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STPS16150CT/CG/CR

HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

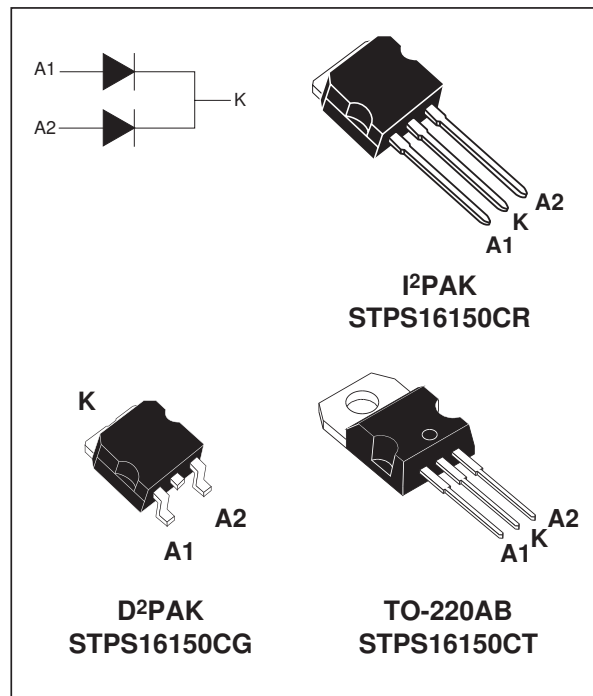
$I_{F(AV)}$	2 x 8 A
V_{RRM}	150 V
T_j	175°C
$V_F(max)$	0.75 V

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			20	A
$I_{F(AV)}$	Average forward current $\delta = 0.5$	TO-220AB D²PAK / I²PAK	$T_c = 150^\circ\text{C}$ per diode per device	8 16	A
I_{FSM}	Surge non repetitive forward current		$t_p = 10\text{ ms}$ sinusoidal	150	A
P_{ARM}	Repetitive peak avalanche power		$t_p = 1\mu\text{s}$ $T_j = 25^\circ\text{C}$	4700	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 / I ² PAK	Per diode	3	°C/W
			Total	1.8	
$R_{th(c)}$		TO-220AB / D ² PAK / I ² PAK	Coupling	0.6	

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	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			3.0	μA	
		$T_j = 125^\circ\text{C}$				4.0	mA	
V_F^{**}	Forward voltage drop	$T_j = 25^\circ\text{C}$	$I_F = 8\text{ A}$			0.92	V	
		$T_j = 125^\circ\text{C}$			0.70	0.75		
		$T_j = 25^\circ\text{C}$		$I_F = 16\text{ A}$				1
		$T_j = 125^\circ\text{C}$			0.8	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:

$$P = 0.64 \times I_{F(AV)} + 0.014 I_{F(RMS)}^2$$

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

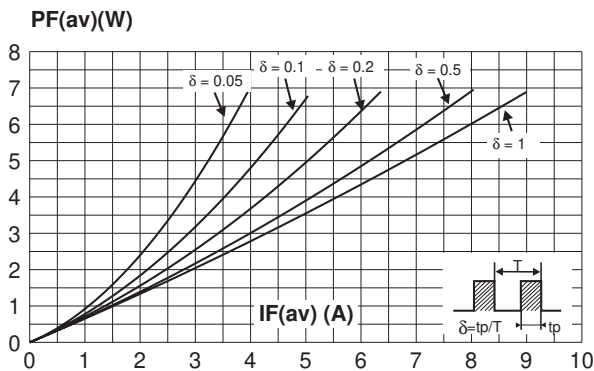


Fig. 3: Normalized avalanche power derating versus pulse duration.

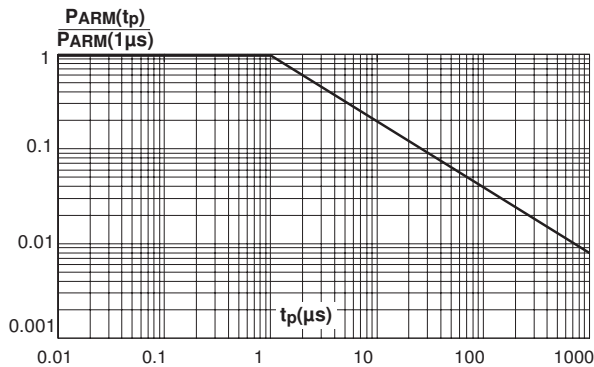


Fig. 2: Average forward current versus ambient temperature ($\delta = 0.5$, per diode).

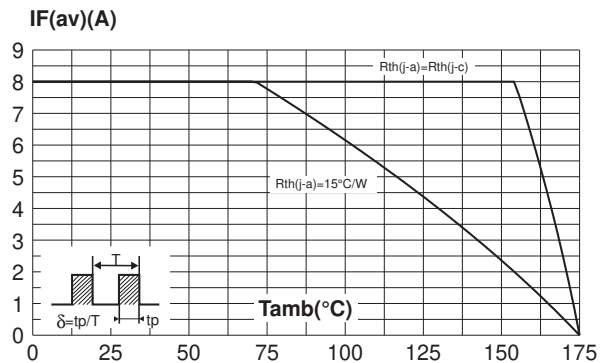


Fig. 4: Normalized avalanche power derating versus junction temperature.

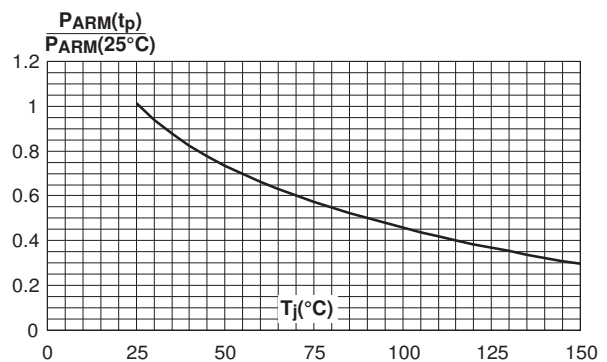


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values, per diode).

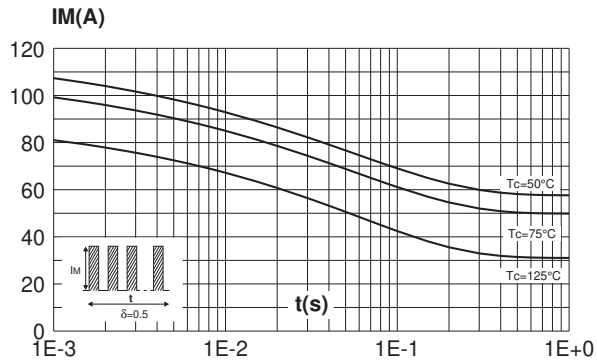


Fig. 46 Relative variation of thermal impedance junction to case versus pulse duration (per diode).

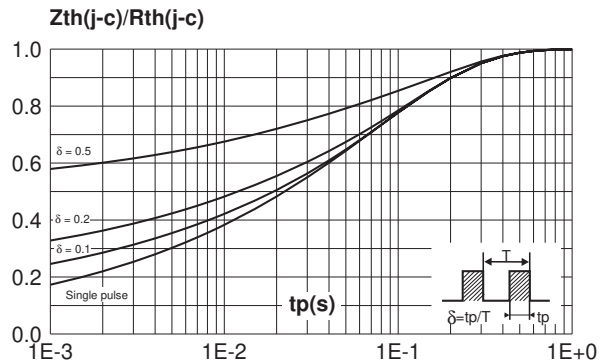


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values, per diode).

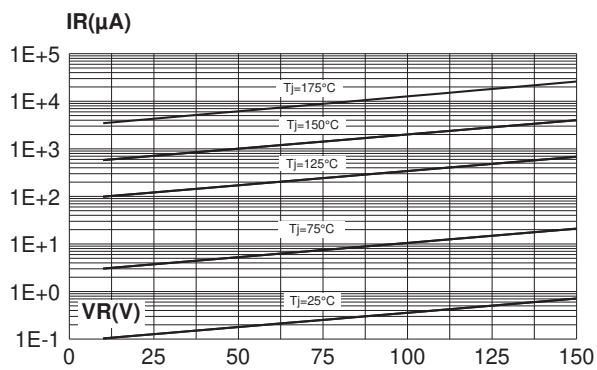


Fig. 8: Junction capacitance versus reverse voltage applied (typical values, per diode).

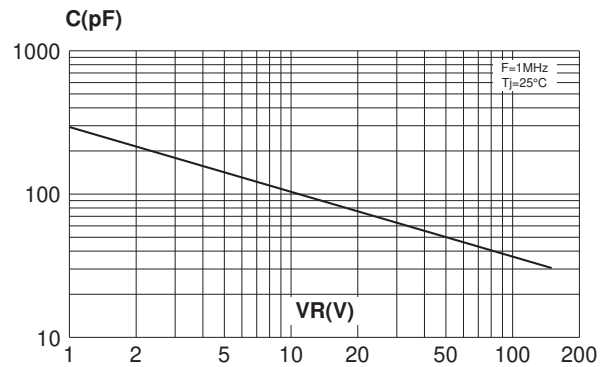


Fig. 9: Forward voltage drop versus forward current (maximum values, per diode).

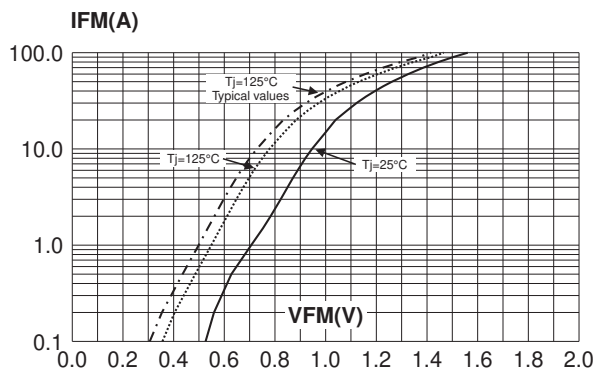
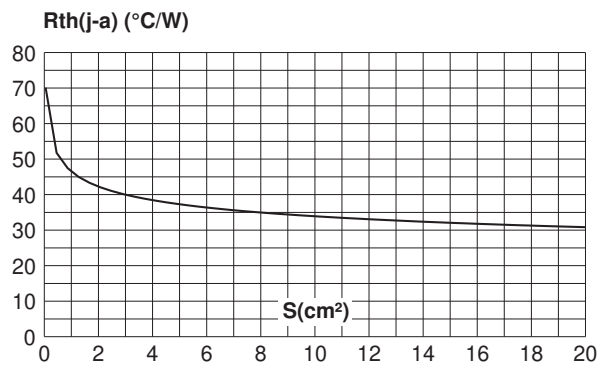
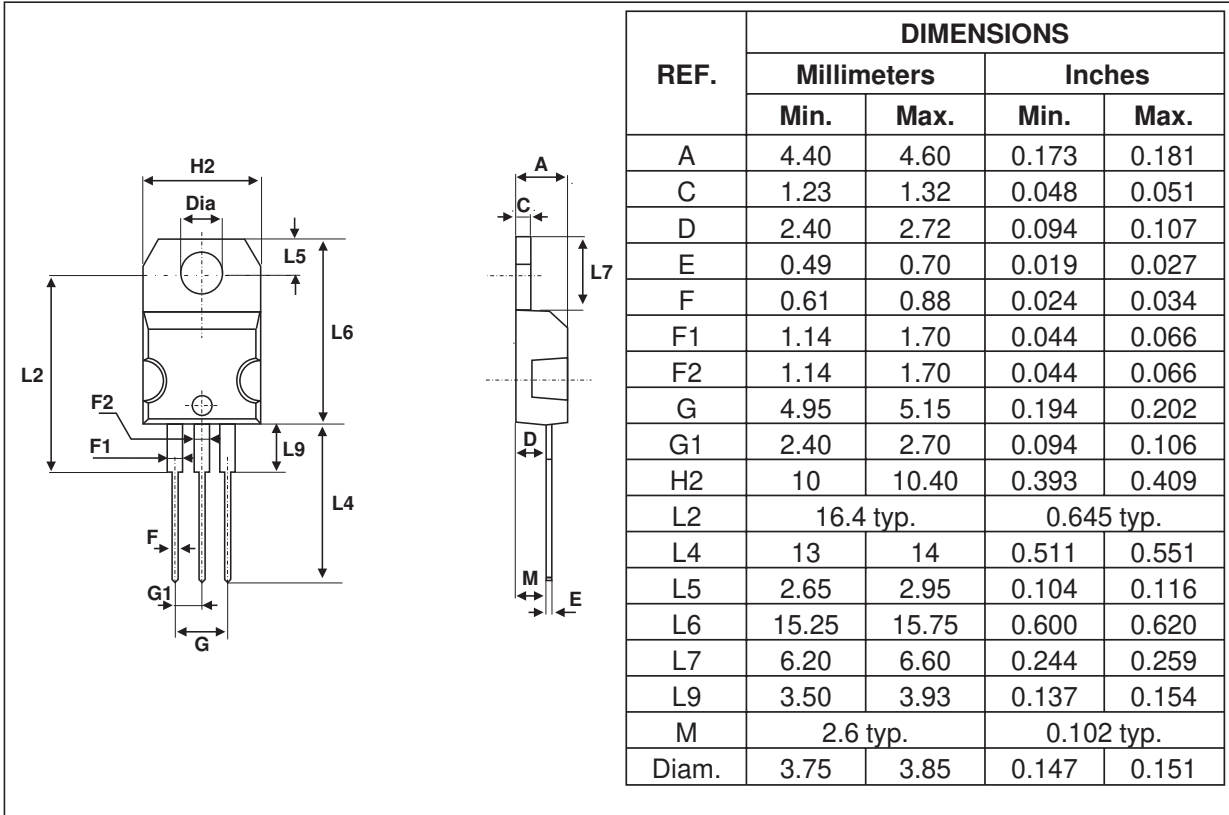


Fig. 10: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board, copper thickness: 35 μm) (STPS16150CG only).

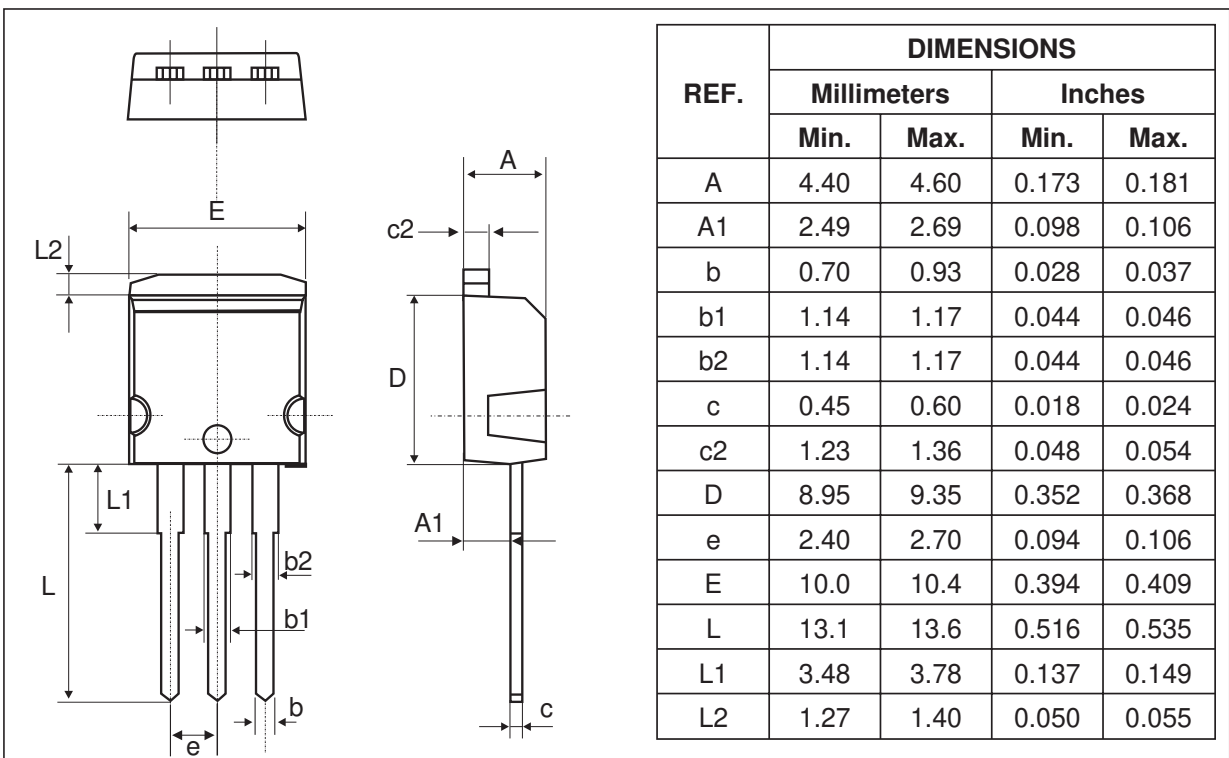


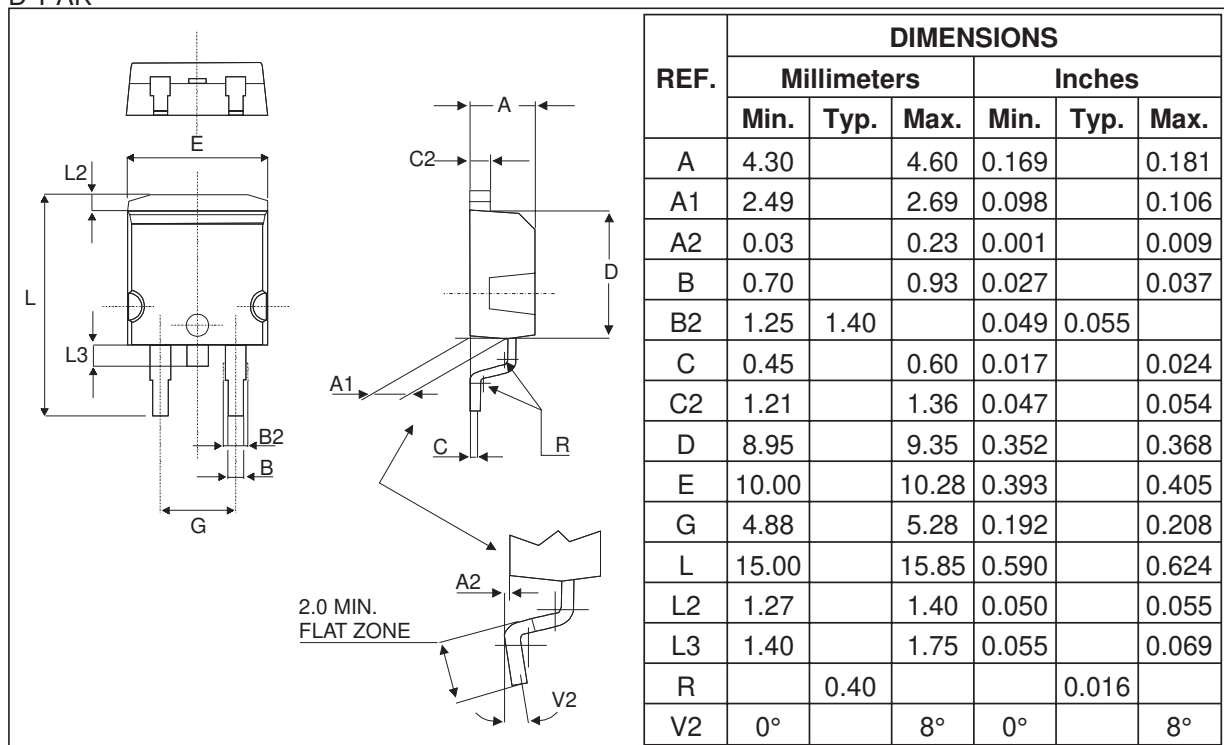
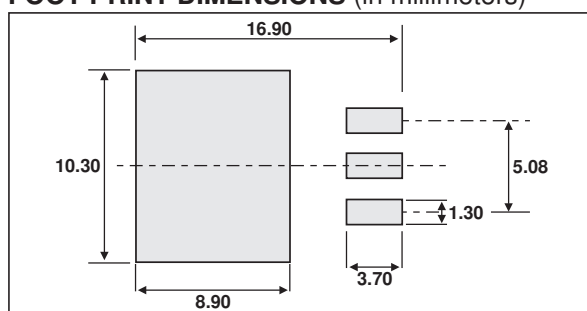
STPS16150CT/CG/CR

PACKAGE MECHANICAL DATA
TO-220AB



PACKAGE MECHANICAL DATA
I²PAK



PACKAGE MECHANICAL DATA
D²PAK

FOOT PRINT DIMENSIONS (in millimeters)


Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS16150CT	STPS16150CT	TO-220AB	2.2 g	50	Tube
STPS16150CG	STPS16150CG	D ² PAK	1.48 g	50	Tube
STPS16150CG-TR	STPS16150CG	D ² PAK	1.48 g	1000	Tape & reel
STPS16150CR	STPS16150CR	I ² PAK	1.49 g	50	Tube

■ Epoxy meets UL94, V0

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