

## LOW DROP OR-ing POWER SCHOTTKY DIODE

### MAIN PRODUCT CHARACTERISTICS

|             |          |
|-------------|----------|
| $I_{F(AV)}$ | 2 x 40 A |
| $V_{RRM}$   | 15 V     |
| $T_j$ (max) | 125 °C   |
| $V_F$ (max) | 0.33 V   |

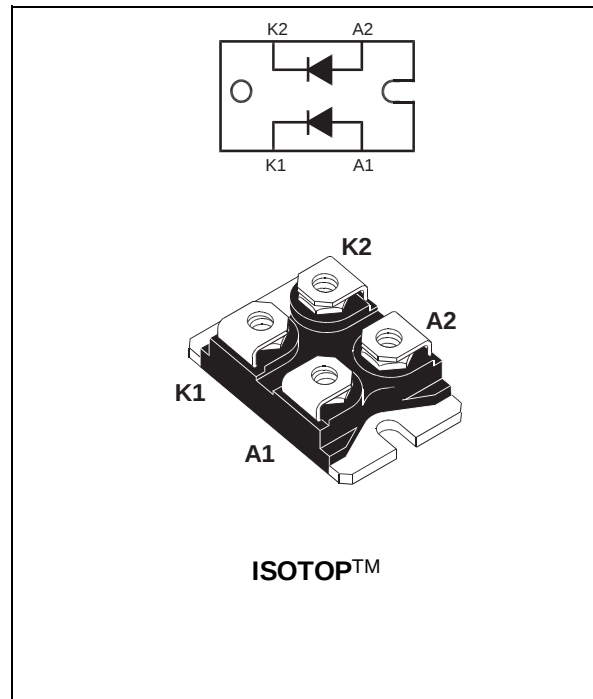
### FEATURES AND BENEFITS

- VERY LOW DROP FORWARD VOLTAGE FOR LESS POWER DISSIPATION AND REDUCED HEATSINK
- INSULATED PACKAGE:  
Insulated voltage = 2500 V<sub>(RMS)</sub>  
Capacitance = 45 pF

### DESCRIPTION

Dual Schottky rectifier suited for Switched Mode Power Supplies and DC to DC power converters.

Packaged in ISOTOP™, this device is especially intended for use as an OR-ing diode in fault tolerant power supply equipments.



### ABSOLUTE RATINGS (limiting values, per diode)

| Symbol       | Parameter                                |                                                    | Value         | Unit             |
|--------------|------------------------------------------|----------------------------------------------------|---------------|------------------|
| $V_{RRM}$    | Repetitive peak reverse voltage          |                                                    | 15            | V                |
| $I_{F(RMS)}$ | RMS forward current                      |                                                    | 100           | A                |
| $I_{F(AV)}$  | Average forward current                  | $T_c = 110^\circ\text{C}$<br>$\delta = 1$          | 40            | A                |
| $I_{FSM}$    | Surge non repetitive forward current     | $t_p = 10\text{ ms}$<br>Sinusoidal                 | 700           | A                |
| $I_{RRM}$    | Repetitive peak reverse current          | $t_p = 2\text{ }\mu\text{s}$<br>$F = 1\text{ kHz}$ | 2             | A                |
| $T_{stg}$    | Storage temperature range                |                                                    | - 65 to + 150 | °C               |
| $T_j$        | Maximum operating junction temperature   |                                                    | 125           | °C               |
| $dV/dt$      | Critical rate of rise of reverse voltage |                                                    | 10000         | V/ $\mu\text{s}$ |

\* :  $\frac{dP_{tot}}{dT_j} < \frac{1}{R_{th(j-a)}}$  thermal runaway condition for a diode on its own heatsink

## THERMAL RESISTANCES

| Symbol               | Parameter        |           | Value | Unit |
|----------------------|------------------|-----------|-------|------|
| R <sub>th(j-c)</sub> | Junction to case | Per diode | 1     | °C/W |
|                      |                  | Total     | 0.55  |      |
| R <sub>th(c)</sub>   |                  | Coupling  | 0.1   |      |

## STATIC ELECTRICAL CHARACTERISTICS (per diode)

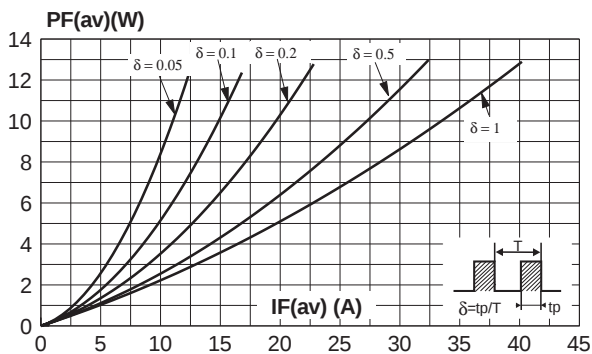
| Symbol           | Parameter               | Tests conditions       |                       | Min. | Typ. | Max. | Unit |
|------------------|-------------------------|------------------------|-----------------------|------|------|------|------|
| I <sub>R</sub> * | Reverse leakage current | T <sub>j</sub> = 100°C | V <sub>R</sub> = 5V   |      | 280  |      | mA   |
|                  |                         | T <sub>j</sub> = 25°C  | V <sub>R</sub> = 12V  |      |      | 11   |      |
|                  |                         | T <sub>j</sub> = 100°C |                       |      | 0.44 | 1.1  | A    |
| V <sub>F</sub> * | Forward voltage drop    | T <sub>j</sub> = 25°C  | I <sub>F</sub> = 40 A |      |      | 0.43 | V    |
|                  |                         | T <sub>j</sub> = 125°C | I <sub>F</sub> = 40 A |      | 0.28 | 0.33 |      |

Pulse test : \* t<sub>p</sub> = 380 μs, δ < 2 %

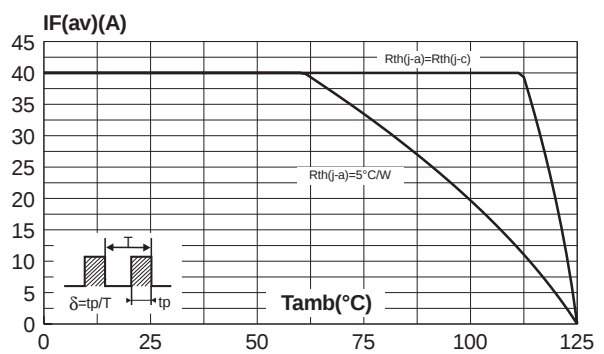
To evaluate the conduction losses use the following equation :

$$P = 0.19 \times I_{F(AV)} + 3.25 \cdot 10^{-3} \times I_{F(RMS)}^2$$

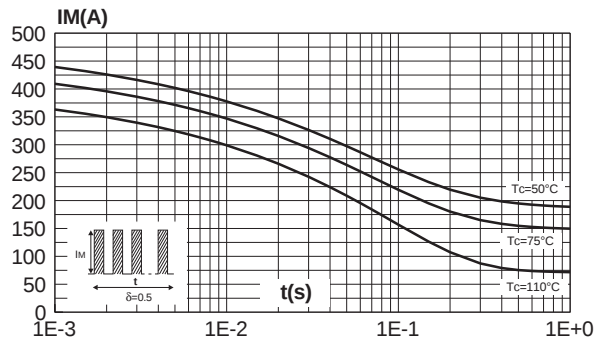
**Fig. 1:** Average forward power dissipation versus average forward current (per diode).



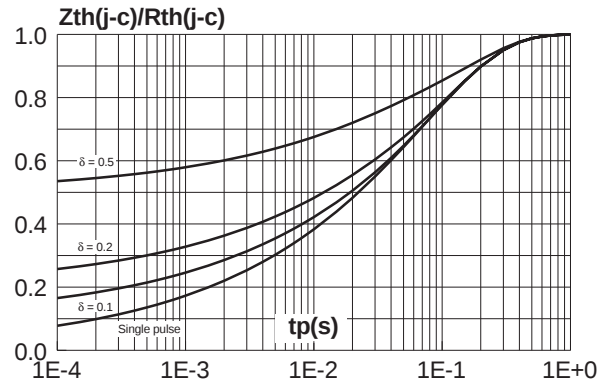
**Fig. 2:** Average forward current versus ambient temperature (δ=1, per diode).



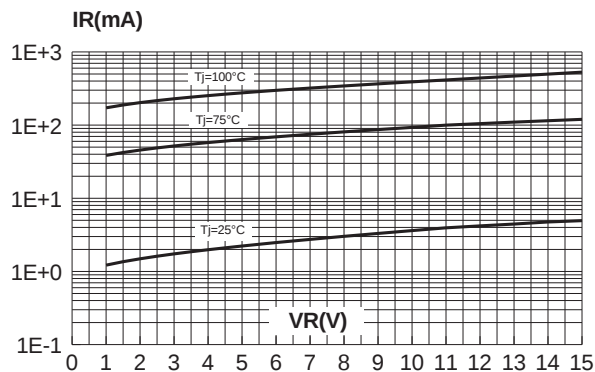
**Fig. 3:** Non repetitive surge peak forward current versus overload duration (maximum values, per diode).



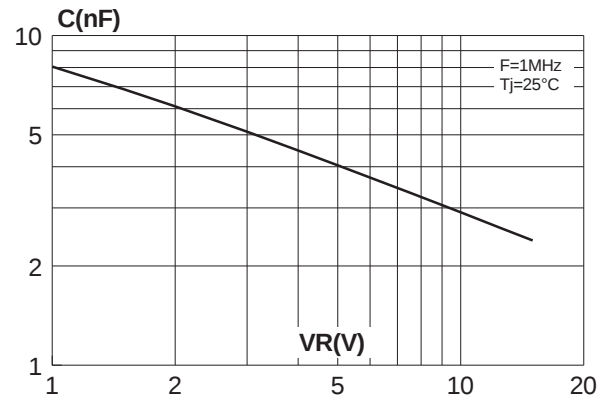
**Fig. 4:** Relative variation of thermal impedance junction to case versus pulse(per diode).



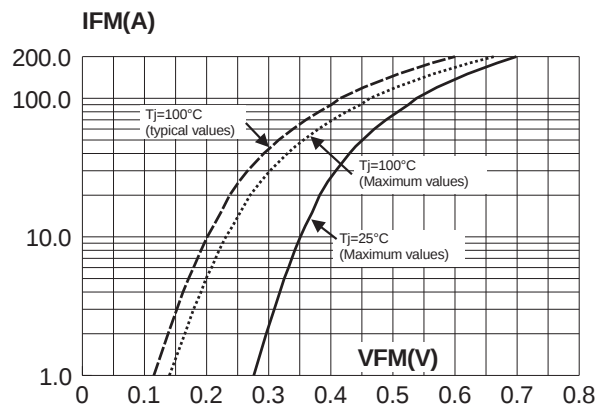
**Fig. 5:** Reverse leakage current versus reverse voltage applied (typical values, per diode).



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



**Fig. 7:** Forward voltage drop versus forward current (per diode).



## STPS80L15TV

### PACKAGE MECHANICAL DATA ISOTOP

| REF. | DIMENSIONS  |       |            |       |
|------|-------------|-------|------------|-------|
|      | Millimeters |       | Inches     |       |
|      | Min.        | Max.  | Min.       | 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 typ.  |       | 0.976 typ. |       |
| 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 |

| Ordering type | Marking     | Package | Weight                  | Base qty | Delivery mode |
|---------------|-------------|---------|-------------------------|----------|---------------|
| STPS80L15TV   | STPS80L15TV | ISOTOP  | 28g<br>(without screws) | 10       | Tube          |

- Cooling method: by conduction (C)
- Recommended torque value: 1.3 N.m.
- Maximum torque value: 1.5 N.m.
- Epoxy meets UL94,V0

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