

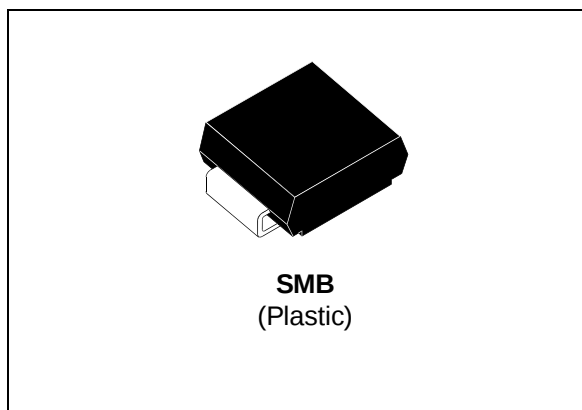
## POWER SCHOTTKY RECTIFIERS

### MAIN PRODUCT CHARACTERISTICS

|             |               |
|-------------|---------------|
| $I_{F(AV)}$ | <b>1.5 A</b>  |
| $V_{RRM}$   | <b>100 V</b>  |
| $V_F$ (max) | <b>0.70 V</b> |

### FEATURES AND BENEFITS

- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD VOLTAGE DROP
- LOW CAPACITANCE
- HIGH REVERSE AVALANCHE SURGE CAPABILITY



### DESCRIPTION

High voltage Schottky rectifier suited for SLIC protection during the card insertion operation.

### ABSOLUTE RATINGS (limiting values)

| Symbol             | Parameter                                                        |                                                                  | Value                | Unit             |
|--------------------|------------------------------------------------------------------|------------------------------------------------------------------|----------------------|------------------|
| $V_{RRM}$          | Repetitive Peak Reverse Voltage                                  |                                                                  | 100                  | V                |
| $I_{F(RMS)}$       | RMS Forward Current                                              |                                                                  | 10                   | A                |
| $I_{F(AV)}$        | Average Forward Current                                          | $T_L = 90^\circ\text{C}$<br>$\delta = 0.5$<br>$V_R = 60\text{V}$ | 1.5                  | A                |
| $I_{FSM}$          | Surge Non Repetitive Forward Current                             | $t_p = 10\text{ ms}$<br>Sinusoidal                               | 75                   | A                |
| $I_{RRM}$          | Peak Repetitive Reverse Current                                  | $t_p = 2\text{ }\mu\text{s}$<br>$F = 1\text{KHz}$                | 1                    | A                |
| $I_{RSM}$          | Non Repetitive Peak Reverse Current                              | $t_p = 100\text{ }\mu\text{s}$                                   | 1                    | A                |
| $T_{stg}$<br>$T_J$ | Storage Temperature Range<br>Max. Operating Junction Temperature |                                                                  | - 65 to + 150<br>115 | $^\circ\text{C}$ |
| $dV/dt$            | Critical Rate of Rise of Reverse Voltage                         |                                                                  | 1000                 | V/ $\mu\text{s}$ |

STPS1100U

THERMAL RESISTANCE

| Symbol    | Parameter      | Value | Unit |
|-----------|----------------|-------|------|
| Rth (j-l) | Junction-leads | 20    | °C/W |

ELECTRICAL CHARACTERISTICS  
STATIC CHARACTERISTICS

| Symbol            | Parameter               | Tests Conditions       |                                   | Min. | Typ. | Max. | Unit |
|-------------------|-------------------------|------------------------|-----------------------------------|------|------|------|------|
| I <sub>R</sub> *  | Reverse leakage current | T <sub>j</sub> = 25°C  | V <sub>R</sub> = V <sub>RRM</sub> |      |      | 30   | μA   |
|                   |                         | T <sub>j</sub> = 100°C |                                   |      | 1    | 5    | mA   |
| V <sub>F</sub> ** | Forward voltage drop    | T <sub>j</sub> = 25°C  | I <sub>F</sub> = 100 mA           |      |      | 0.43 | V    |
|                   |                         | T <sub>j</sub> = 25°C  | I <sub>F</sub> = 3 A              |      |      | 0.95 |      |
|                   |                         | T <sub>j</sub> = 100°C | I <sub>F</sub> = 1.5 A            |      | 0.57 | 0.71 |      |
|                   |                         | T <sub>j</sub> = 100°C | I <sub>F</sub> = 3 A              |      | 0.67 | 0.85 |      |

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

To evaluate the conduction losses use the following equation:

$$P = 0.65 \times I_{F(AV)} + 0.067 \times I_{F(RMS)}^2$$

Typical junction capacitance, V<sub>R</sub> = 0V    F = 1MHz    T<sub>j</sub> = 25°C    C = 365pF

Fig. 1: Average forward power dissipation versus average forward current.

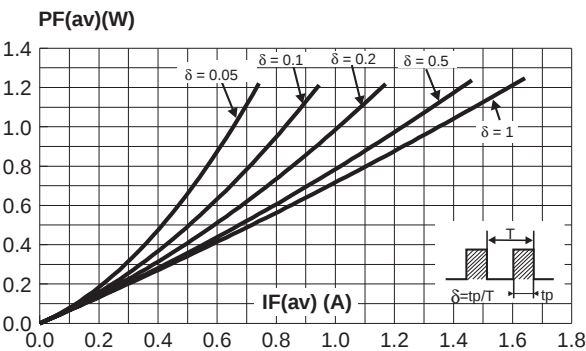
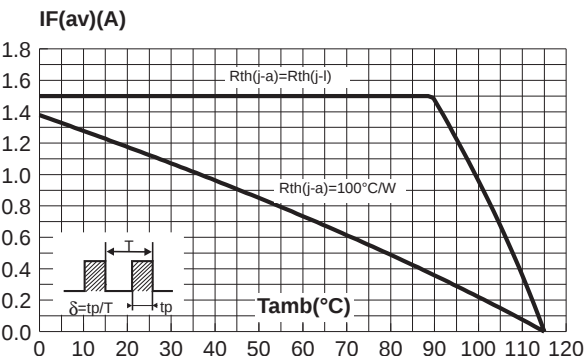
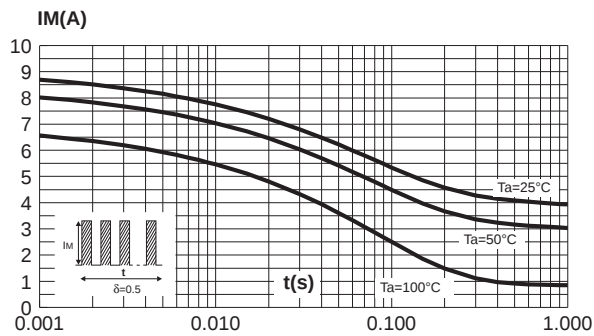


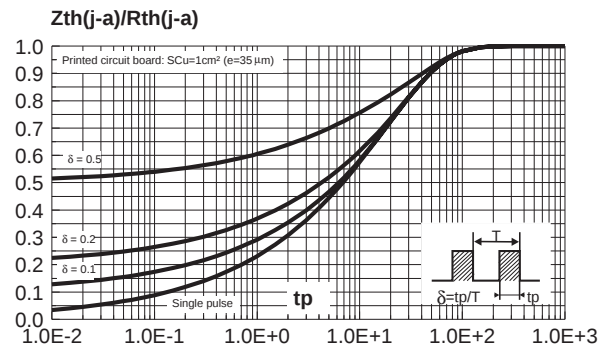
Fig. 2: Average forward current versus ambient temperature ( $\delta=0.5$ ).



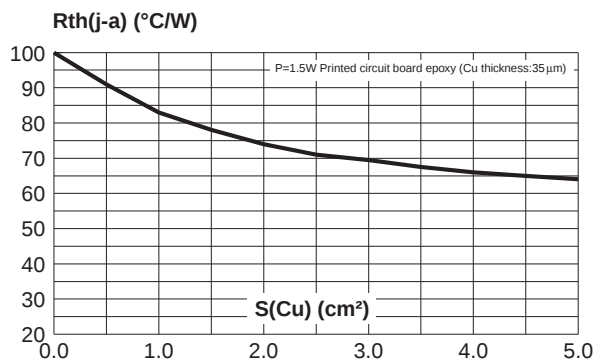
**Fig. 3:** Non repetitive surge peak forward current versus overload duration; device mounted on printed circuit board  $S(\text{Cu})=1\text{cm}^2$  (maximum values).



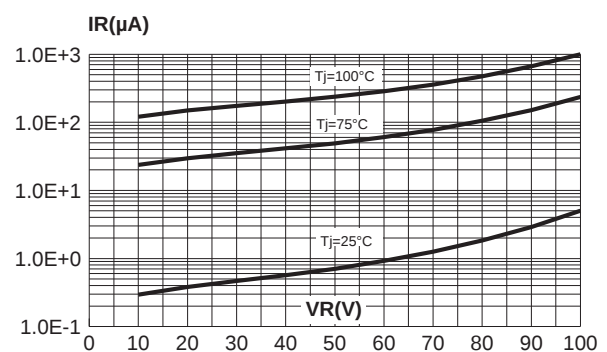
**Fig. 4:** Relative variation of thermal impedance junction to ambient versus pulse duration.



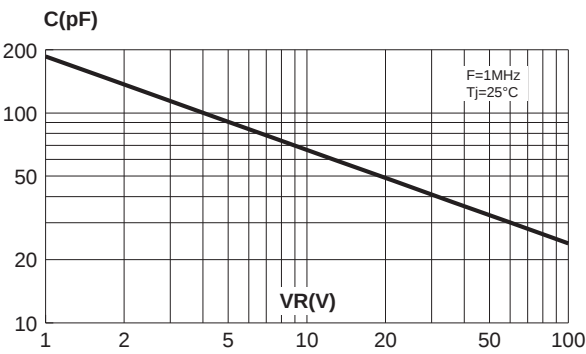
**Fig. 5:** Variation of thermal resistance junction to ambient versus copper surface under each lead.



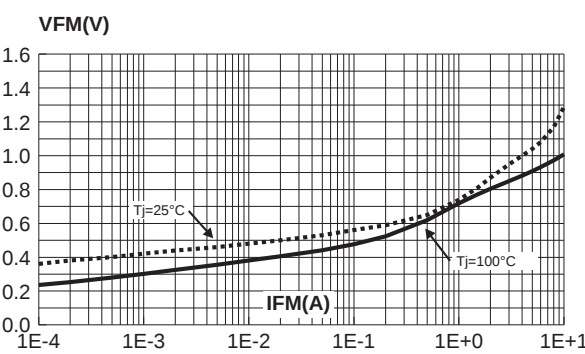
**Fig. 6:** Reverse leakage current versus reverse voltage applied (typical values).

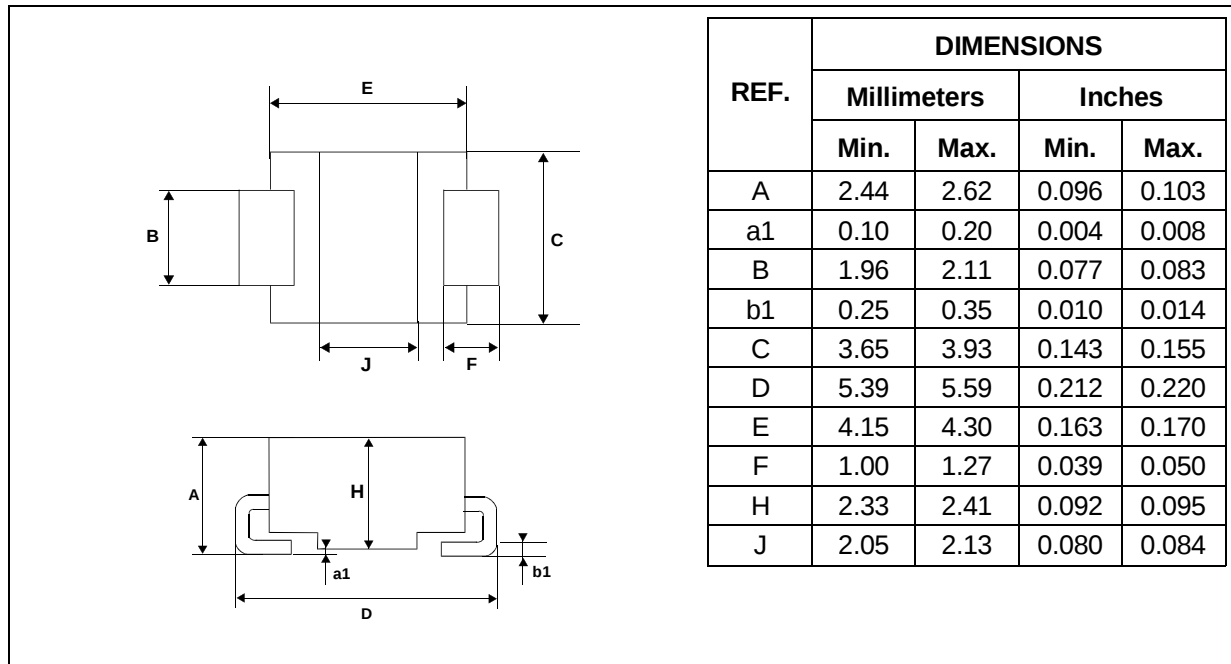
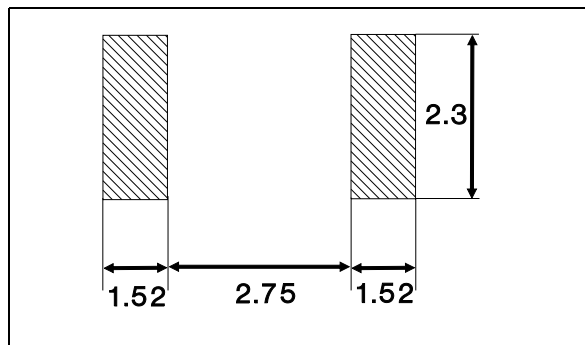


**Fig. 7:** Junction capacitance versus reverse voltage applied (typical values).



**Fig. 8:** Forward voltage drop versus forward current (maximum values).



**PACKAGE MECHANICAL DATA**  
 SMB (plastic)

**FOOTPRINT DIMENSIONS** (in millimeters)  
 SMB (plastic)


|                    |     |
|--------------------|-----|
| <b>Voltage (V)</b> | 100 |
| <b>Marking</b>     | E11 |

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