

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

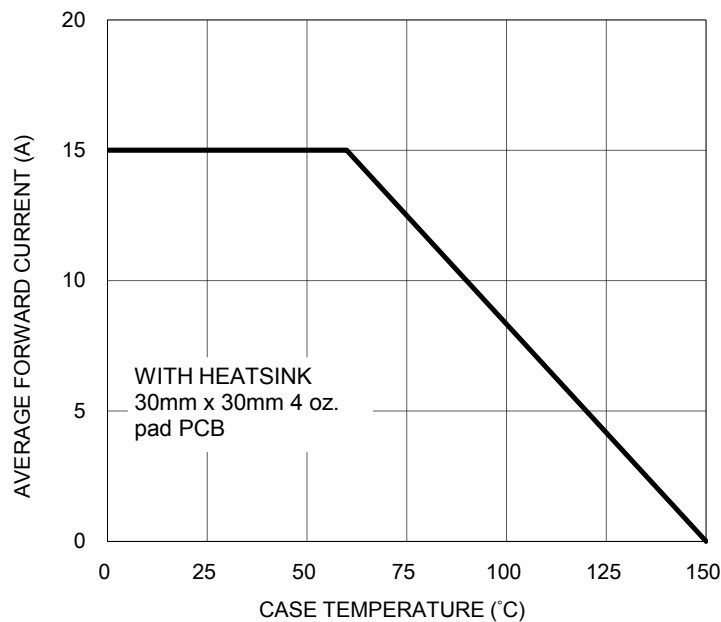


FIG. 2- TYPICAL FORWARD CHARACTERISTICS

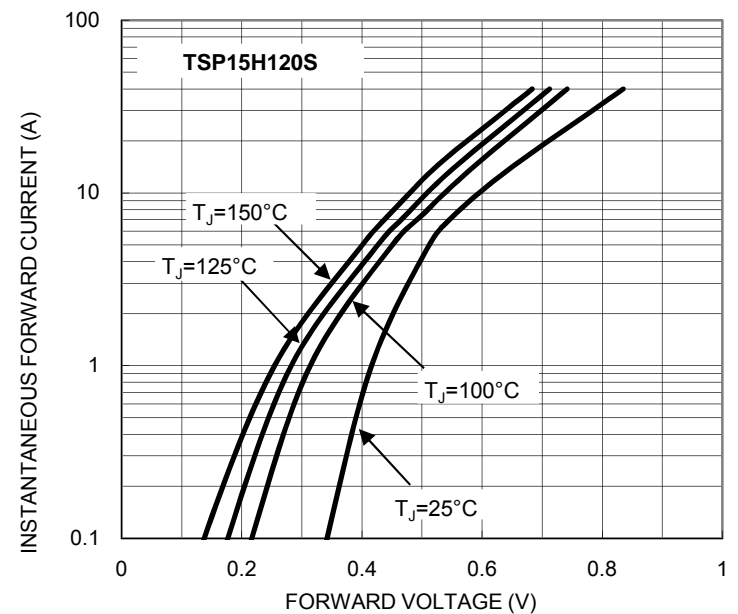


FIG. 3- TYPICAL FORWARD CHARACTERISTICS

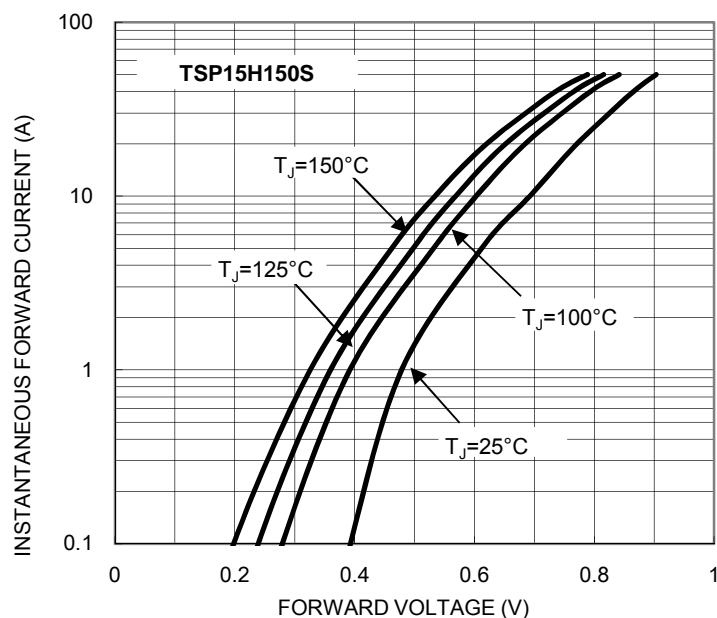


FIG. 4- TYPICAL FORWARD CHARACTERISTICS

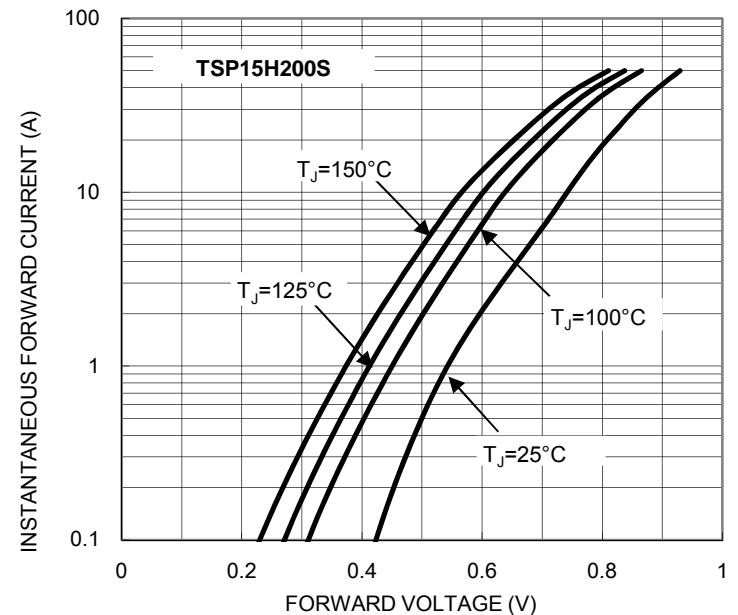


FIG. 5- TYPICAL REVERSE CHARACTERISTICS

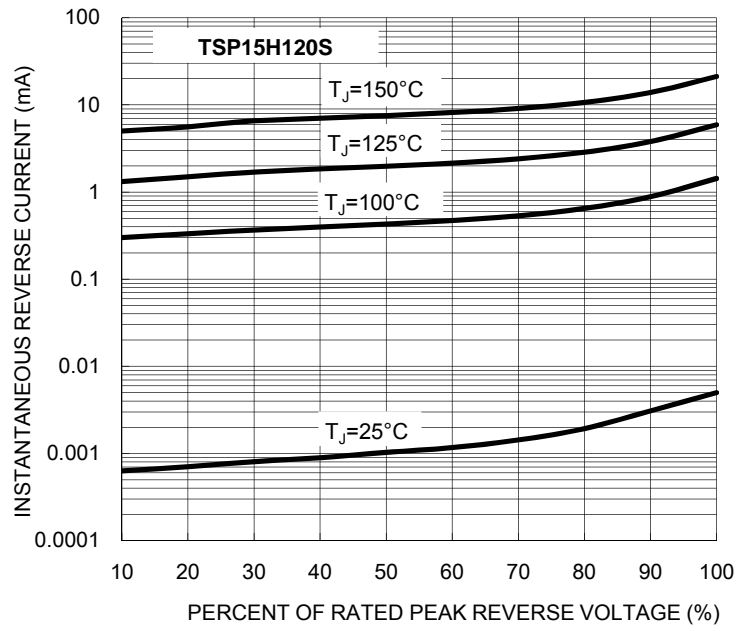


FIG. 6- TYPICAL REVERSE CHARACTERISTICS

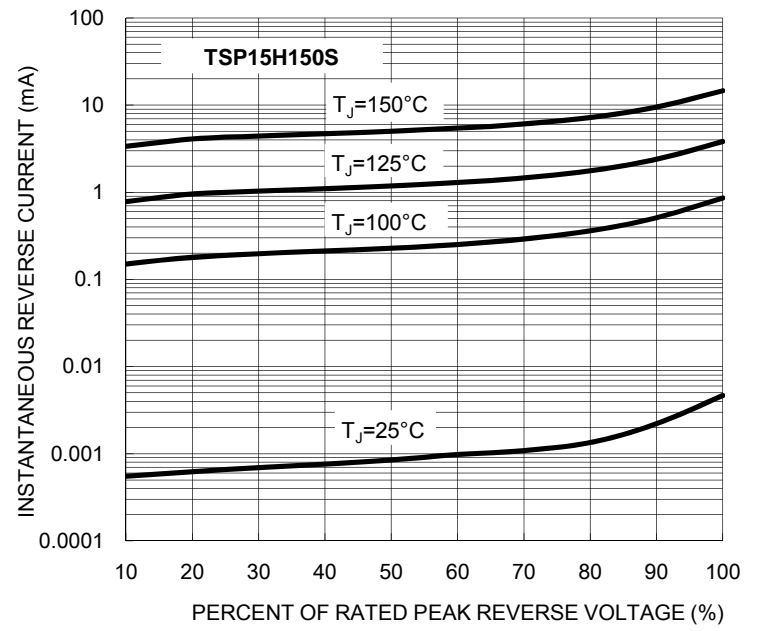


FIG. 7- TYPICAL REVERSE CHARACTERISTICS

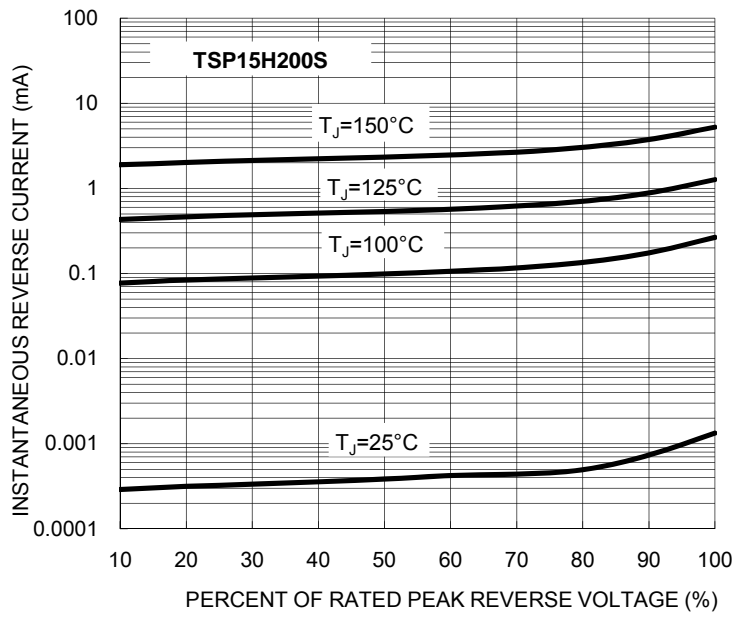


FIG. 8- TYPICAL JUNCTION CAPACITANCE

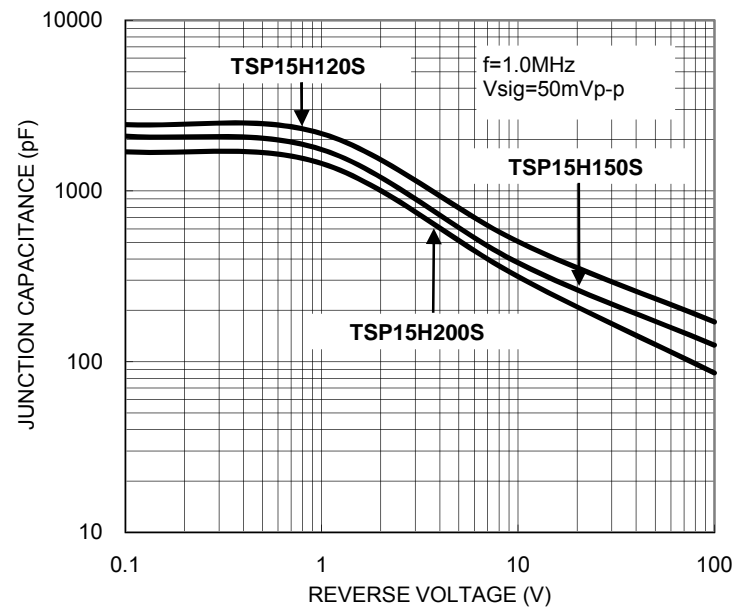
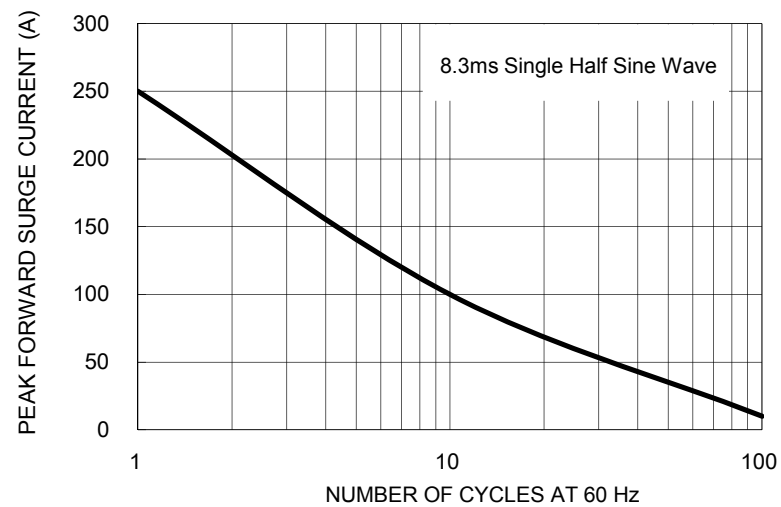
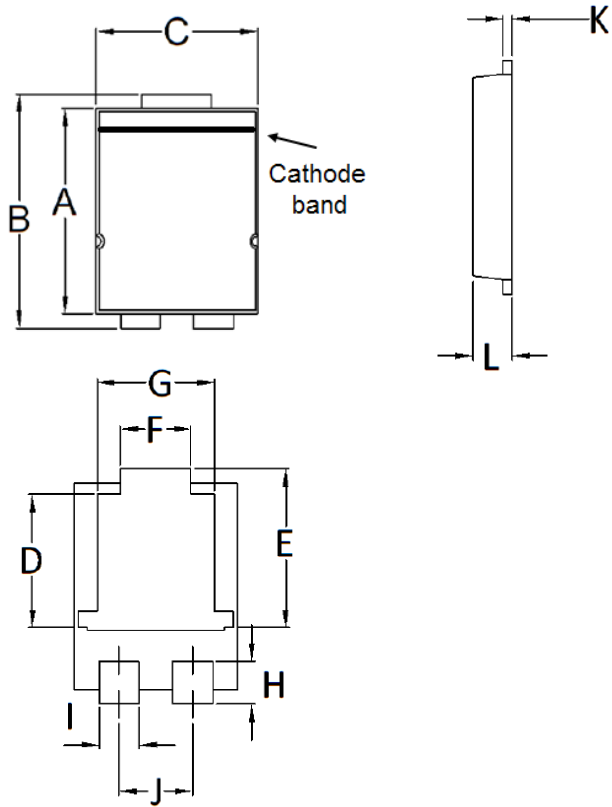


FIG. 9- MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

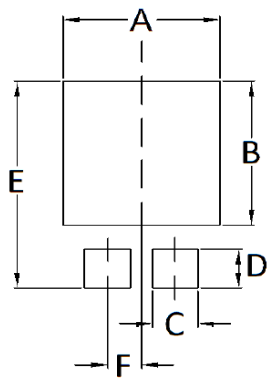


PACKAGE OUTLINE DIMENSIONS
TO-277A (SMPC)



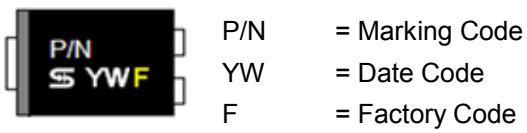
| DIM. | Unit (mm) | | Unit (inch) | |
|------|-----------|-------|-------------|-------|
| | Min | Max | Min | Max |
| A | 5.650 | 5.750 | 0.222 | 0.226 |
| B | 6.350 | 6.650 | 0.250 | 0.262 |
| C | 4.550 | 4.650 | 0.179 | 0.183 |
| D | 3.540 | 3.840 | 0.139 | 0.151 |
| E | 4.235 | 4.535 | 0.167 | 0.179 |
| 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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