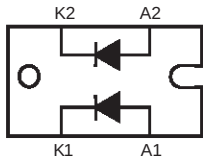
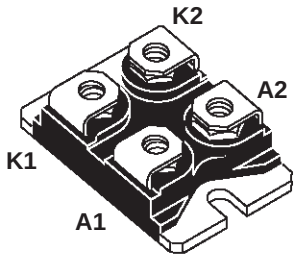
# STPS120L15TV

## LOW DROP OR-ing POWER SCHOTTKY DIODE

### MAIN PRODUCT CHARACTERISTICS

| | |
|---|---|
| $I_{F(AV)}$ | 2 x 60 A |
| $V_{RRM}$ | 15 V |
| Tj (max) | 125 °C |
| $V_F$ (max) | 0.31 V |




**ISOTOP**TM

### FEATURES AND BENEFITS

- VERY LOW DROP FORWARD VOLTAGE FOR LESS POWER DISSIPATION AND REDUCED HEATSINK
- INSULATED PACKAGE:
  Insulated voltage = 2500 $V_{(RMS)}$
  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 | | 160 | A |
| $I_{F(AV)}$ | Average forward current | Tc = 115°C<br>δ = 1 | 60 | A |
| $I_{FSM}$ | Surge non repetitive forward current | tp = 10 ms<br>Sinusoidal | 1200 | A |
| $I_{RRM}$ | Repetitive peak reverse current | tp = 2 µs<br>F = 1kHz | 2 | A |
| $T_{stg}$ | Storage temperature range | | - 65 to + 150 | °C |
| Tj | Maximum operating junction temperature | | 125 | °C |
| dV/dt | Critical rate of rise of reverse voltage | | 10000 | V/µs |

* : $\frac{dPtot}{dTj} < \frac{1}{Rth(j-a)}$ thermal runaway condition for a diode on its own heatsink

ISOTOP is a trademark of STMicroelectronics

## THERMAL RESISTANCES

| Symbol | Parameter | | Value | Unit |
|---|---|---|---|---|
| $R_{th\ (j-c)}$ | Junction to case | Per diode | 0.45 | °C/W |
| | | Total | 0.28 | |
| $R_{th\ (c)}$ | | Coupling | 0.1 | |

## STATIC ELECTRICAL CHARACTERISTICS (per diode)

| Symbol | Parameter | Tests conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $I_R$ * | Reverse leakage current | Tj = 100°C | $V_R$ = 5V | | 450 | | mA |
| | | Tj = 25°C | $V_R$ = 12V | | | 22 | mA |
| | | Tj = 100°C | | | 0.7 | 2.2 | A |
| $V_F$ * | Forward voltage drop | Tj = 25°C | $I_F$ = 60 A | | | 0.43 | V |
| | | Tj = 125°C | $I_F$ = 60 A | | 0.27 | 0.31 | |

Pulse test : * tp = 380 µs, δ < 2%

To evaluate the conduction losses use the following equation :
$P = 0.18 \times I_{F(AV)} + 2.2\ 10^{-3} \times I_F{}^2{}_{(RMS)}$

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

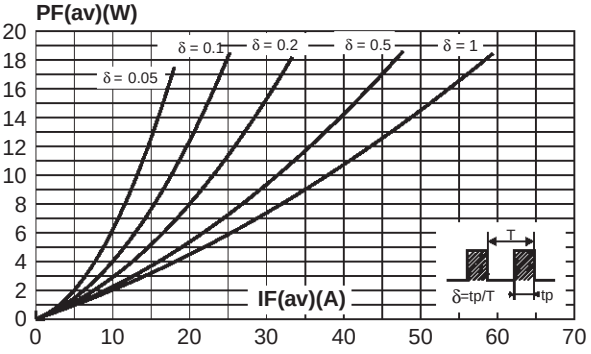



**Fig. 2:** Average forward current versus ambient temperature ( δ =1) (per diode).

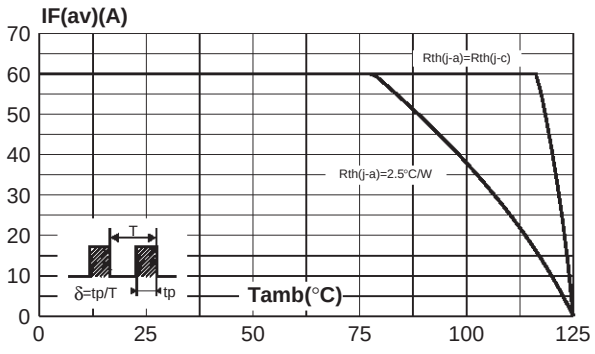


**Fig. 3:** Non repetitive surge peak forward current versus overload duration (maximum values per diode).

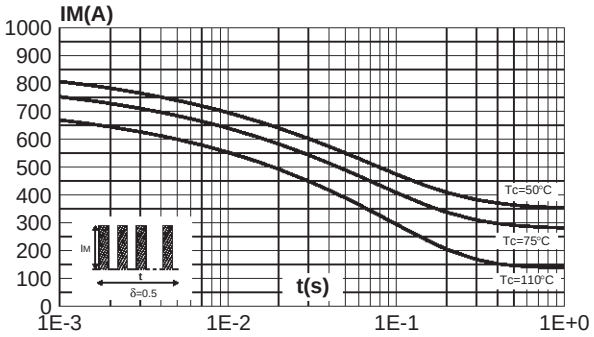



**Fig. 4:** Relative variation of thermal impedance junction to case versus pulse duration.

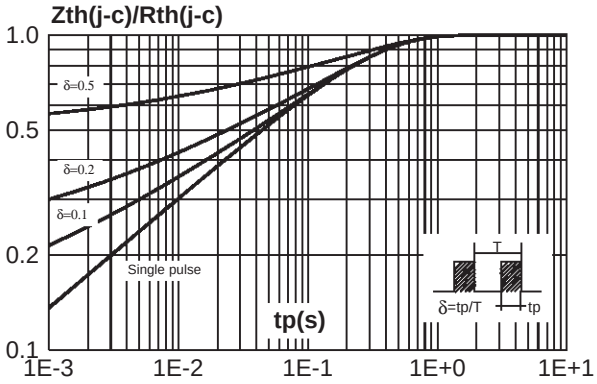



**Fig. 5:** Reverse leakage current versus reverse voltage applied (typical values per diode).

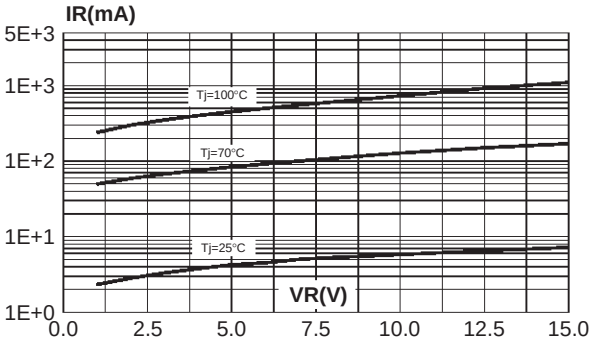



**Fig. 6:** Junction capacitance versus reverse voltage applied (typical values per diode).

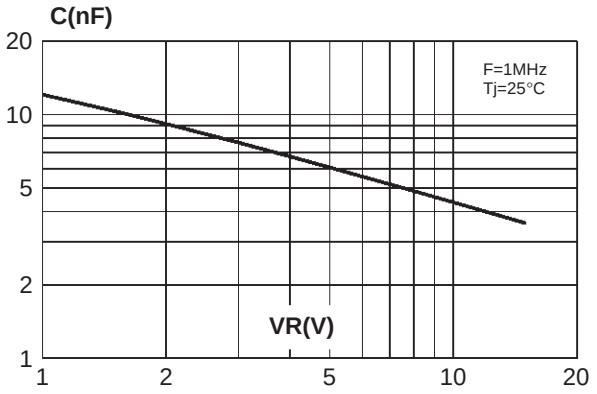
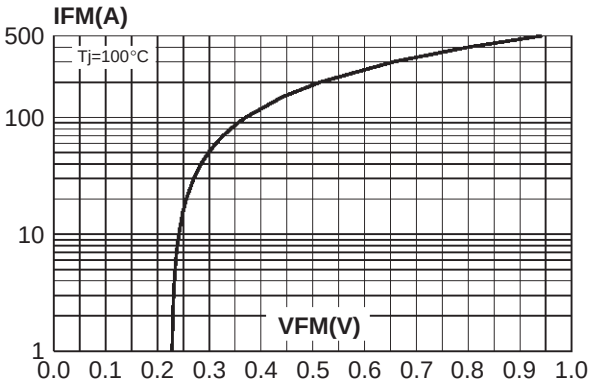
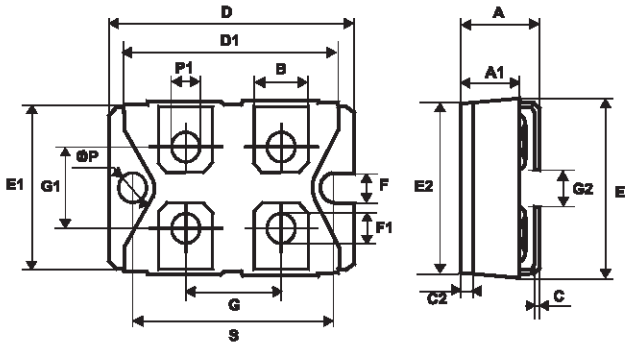



**Fig. 7:** Forward voltage drop versus forward current (maximum values per diode).



## 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 |
|---|---|---|---|---|---|
| STPS120L15TV | STPS120L15TV | ISOTOP | 28g (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