

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to ambient	TO-220AB / D ² PAK / I ² PAK	Per diode	1.6
		TO-220FPAB		4
		TO-220AB / D ² PAK / I ² PAK	Total	1.1
		TO-220FPAB		3.5
$R_{th(c)}$		TO-220AB / D ² PAK / I ² PAK	Coupling	0.6
		TO-220FPAB		3

When the diodes 1 and 2 are used simultaneously :

$$\Delta T_j(\text{diode 1}) = P(\text{diode 1}) \times R_{th(j-c)}(\text{Per diode}) + P(\text{diode 2}) \times R_{th(c)}$$

STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I_R^*	Reverse leakage Current	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			3.6	μA
		$T_j = 125^\circ\text{C}$			1.6	5	mA
V_F^{**}	Forward Voltage drop	$T_j = 25^\circ\text{C}$	$I_F = 8\text{ A}$			0.77	V
		$T_j = 125^\circ\text{C}$	$I_F = 8\text{ A}$		0.59	0.64	
		$T_j = 25^\circ\text{C}$	$I_F = 16\text{ A}$			0.88	
		$T_j = 125^\circ\text{C}$	$I_F = 16\text{ A}$		0.67	0.73	

Pulse test : * $t_p = 5\text{ ms}$, $\delta < 2\%$

** $t_p = 380\text{ }\mu\text{s}$, $\delta < 2\%$

To evaluate the conduction losses use the following equation :

$$P = 0.55 \times I_{F(AV)} + 0.011 \times I_{F(RMS)}^2$$

Fig. 1: Conduction losses versus average current.

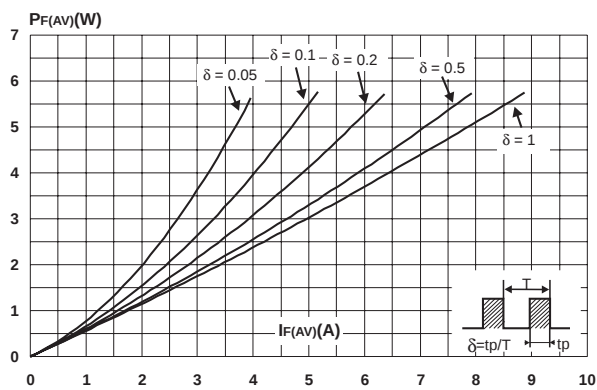


Fig. 2: Average forward current versus ambient temperature ($\delta=0.5$).

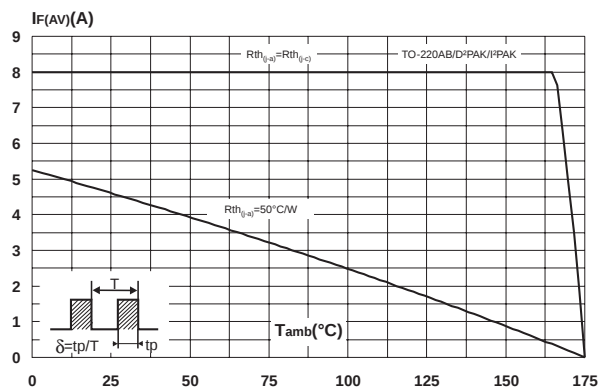


Fig. 3: Normalized avalanche power derating versus pulse duration.

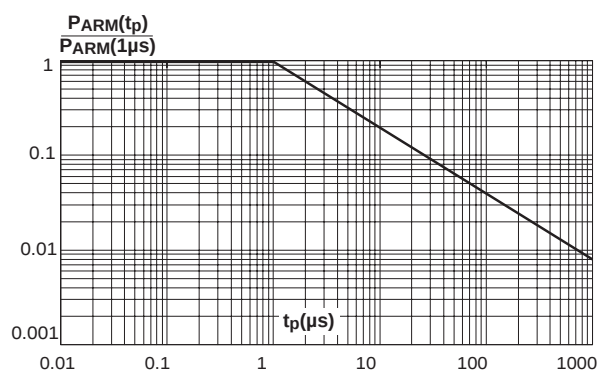


Fig. 4: Normalized avalanche power derating versus junction temperature.

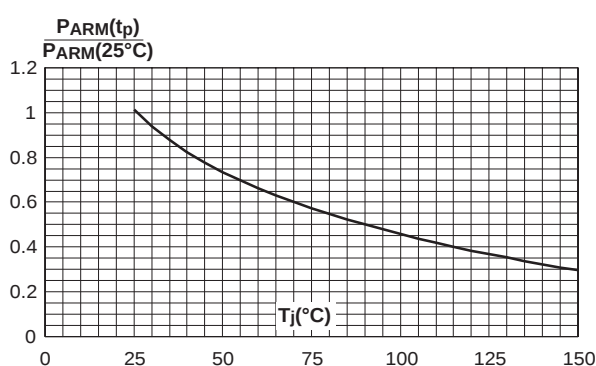


Fig. 5-1: Non repetitive surge peak forward current versus overload duration (maximum values) (TO-220AB, D²PAK, I²PAK).

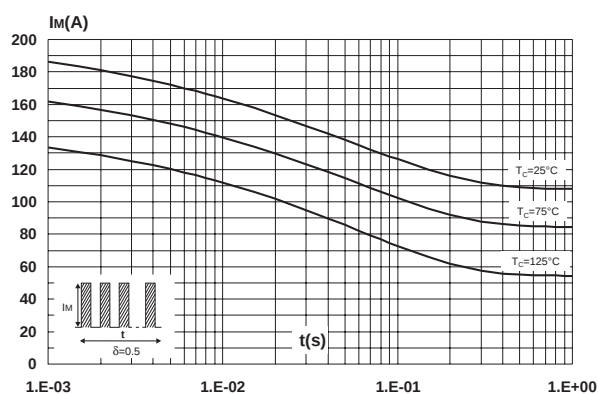


Fig. 5-2: Non repetitive surge peak forward current versus overload duration (maximum values) (TO-220FPAB).

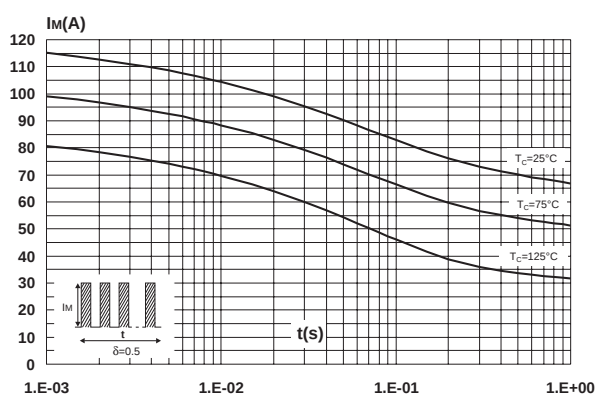


Fig. 6-1: Relative variation of thermal impedance junction to case versus pulse duration (TO-220AB, D²PAK & I²PAK).

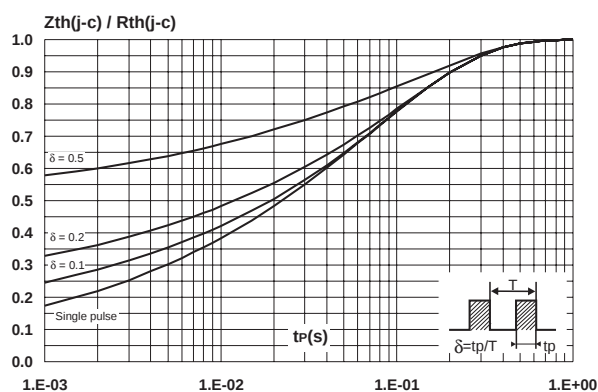


Fig. 6-2: Relative variation of thermal impedance junction to case versus pulse duration (TO-220FPAB).

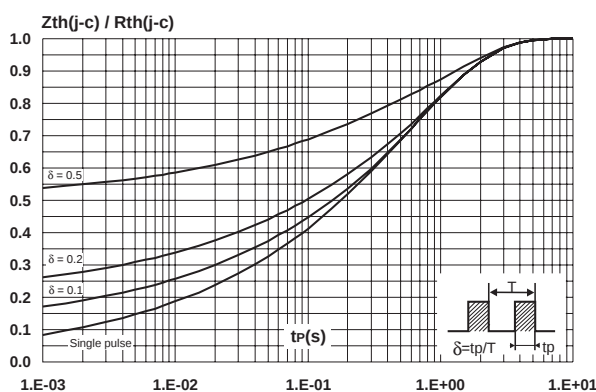


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values).

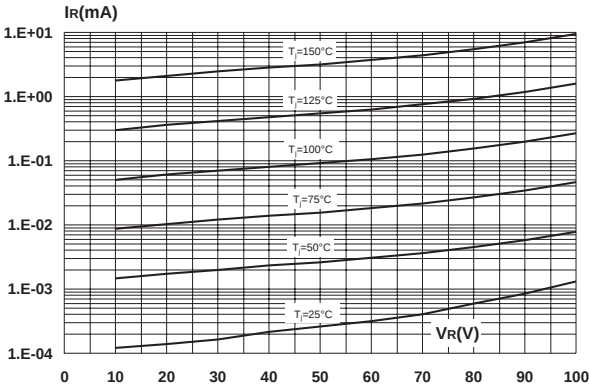


Fig. 8: Junction capacitance versus reverse voltage applied (typical values).

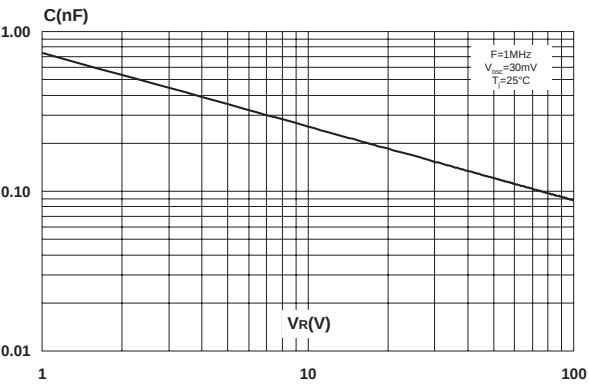


Fig. 9: Forward voltage drop versus forward current.

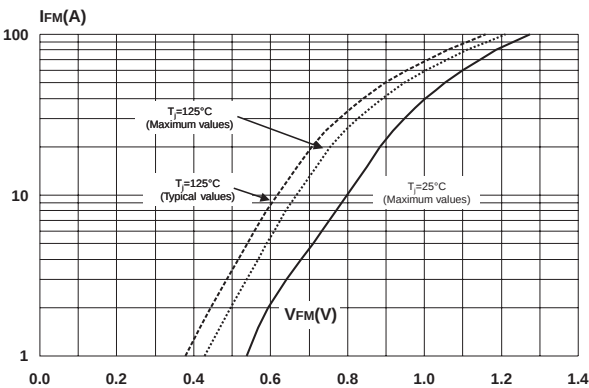
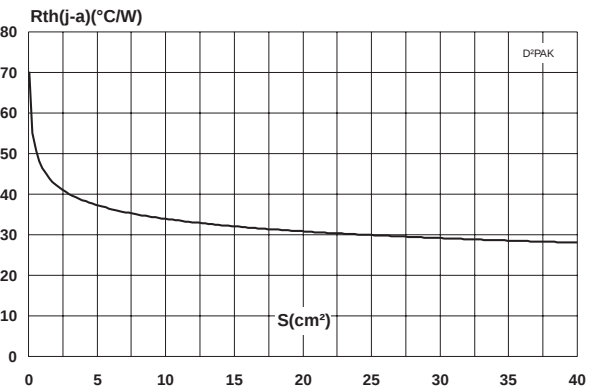
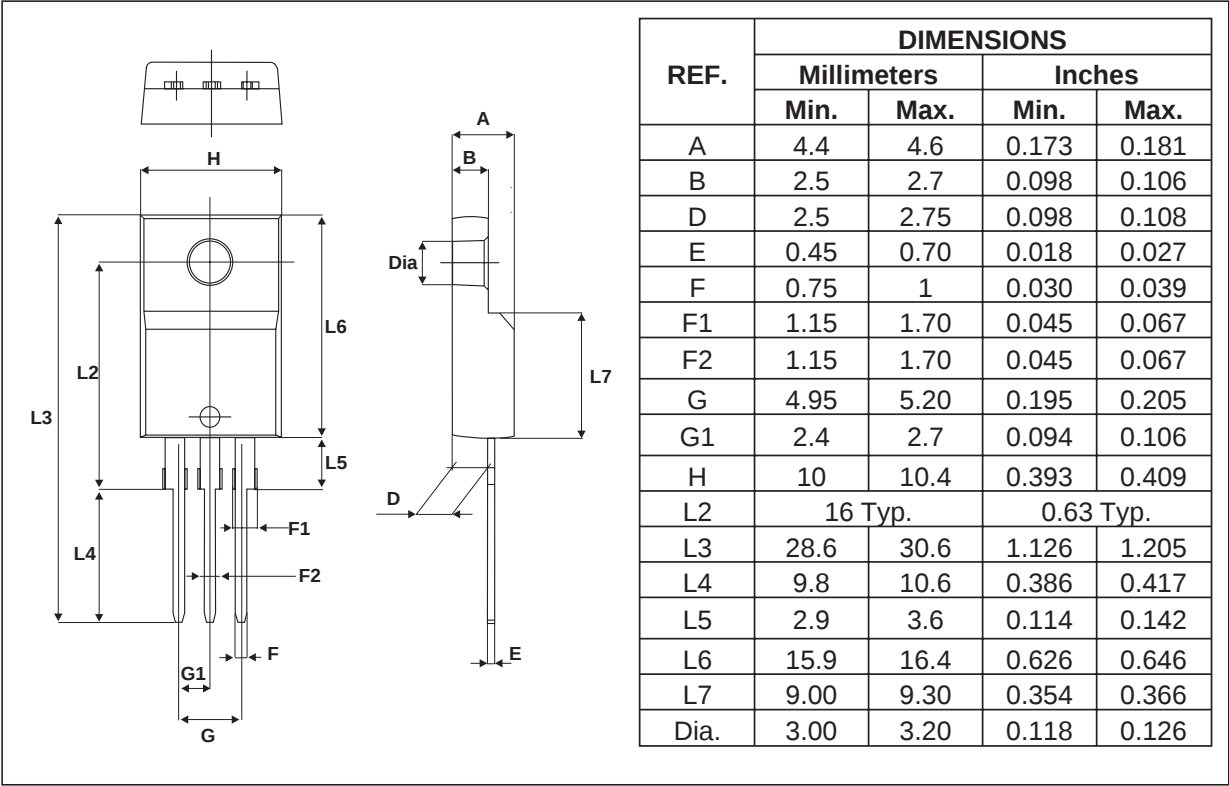


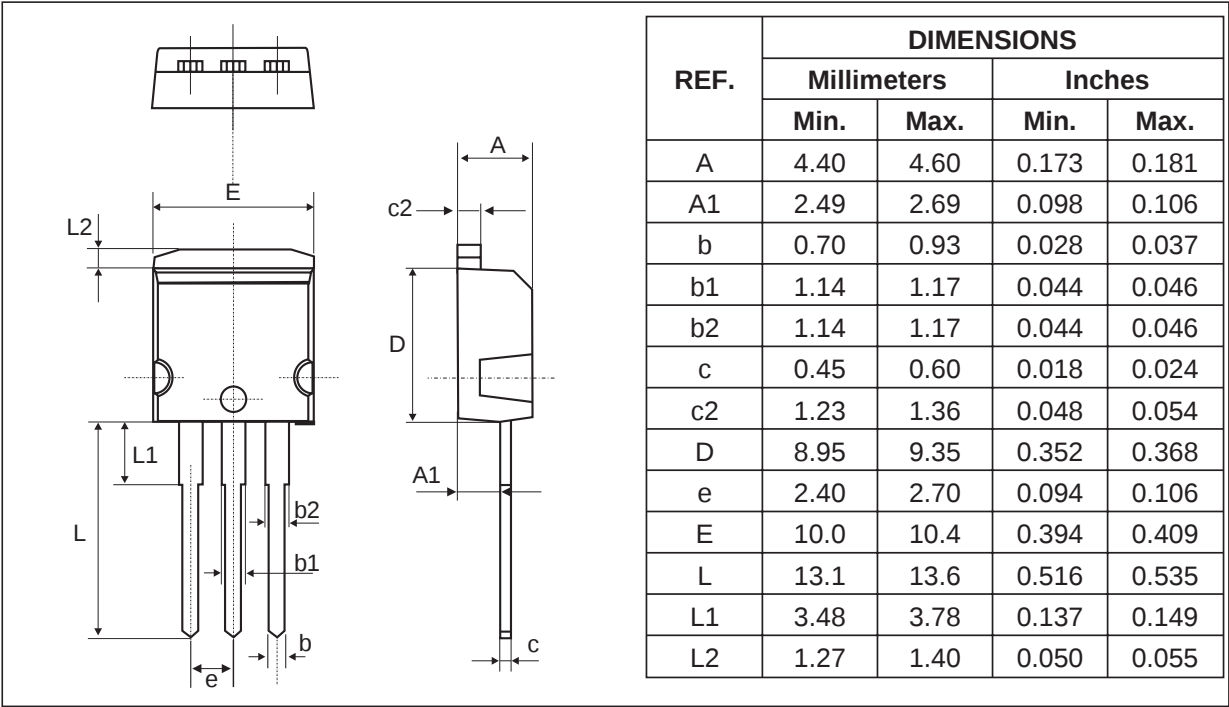
Fig. 10: Thermal resistance junction to ambient versus copper surface under tab (epoxy printed board FR4, Cu = 35μm).



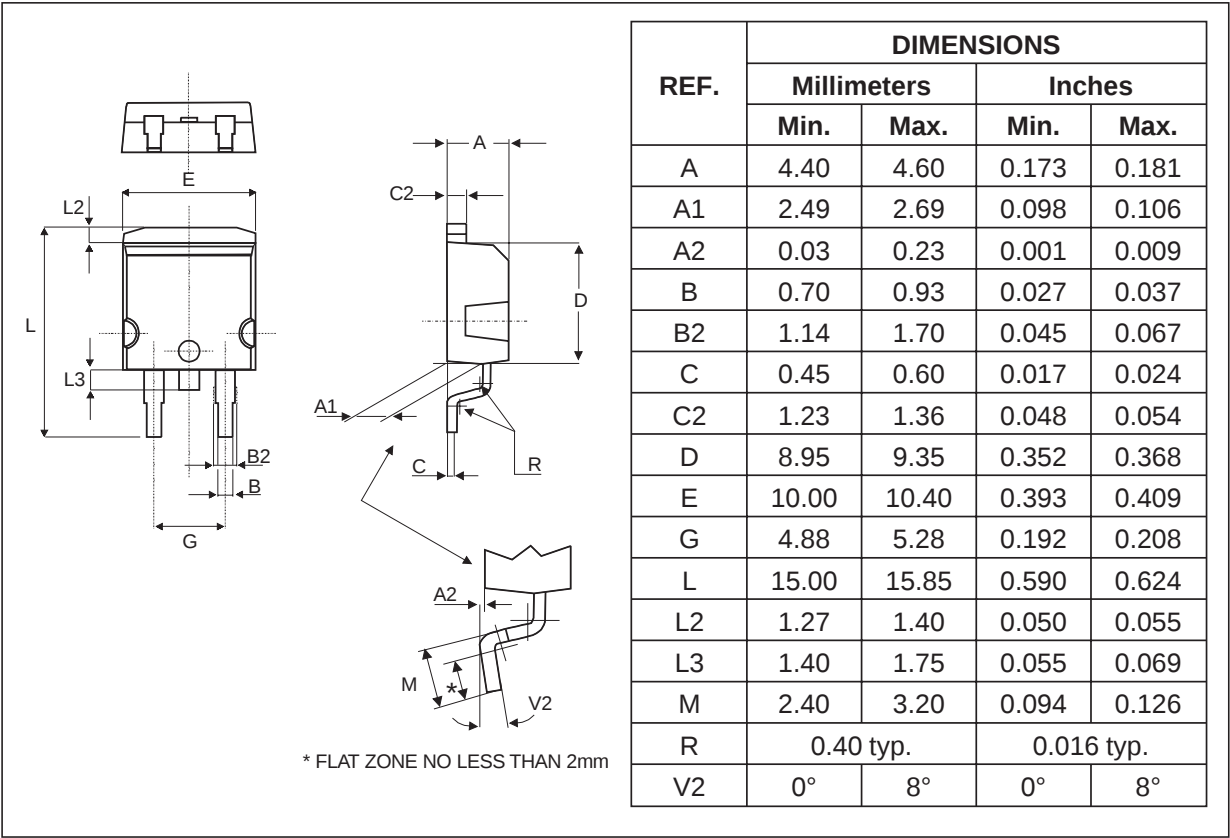
PACKAGE MECHANICAL DATA
TO-220FPAB



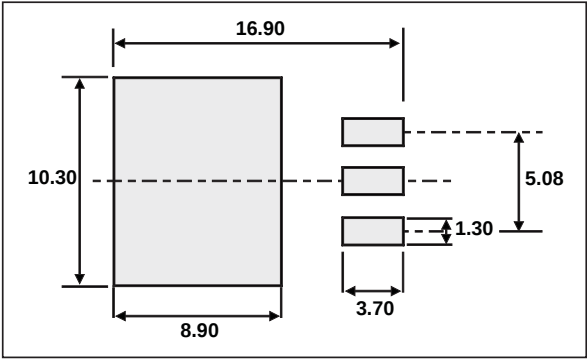
PACKAGE MECHANICAL DATA
I²PAK



PACKAGE MECHANICAL DATA
D²PAK



FOOTPRINT



PACKAGE MECHANICAL DATA
 TO-220AB

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.40	4.60	0.173	0.181
C	1.23	1.32	0.048	0.051
D	2.40	2.72	0.094	0.107
E	0.49	0.70	0.019	0.027
F	0.61	0.88	0.024	0.034
F1	1.14	1.70	0.044	0.066
F2	1.14	1.70	0.044	0.066
G	4.95	5.15	0.194	0.202
G1	2.40	2.70	0.094	0.106
H2	10	10.40	0.393	0.409
L2	16.4 typ.		0.645 typ.	
L4	13	14	0.511	0.551
L5	2.65	2.95	0.104	0.116
L6	15.25	15.75	0.600	0.620
L7	6.20	6.60	0.244	0.259
L9	3.50	3.93	0.137	0.154
M	2.6 typ.		0.102 typ.	
Diam.	3.75	3.85	0.147	0.151

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS16H100CT	STPS16H100CT	TO-220AB	2.20 g	50	Tube
STPS16H100CFP	STPS16H100CFP	TO-220FPAB	2.0 g	50	Tube
STPS16H100CG	STPS16H100CG	D ² PAK	1.48 g	50	Tube
STPS16H100CG-TR	STPS16H100CG	D ² PAK	1.48 g	1000	Tape & reel
STPS16H100CR	STPS16H100CR	I ² PAK	1.9 g	50	Tube

■ EPOXY MEETS UL94,V0

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