



# STPS30150CT/CW/CFP

## HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

### MAIN PRODUCT CHARACTERISTICS

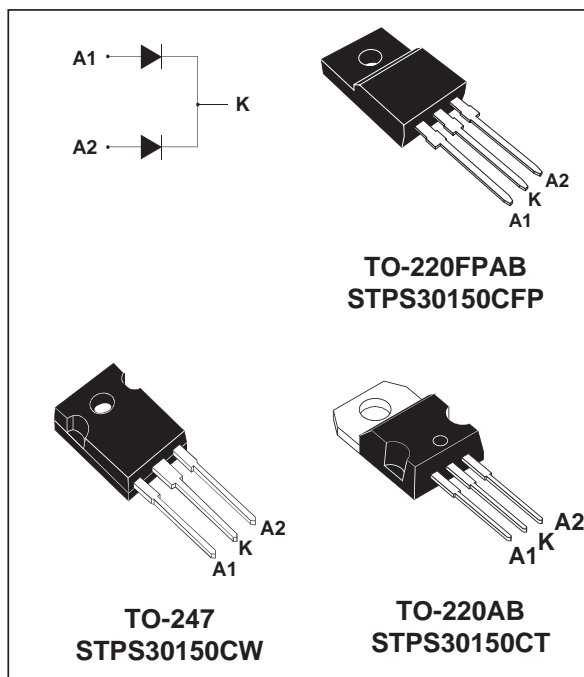
$I_{F(AV)}$	2 x 15 A
$V_{RRM}$	150 V
$T_j$	175°C
$V_F (max)$	0.75 V

### 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

### 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 <sub>RRM</sub>	Repetitive peak reverse voltage				150	V
I <sub>F(RMS)</sub>	RMS forward current				30	A
I <sub>F(AV)</sub>	Average forward current δ = 0.5	TO-220FPAB	T <sub>c</sub> = 110°C	per diode per device	15	A
		TO-220AB	T <sub>c</sub> = 155°C			
		TO-247			30	
I <sub>FSM</sub>	Surge non repetitive forward current		tp = 10 ms sinusoidal		220	A
T <sub>stg</sub>	Storage temperature range				- 65 to + 175	°C
T <sub>j</sub>	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

**THERMAL RESISTANCES**

Symbol	Parameter			Value	Unit
$R_{th(j-c)}$	Junction to case	TO-220FPAB	Per diode	4	$^{\circ}\text{C/W}$
			Total	3.3	
		TO-220AB	Per diode	1.6	
			Total	0.85	
		TO-247	Per diode	1.5	
			Total	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)**

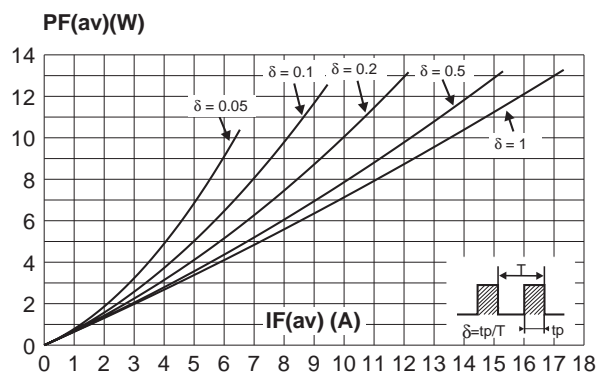
Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
$I_R^*$	Reverse leakage current	$T_j = 25^{\circ}\text{C}$	$V_R = V_{RRM}$			6.5	$\mu\text{A}$
		$T_j = 125^{\circ}\text{C}$				8	mA
$V_F^{**}$	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 15\text{ A}$			0.92	V
		$T_j = 125^{\circ}\text{C}$	$I_F = 15\text{ A}$		0.69	0.75	
		$T_j = 25^{\circ}\text{C}$	$I_F = 30\text{ A}$			1	
		$T_j = 125^{\circ}\text{C}$	$I_F = 30\text{ A}$		0.8	0.86	

Pulse test : \*  $t_p = 5\text{ ms}$ ,  $\delta < 2\%$   
 \*\*  $t_p = 380\text{ }\mu\text{s}$ ,  $\delta < 2\%$

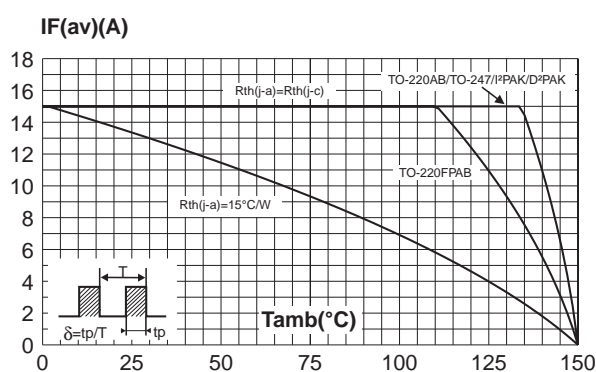
To evaluate the conduction losses use the following equation:

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

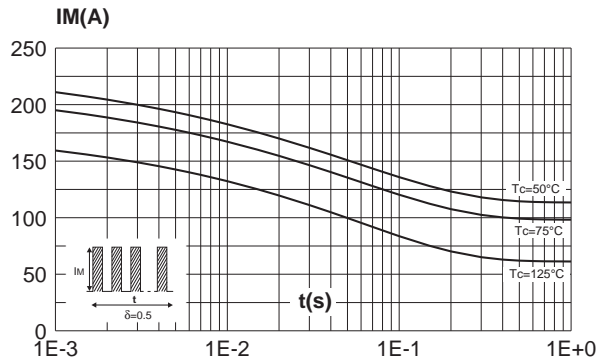
**Fig. 1:** Average forward power dissipation versus average forward current (per diode).



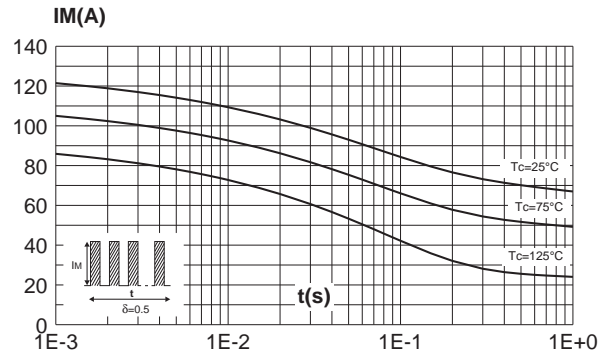
**Fig. 2:** Average forward current versus ambient temperature ( $\delta = 0.5$ , per diode).



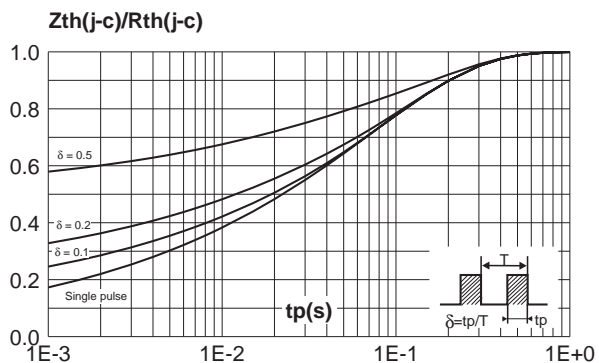
**Fig. 3-1:** Non repetitive surge peak forward current versus overload duration (maximum values, per diode).



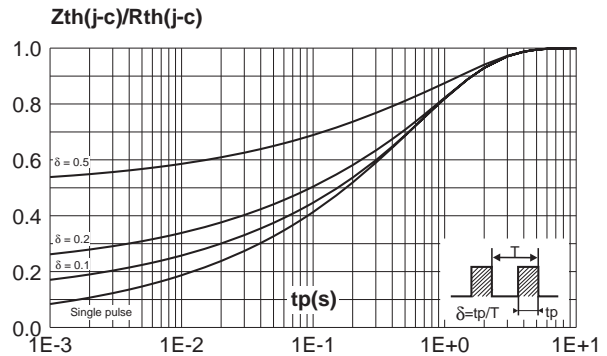
**Fig. 3-2:** Non repetitive surge peak forward current versus overload duration (maximum values, per diode) (TO-220FPAB only).



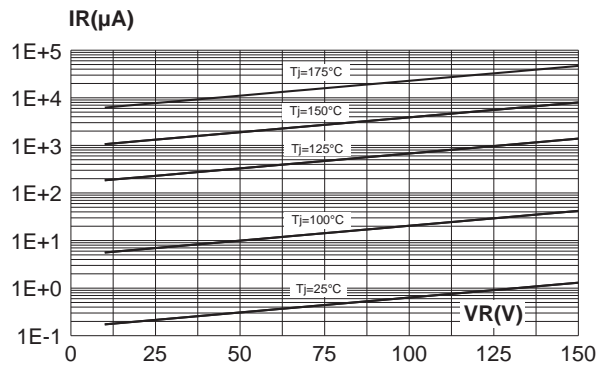
**Fig. 4-1:** Relative variation of thermal impedance junction to case versus pulse duration (per diode)



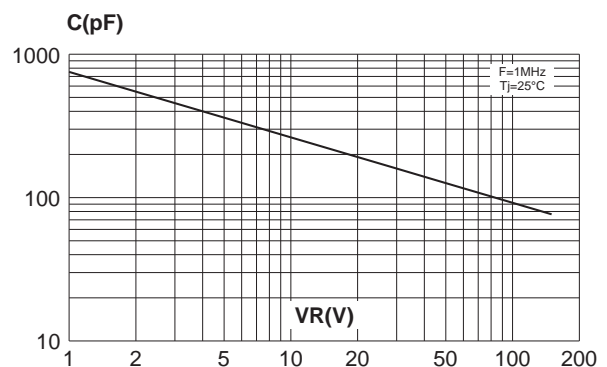
**Fig. 4-2:** Relative variation of thermal impedance junction to case versus pulse duration. (TO-220FPAB)



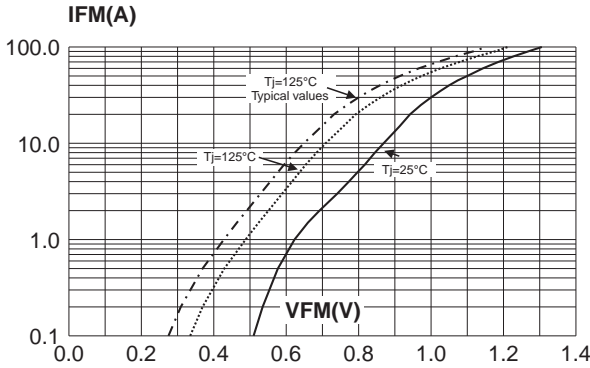
**Fig. 5:** Reverse leakage current versus reverse voltage applied (typical values, per diode).



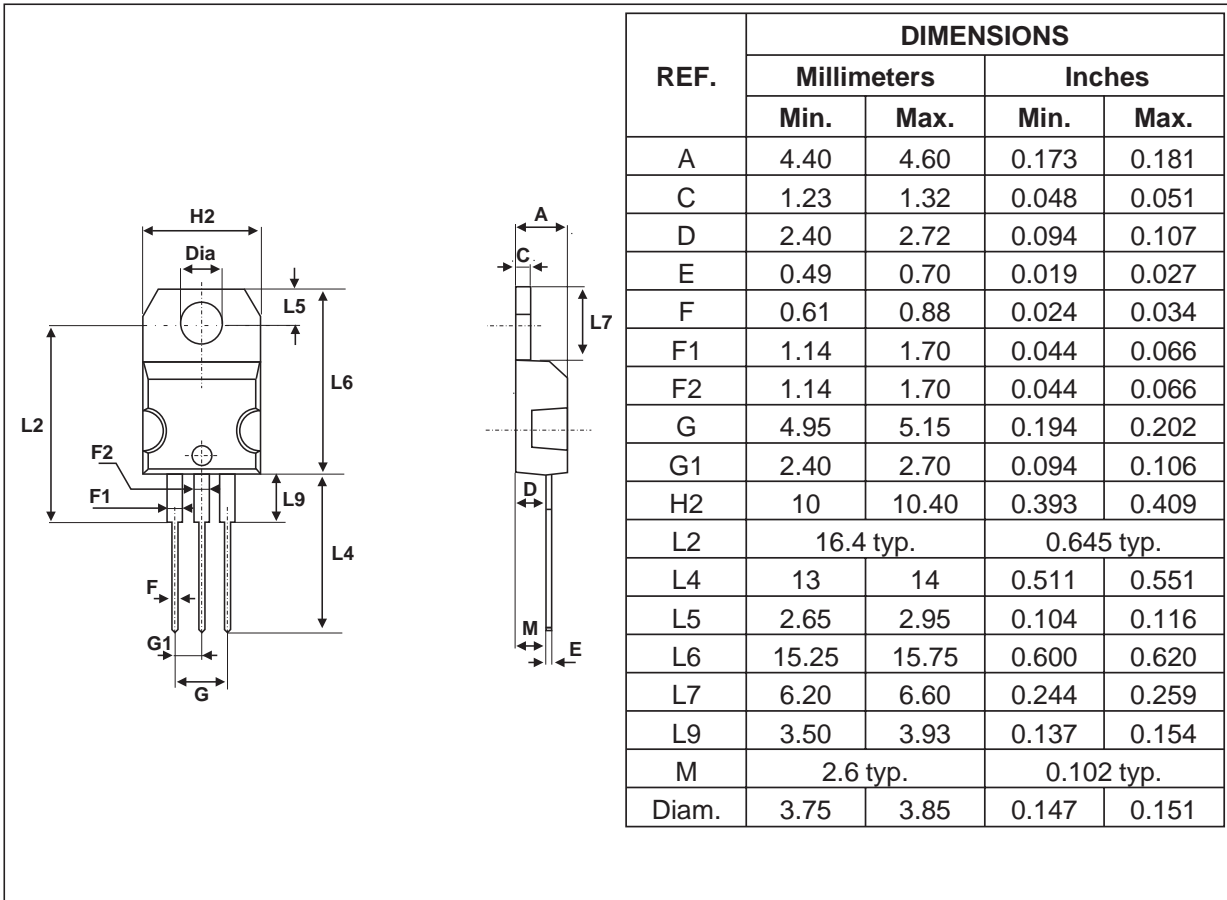
**Fig. 6:** Junction capacitance versus reverse voltage applied (typical values, per diode).



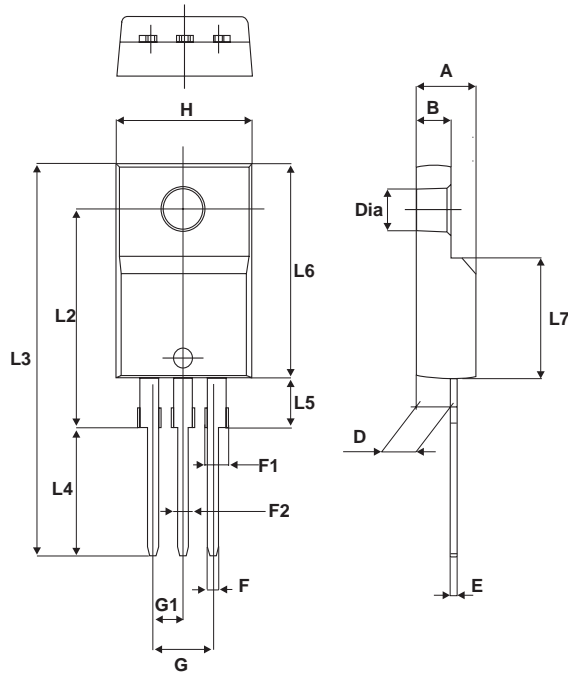
**Fig. 7:** Forward voltage drop versus forward current (maximum values, per diode).



**PACKAGE MECHANICAL DATA**  
TO-220AB



**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

# STPS30150CT/CW/CFP

## PACKAGE MECHANICAL DATA TO-247

REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.85		5.15	0.191		0.203
D	2.20		2.60	0.086		0.102
E	0.40		0.80	0.015		0.031
F	1.00		1.40	0.039		0.055
F1		3.00			0.118	
F2		2.00			0.078	
F3	2.00		2.40	0.078		0.094
F4	3.00		3.40	0.118		0.133
G		10.90			0.429	
H	15.45		15.75	0.608		0.620
L	19.85		20.15	0.781		0.793
L1	3.70		4.30	0.145		0.169
L2		18.50			0.728	
L3	14.20		14.80	0.559		0.582
L4		34.60			1.362	
L5		5.50			0.216	
M	2.00		3.00	0.078		0.118
V		5°			5°	
V2		60°			60°	
Dia.	3.55		3.65	0.139		0.143

- 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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