

HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

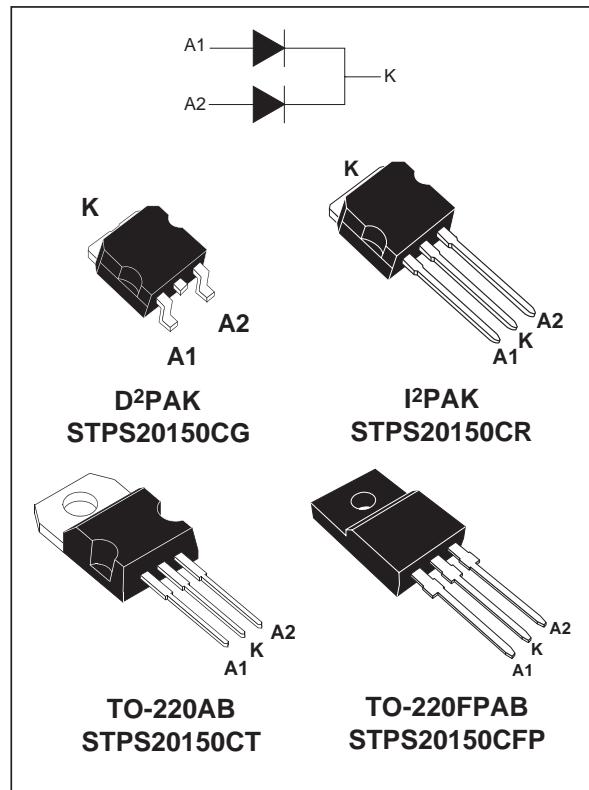
$I_{F(AV)}$	2 x 10 A
V_{RRM}	150 V
T_j	175°C
V_F (max)	0.75 V

FEATURES AND BENEFITS

- HIGH JUNCTION TEMPERATURE CAPABILITY
- GOOD TRADE OFF BETWEEN LEAKAGE CURRENT AND FORWARD VOLTAGE DROP
- LOW LEAKAGE CURRENT
- AVALANCHE CAPABILITY SPECIFIED

DESCRIPTION

Dual center tap schottky rectifier designed for high frequency Switched Mode Power Supplies.



ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter				Value	Unit
V_{RRM}	Repetitive peak reverse voltage				150	V
$I_{F(RMS)}$	RMS forward current				30	A
$I_{F(AV)}$	$\delta = 0.5$	TO-220AB D ² PAK / I ² PAK	$T_c = 155^\circ\text{C}$	Per diode	10	A
		TO-220FPAB	$T_c = 135^\circ\text{C}$	Per device	20	
I_{FSM}	Surge non repetitive forward current		$t_p = 10 \text{ ms sinusoidal}$		180	A
P_{ARM}	Repetitive peak avalanche power		$t_p = 1\mu\text{s}$	$T_j = 25^\circ\text{C}$	6700	W
T_{stg}	Storage temperature range				- 65 to + 175	°C
T_j	Maximum operating junction temperature				175	°C
dV/dt	Critical rate of rise of reverse voltage				10000	V/ μs

STPS20150CT/CG/CR/CFP

THERMAL RESISTANCES

Symbol	Parameter			Value	Unit
$R_{th(j-c)}$	Junction to case	TO-220AB / D ² PAK / I ² PAK	Per diode	2.2	°C/W
		TO-220FPAB		4.5	
		TO-220AB / D ² PAK / I ² PAK	Total	1.3	
		TO-220FPAB		3.5	
		TO-220AB / D ² PAK / I ² PAK	Coupling	0.3	
		TO-220FPAB		2.5	

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	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			5.0	μA
		$T_j = 125^\circ\text{C}$				5.0	mA
V_F **	Forward voltage drop	$T_j = 25^\circ\text{C}$	$I_F = 10 \text{ A}$			0.92	V
		$T_j = 125^\circ\text{C}$	$I_F = 10 \text{ A}$		0.69	0.75	
		$T_j = 25^\circ\text{C}$	$I_F = 20 \text{ A}$			1	
		$T_j = 125^\circ\text{C}$	$I_F = 20 \text{ A}$		0.79	0.86	

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:

$$P = 0.64 \times I_{F(AV)} + 0.011 I_F^2(\text{RMS})$$

Fig. 1: Average forward power dissipation versus average forward current (per diode).

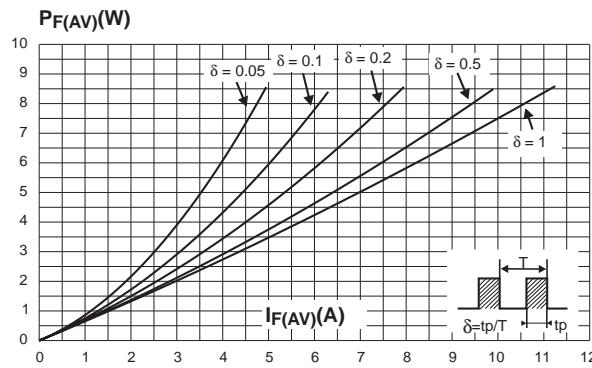


Fig. 2: Average forward current versus ambient temperature ($\delta = 0.5$, per diode).

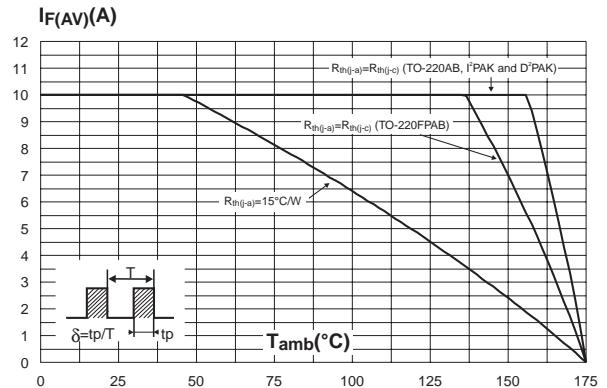


Fig. 3: Normalized avalanche power derating versus pulse duration.

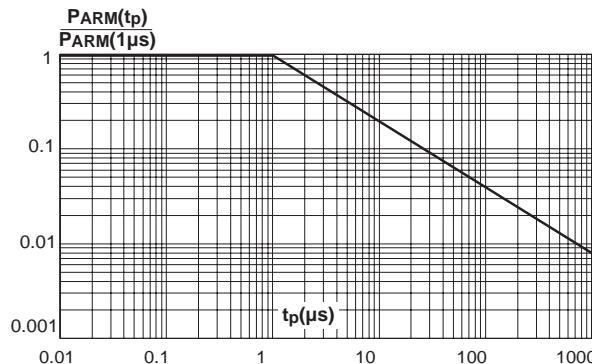


Fig. 4: Normalized avalanche power derating versus junction temperature.

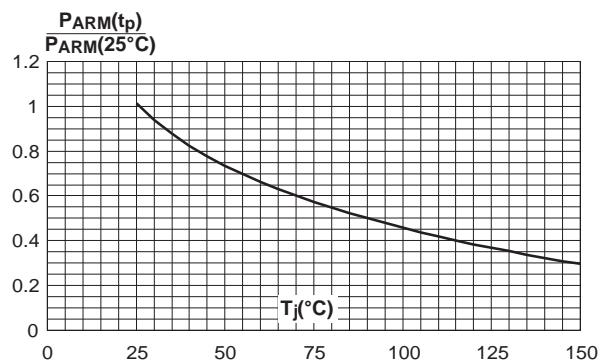


Fig. 5-1: Non repetitive surge peak forward current versus overload duration (maximum values, per diode). TO-220AB, i²PAK and D²PAK

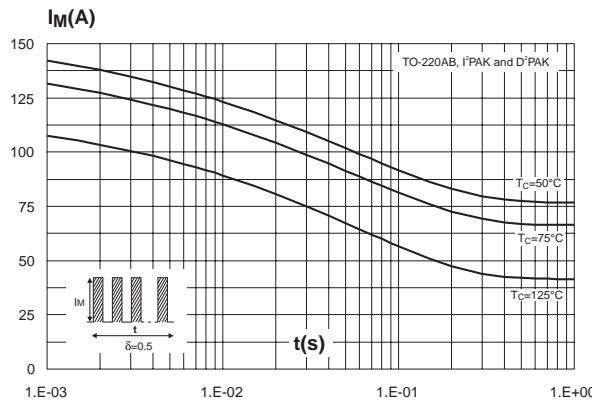
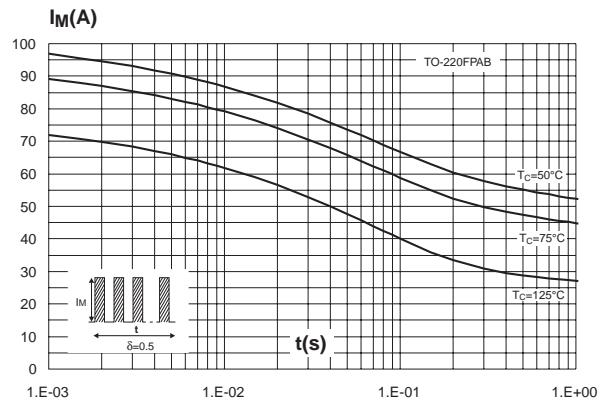
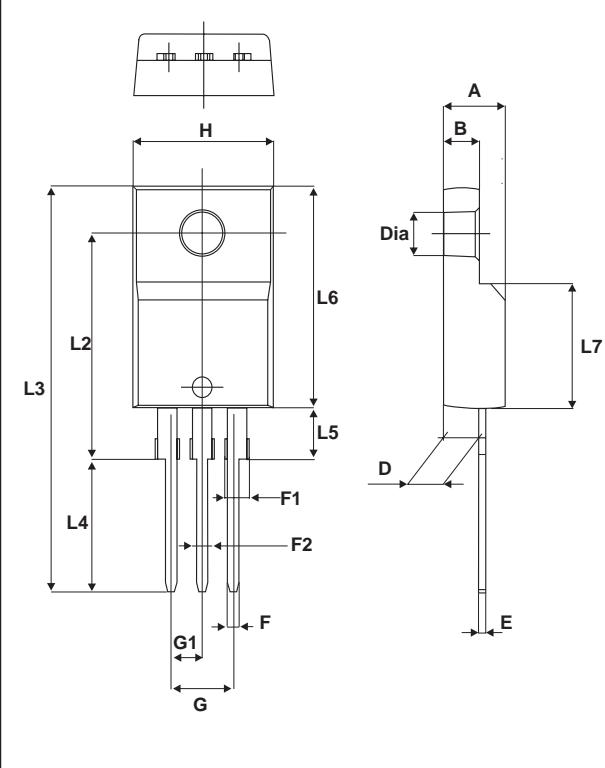


Fig. 5-2: Non repetitive surge peak forward current versus overload duration (maximum values, per diode). TO-220FPAB



PACKAGE MECHANICAL DATA
TO-220FPAB



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.4	4.6	0.173	0.181
B	2.5	2.7	0.098	0.106
D	2.5	2.75	0.098	0.108
E	0.45	0.70	0.018	0.027
F	0.75	1	0.030	0.039
F1	1.15	1.70	0.045	0.067
F2	1.15	1.70	0.045	0.067
G	4.95	5.20	0.195	0.205
G1	2.4	2.7	0.094	0.106
H	10	10.4	0.393	0.409
L2	16 Typ.		0.63 Typ.	
L3	28.6	30.6	1.126	1.205
L4	9.8	10.6	0.386	0.417
L5	2.9	3.6	0.114	0.142
L6	15.9	16.4	0.626	0.646
L7	9.00	9.30	0.354	0.366
Dia.	3.00	3.20	0.118	0.126

OTHER INFORMATION

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS20150CT	STPS20150CT	TO-220AB	2.20 g	50	Tube
STPS20150CG	STPS20150CG	D ² PAK	1.48 g	50	Tube
STPS20150CG-TR	STPS20150CG	D ² PAK	1.48 g	1000	Tape & Reel
STPS20150CR	STPS20150CR	I ² PAK	1.49 g	50	Tube
STPS20150CFP	STPS20150CFP	TO-220FPAB	2.0 g	50	Tube

- EPOXY MEETS UL94,V0