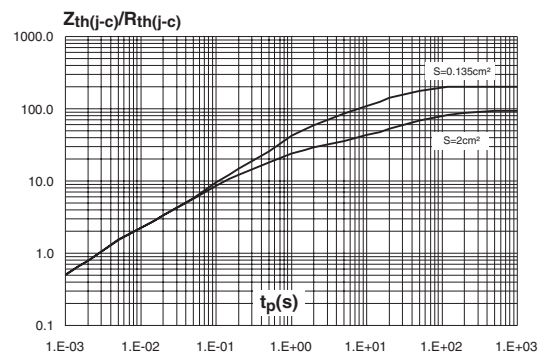


Figure 5: Thermal resistance junction to ambient versus copper surface under tab

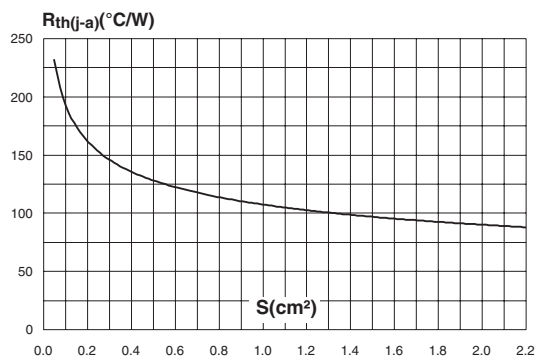


Figure 6: Reverse leakage current versus junction temperature (typical values)

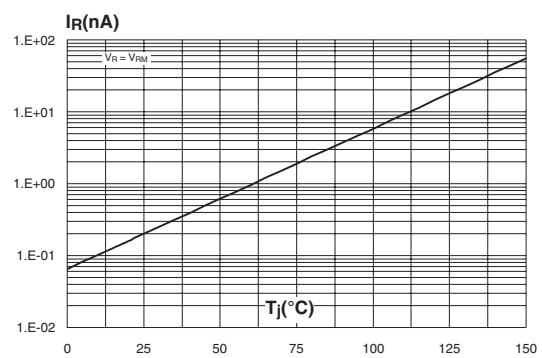


Figure 7: Clamping voltage versus peak pulse current (maximum values)

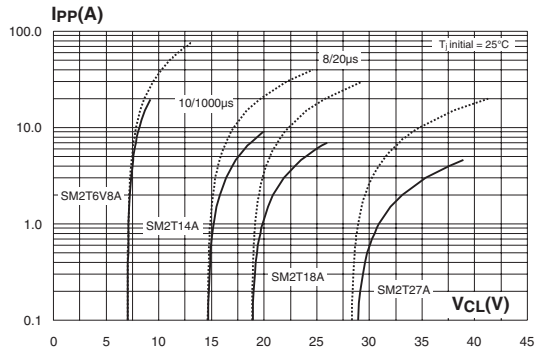


Figure 8: Junction capacitance versus reverse voltage applied (typical values)

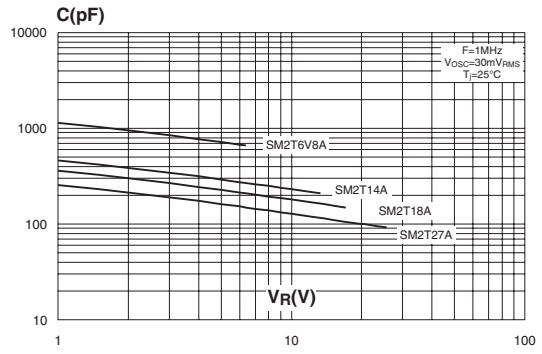


Fig. 9: Forward voltage drop versus forward current (typical values)

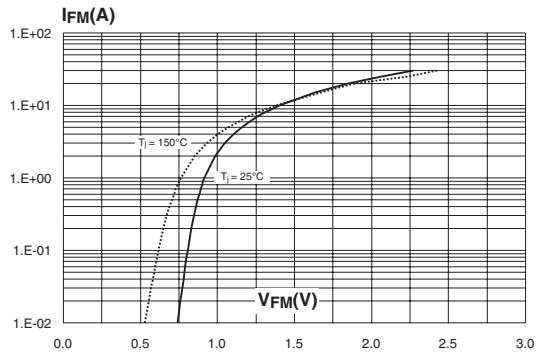


Figure 10: STmite Package Mechanical Data

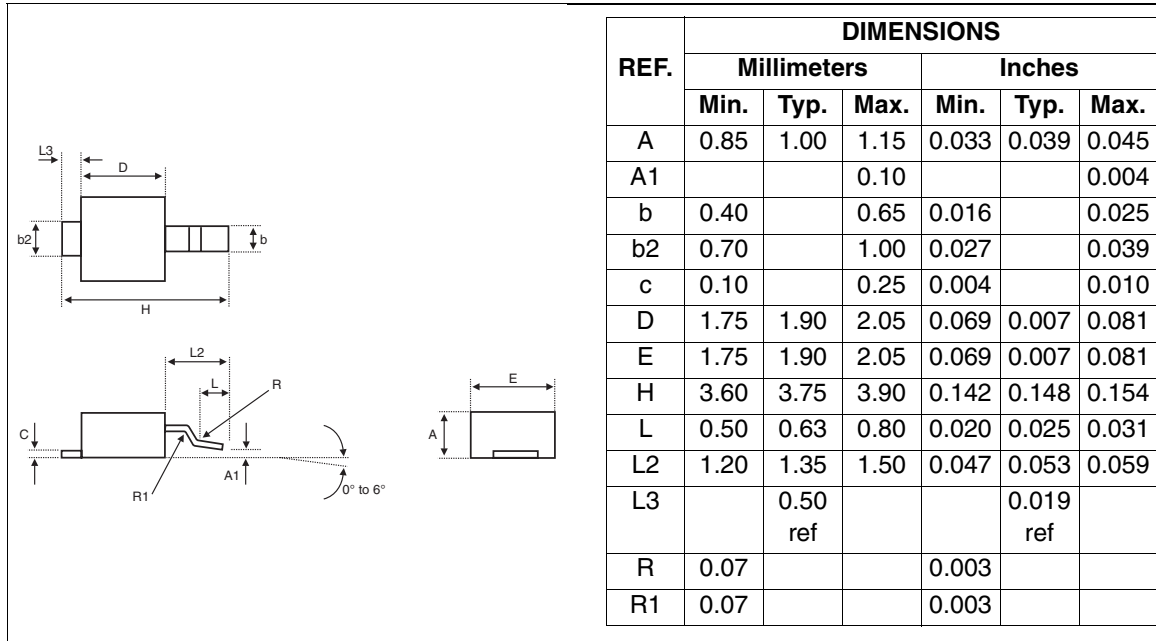


Figure 11: STmite Foot Print Dimensions (in millimeters)

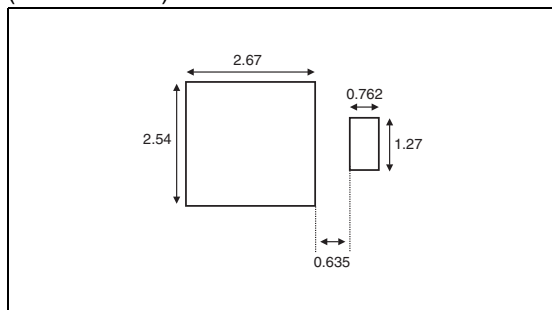


Table 5: Ordering Information

Part Number	Marking	Package	Weight	Base qty	Delivery mode
SM2T6V8A	MUA	STmite	15.5 mg	12000	Tape & reel
SM2T14A	MUE				
SM2T18A	MUG				
SM2T27A	MUJ				

Table 6: Revision History

Date	Revision	Description of Changes
April-2002	1A	Last update.
Aug-2004	2	STmite package dimensions update.
14-Jan-2005	3	Minor layout update. No content change.

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