

LOW DROP OR-ing POWER SCHOTTKY DIODE

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 x 60 A
V_{RRM}	15 V
T_j (max)	125 °C
V_F (max)	0.31 V

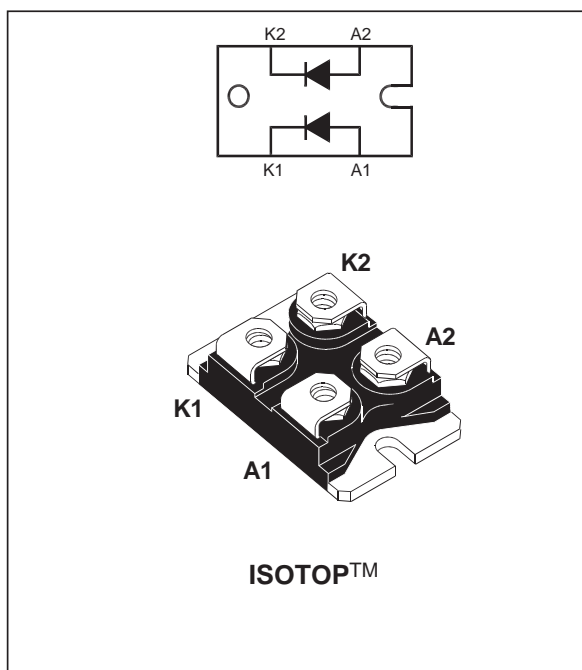
FEATURES AND BENEFITS

- VERY LOW DROP FORWARD VOLTAGE FOR LESS POWER DISSIPATION AND REDUCED HEATSINK
- INSULATED PACKAGE:
Insulated voltage = 2500 V_(RMS)
Capacitance = 45 pF
- AVALANCHE CAPABILITY SPECIFIED

DESCRIPTION

Dual Schottky rectifier suited for Switched Mode Power Supplies and DC to DC power converters.

Packaged in ISOTOP™, this device is especially intended for use as an OR-ing diode in fault tolerant power supply equipments.



ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter	Value	Unit
V_{RRM}	Repetitive peak reverse voltage	15	V
$I_{F(RMS)}$	RMS forward current	160	A
$I_{F(AV)}$	Average forward current	$T_c = 115^\circ\text{C}$ $\delta = 1$	60 A
I_{FSM}	Surge non repetitive forward current	$t_p = 10 \text{ ms}$ Sinusoidal	1200 A
I_{RRM}	Repetitive peak reverse current	$t_p = 2 \mu\text{s}$ $F = 1 \text{ kHz}$	2 A
P_{ARM}	Repetitive peak avalanche power	$t_p = 1 \mu\text{s}$ $T_j = 25^\circ\text{C}$	72030 W
T_{stg}	Storage temperature range	- 65 to + 150	°C
T_j	Maximum operating junction temperature	125	°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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STPS120L15TV

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	Junction to case	Per diode	0.45	$^{\circ}\text{C}/\text{W}$
		Total	0.28	
$R_{th(c)}$		Coupling	0.1	

STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
I_R^*	Reverse leakage current	$T_j = 100^{\circ}\text{C}$	$V_R = 5\text{V}$		450		mA
		$T_j = 25^{\circ}\text{C}$	$V_R = 12\text{V}$			22	mA
		$T_j = 100^{\circ}\text{C}$			0.7	2.2	A
V_F^*	Forward voltage drop	$T_j = 25^{\circ}\text{C}$	$I_F = 60\text{A}$			0.43	V
		$T_j = 125^{\circ}\text{C}$	$I_F = 60\text{A}$		0.27	0.31	

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

To evaluate the conduction losses use the following equation :

$$P = 0.18 \times I_{F(AV)} + 2.2 \cdot 10^{-3} \times I_{F(RMS)}^2$$

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

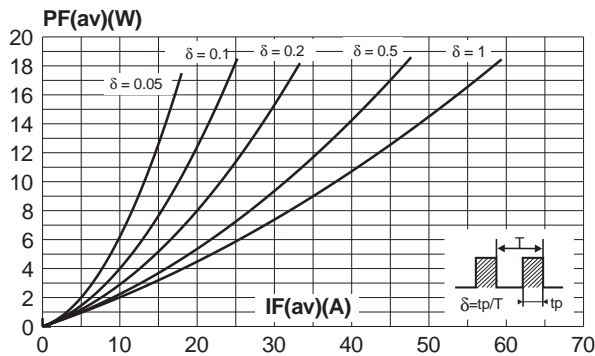


Fig. 3: Normalized avalanche power derating versus pulse duration.

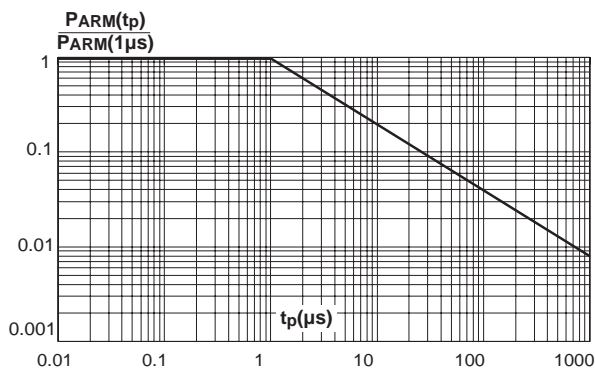


Fig. 2: Average forward current versus ambient temperature ($\delta = 1$) (per diode).

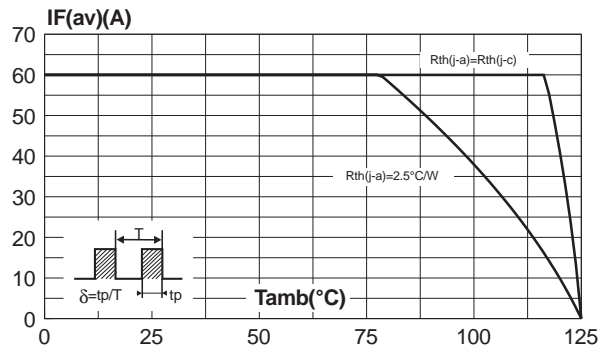


Fig. 4: Normalized avalanche power derating versus junction temperature.

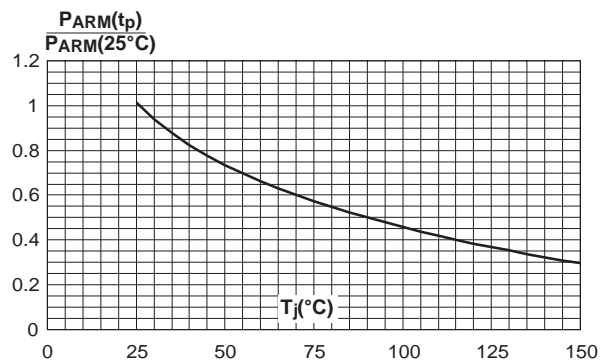


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values per diode).

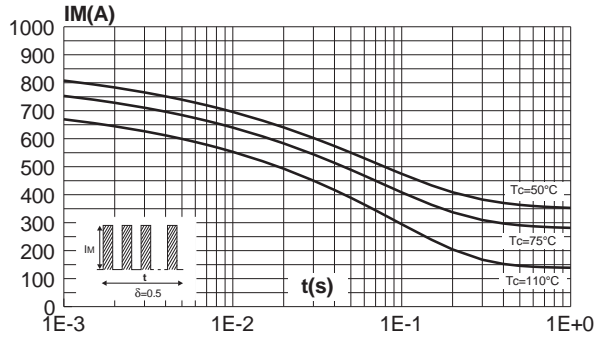


Fig. 6: Relative variation of thermal impedance junction to case versus pulse duration.

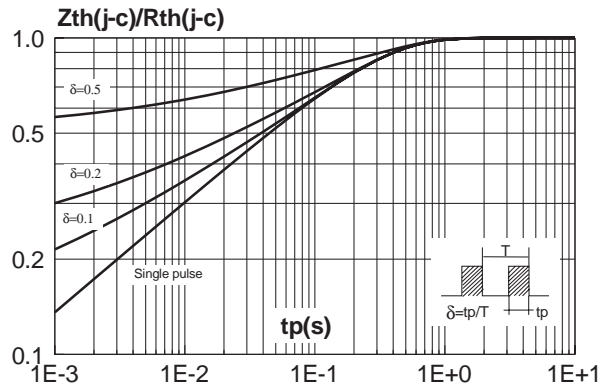


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values per diode).

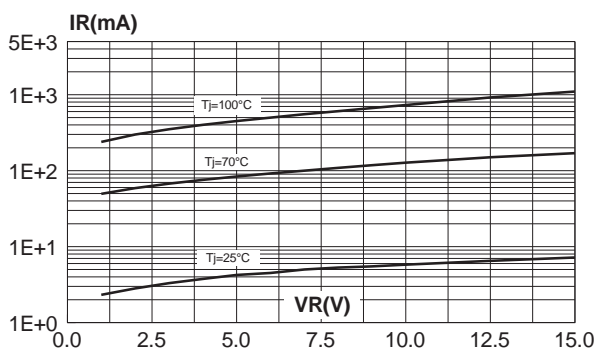


Fig. 8: Junction capacitance versus reverse voltage applied (typical values per diode).

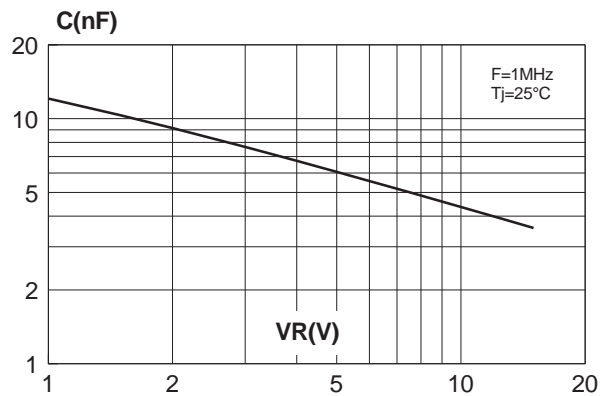
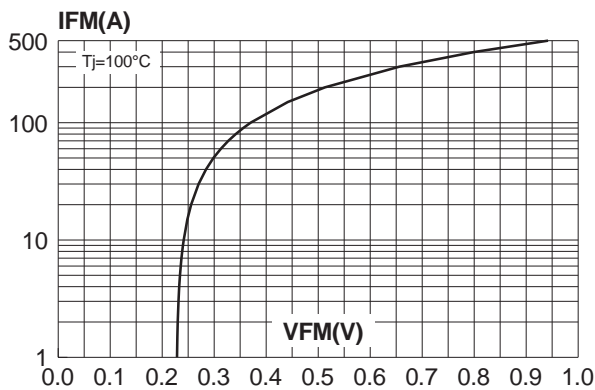
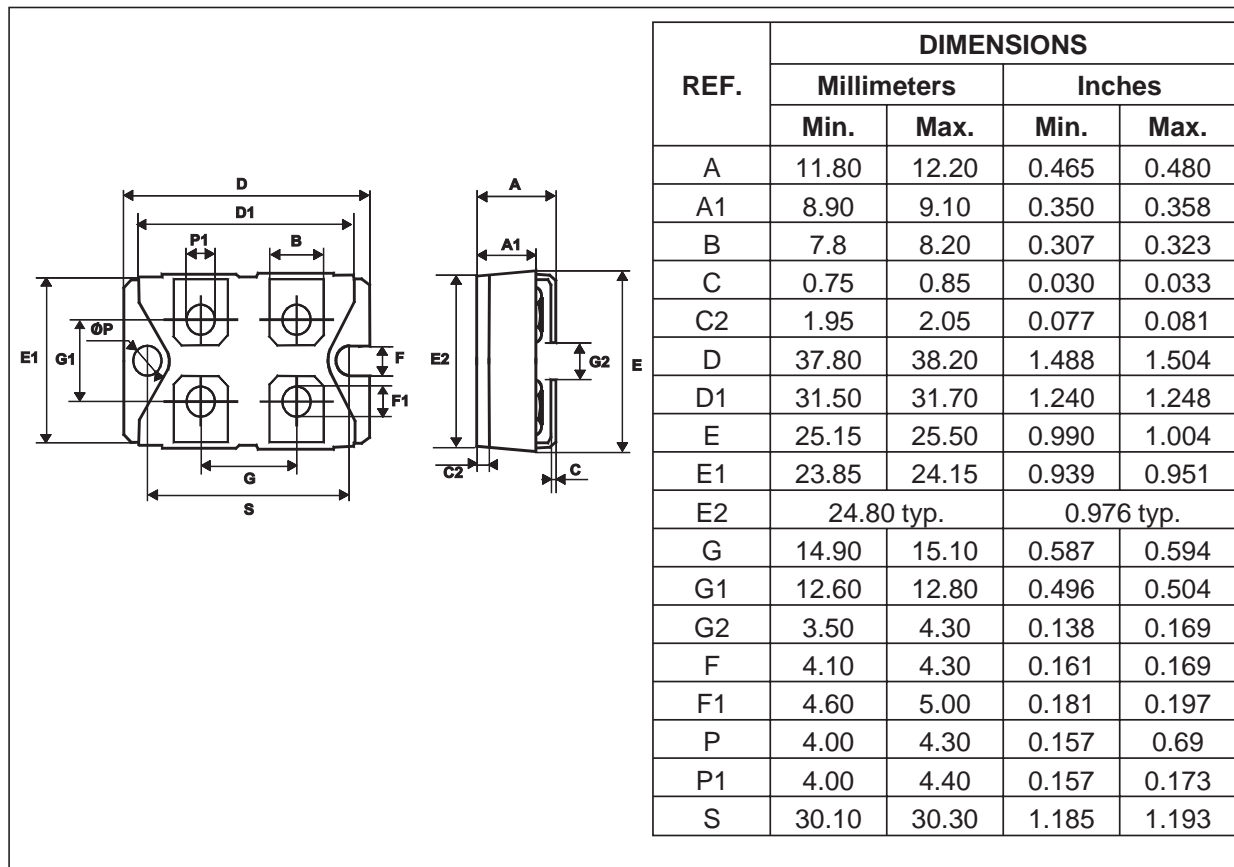


Fig. 9: Forward voltage drop versus forward current (maximum values per diode).



STPS120L15TV

PACKAGE MECHANICAL DATA ISOTOP



Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS120L15TV	STPS120L15TV	ISOTOP	28g (without screws)	10	Tube

- Cooling method: by conduction (C)
- Recommended torque value : 1.3 N.m.
- Maximum torque value: 1.5 N.m.
- Epoxy meets UL94,V0

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