Table 4: Thermal Resistance

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case	20	°C/W
$R_{th(j-l)}$*	Junction to ambient	250	°C/W

* Mounted with minimum recommended pad size, PC board FR4.

Table 5: Static Electrical Characteristics

Symbol	Parameter	Tests conditions		Min.	Typ	Max.	Unit
I_R *	Reverse leakage current	T_j = 25°C	$V_R = V_{RRM}$		0.015	0.075	mA
		T_j = 85°C			0.9	4.5	
		T_j = 25°C	V_R = 10V		0.005	0.035	
		T_j = 85°C			0.45	2.5	
		T_j = 25°C	V_R = 5V		0.003	0.025	
		T_j = 85°C			0.3	1.6	
V_F *	Forward voltage drop	T_j = 25°C	I_F = 1A		0.38	0.43	V
		T_j = 85°C			0.32	0.37	
		T_j = 25°C	I_F = 3A		0.46	0.53	
		T_j = 85°C			0.42	0.49	

Pulse test: * tp = 380 µs, δ < 2%

To evaluate the conduction losses use the following equation: $P = 0.31 \times I_{F(AV)} + 0.06\ I_F{}^2{}_{(RMS)}$

Figure 1: Conduction losses versus average current

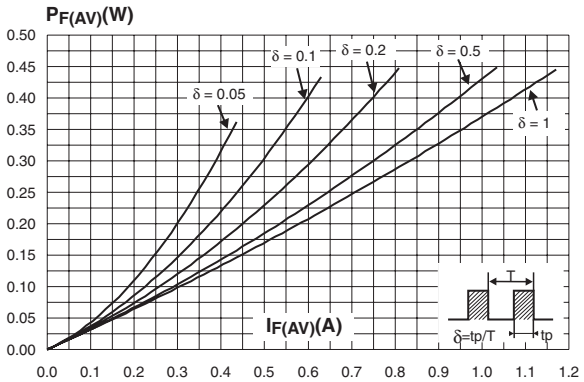


Figure 2: Average forward current versus ambient temperature (δ = 0.5)

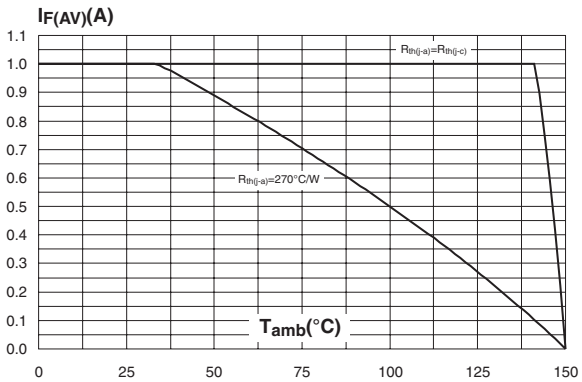


Figure 3: Normalized avalanche power derating versus pulse duration

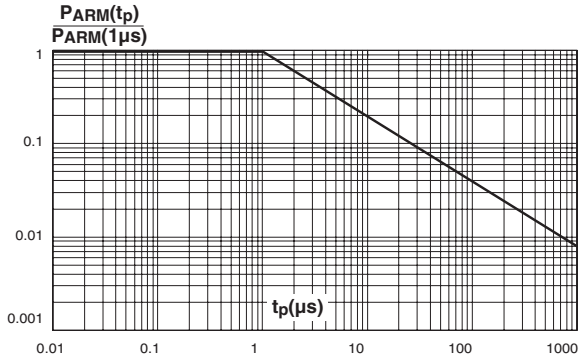


Figure 4: Normalized avalanche power derating versus junction temperature

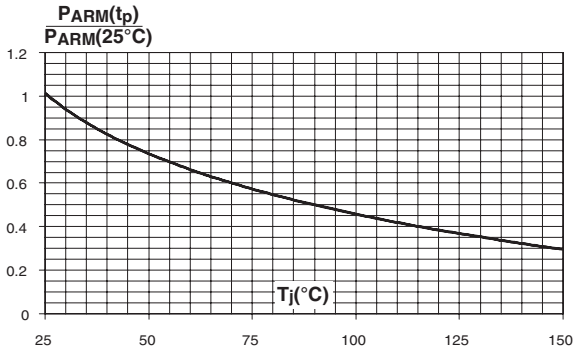


Figure 5: Non repetitive surge peak forward current versus overload duration (maximum values)

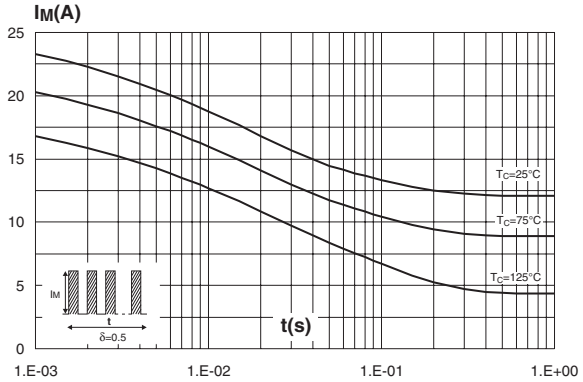


Figure 6: Relative variation of thermal impedance junction to ambient versus pulse duration

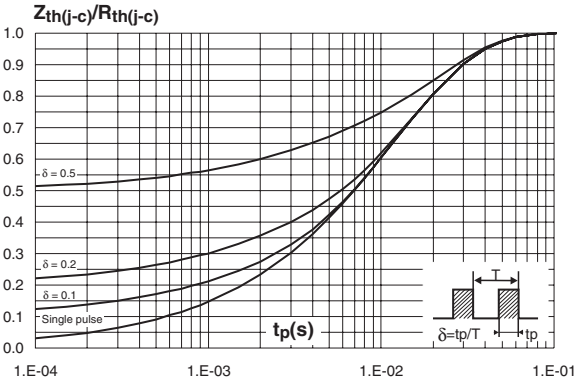


Figure 7: Reverse leakage current versus reverse voltage applied (typical values)

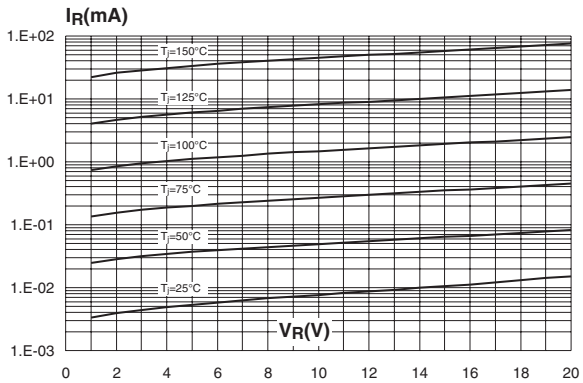


Figure 8: Reverse leakage current versus junction temperature (typical values)

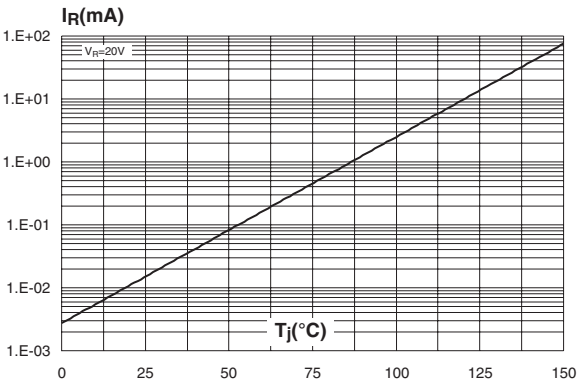


Figure 9: Junction capacitance versus reverse voltage applied (typical values)

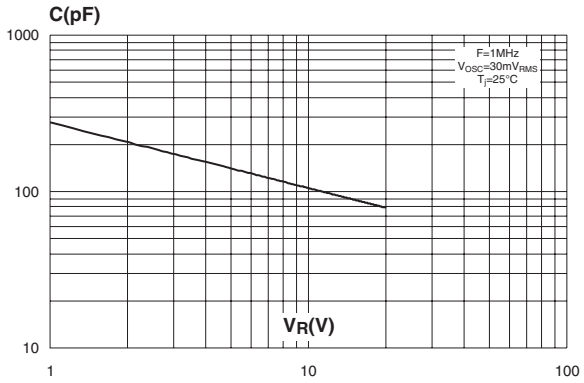


Figure 10: Forward voltage drop versus forward current

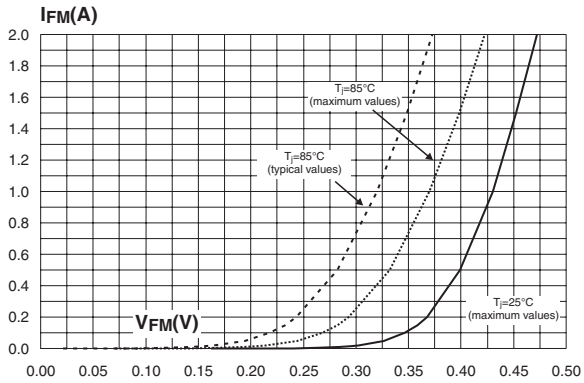


Figure 11: Thermal resistance junction to ambient versus copper surface under tab (epoxy printed board FR4, Cu = 35µm, typical values)

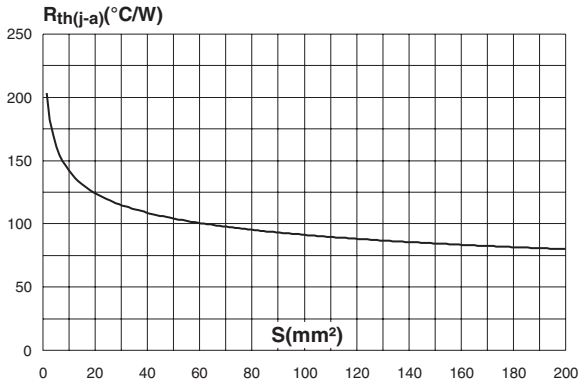
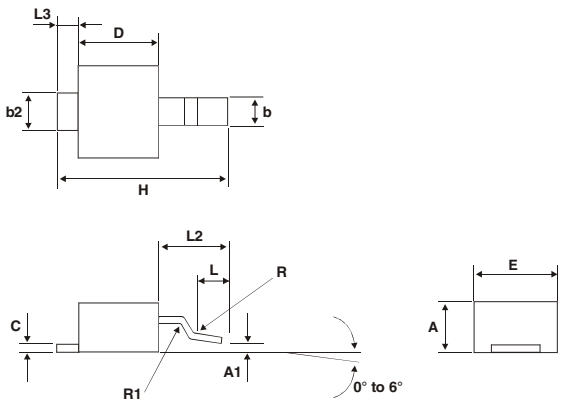


Figure 12: STmite Package Mechanical Data



REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	0.85	1.00	1.15	0.033	0.039	0.045
A1	-0.05		0.05	-0.002		0.002
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 13: Foot Print Dimensions (in millimeters)

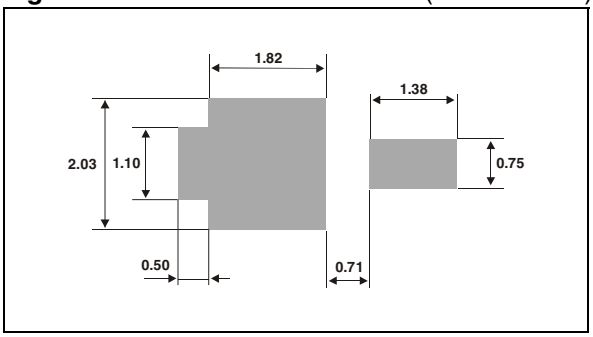


Table 6: Ordering Information

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS1L20M	1L2	STmite	15.5 mg	12000	Tape & reel

Table 7: Revision History

Date	Revision	Description of Changes
Jul-2003	2A	Last update.
13-Sep-2004	3	STmite package dimensions reference A1 change: from blank (min) to -0.05mm and from 0.10 (max) to 0.05mm.
29-Nov-2005	4	Page 2, table 5: conduction losses evaluation values changed: . From $P = 0.34 \times I_{F(AV)} + 0.07\ I_F{}^2{}_{(RMS)}$. To $P = 0.31 \times I_{F(AV)} + 0.06\ I_F{}^2{}_{(RMS)}$