

## POWER SCHOTTKY RECTIFIER

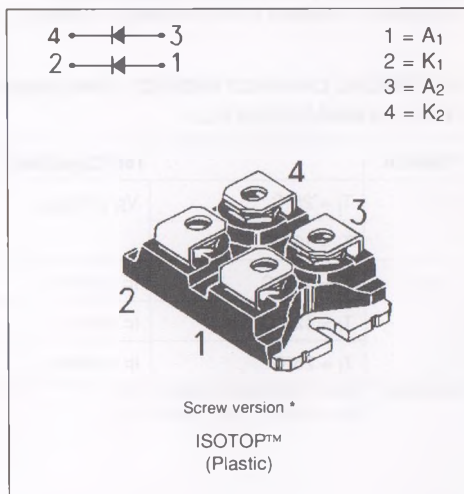
### FEATURES

- 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	$T_c=100^\circ\text{C}$ $\delta = 0.5$	Per diode	60	A
			Per device	120	A
$I_{FSM}$	Surge non repetitive forward current	$t_p=10\text{ms}$ sinusoidal	Per diode	700	A
$I_{RRM}$	Peak repetitive reverse current	$t_p=2\mu\text{s}$ $F=1\text{KHz}$	Per diode	2	A
$T_{stg}$ $T_j$	Storage and junction temperature range		- 65 to + 150	$^\circ\text{C}$	
			- 65 to + 150	$^\circ\text{C}$	
dV/dt	Critical rate of rise of reverse voltage		1000	V/ $\mu\text{s}$	

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).

TM : ISOTOP is a trademark of SGS-THOMSON Microelectronics.

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

**ELECTRICAL CHARACTERISTICS (Per diode)**

**STATIC CHARACTERISTICS**

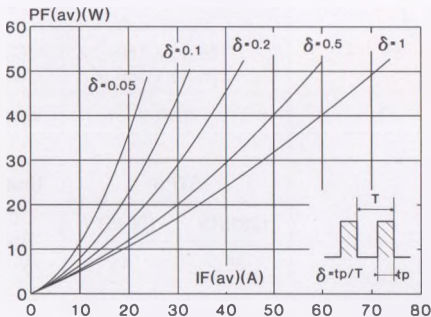
Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I <sub>R</sub> *	T <sub>j</sub> = 25°C	V <sub>R</sub> = V <sub>RRM</sub>			1	mA
	T <sub>j</sub> = 125°C				150	
V <sub>F</sub> **	T <sub>j</sub> = 125°C	I <sub>F</sub> = 120 A			0.87	V
	T <sub>j</sub> = 125°C	I <sub>F</sub> = 60 A			0.67	
	T <sub>j</sub> = 25°C	I <sub>F</sub> = 120 A			0.91	

Pulse test : \* tp = 5 ms, duty cycle < 2 %  
 \*\* tp = 380 μs, duty cycle < 2 %

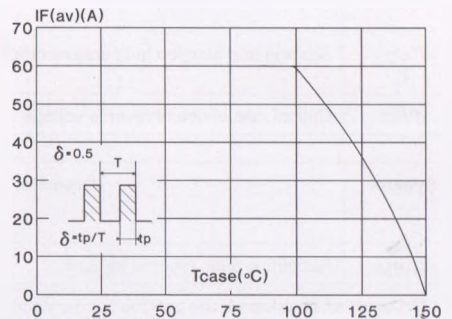
To evaluate the conduction losses use the following equation :

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

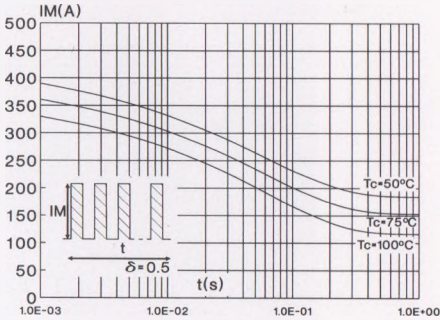
**Fig.1** : Average forward power dissipation versus average forward current. (Per diode)



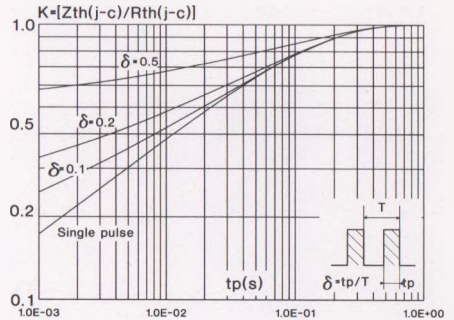
**Fig.2** : Average current versus case temperature. (duty cycle : 0.5) (Per diode)



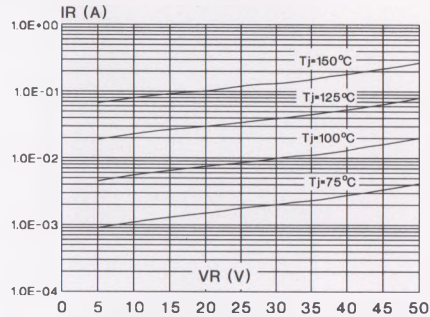
**Fig.3** : Non repetitive surge peak forward current versus overload duration. (Maximum values) (Per diode)



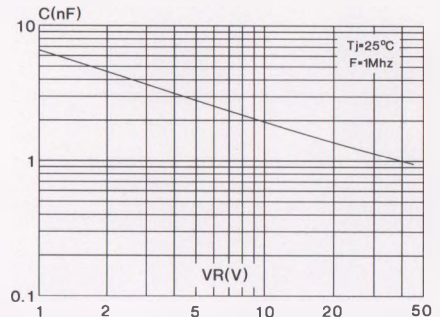
**Fig.4** : Relative variation of thermal transient impedance junction to case versus pulse duration.



**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)

