

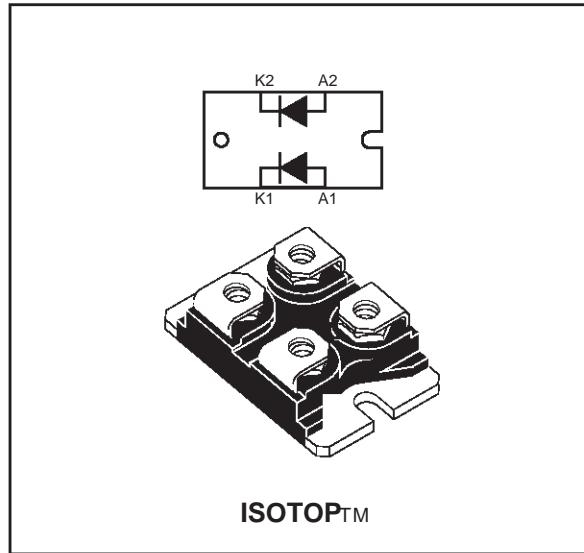
HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 x 40 A
V_{RRM}	100 V
$T_j(\max)$	150 °C
$V_F(\max)$	0.65 V

FEATURES AND BENEFITS

- NEGLIGIBLE SWITCHING LOSSES
- HIGH JUNCTION TEMPERATURE CAPABILITY
- LOW LEAKAGE CURRENT
- GOOD TRADE OFF BETWEEN LEAKAGE CURRENT AND FORWARD VOLTAGE DROP
- AVALANCHE RATED
- LOW INDUCTANCE PACKAGE
- INSULATED PACKAGE:
Insulated voltage = 2500 V_(RMS)
Capacitance = 45 pF



DESCRIPTION

High voltage dual Schottky barrier rectifier designed for high frequency telecom and computer Switched Mode Power Supplies and others power converters.

Packaged in ISOTOP, this device is intended for use in medium voltage operation, and particularly, in high frequency circuitries where low switching losses and low noise are required.

ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive peak reverse voltage		100	V
$I_{F(RMS)}$	RMS forward current		125	A
$I_{F(AV)}$	Average forward current	$T_c = 120^\circ\text{C}$ $\delta = 0.5$	40 80	A
I_{FSM}	Surge non repetitive forward current	$t_p = 10 \text{ ms sinusoidal}$	700	A
I_{RRM}	Repetitive peak reverse current	$t_p = 2 \mu\text{s } F = 1\text{kHz square}$	2	A
I_{RSM}	Non repetitive peak reverse current	$t_p = 100 \mu\text{s square}$	5	A
E_{as}	Non repetitive avalanche energy	$T_j = 25^\circ\text{C } L = 30 \text{ mH}$ $I_{as} = 4 \text{ A}$	45	mJ
I_{ar}	Repetitive avalanche current	$V_a = 1.5 \times V_R \text{ typ}$ Current decaying linearly to 0 in $1\mu\text{s}$ Frequency limited by T_j max.	4	A
T_{stg}	Storage temperature range		-55 to +150	°C
T_j	Maximum operating junction temperature		150	°C
dV/dt	Critical rate of rise of rise voltage		10000	V/ μs

STPS80H100TV

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case	Per leg	1
		Total	0.55
$R_{th(c)}$	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	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			20	μA
		$T_j = 125^\circ\text{C}$			7	25	mA
V_F **	Forward voltage drop	$T_j = 25^\circ\text{C}$	$I_F = 40 \text{ A}$			0.78	V
		$T_j = 125^\circ\text{C}$	$I_F = 40 \text{ A}$		0.61	0.65	
		$T_j = 25^\circ\text{C}$	$I_F = 80 \text{ A}$			0.89	
		$T_j = 125^\circ\text{C}$	$I_F = 80 \text{ A}$		0.7	0.74	

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

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

To evaluate the maximum conduction losses use the following equation :

$$P = 0.56 \times I_{F(AV)} + 0.0022 \times I_{F(RMS)}^2$$

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

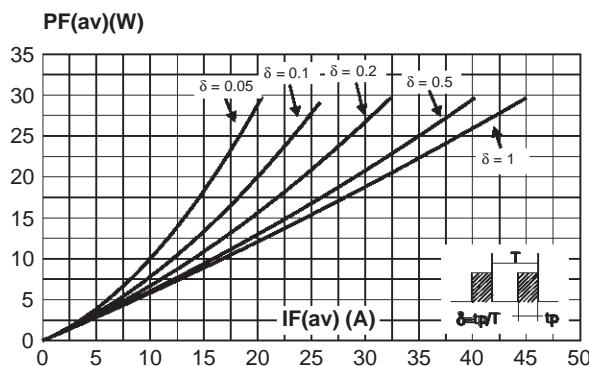


Fig. 2: Average forward current versus ambient temperature ($\delta=0.5$) (per diode).

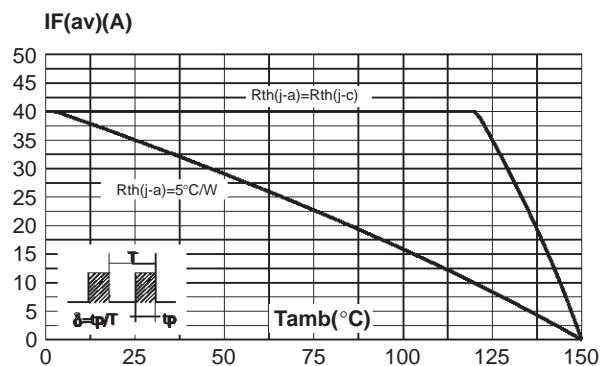


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values, per diode).

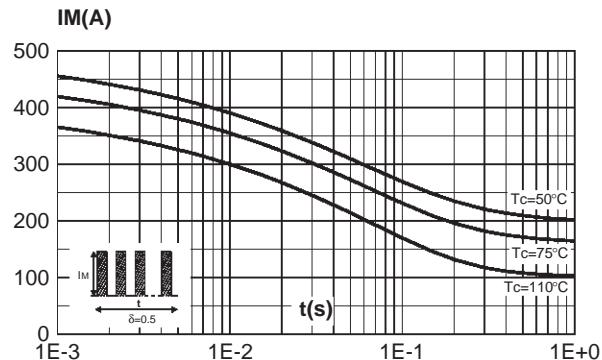


Fig. 4: Relative variation of thermal impedance junction to case versus pulse duration (per diode).

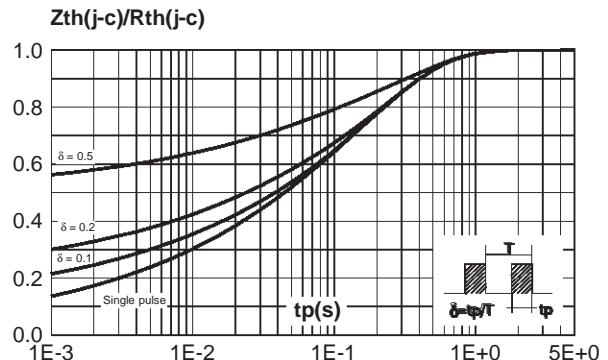


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values, per diode).

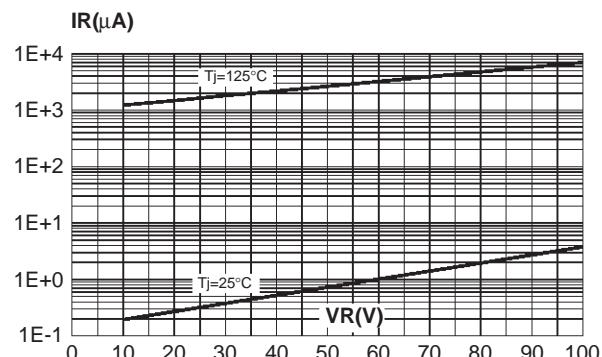


Fig. 6: Junction capacitance versus reverse voltage applied (typical values, per diode).

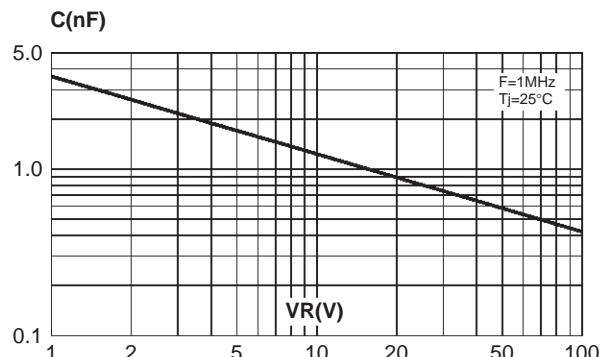
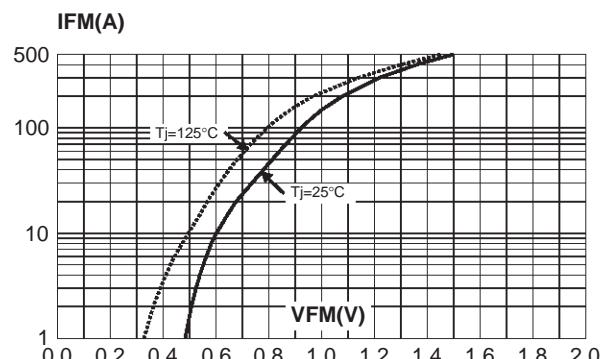


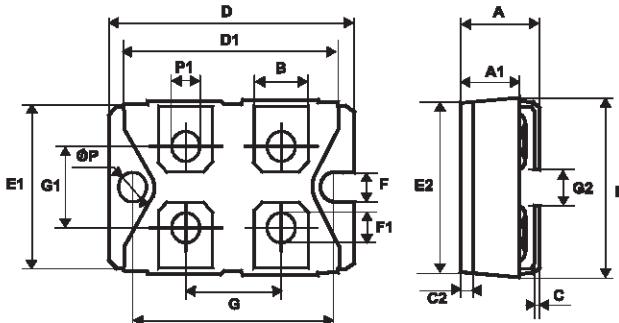
Fig. 7: Forward voltage drop versus forward current (maximum values, per diode).



STPS80H100TV

PACKAGE MECHANICAL DATA ISOTOP™

REF.	DIMENSIONS					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	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			0.976	
F	14.90		15.10	0.587		0.594
G	12.60		12.80	0.496		0.504
G1	3.50		4.30	0.138		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



- Cooling method: C
- Recommended torque value: 1.3 N.m.
- Maximum torque value: 1.5 N.m.

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS80H100TV	STPS80H100TV	ISOTOP	27g without screws	10	Tube

- Epoxy meets UL94,V0

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