STPS60150C

POWER SCHOTTKY RECTIFIER

Table 1: Main Product Characteristics

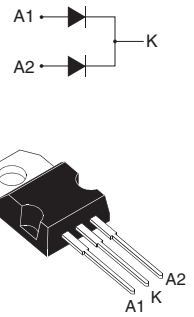
$I_{F(AV)}$	2 x 30 A
V_{RRM}	150 V
T_j	175°C
V_F(max)	0.76 V

FEATURES AND BENEFITS

- High junction temperature capabiliy
- Low leakage current
- Low thermal resistance
- High frequency operation
- Avalanche specification

DESCRIPTION

Dual center tab Schottky rectifier suited for High Frequency server and telecom base station SMPS. Packaged in TO-220AB, this device combines high current rating and low volume to enhance both reliability and power density of the application.



TO-220AB
STPS60150CT

Table 2: Order Codes

Part Number	Marking
STPS60150CT	STPS60150CT

Table 3: Absolute Ratings (limiting values, per diode)

Symbol	Parameter			Value	Unit
V_{RRM}	Repetitive peak reverse voltage			150	V
$I_{F(RMS)}$	RMS forward voltage			60	A
$I_{F(AV)}$	Average forward current	Tc = 150°C δ = 0.5	Per diode Per device	30 60	A
I_{FSM}	Surge non repetitive forward current		tp = 10ms sinusoidal	270	A
P_{ARM}	Repetitive peak avalanche power		tp = 1µs Tj = 25°C	17300	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

* : $\frac{dPtot}{dTj} > \frac{1}{Rth(j-a)}$ thermal runaway condition for a diode on its own heatsink

Table 4: Thermal Parameters

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case	Per diode Total	1.0 0.7	°C/W
$R_{th(c)}$	Coupling		0.4	

When the diodes 1 and 2 are used simultaneously:

Δ Tj(diode 1) = P(diode 1) x $R_{th(j-c)}$(Per diode) + P(diode 2) x $R_{th(c)}$

Table 5: Static Electrical Characteristics (per diode)

Symbol	Parameter	Tests conditions		Min.	Typ	Max.	Unit
I_R *	Reverse leakage current	T_j = 25°C	$V_R = V_{RRM}$		3	15	µA
		T_j = 125°C			3	10	mA
V_F **	Forward voltage drop	T_j = 25°C	I_F = 30A			0.94	V
		T_j = 125°C	I_F = 30A		0.72	0.76	
		T_j = 25°C	I_F = 60A		0.97	1.05	
		T_j = 125°C	I_F = 60A		0.86	0.92	

Pulse test: * tp = 5 ms, δ < 2%

** tp = 380 µs, δ < 2%

To evaluate the conduction losses use the following equation: P = 0.6 x $I_{F(AV)}$ + 0.0053 $I_F^2{}_{(RMS)}$

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

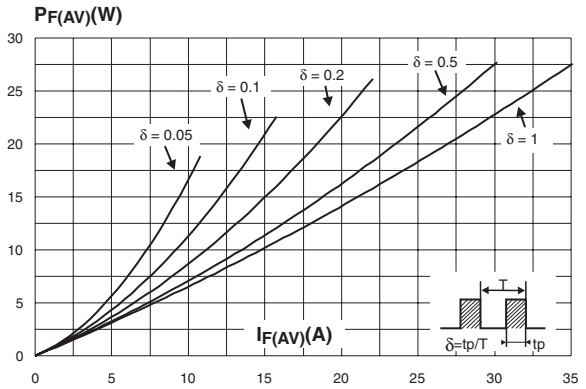


Figure 2: Average forward current versus ambient temperature (δ = 0.5, per diode)

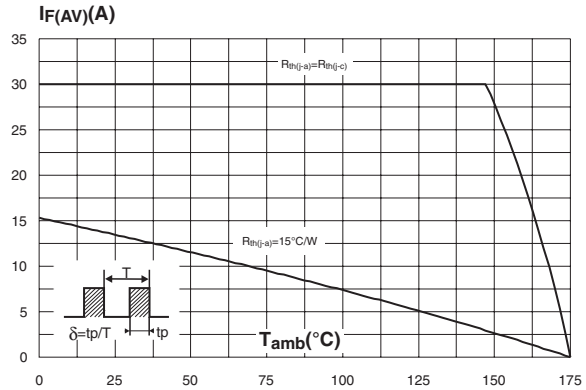


Figure 3: Normalized avalanche power derating versus pulse duration

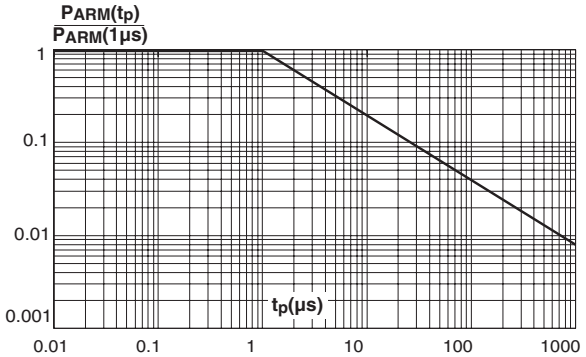


Figure 4: Normalized avalanche power derating versus junction temperature

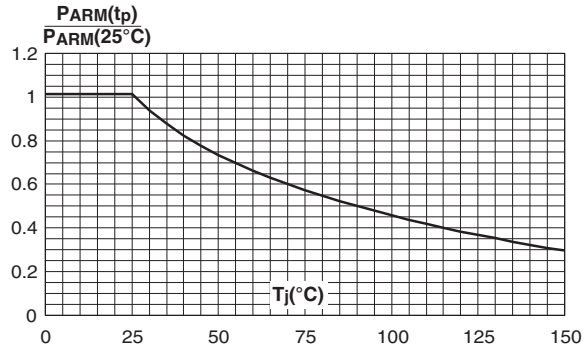


Figure 5: Non repetitive surge peak forward current versus overload duration (maximum values, per diode)

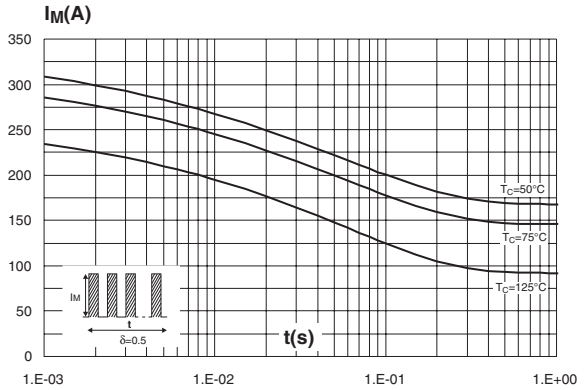


Figure 6: Relative variation of thermal impedance junction to case versus pulse duration (per diode)