

LOW DROP OR-ing POWER SCHOTTKY DIODE

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 x 40 A
V_{RRM}	15 V
$T_j(\text{max})$	125 °C
$V_F(\text{max})$	0.33 V

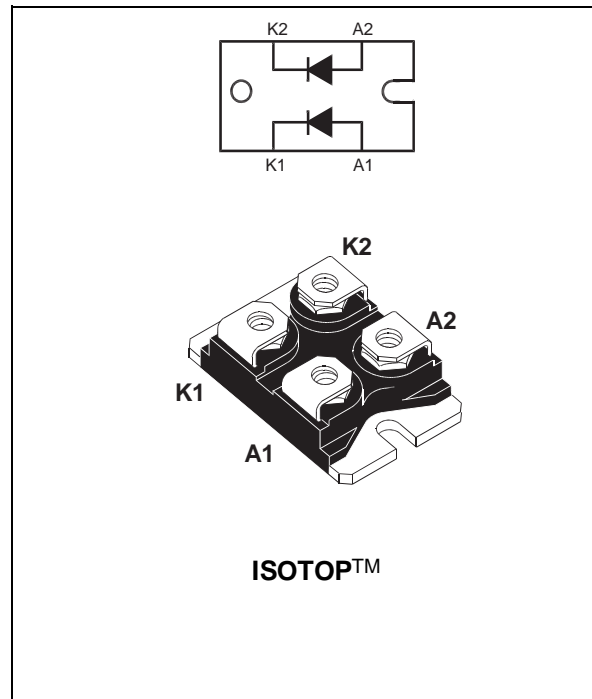
FEATURES AND BENEFITS

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

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		100	A
$I_{F(AV)}$	Average forward current	$T_c = 110^\circ\text{C}$ $\delta = 1$	40	A
I_{FSM}	Surge non repetitive forward current	$t_p = 10 \text{ ms}$ Sinusoidal	700	A
I_{RRM}	Repetitive peak reverse current	$t_p = 2 \mu\text{s}$ $F = 1 \text{ kHz}$	2	A
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

STPS80L15TV

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
R _{th(j-c)}	Junction to case	Per diode	1	°C/W
		Total	0.55	
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		280		mA
		T _j = 25°C	V _R = 12V			11	
		T _j = 100°C			0.44	1.1	A
V _F *	Forward voltage drop	T _j = 25°C	I _F = 40 A			0.43	V
		T _j = 125°C	I _F = 40 A		0.28	0.33	

Pulse test : * tp = 380 μs, δ < 2 %

To evaluate the conduction losses use the following equation :

$$P = 0.19 \times I_{F(AV)} + 3.25 \times 10^{-3} \times I_{F(RMS)}^2$$

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

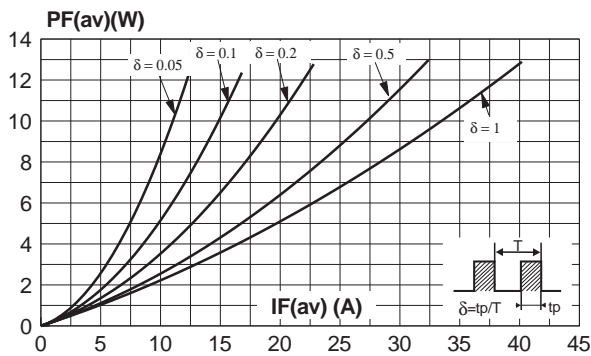


Fig. 2: Average forward current versus ambient temperature (δ=1, per diode).

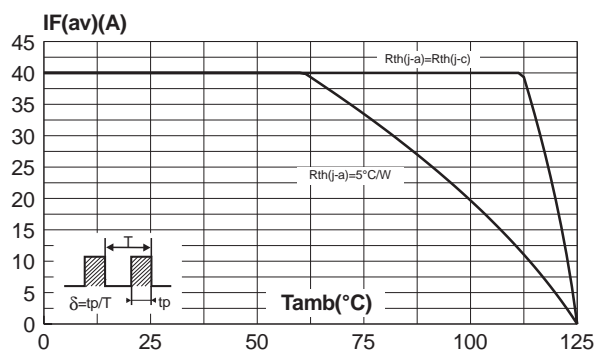


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values, per diode).

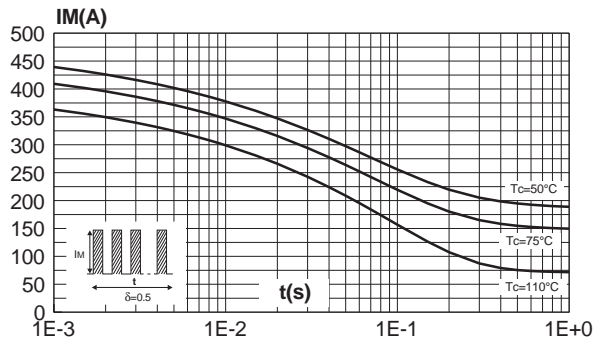


Fig. 4: Relative variation of thermal impedance junction to case versus pulse(per diode).

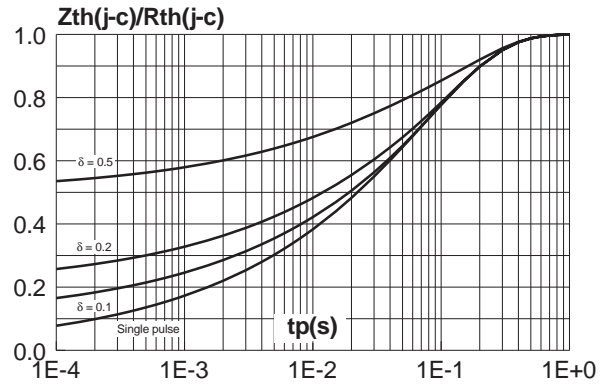


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values, per diode).

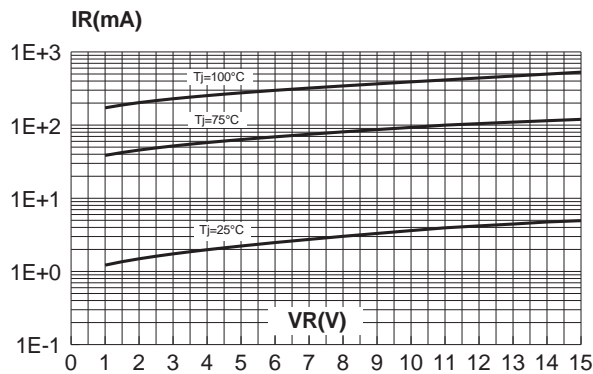


Fig. 6: Junction capacitance versus reverse voltage applied (typical values, per diode).

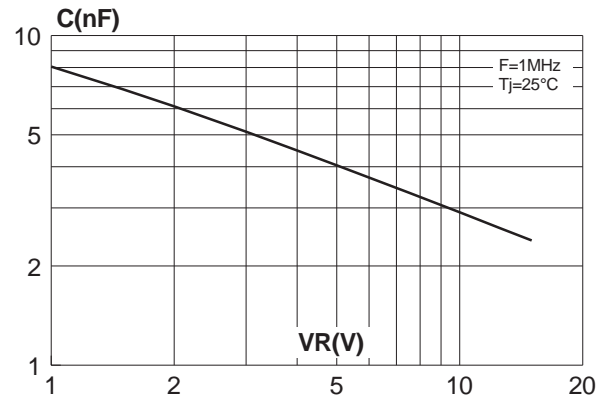
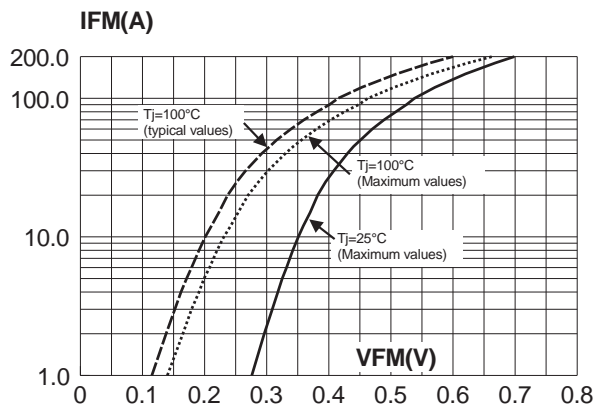


Fig. 7: Forward voltage drop versus forward current (per diode).



STPS80L15TV

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
STPS80L15TV	STPS80L15TV	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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