

## POWER SCHOTTKY RECTIFIER

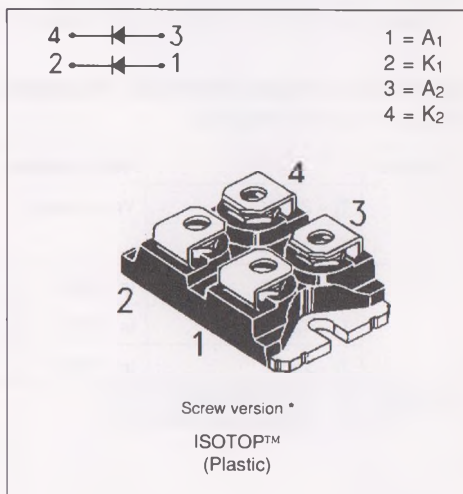
### FEATURES

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

### 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 <sub>F(RMS)</sub>                | RMS forward current                      |                       | 125           | A    |
| I <sub>F(AV)</sub>                 | Average forward current                  | T <sub>c</sub> =85°C  | 80            | A    |
|                                    |  | δ = 0.5               | 160           | A    |
| I <sub>FSM</sub>                   | Surge non repetitive forward current     | tp=10ms<br>sinusoidal | 900           | A    |
| I <sub>RRM</sub>                   | Peak repetitive reverse current          | tp=2μs<br>F=1KHz      | 2             | A    |
| T <sub>stg</sub><br>T <sub>j</sub> | Storage and junction temperature range   |                       | - 65 to + 150 | °C   |
|                                    |  |                       | - 65 to + 150 | °C   |
| dV/dt                              | Critical rate of rise of reverse voltage |                       | 1000          | V/μs |

| Symbol           | Parameter                       | STPS    |         | Unit |
|------------------|---------------------------------|---------|---------|------|
|                  |                                 | 16035TV | 16045TV |      |
| V <sub>RRM</sub> | 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 | 0.9   | °C/W |
|           |                  | Total     | 0.5   |      |
| 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**

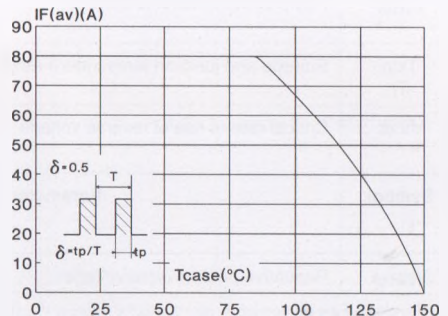
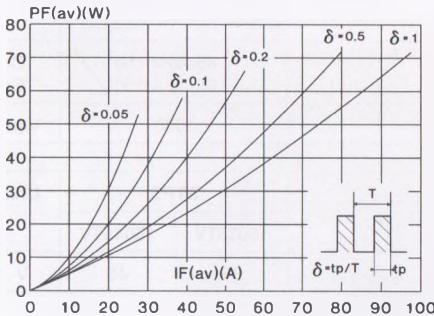
| Symbol            | Test Conditions        |                                   | Min. | Typ. | Max. | Unit |
|-------------------|------------------------|-----------------------------------|------|------|------|------|
| I <sub>R</sub> *  | T <sub>j</sub> = 25°C  | V <sub>R</sub> = V <sub>RRM</sub> |      |      | 1    | mA   |
|                   | T <sub>j</sub> = 125°C |                                   |      |      | 150  | mA   |
| V <sub>F</sub> ** | T <sub>j</sub> = 125°C | I <sub>F</sub> = 160 A            |      |      | 0.90 | V    |
|                   | T <sub>j</sub> = 125°C | I <sub>F</sub> = 80 A             |      |      | 0.69 |      |
|                   | T <sub>j</sub> = 25°C  | I <sub>F</sub> = 160 A            |      |      | 0.95 |      |

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

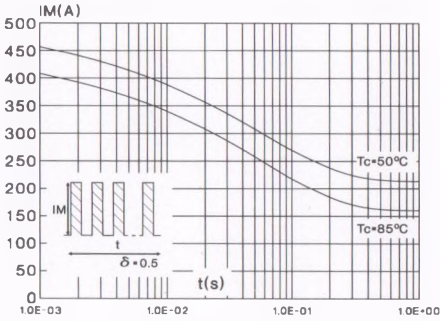
To evaluate the conduction losses use the following equation :  
 $P = 0.48 \times I_F(\text{AV}) + 0.00262 \times I_F^2(\text{RMS})$

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

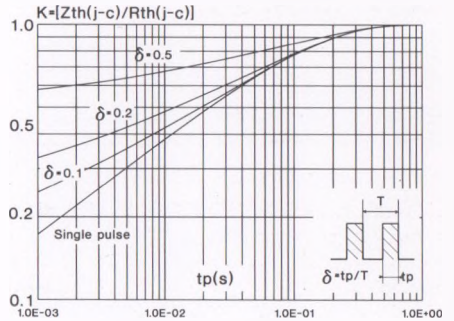
**Fig.2** : Average current versus case temperature. (duty cycle : 0.5) (Per diode)



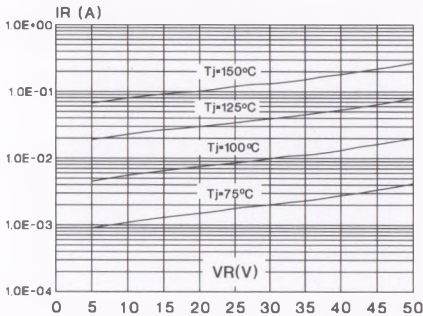
**Fig.3** : Non repetitive surge peak forward current versus overload duration. (Maximum values) (Per diode)



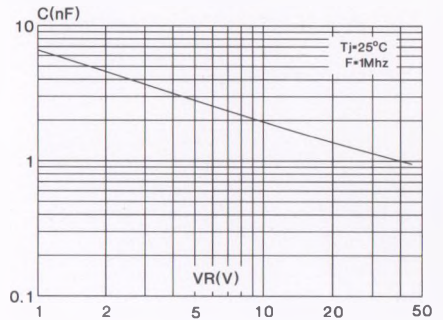
**Fig.4** : Relative variation of thermal transient impedance junction to case versus pulse duration.



**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)

