



STPS30150CT/CW/CFP

HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

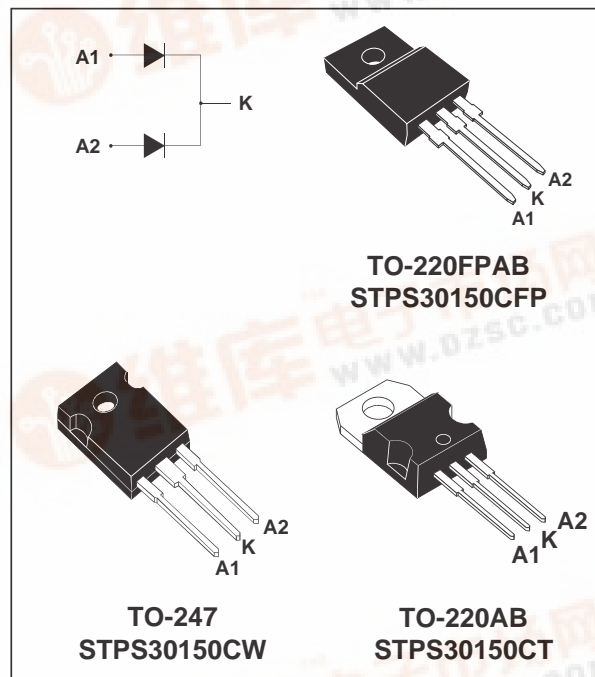
$I_{F(AV)}$	2 x 15 A
V_{RRM}	150 V
T_j	175°C
$V_F(max)$	0.75 V

FEATURES AND BENEFITS

- HIGH JUNCTION TEMPERATURE CAPABILITY
- GOOD TRADE OFF BETWEEN LEAKAGE CURRENT AND FORWARD VOLTAGE DROP
- LOW LEAKAGE CURRENT
- INSULATED PACKAGE: TO-220FPAB
Insulating voltage: 2000V DC
Capacitance: 45pF
- 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	
$I_{F(AV)}$	Average forward current $\delta = 0.5$	TO-220FPAB	$T_c = 110^\circ\text{C}$	per diode per device	15	A
		TO-220AB	$T_c = 155^\circ\text{C}$			
		TO-247		30		
I_{FSM}	Surge non repetitive forward current		$t_p = 10\text{ ms}$ sinusoidal	220	A	
P_{ARM}	Repetitive peak avalanche power		$t_p = 1\mu\text{s}$ $T_j = 25^\circ\text{C}$	10500	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	

* : $\frac{dP_{tot}}{dT_j} < \frac{1}{R_{th(j-a)}}$ thermal runaway condition for a diode on its own heatsink

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THERMAL RESISTANCES

Symbol	Parameter		Value	Unit	
R _{th(j-c)}	Junction to case	TO-220FPAB	Per diode Total	4 3.3	°C/W
		TO-220AB	Per diode Total	1.6 0.85	
		TO-247	Per diode Total	1.5 0.8	
R _{th(c)}		TO-220FPAB	Coupling	2.6	
		TO-220AB	Coupling	0.1	
		TO-247	Coupling	0.1	

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°C	V _R = V _{RRM}			6.5	μA
		T _j = 125°C				8	mA
V _F **	Forward voltage drop	T _j = 25°C	I _F = 15 A			0.92	V
		T _j = 125°C	I _F = 15 A		0.69	0.75	
		T _j = 25°C	I _F = 30 A			1	
		T _j = 125°C	I _F = 30 A		0.8	0.86	

Pulse test : * t_p = 5 ms, δ < 2%
 ** t_p = 380 μs, δ < 2%

To evaluate the conduction losses use the following equation:

$$P = 0.64 \times I_{F(AV)} + 0.0073 I_{F(RMS)}^2$$

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

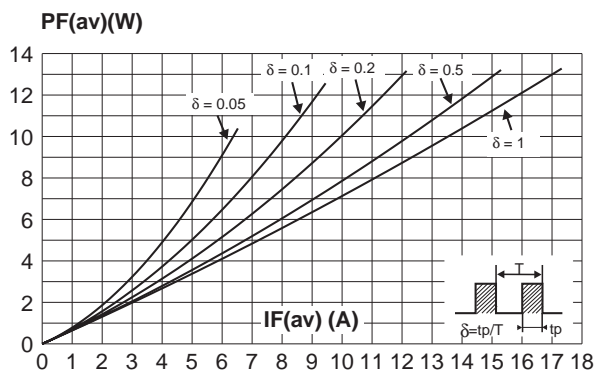


Fig. 2: Average forward current versus ambient temperature (δ = 0.5, per diode).

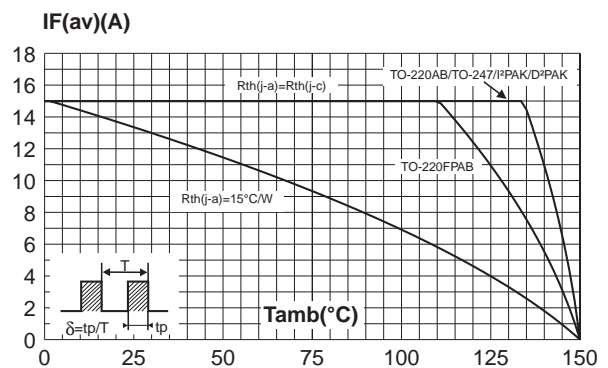


Fig. 3: Normalized avalanche power derating versus pulse duration.

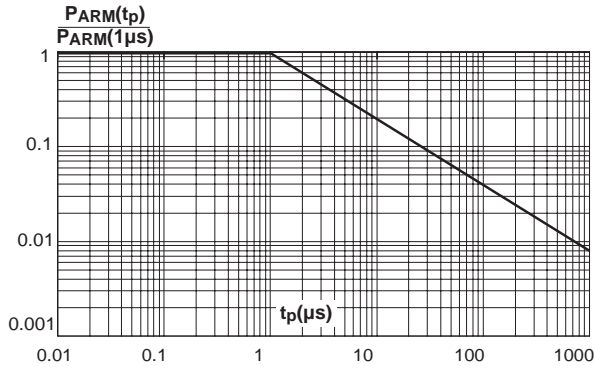


Fig. 4: Normalized avalanche power derating versus junction temperature.

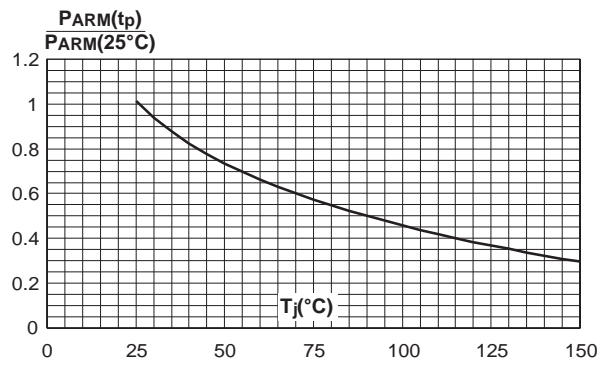


Fig. 5-1: Non repetitive surge peak forward current versus overload duration (maximum values, per diode).

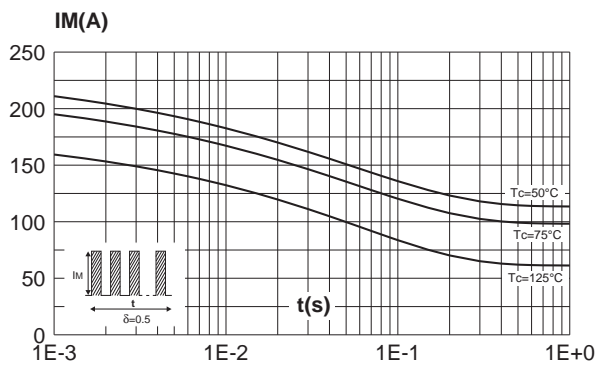


Fig. 5-2: Non repetitive surge peak forward current versus overload duration (maximum values, per diode) (TO-220FPAB only).

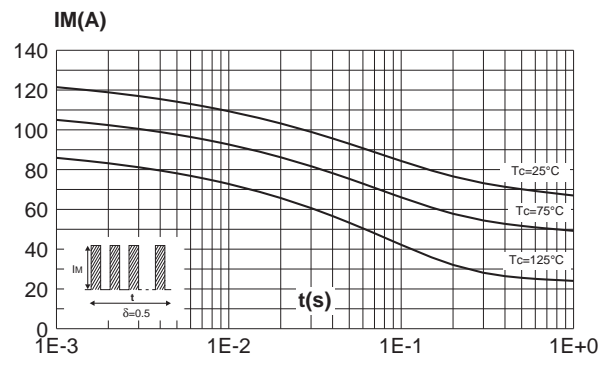


Fig. 6-1: Relative variation of thermal impedance junction to case versus pulse duration (per diode)

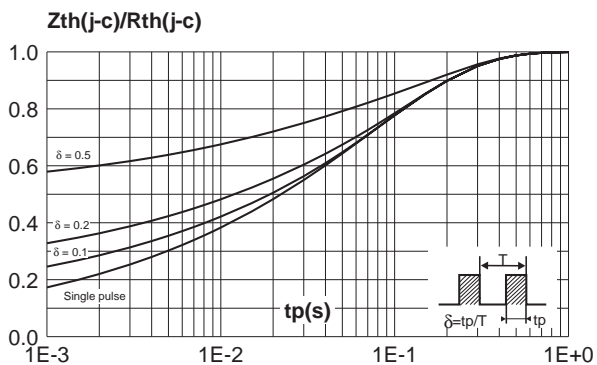
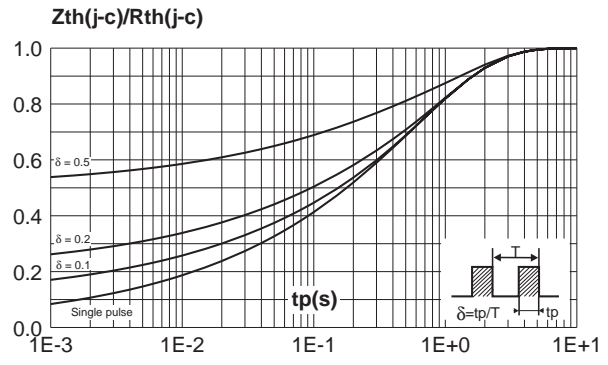


Fig. 6-2: Relative variation of thermal impedance junction to case versus pulse duration. (TO-220FPAB)



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

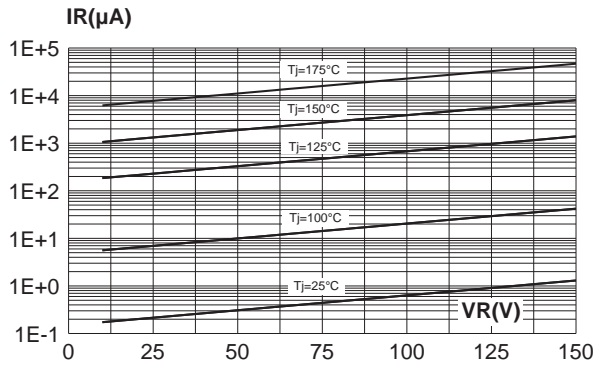


Fig. 8: Junction capacitance versus reverse voltage applied (typical values, per diode).

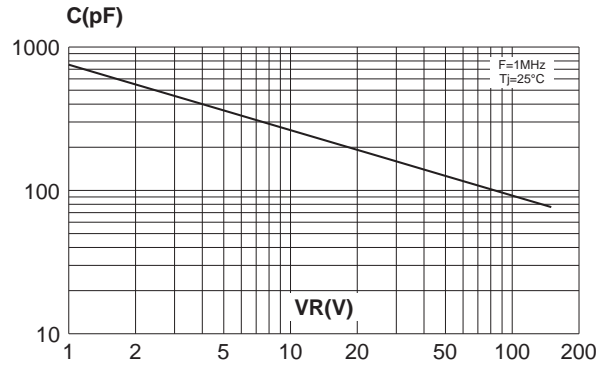
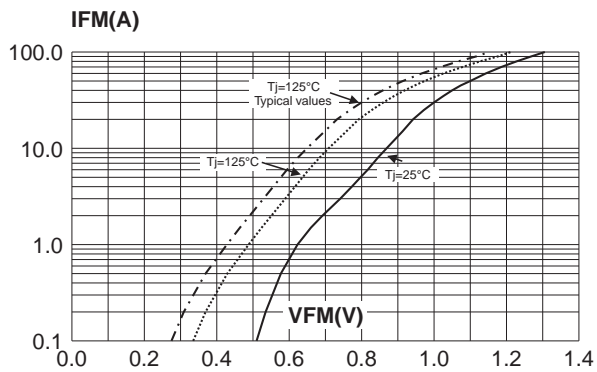
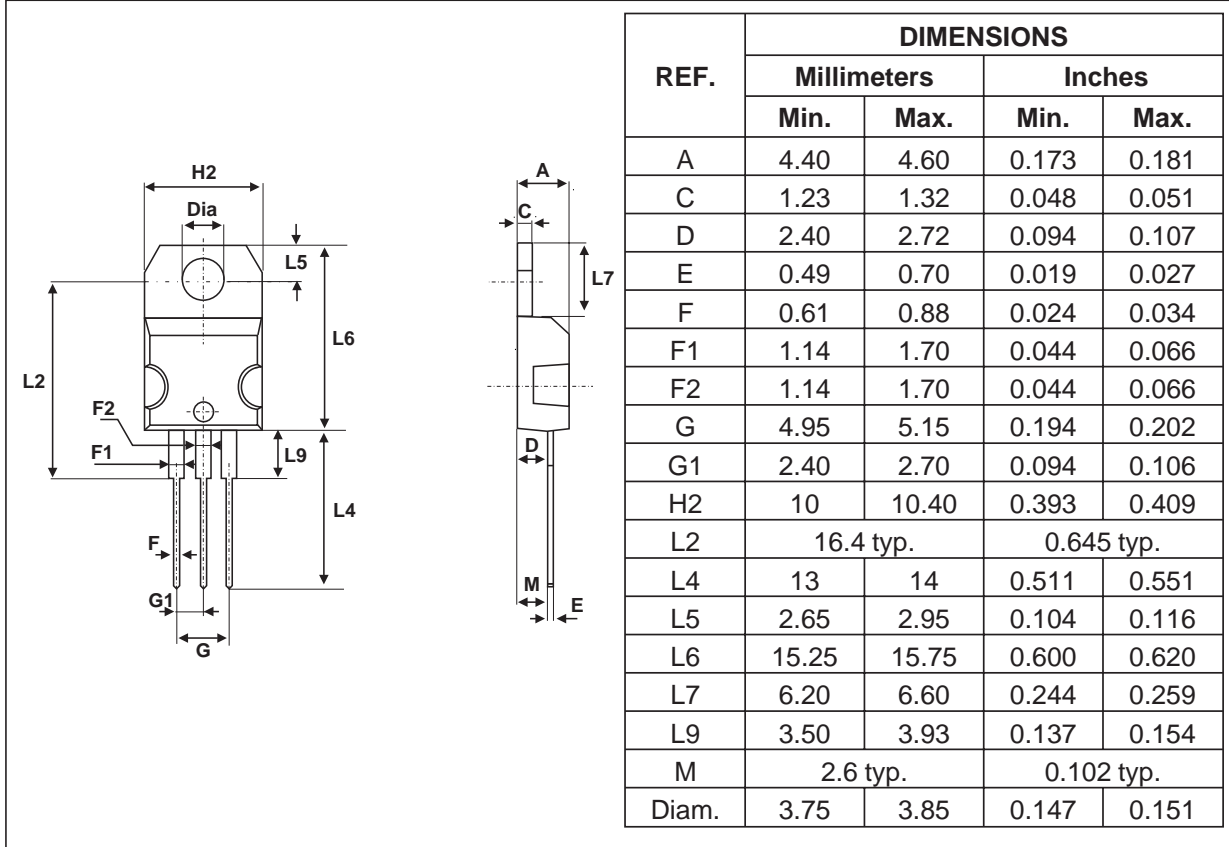


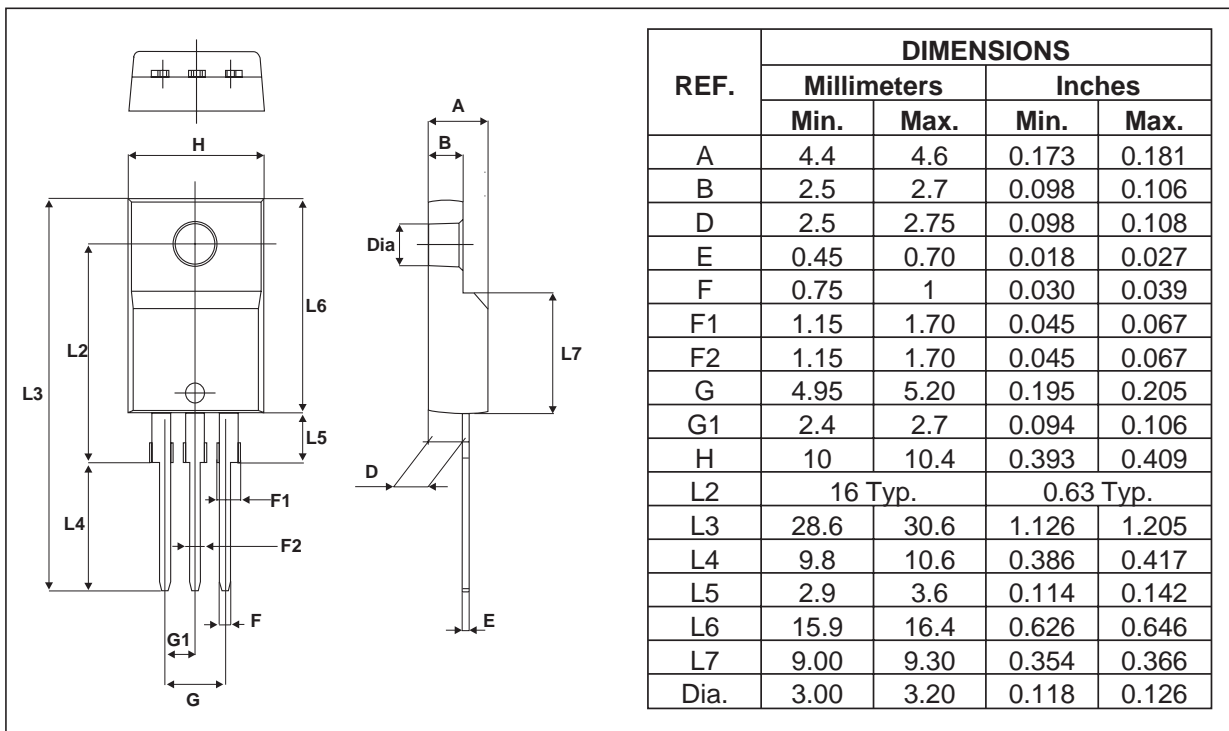
Fig. 9: Forward voltage drop versus forward current (maximum values, per diode).



PACKAGE MECHANICAL DATA
TO-220AB

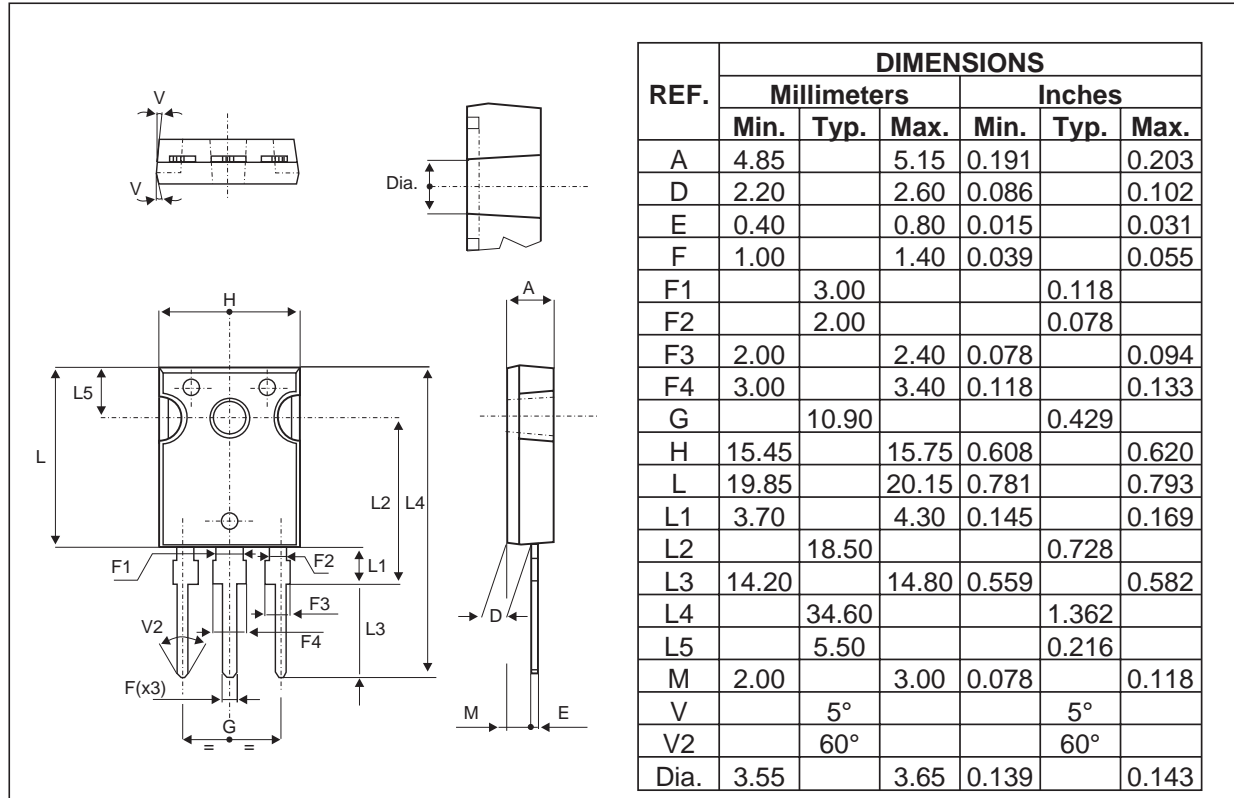


PACKAGE MECHANICAL DATA
TO-220FPAB



STPS30150CT/CW/CFP

PACKAGE MECHANICAL DATA TO-247



- Cooling method : C
- Recommended torque value : 0.8m.N
- Maximum torque value : 1.0m.N

Ordering Type	Marking	Package	Weight	Base qty	Delivery mode
STPS30150CT	STPS30150CT	TO-220AB	2 g	50	Tube
STPS30150CFP	STPS30150CFP	TO-220FPAB	1.9 g	50	Tube
STPS30150CW	STPS30150CW	TO-247	4.4 g	30	Tube

- Epoxy meets UL94, V0

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