

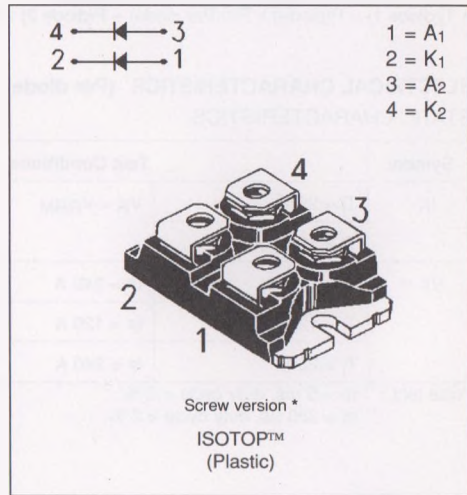
POWER SCHOTTKY RECTIFIER
FEATURES

- 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	170	A
I _{F(AV)}	Average forward current	T _c =105°C δ = 0.5	Per diode Per device	120 240	A A
I _{FSM}	Surge non repetitive forward current	t _p =10ms sinusoidal	Per diode	1500	A
I _{RRM}	Peak repetitive reverse current	t _p =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
		24035TV	24045TV	
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	0.45	°C/W
		Total	0.28	
Rth (c)	Coupling		0.10	°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 _{RRM}			2	mA
	T _j = 125°C				300	
V _F **	T _j = 125°C	I _F = 240 A			0.87	V
	T _j = 125°C	I _F = 120 A			0.67	
	T _j = 25°C	I _F = 240 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 :

$$P = 0.47 \times I_F(\text{AV}) + 0.00167 \times I_F^2(\text{RMS})$$

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)

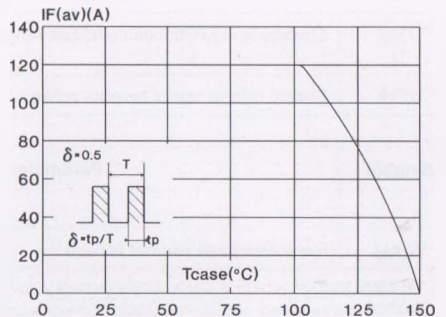
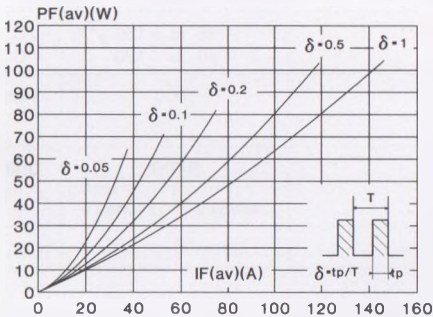


Fig.3 : Non repetitive surge peak forward current versus overload duration. (Maximum values) (Per diode)

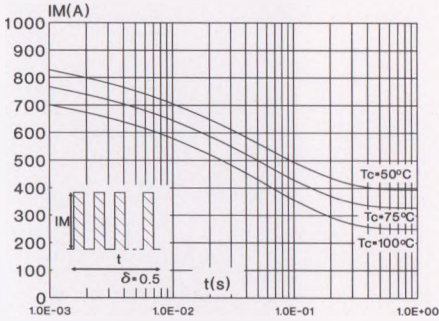


Fig.4 : Relative variation of thermal transient impedance junction to case versus pulse duration.

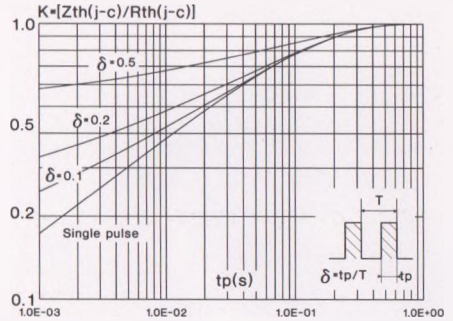


Fig.5 : Reverse leakage current versus reverse voltage applied. (Typical values) (Per diode)

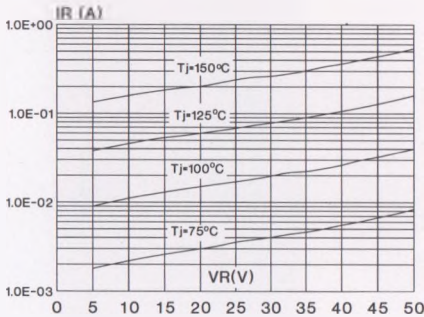


Fig.6 : Junction capacitance versus reverse voltage applied. (Typical values) (Per diode)

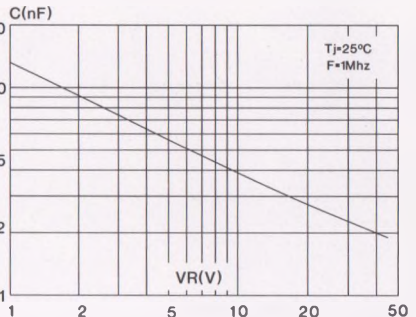


Fig.7 : Forward voltage drop versus forward current. (Maximum values) (Per diode)

