

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

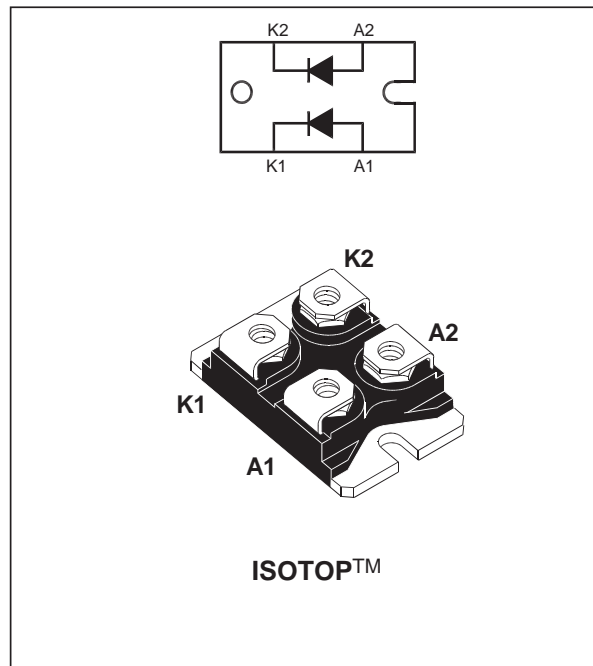
FEATURES AND BENEFITS

- 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

ISOTOP is a trademark of STMicroelectronics

STPS120L15TV

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
R _{th(j-c)}	Junction to case	Per diode	0.45	°C/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°C	V _R = 5V		450		mA
		T _J = 25°C	V _R = 12V			22	mA
		T _J = 100°C			0.7	2.2	A
V _F *	Forward voltage drop	T _J = 25°C	I _F = 60 A			0.43	V
		T _J = 125°C	I _F = 60 A		0.27	0.31	

Pulse test : * tp = 380 μs, δ < 2%

To evaluate the conduction losses use the following equation :

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

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

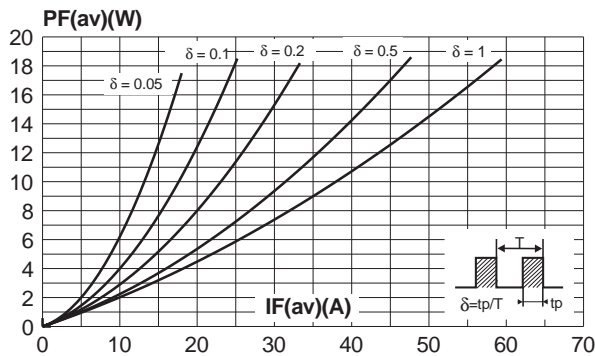


Fig. 3: Normalized avalanche power derating versus pulse duration.

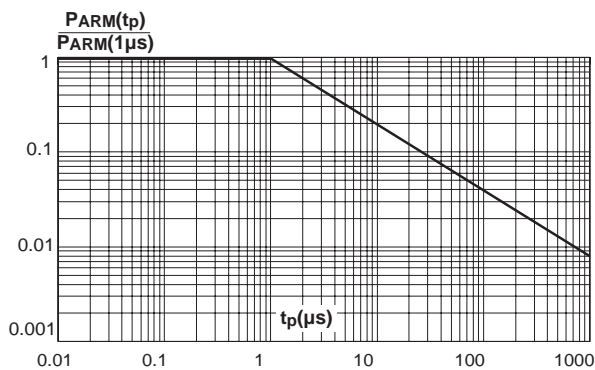


Fig. 2: Average forward current versus ambient temperature (δ = 1) (per diode).

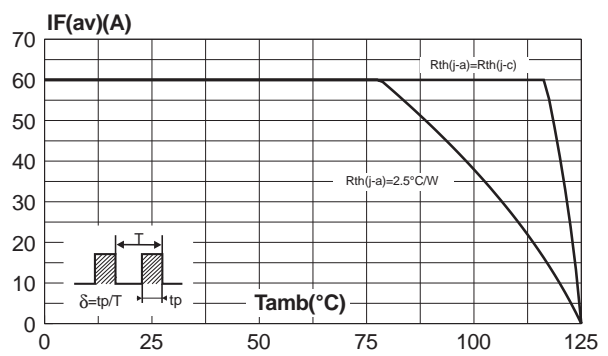


Fig. 4: Normalized avalanche power derating versus junction temperature.

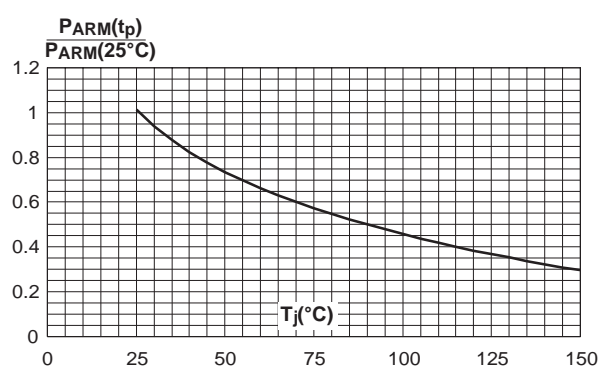


Fig. 5: Non repetitive surge peak forward current versus overload duration (maximum values per diode).

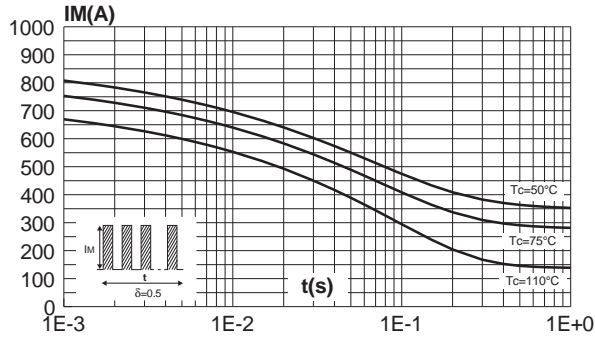


Fig. 6: Relative variation of thermal impedance junction to case versus pulse duration.

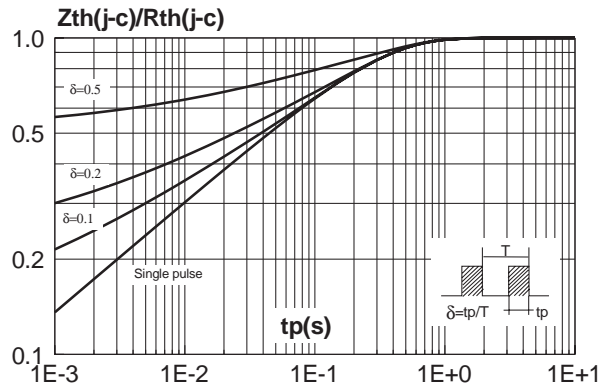


Fig. 7: Reverse leakage current versus reverse voltage applied (typical values per diode).

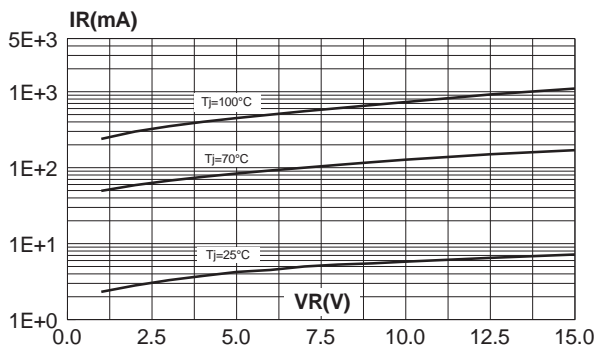


Fig. 8: Junction capacitance versus reverse voltage applied (typical values per diode).

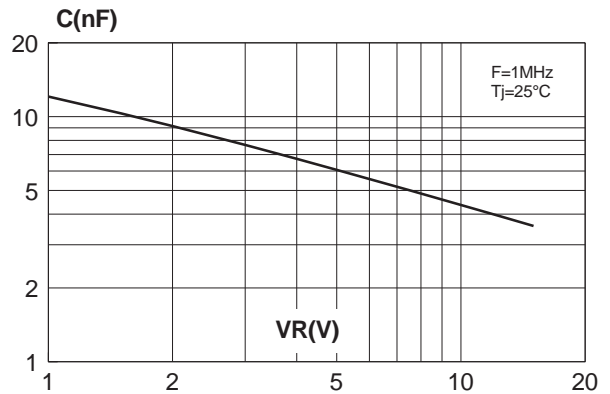
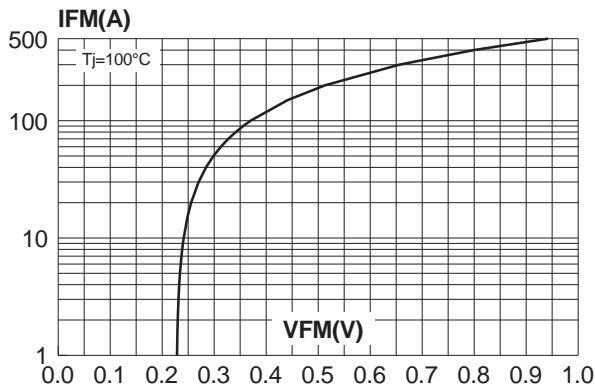


Fig. 9: Forward voltage drop versus forward current (maximum values per diode).



STPS120L15TV

PACKAGE MECHANICAL DATA ISOTOP

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	11.80	12.20	0.465	0.480
A1	8.90	9.10	0.350	0.358
B	7.8	8.20	0.307	0.323
C	0.75	0.85	0.030	0.033
C2	1.95	2.05	0.077	0.081
D	37.80	38.20	1.488	1.504
D1	31.50	31.70	1.240	1.248
E	25.15	25.50	0.990	1.004
E1	23.85	24.15	0.939	0.951
E2	24.80 typ.		0.976 typ.	
G	14.90	15.10	0.587	0.594
G1	12.60	12.80	0.496	0.504
G2	3.50	4.30	0.138	0.169
F	4.10	4.30	0.161	0.169
F1	4.60	5.00	0.181	0.197
P	4.00	4.30	0.157	0.69
P1	4.00	4.40	0.157	0.173
S	30.10	30.30	1.185	1.193

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

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics
 © 2003 STMicroelectronics - Printed in Italy - All rights reserved.
 STMicroelectronics GROUP OF COMPANIES
 Australia - Brazil - Canada - China - Finland - France - Germany
 Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore
 Spain - Sweden - Switzerland - United Kingdom - United States.

<http://www.st.com>

