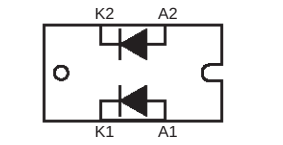
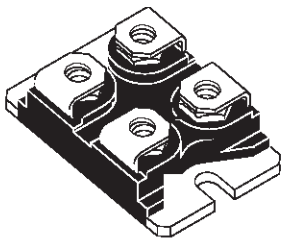
STPS80H100TV

HIGH VOLTAGE POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

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





ISOTOPTM

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	Tc = 120°C δ = 0.5	Per diode Per device	40 80	A
I_{FSM}	Surge non repetitive forward current	tp = 10 ms sinusoidal		700	A
I_{RRM}	Repetitive peak reverse current	tp = 2 µs F = 1kHz square		2	A
I_{RSM}	Non repetitive peak reverse current	tp = 100 µs square		5	A
E_{as}	Non repetitive avalanche energy	T_j = 25°C L = 30 mH I_{as} = 4 A		45	mJ
I_{ar}	Repetitive avalanche current	Va = 1.5 x V_R typ Current decaying linearly to 0 in 1µs Frequency limited by T_j max.		4	A
T_{stg}	Storage temperature range			-55 to +150	°C
Tj	Maximum operating junction temperature			150	°C
dV/dt	Critical rate of rise of rise voltage			10000	V/µs

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th\ (j-c)}$	Junction to case	Per leg	1	°C/W
		Total	0.55	
$R_{th\ (c)}$		Coupling	0.1	

When the diodes 1 and 2 are used simultaneously :
Δ Tj(diode 1) = P(diode1) x $R_{th(j-c)}$(Per diode) + P(diode 2) x $R_{th(c)}$

STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Parameter	Tests Conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage current	Tj = 25°C	$V_R = V_{RRM}$			20	µA
		Tj = 125°C			7	25	mA
V_F **	Forward voltage drop	Tj = 25°C	I_F = 40 A			0.78	V
		Tj = 125°C	I_F = 40 A		0.61	0.65	
		Tj = 25°C	I_F = 80 A			0.89	
		Tj = 125°C	I_F = 80 A		0.7	0.74	

Pulse test : * tp = 5 ms, δ < 2%
** tp = 380 µs, δ < 2%

To evaluate the maximum conduction losses use the following equation :
$P = 0.56 \times I_{F(AV)} + 0.0022 \times I_F{}^2{}_{(RMS)}$

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

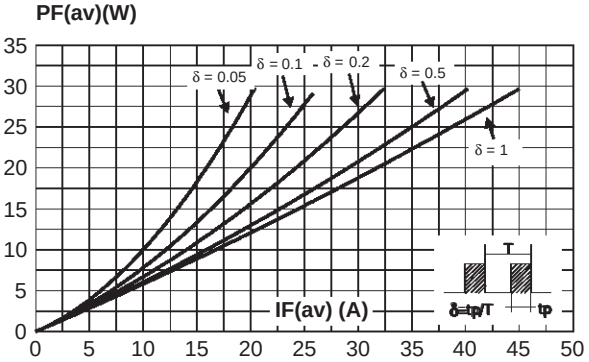


Fig. 2: Average forward current versus ambient temperature (δ=0.5) (per diode).

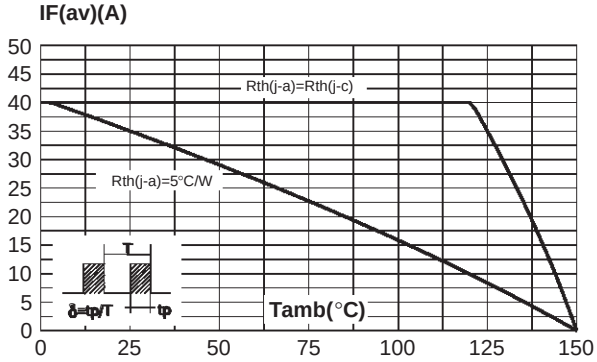


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values, per diode).

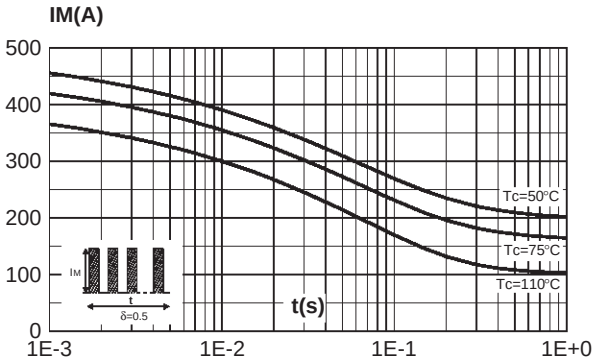


Fig. 4: Relative variation of thermal impedance junction to case versus pulse duration (per diode).

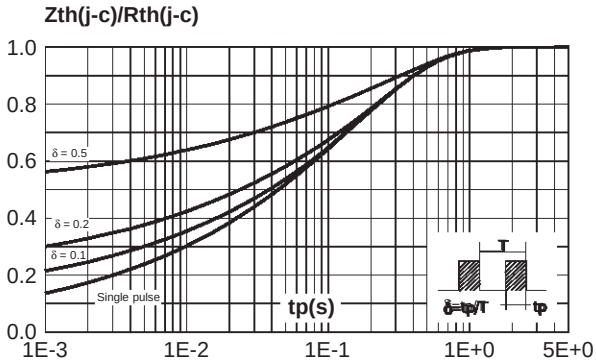


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values, per diode).

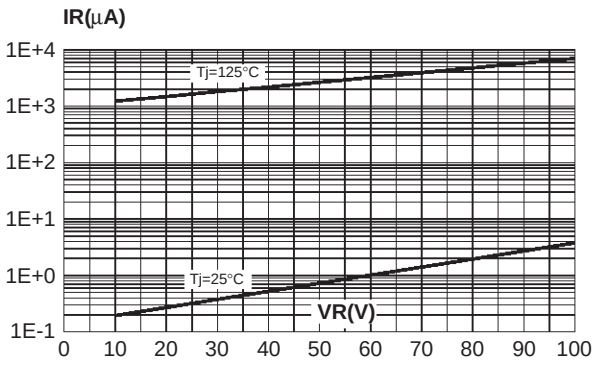


Fig. 6: Junction capacitance versus reverse voltage applied (typical values, per diode).

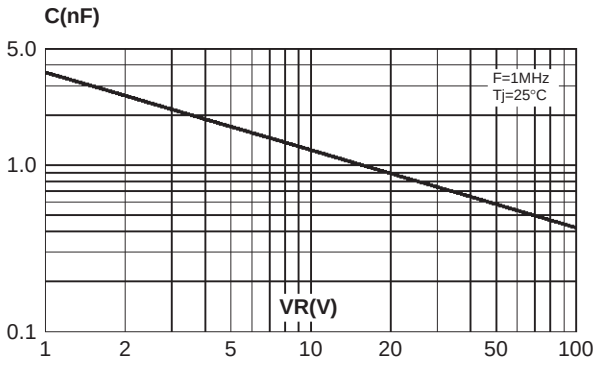
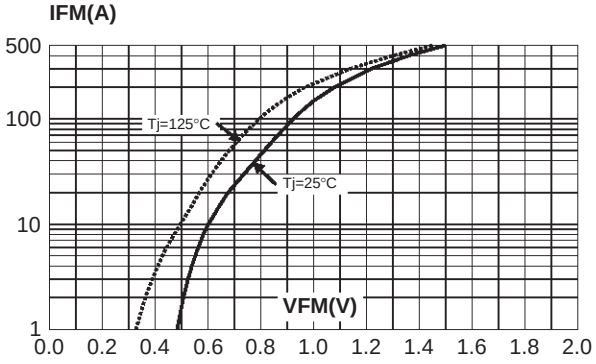
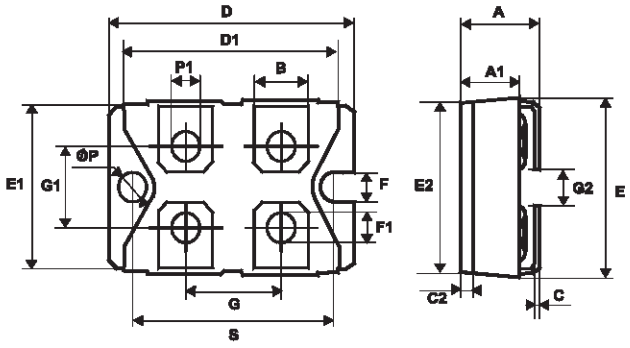


Fig. 7: Forward voltage drop versus forward current (maximum values, per diode).



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	
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

- 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