



STPS10150CT/CG

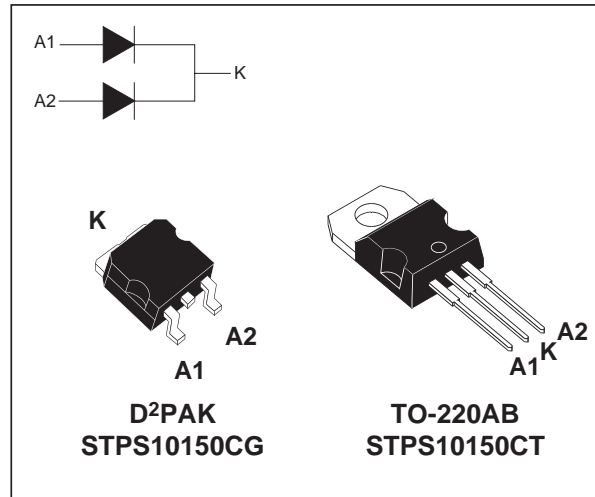
HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 x 5 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			10	A
$I_{F(AV)}$	Average forward current $\delta = 0.5$	TO-220AB D²PAK	$T_c = 155^\circ\text{C}$ per diode per device	5 10	A
I_{FSM}	Surge non repetitive forward current		$t_p = 10\text{ ms}$ sinusoidal	120	A
P_{ARM}	Repetitive peak avalanche power		$t_p = 1\mu\text{s}$ $T_j = 25^\circ\text{C}$	3100	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

STPS10150CT/CG

THERMAL RESISTANCES

Symbol	Parameter			Value	Unit
$R_{th(j-c)}$	Junction to case	TO-220AB / D ² PAK	Per diode	4	°C/W
		TO-220AB / D ² PAK	Total	2.4	
$R_{th(c)}$		TO-220AB / D ² PAK	Coupling	0.7	

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	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			2.0	μA
		$T_j = 125^\circ\text{C}$			0.40	2.0	mA
V_F^{**}	Forward voltage drop	$T_j = 25^\circ\text{C}$	$I_F = 5\text{ A}$			0.92	V
		$T_j = 125^\circ\text{C}$	$I_F = 5\text{ A}$		0.69	0.75	
		$T_j = 25^\circ\text{C}$	$I_F = 10\text{ A}$			1	
		$T_j = 125^\circ\text{C}$	$I_F = 10\text{ A}$		0.79	0.85	

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:

$$P = 0.65 I_{F(AV)} + 0.02 I_{F(RMS)}^2$$

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

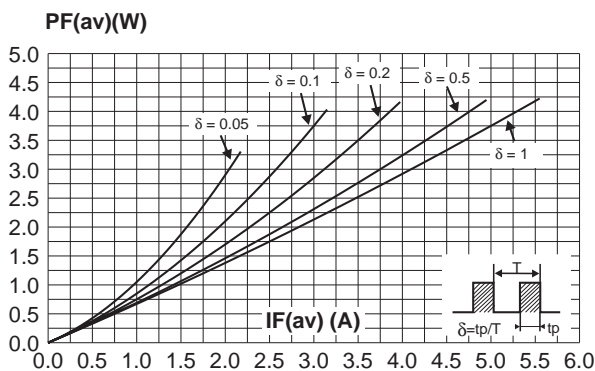


Fig. 2: Average forward current versus ambient temperature ($\delta = 0.5$, per diode).

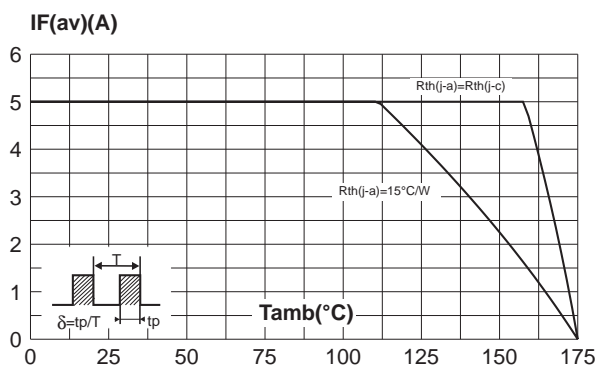


Fig. 3: Normalized avalanche power derating versus pulse duration.

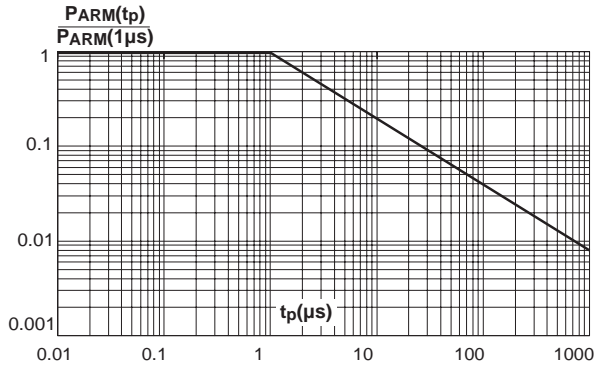


Fig. 4: Normalized avalanche power derating versus junction temperature.

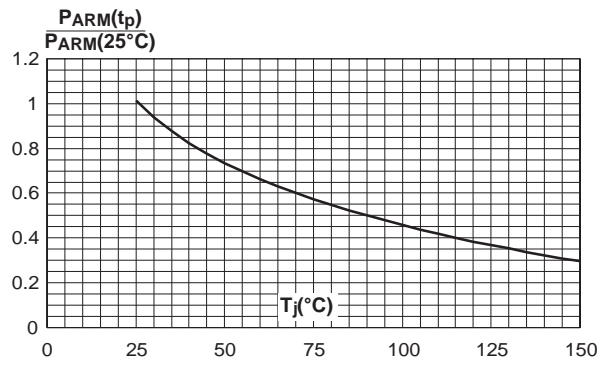


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values, per diode).

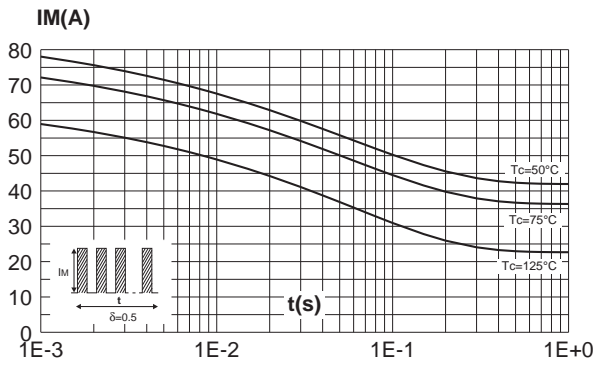


Fig. 6: Relative variation of thermal impedance junction to case versus pulse duration (per diode).

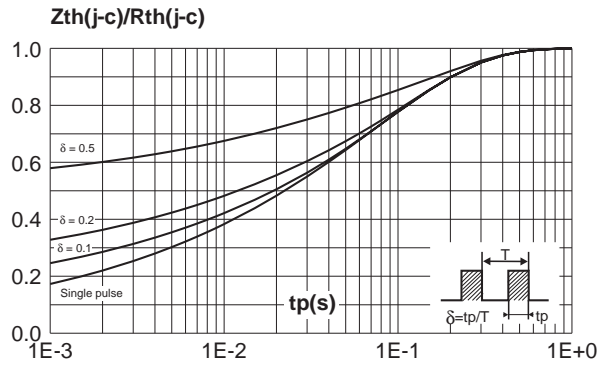


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values, per diode)

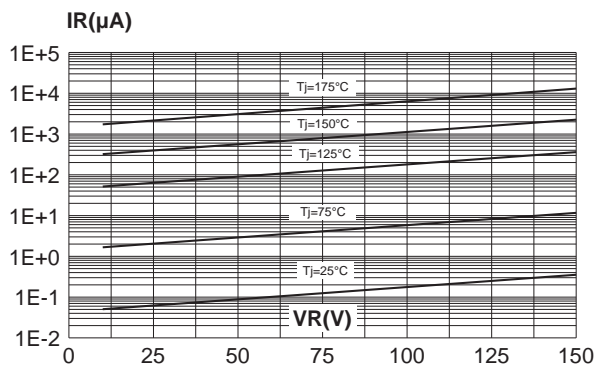
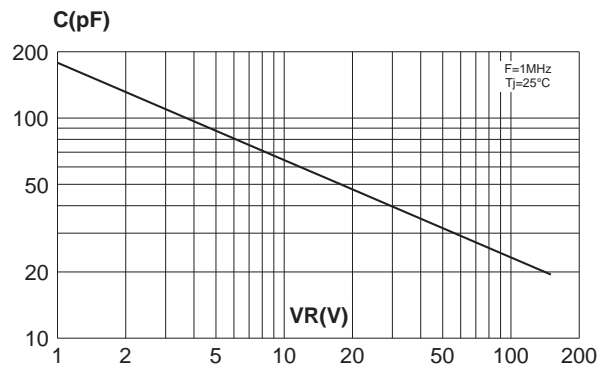


Fig. 8: Junction capacitance versus reverse voltage applied (typical values, per diode).



STPS10150CT/CG

Fig. 9: Forward voltage drop versus forward current (maximum values, per diode).

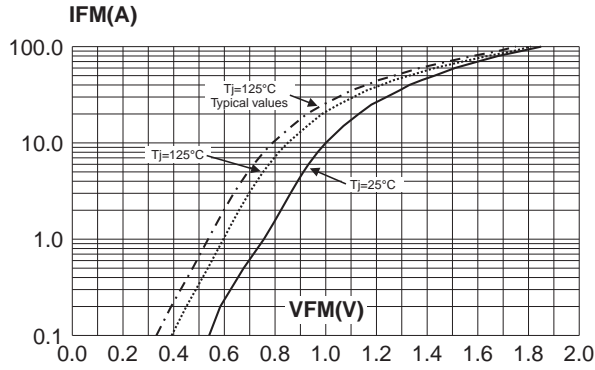
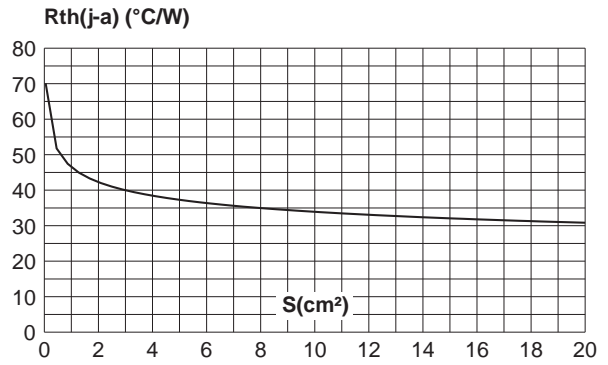
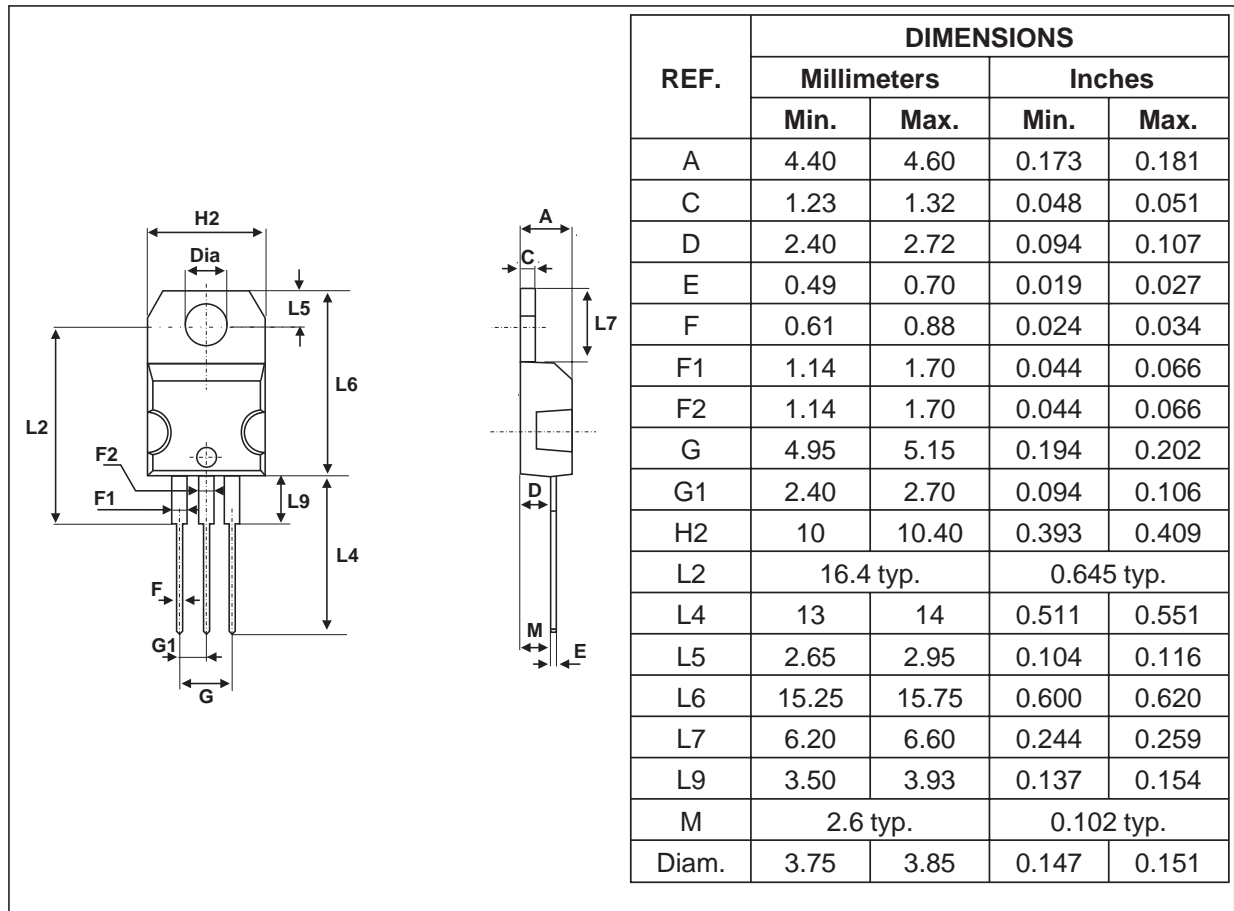


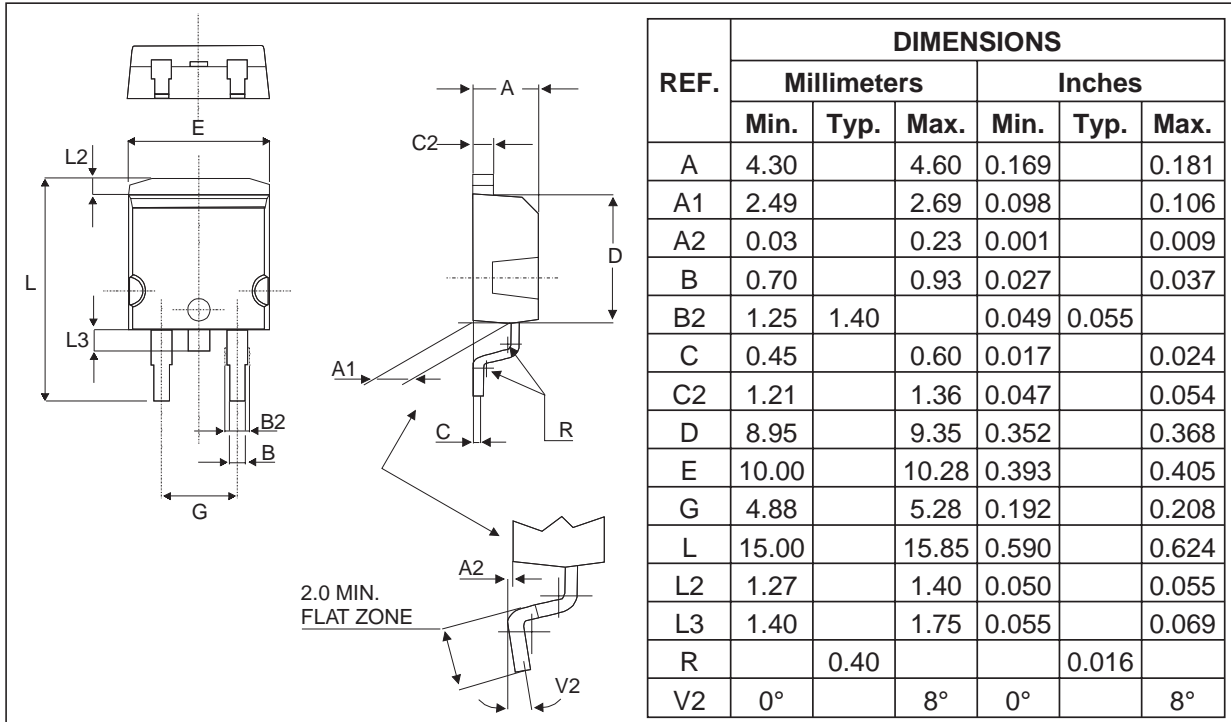
Fig. 10: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board, copper thickness: 35µm) (STPS10150CG only).



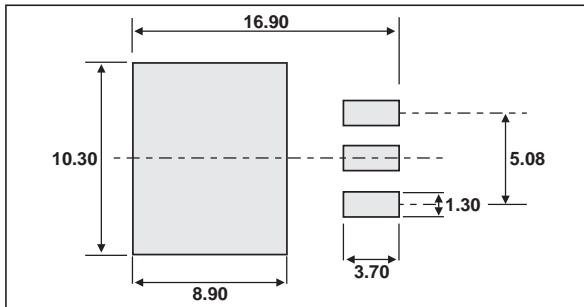
PACKAGE MECHANICAL DATA TO-220AB



PACKAGE MECHANICAL DATA
D²PAK



FOOT PRINT DIMENSIONS (in millimeters)



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS10150CT	STPS10150CT	TO-220AB	2.2 g	50	Tube
STPS10150CG	STPS10150CG	D ² PAK	1.48 g	50	Tube
STPS10150CG-TR	STPS10150CG	D ² PAK	1.48 g	1000	Tape & reel

■ EPOXY MEETS UL94, V0

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