

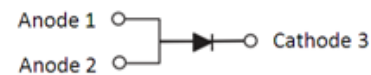
## 15A, 120V - 200V Trench Schottky Rectifiers

### FEATURES

- Patented Trench Schottky technology
- Excellent high temperature stability
- Low forward voltage
- Low power loss/ High efficiency
- High forward surge capability
- Ideal for automated placement
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



TO-277A (SMPC)



### TYPICAL APPLICATIONS

Trench Schottky barrier rectifier is designed for high frequency miniature switched mode power supplies such as adapters, lighting and on-board DC/DC converters.

### MECHANICAL DATA

**Case:** TO-277A (SMPC)

Molding compound, UL flammability classification rating 94V-0

Moisture sensitivity level: level 1, per J-STD-020

Packing code with suffix "G" means green compound (halogen-free)

**Terminal:** Matte tin plated leads, solderable per JESD22-B102

Meet JESD 201 class 1A whisker test

**Polarity:** As marked

**Weight:** 95mg (approximately)

| MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25°C unless otherwise noted) |  |                       |                        |                    |              |      |            |      |            |      |      |
|-----------------------------------------------------------------------------------------------|--|-----------------------|------------------------|--------------------|--------------|------|------------|------|------------|------|------|
| PARAMETER                                                                                     |  |                       |                        | SYMBOL             | TSP15H120S   |      | TSP15H150S |      | TSP15H200S |      | UNIT |
| Marking code                                                                                  |  |                       |                        |                    | 15H120       |      | 15H150     |      | 15H200     |      |      |
| Maximum repetitive peak reverse voltage                                                       |  |                       |                        | V <sub>RRM</sub>   | 120          |      | 150        |      | 200        |      | V    |
| Maximum average forward rectified current                                                     |  |                       |                        | I <sub>F(AV)</sub> | 15           |      |            |      |            |      | A    |
| Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load           |  |                       |                        | I <sub>FSM</sub>   | 250          |      |            |      |            |      | A    |
|                                                                                               |  |                       |                        |                    | TYP          | MAX  | TYP        | MAX  | TYP        | MAX  |      |
| Instantaneous forward voltage<br>(Note 1)                                                     |  | I <sub>F</sub> = 7.5A | T <sub>J</sub> = 25°C  | V <sub>F</sub>     | 0.57         | -    | 0.69       | -    | 0.73       | -    | V    |
|                                                                                               |  | I <sub>F</sub> = 15A  |                        |                    | 0.67         | 0.75 | 0.75       | 0.84 | 0.79       | 0.89 |      |
|                                                                                               |  | I <sub>F</sub> = 7.5A | T <sub>J</sub> = 125°C |                    | 0.48         | -    | 0.56       | -    | 0.59       | -    |      |
|                                                                                               |  | I <sub>F</sub> = 15A  |                        |                    | 0.58         | 0.66 | 0.63       | 0.73 | 0.66       | 0.76 |      |
| Instantaneous reverse current at rated reverse voltage                                        |  |                       | T <sub>J</sub> = 25°C  | I <sub>R</sub>     | -            | 250  | 6          | 150  | 6          | 150  | μA   |
|                                                                                               |  |                       | T <sub>J</sub> = 125°C |                    | 15           | 35   | 4          | 25   | 4          | 25   | mA   |
| Typical thermal resistance                                                                    |  |                       |                        | R <sub>θJL</sub>   | 9            |      |            |      |            |      | °C/W |
| Operating temperature range                                                                   |  |                       |                        | T <sub>J</sub>     | - 55 to +150 |      |            |      |            |      | °C   |
| Storage temperature range                                                                     |  |                       |                        | T <sub>STG</sub>   | - 55 to +150 |      |            |      |            |      | °C   |

Note 1: Pulse Test with Pulse Width = 300μs, 1% duty cycle

**ORDERING INFORMATION**

| PART NO.                  | PACKING CODE | PACKING CODE SUFFIX | PACKAGE | PACKING                 |
|---------------------------|--------------|---------------------|---------|-------------------------|
| TSP15HXXXS<br>(Note 1, 2) | S1           | G                   | SMPC    | 1,500/ 7" Plastic reel  |
|                           | S2           |                     | SMPC    | 6,000/ 13" Plastic reel |

Note 1: "XXX" defines voltage from 120V (TSP15H120S) to 200V (TSP15H200S)

Note 2: Whole series with green compound (halogen-free)

**EXAMPLE**

| PREFERRED PART NO. | PART NO.   | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION    |
|--------------------|------------|--------------|---------------------|----------------|
| TSP15H120S S1G     | TSP15H120S | S1           | G                   | Green compound |

**RATINGS AND CHARACTERISTICS CURVES**

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

FIG.1- FORWARD CURRENT DERATING CURVE

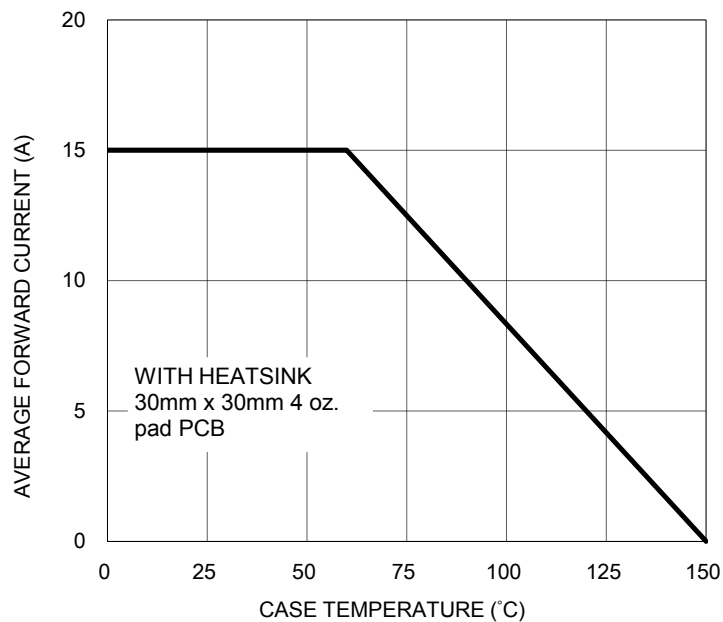


FIG. 2- TYPICAL FORWARD CHARACTERISTICS

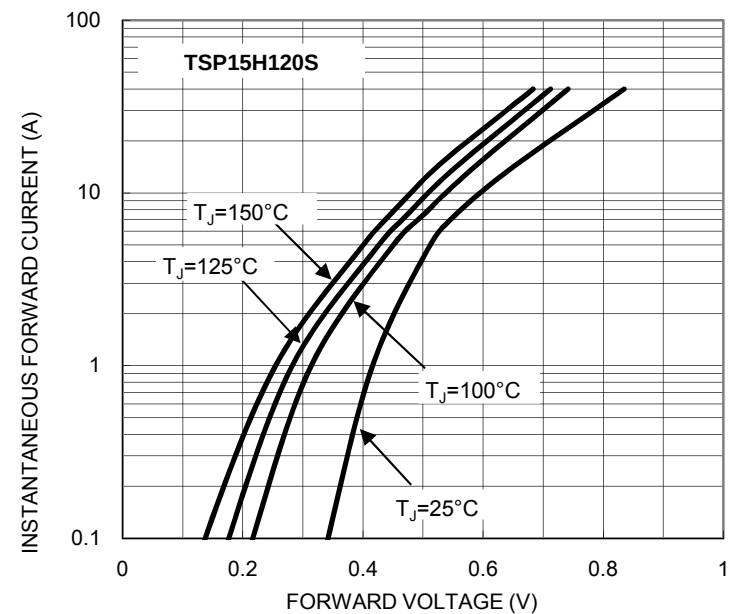


FIG. 3- TYPICAL FORWARD CHARACTERISTICS

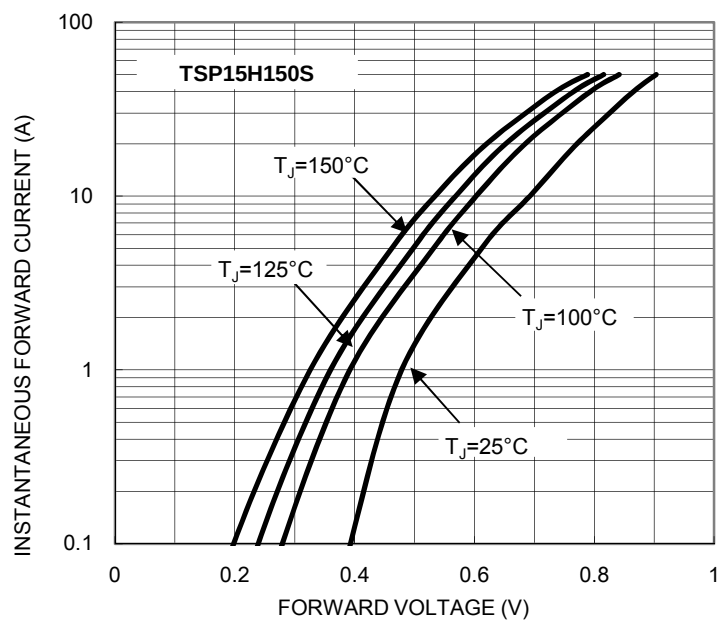


FIG. 4- TYPICAL FORWARD CHARACTERISTICS

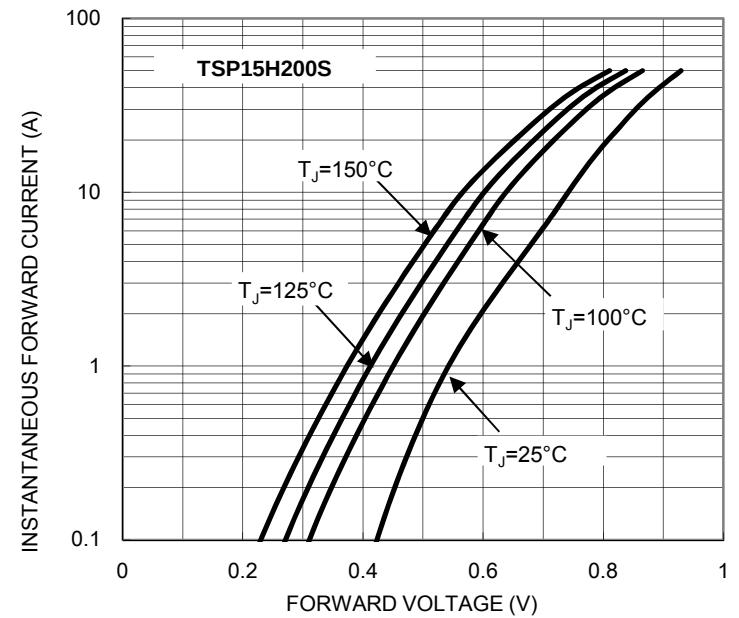


FIG. 5- TYPICAL REVERSE CHARACTERISTICS

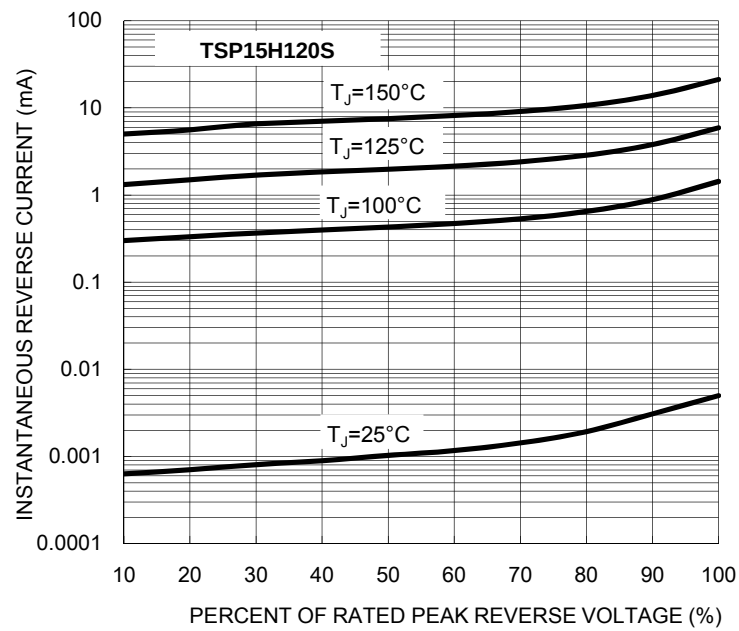


FIG. 6- TYPICAL REVERSE CHARACTERISTICS

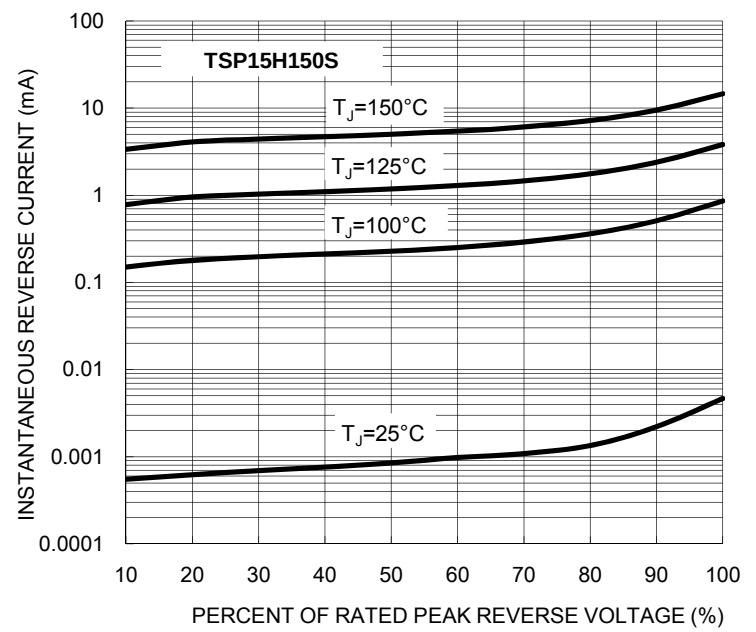


FIG. 7- TYPICAL REVERSE CHARACTERISTICS

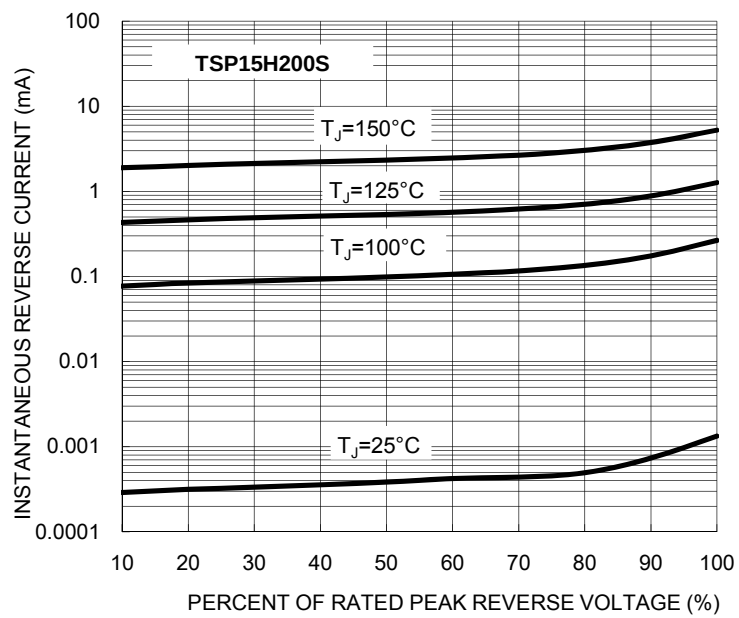


FIG. 8- TYPICAL JUNCTION CAPACITANCE

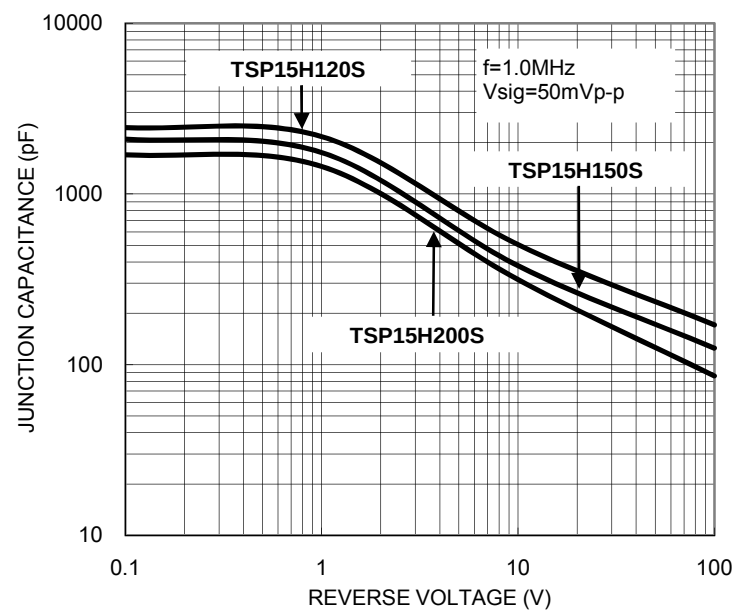
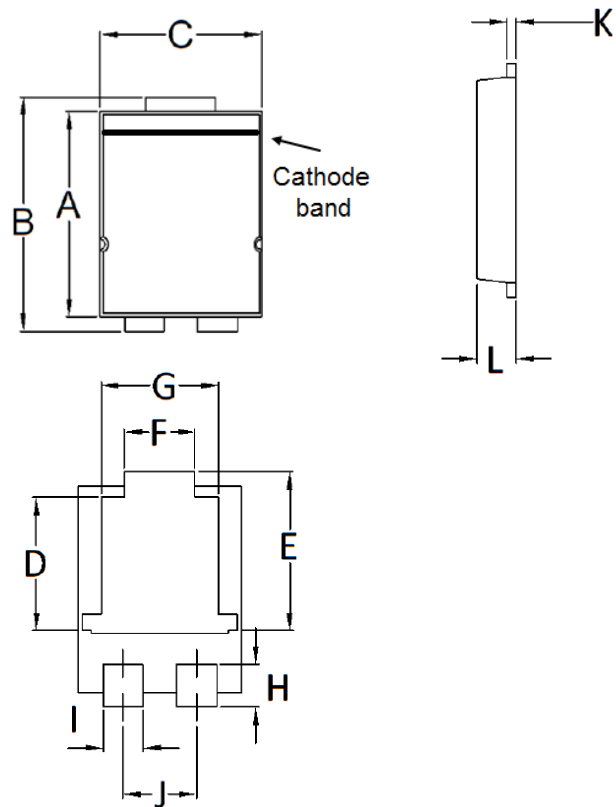


FIG. 9- MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



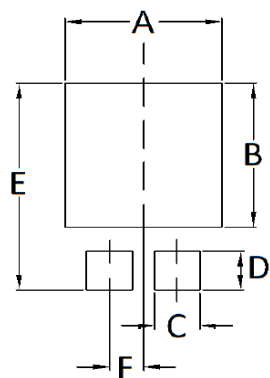
**PACKAGE OUTLINE DIMENSIONS**

**TO-277A (SMPC)**



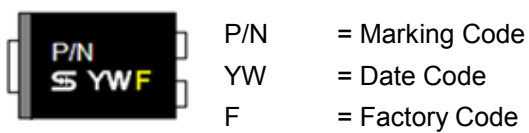
| DIM. | Unit (mm) |       | Unit (inch) |       |
|------|-----------|-------|-------------|-------|
|      | Min       | Max   | Min         | Max   |
| A    | 5.650     | 5.750 | 0.222       | 0.226 |
| B    | 6.350     | 6.650 | 0.250       | 0.262 |
| C    | 4.550     | 4.650 | 0.179       | 0.183 |
| D    | 3.540     | 3.840 | 0.139       | 0.151 |
| E    | 4.235     | 4.535 | 0.167       | 0.179 |
| F    | 1.850     | 2.150 | 0.073       | 0.085 |
| G    | 3.170     | 3.470 | 0.125       | 0.137 |
| H    | 1.043     | 1.343 | 0.041       | 0.053 |
| I    | 1.000     | 1.300 | 0.039       | 0.051 |
| J    | 1.930     | 2.230 | 0.076       | 0.088 |
| K    | 0.175     | 0.325 | 0.007       | 0.013 |
| L    | 1.000     | 1.200 | 0.039       | 0.047 |

**SUGGESTED PAD LAYOUT**



| Symbol | Unit (mm) | Unit (inch) |
|--------|-----------|-------------|
| A      | 4.80      | 0.189       |
| B      | 4.72      | 0.186       |
| C      | 1.40      | 0.055       |
| D      | 1.27      | 0.050       |
| E      | 6.80      | 0.268       |
| F      | 1.04      | 0.041       |

**MARKING DIAGRAM**



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