SM2T

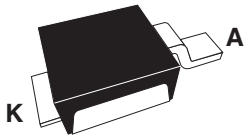
TRANSIL™

FEATURES

- High Peak pulse power:
  200 W (10/1000 µs)
  1000 W (8/20 µs)
- 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.



STmite
(JEDEC DO-216AA)

Table 1: Order Codes

Part Number	Marking
SM2T6V8A	MUA
SM2T14A	MUE
SM2T18A	MUG
SM2T27A	MUJ

Table 2: Absolute Ratings (T_{amb} = 25°C)

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

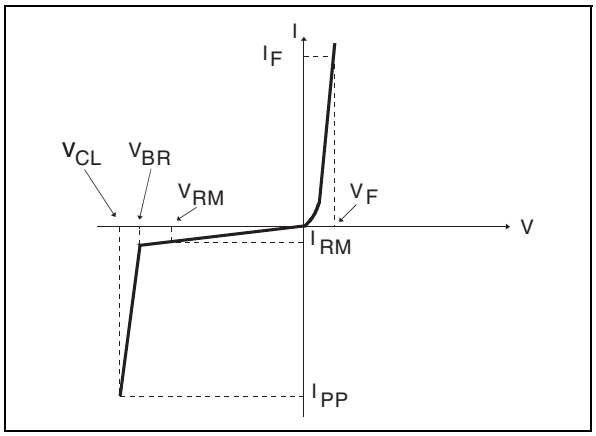
Note 1: 10/1000µs pulse waveform.

Table 3: Thermal Resistances

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

Table 4: Electrical Characteristics (T_{amb} = 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
αT	Voltage temperature coefficient
V_F	Forward voltage drop



Types	I_{RM} @ V_{RM}		V_{BR} @ I_R		V_{CL} @ I_{PP} note1		αT	C
	max		min		max		max	typ @ 0V
	µA	V	V	mA	V	A	10^{-4}/°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: 10/1000µs pulse waveform.

Figure 1: Peak pulse power versus exponential pulse duration

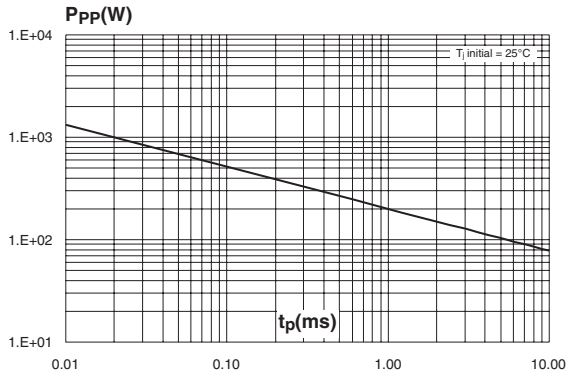


Figure 2: Relative variation of peak pulse power versus initial junction temperature

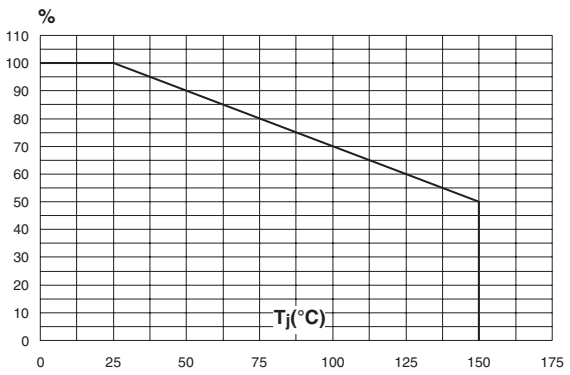


Figure 3: Average power dissipation versus ambient temperature

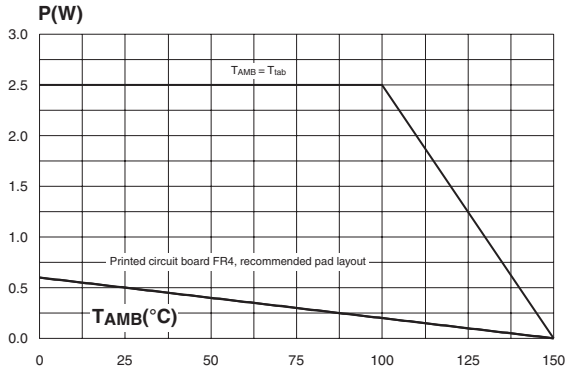


Figure 4: Variation of thermal impedance junction to ambient versus pulse duration

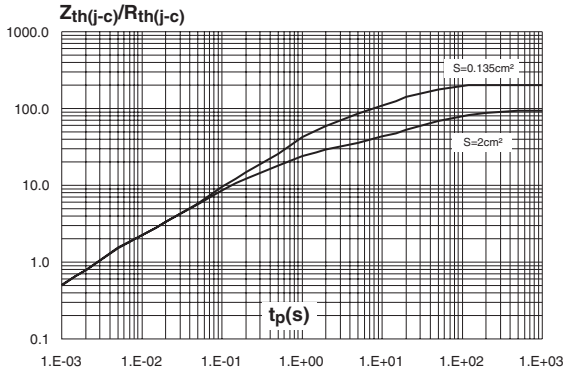


Figure 5: Thermal resistance junction to ambient versus copper surface under tab

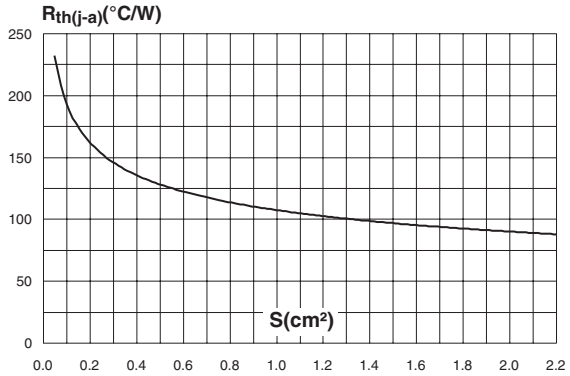


Figure 6: Reverse leakage current versus junction temperature (typical values)

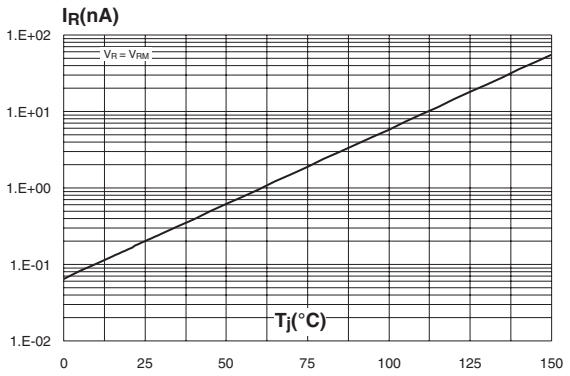


Figure 7: Clamping voltage versus peak pulse current (maximum values)

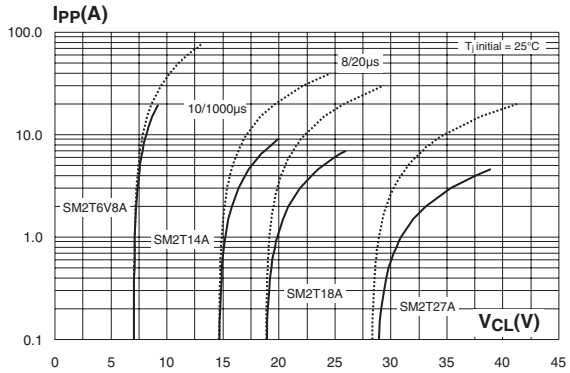


Figure 8: Junction capacitance versus reverse voltage applied (typical values)

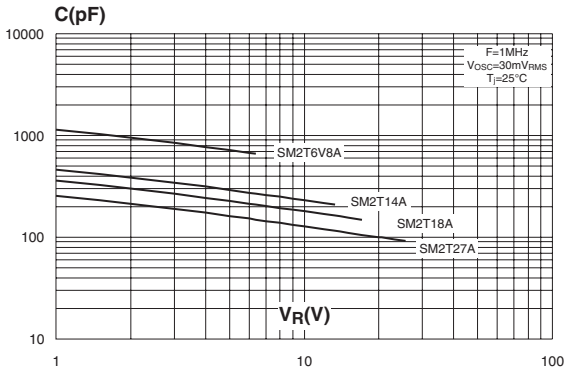


Fig. 9: Forward voltage drop versus forward current (typical values)

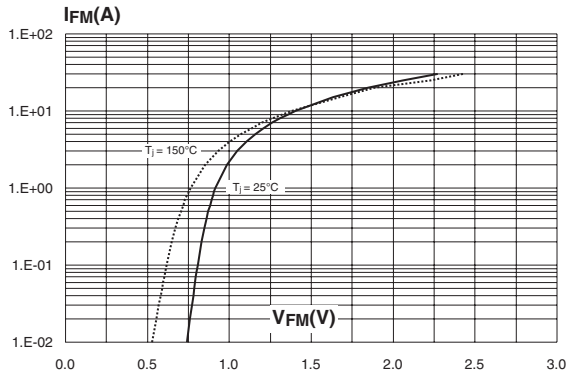
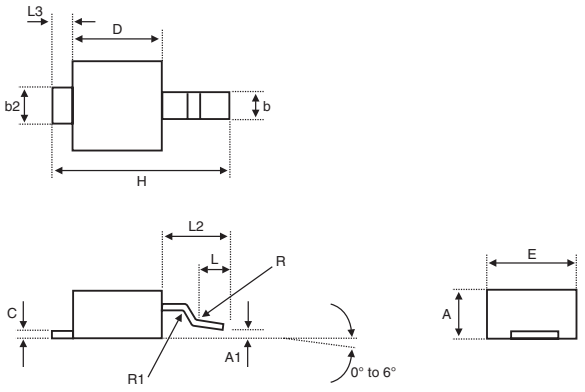


Figure 10: STmite Package Mechanical Data



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	0.85	1.00	1.15	0.033	0.039	0.045
A1			0.10			0.004
b	0.40		0.65	0.016		0.025
b2	0.70		1.00	0.027		0.039
c	0.10		0.25	0.004		0.010
D	1.75	1.90	2.05	0.069	0.007	0.081
E	1.75	1.90	2.05	0.069	0.007	0.081
H	3.60	3.75	3.90	0.142	0.148	0.154
L	0.50	0.63	0.80	0.020	0.025	0.031
L2	1.20	1.35	1.50	0.047	0.053	0.059
L3		0.50 ref			0.019 ref	
R	0.07			0.003		
R1	0.07			0.003		

Figure 11: STmite Foot Print Dimensions
(in millimeters)

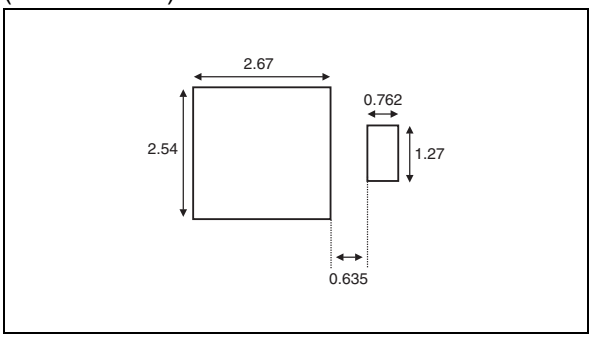


Table 5: Ordering Information

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.