

POWER SCHOTTKY RECTIFIER

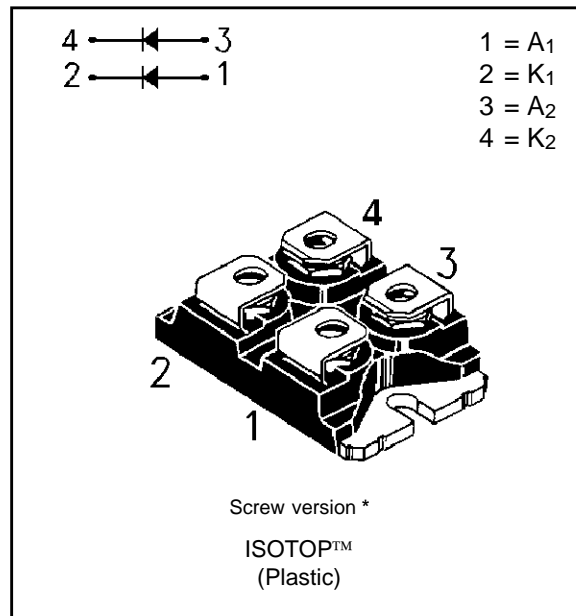
FEATURES

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD VOLTAGE DROP
- LOW THERMAL RESISTANCE
- EXTREMELY FAST SWITCHING
- INSULATED PACKAGE :
Insulating voltage = 2500 V(RMS)

DESCRIPTION

Dual power schottky rectifier suited for switchmode power supply and high frequency DC to DC converters.

Packaged in ISOTOP™, this device is intended for use in low voltage, high frequency inverters, free wheeling and polarity protection applications.



ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I _{F(RMS)}	RMS forward current	Per diode	125	A
I _{F(AV)}	Average forward current	T _c =100°C δ = 0.5 Per diode Per device	60 120	A A
I _{FSM}	Surge non repetitive forward current	tp=10ms sinusoidal Per diode	700	A
I _{RRM}	Peak repetitive reverse current	tp=2μs F=1KHz Per diode	2	A
T _{stg} T _j	Storage and junction temperature range		- 65 to + 150 - 65 to + 150	°C °C
dV/dt	Critical rate of rise of reverse voltage		1000	V/μs

Symbol	Parameter	STPS		Unit
		12035TV	12045TV	
V _{RRM}	Repetitive peak reverse voltage	35	45	V

* : Tin plated Fast-on version is also available (without V suffix).

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STPS12035T(V) / STPS12045T(V)

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
Rth (j-c)	Junction to case	Per diode	1.0	°C/W
		Total	0.55	
Rth (c)	Coupling		0.1	°C/W

When the diodes 1 and 2 are used simultaneously :

$$\Delta T_j(\text{diode } 1) = P(\text{diode}) \times R_{th}(\text{Per diode}) + P(\text{diode } 2) \times R_{th}(c)$$

ELECTRICAL CHARACTERISTICS (Per diode)

STATIC CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I _R *	T _j = 25°C	V _R = V _R RM			1	mA
	T _j = 125°C				150	mA
V _F **	T _j = 125°C	I _F = 120 A			0.87	V
	T _j = 125°C	I _F = 60 A			0.67	
	T _j = 25°C	I _F = 120 A			0.91	

Pulse test : * t_p = 5 ms, duty cycle < 2 %

** t_p = 380 μs, duty cycle < 2 %

To evaluate the conduction losses use the following equation :

$$P = 0.47 \times I_F(\text{AV}) + 0.00333 \times I_F^2(\text{RMS})$$

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

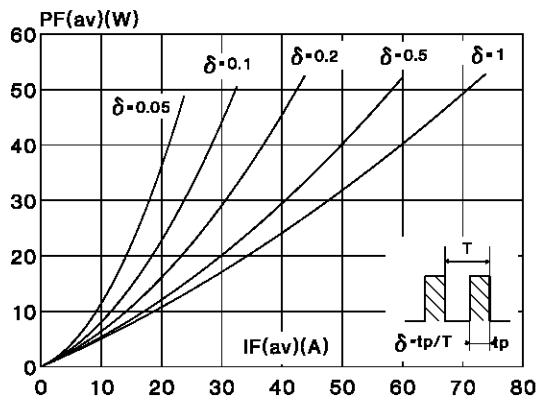
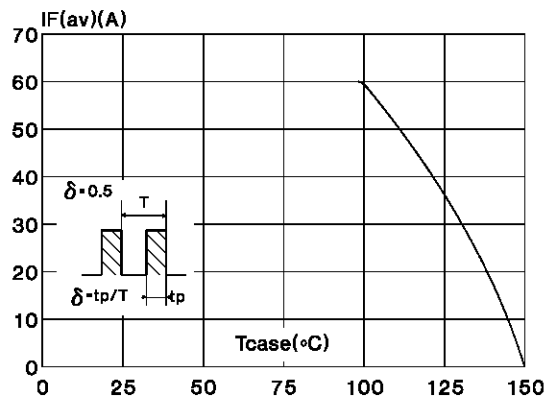


Fig.2 : Average current versus case temperature. (duty cycle : 0.5) (Per diode)



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Fig.3 : Non repetitive surge peak forward current versus overload duration. (Maximum values) (Per diode)

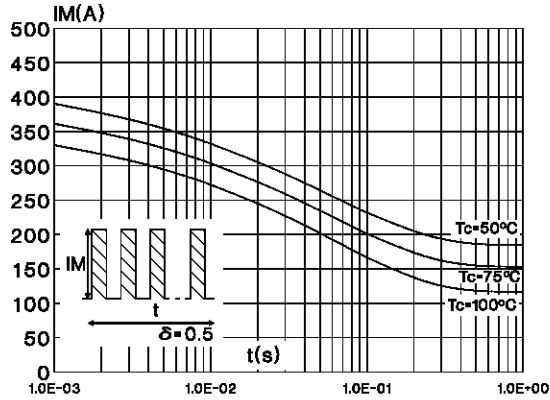


Fig.4 : Relative variation of thermal transient impedance junction to case versus pulse duration.

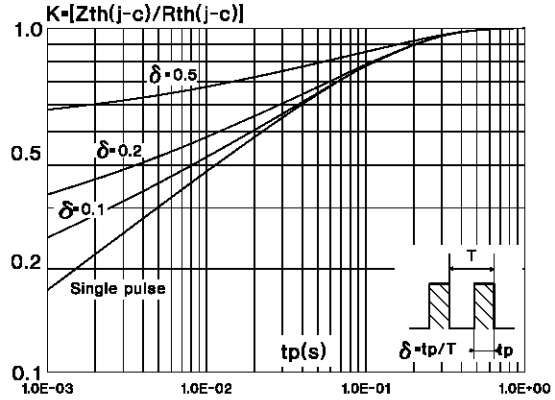


Fig.5 : Reverse leakage current versus reverse voltage applied. (Typical values) (Per diode)

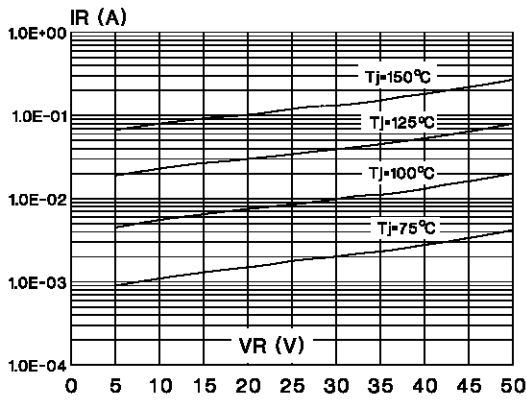


Fig.6 : Junction capacitance versus reverse voltage applied. (Typical values) (Per diode)

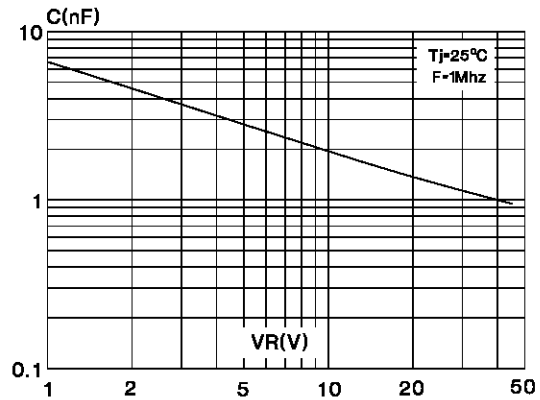
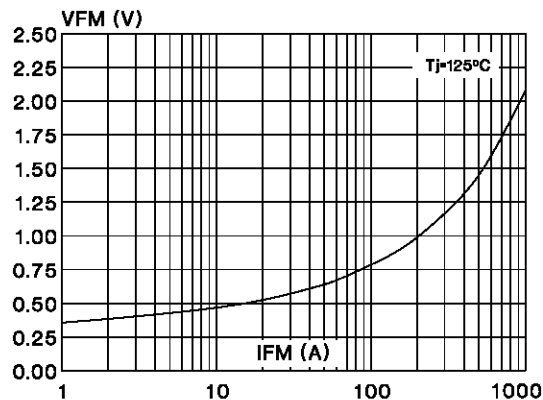
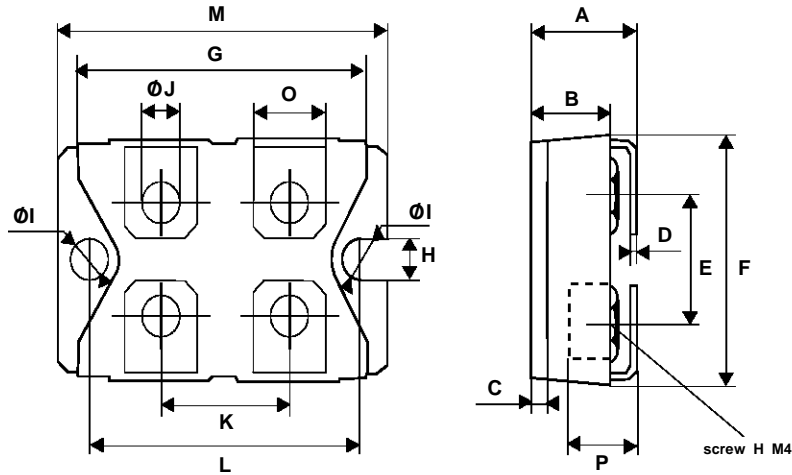


Fig.7 : Forward voltage drop versus forward current. (Maximum values) (Per diode)



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PACKAGE MECHANICAL DATA ISOTOP



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	11.80	12.20	0.465	0.480
B	8.90	9.10	0.350	0.358
C	1.95	2.05	0.077	0.081
D	0.75	0.85	0.029	0.034
E	12.60	12.80	0.496	0.504
F	25.10	25.50	0.988	1.004
G	31.50	31.70	1.240	1.248
H	4.00		0.157	
I	4.10	4.30	0.161	0.169
J	4.10	4.30	0.161	0.169
K	14.90	15.10	0.586	0.595
L	30.10	30.30	1.185	1.193
M	37.80	38.20	1.488	1.504
O	7.80	8.20	0.307	0.323
P	5.50		0.216	

Cooling method : C

Marking : Type number

Weight : 28 g (without screw)

Electrical isolation: 2500V (RMS)

Capacitance: < 45 pF

Inductance : < 5 nH

Recommended torque value: 1.3 N.m (MAX 1.6N.m) for the 6 x M4 screws. (2 x M4 screws recommended for mounting the package on the heatsink and the 4 screws given with the screw version).

The screws supplied with the package are adapted for mounting on a board (or other types of terminals) with a thickness of 0.6 mm min and 2..2 max.

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