



STPS10150CT/CG

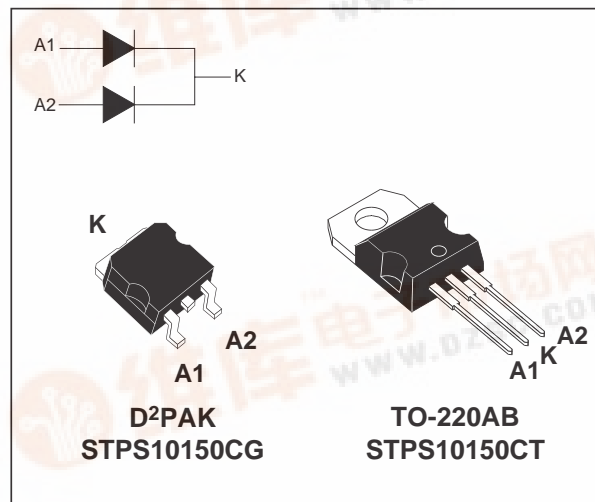
HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

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	

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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).

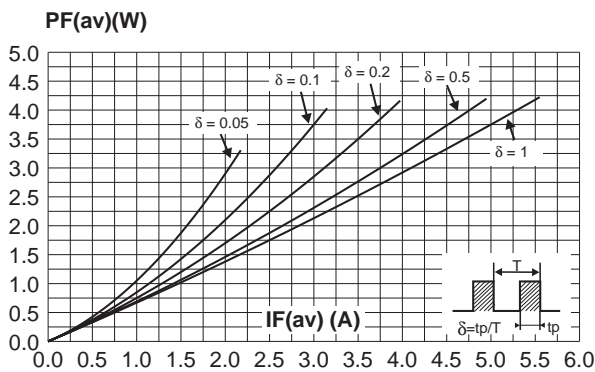


Fig. 2: Average forward current versus ambient temperature ($\delta = 0.5$, per diode).

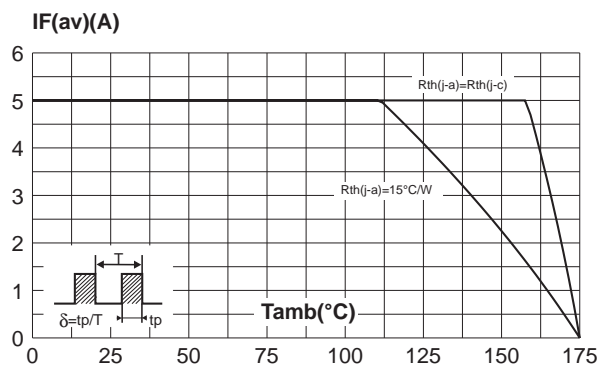


Fig. 3: Normalized avalanche power derating versus pulse duration.

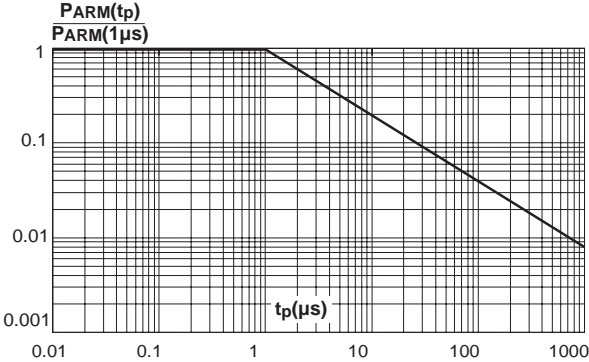


Fig. 4: Normalized avalanche power derating versus junction temperature.

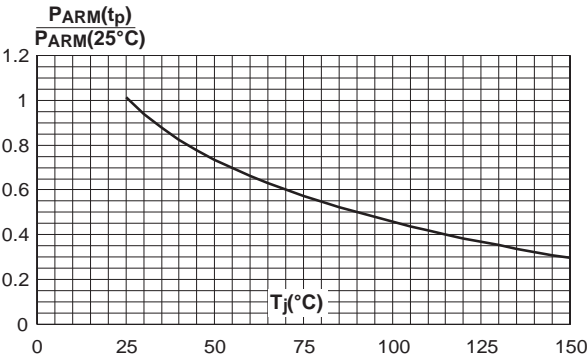


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values, per diode).

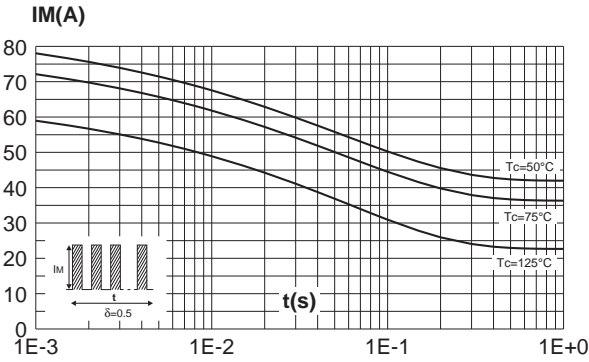


Fig. 6: Relative variation of thermal impedance junction to case versus pulse duration (per diode).

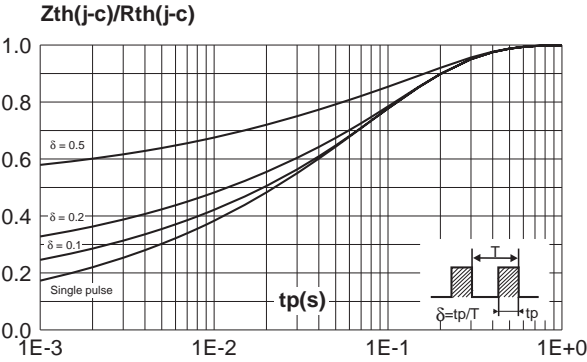


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values, per diode)

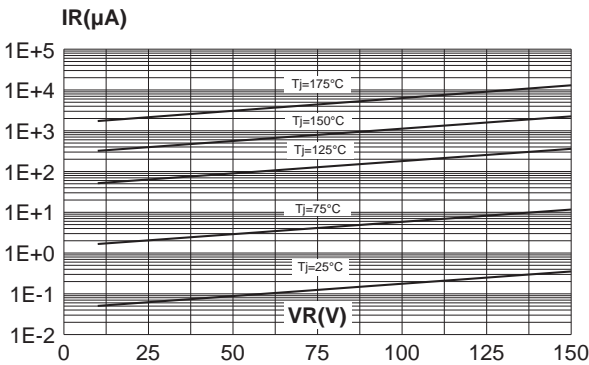
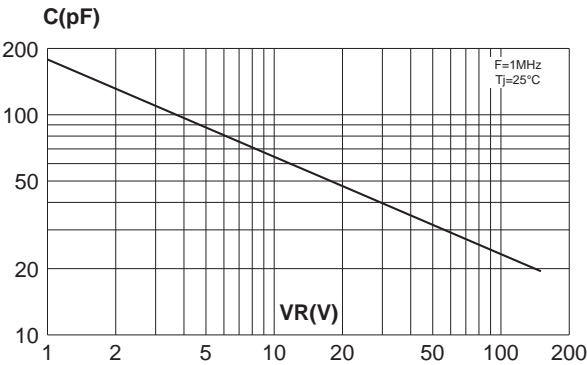


Fig. 8: Junction capacitance versus reverse voltage applied (typical values, per diode).



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

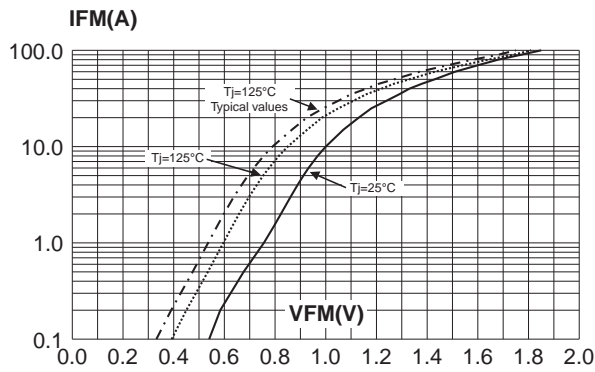
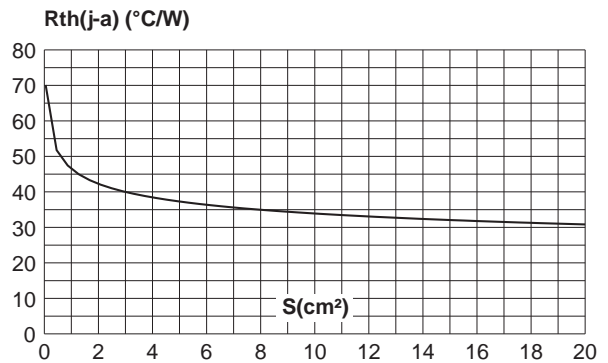


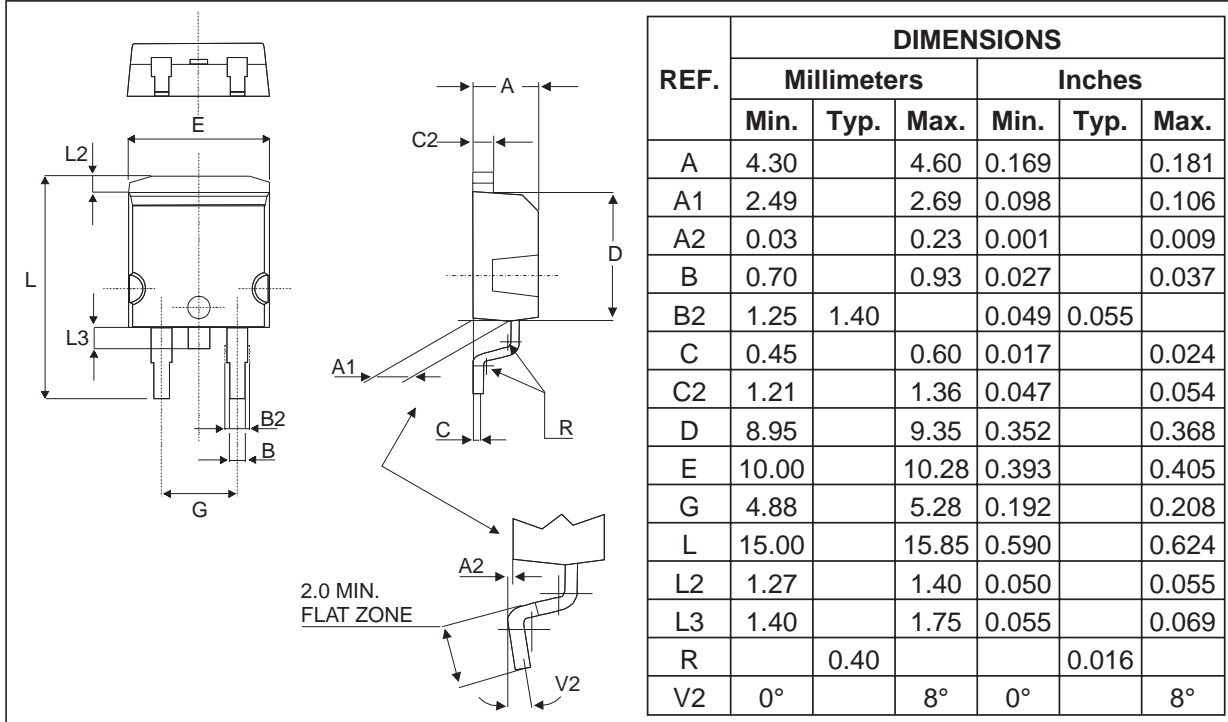
Fig. 10: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board, copper thickness: 35µm) (STPS10150CG only).



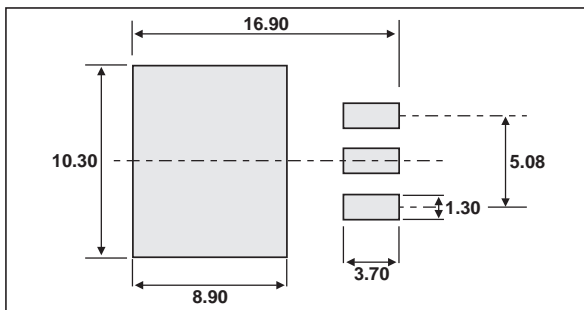
PACKAGE MECHANICAL DATA TO-220AB

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

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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