

## Trench Schottky Rectifier

### FEATURES

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

### TYPICAL APPLICATIONS

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

### MECHANICAL DATA

**Case:** TO-220AB

Molding compound meets UL 94 V-0 flammability rating

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

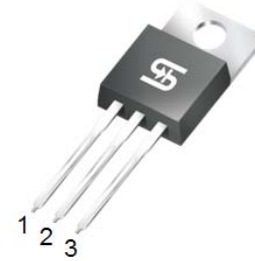
**Terminal:** Matte tin plated leads, solderable per JESD22-B102

Meet JESD 201 class 2 whisker test

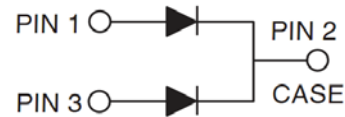
**Polarity:** As marked

Mounting torque: 0.56 Nm max.

**Weight:** 1.88 g (approximately)



**TO-220AB**



| MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25°C unless otherwise noted)   |                      |                        |                    |                 |      |                 |      |                 |      |                 |      |      |
|-------------------------------------------------------------------------------------------------|----------------------|------------------------|--------------------|-----------------|------|-----------------|------|-----------------|------|-----------------|------|------|
| PARAMETER                                                                                       |                      |                        | SYMBOL             | TST20L<br>100CW |      | TST20L<br>120CW |      | TST20L<br>150CW |      | TST20L<br>200CW |      | UNIT |
| Maximum repetitive peak reverse voltage                                                         |                      |                        | V <sub>RRM</sub>   | 100             |      | 120             |      | 150             |      | 200             |      | V    |
| Maximum average forward<br>rectified current                                                    | per device           |                        | I <sub>F(AV)</sub> | 20              |      |                 |      |                 |      |                 |      | A    |
|                                                                                                 | per diode            |                        |                    | 10              |      |                 |      |                 |      |                 |      |      |
| Peak forward surge current, 8.3ms single half<br>sine-wave superimposed on rated load per diode |                      |                        | I <sub>FSM</sub>   | 100             |      |                 |      |                 |      |                 |      | A    |
| Voltage rate of change (Rated V <sub>R</sub> )                                                  |                      |                        | dV/dt              | 10000           |      |                 |      |                 |      |                 |      | V/μs |
|                                                                                                 |                      |                        |                    | TYP.            | MAX. | TYP.            | MAX. | TYP.            | MAX. | TYP.            | MAX. |      |
| Instantaneous forward<br>voltage per diode (Note1)                                              | I <sub>F</sub> = 5A  | T <sub>J</sub> = 25°C  | V <sub>F</sub>     | 0.62            | -    | 0.69            | -    | 0.78            | -    | 0.81            | -    | V    |
|                                                                                                 | I <sub>F</sub> = 10A |                        |                    | -               | 0.84 | -               | 0.93 | -               | 0.96 | -               | 0.99 |      |
|                                                                                                 | I <sub>F</sub> = 5A  | T <sub>J</sub> = 125°C |                    | 0.55            | -    | 0.58            | -    | 0.64            | -    | 0.67            | -    |      |
|                                                                                                 | I <sub>F</sub> = 10A |                        |                    | 0.65            | 0.74 | 0.69            | 0.78 | 0.72            | 0.81 | 0.75            | 0.84 |      |
| Instantaneous reverse current per<br>diode at rated reverse voltage                             |                      | T <sub>J</sub> = 25°C  | I <sub>R</sub>     | -               | 100  | -               | 100  | -               | 100  | -               | 100  | μA   |
|                                                                                                 |                      | T <sub>J</sub> = 125°C |                    | -               | 15   | -               | 15   | 1.5             | 10   | 1.5             | 10   | mA   |
| Typical thermal resistance per diode                                                            |                      |                        | R <sub>θJC</sub>   | 3.2             |      |                 |      |                 |      |                 |      | °C/W |
| Operating junction 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   |
|-------------------------|--------------|---------------------|----------|-----------|
| TST20LXXXCW<br>(Note 1) | C0           | G                   | TO-220AB | 50 / Tube |

Note 1: "XXX" defines voltage from 100V (TST20L100CW) to 200V (TST20L200CW)

## EXAMPLE

| PREFERRED PART NO. | PART NO.    | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION    |
|--------------------|-------------|--------------|---------------------|----------------|
| TST20L150CW C0G    | TST20L150CW | C0           | G                   | Green compound |

## RATINGS AND CHARACTERISTICS CURVES

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

FIG. 1 FORWARD CURRENT DERATING CURVE

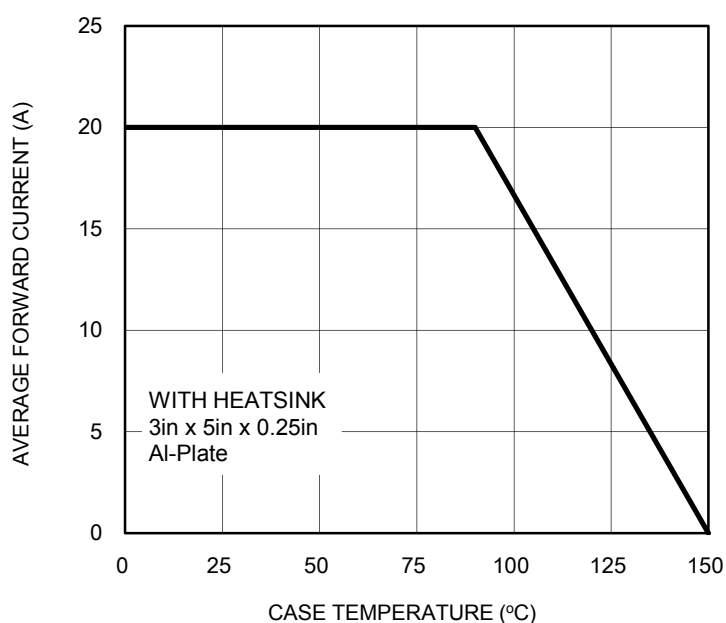


FIG. 2 TYPICAL FORWARD CHARACTERISTICS

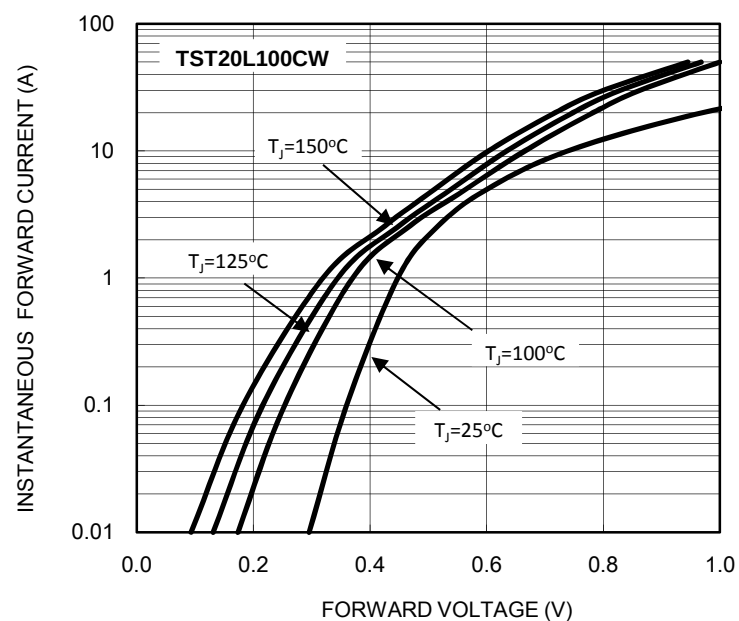


FIG. 3 TYPICAL FORWARD CHARACTERISTICS

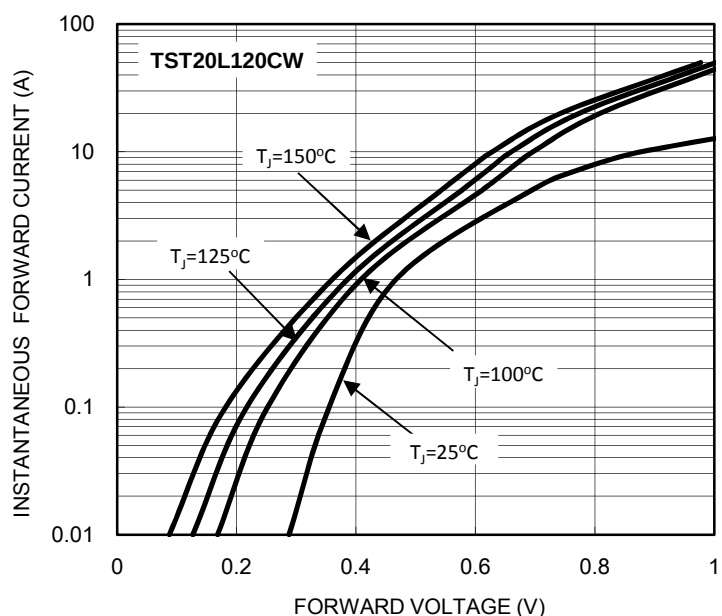


FIG. 4 TYPICAL FORWARD CHARACTERISTICS

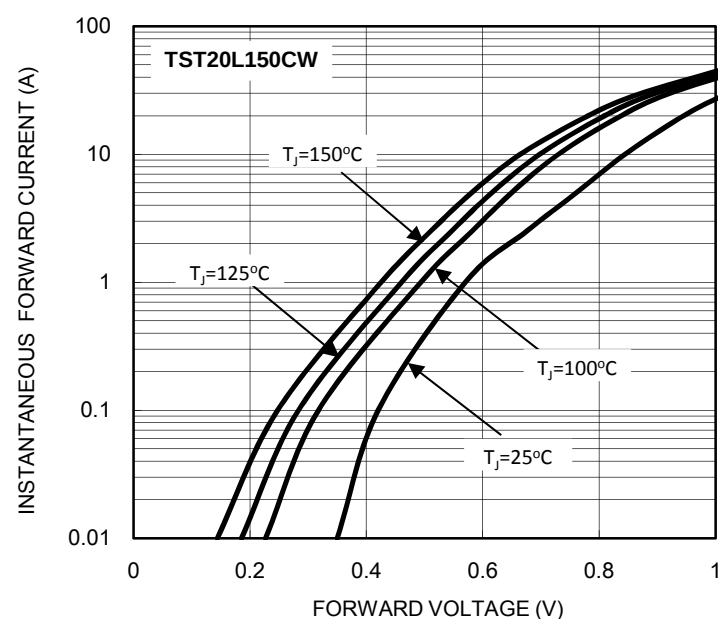


FIG. 6 TYPICAL FORWARD CHARACTERISTICS

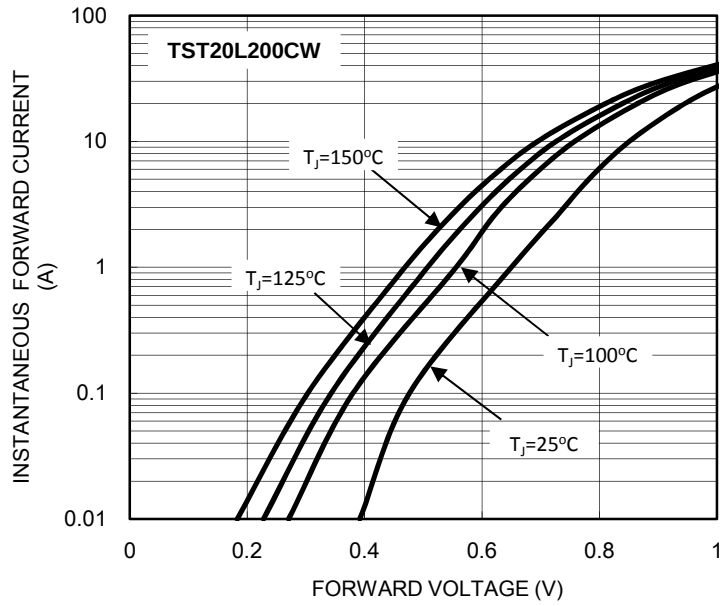


FIG. 7 TYPICAL REVERSE CHARACTERISTICS

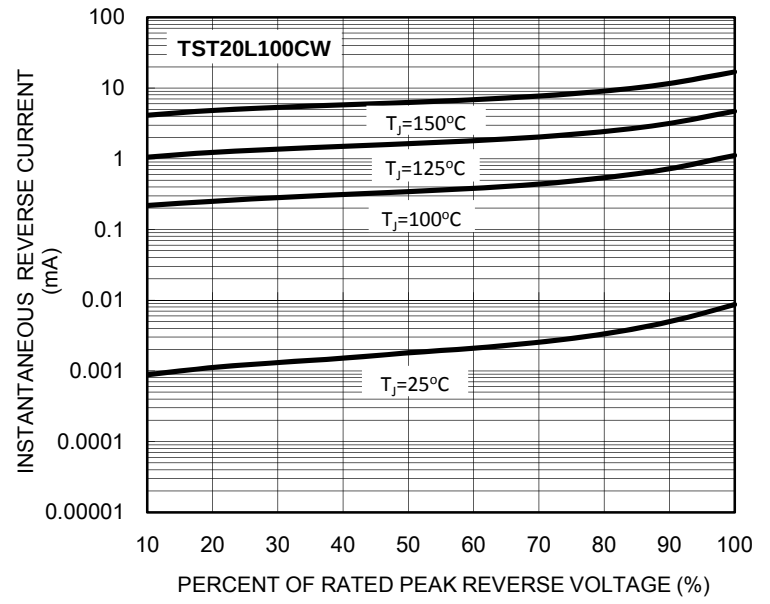


FIG. 7 TYPICAL REVERSE CHARACTERISTICS

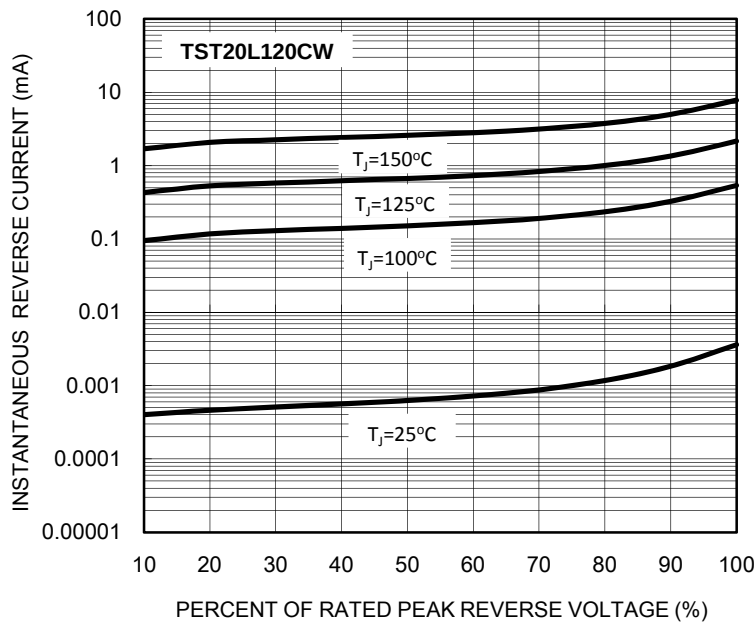


FIG. 8 TYPICAL REVERSE CHARACTERISTICS

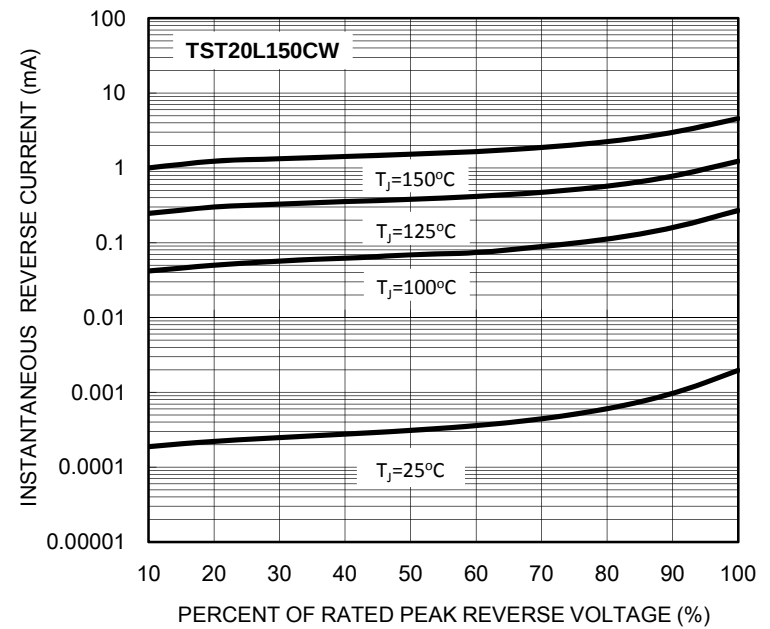


FIG. 9 TYPICAL REVERSE CHARACTERISTICS

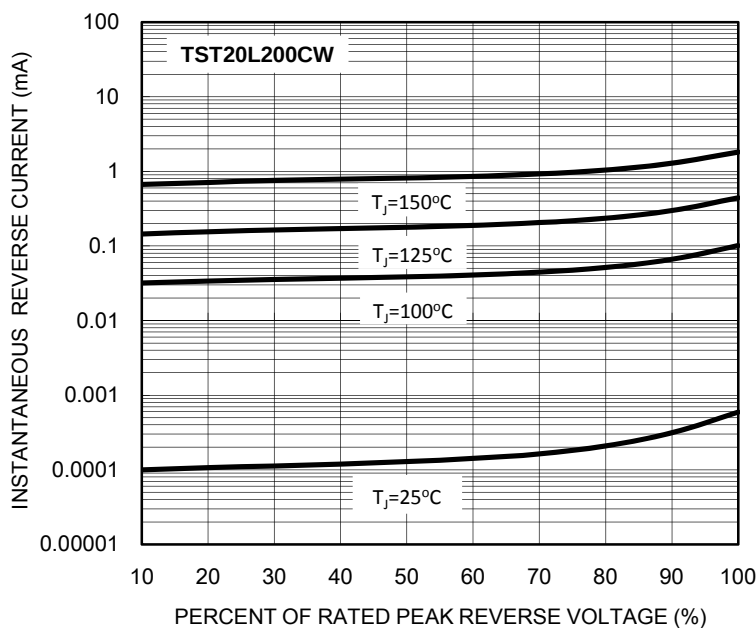
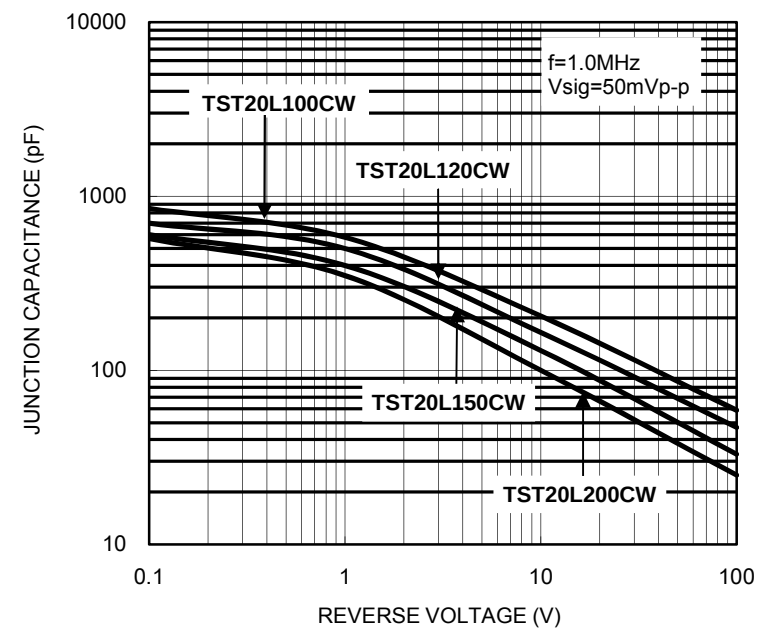
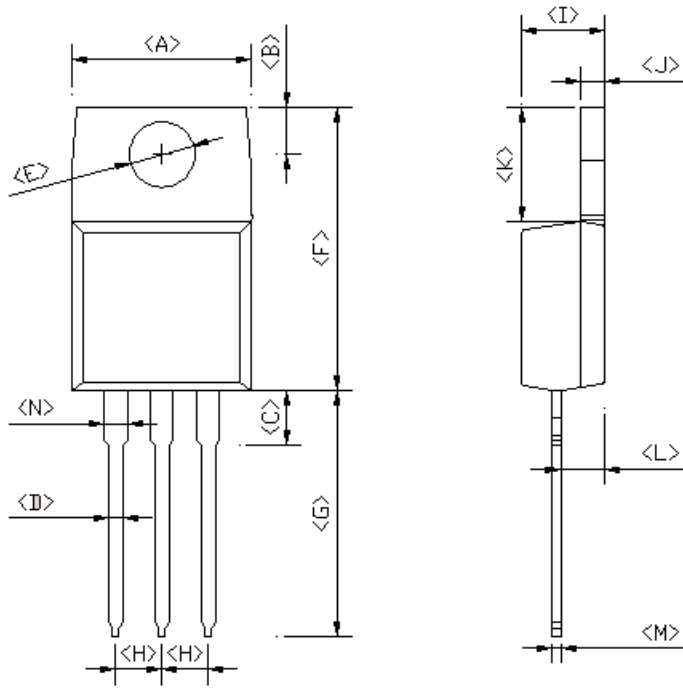


FIG. 10 TYPICAL JUNCTION CAPACITANCE



**PACKAGE OUTLINE DIMENSIONS**  
**TO-220AB**



| DIM. | Unit (mm) |       | Unit (inch) |       |
|------|-----------|-------|-------------|-------|
|      | Min       | Max   | Min         | Max   |
| A    | -         | 10.50 | -           | 0.413 |
| B    | 2.54      | 3.44  | 0.100       | 0.135 |
| C    | 2.80      | 4.20  | 0.110       | 0.165 |
| D    | 0.68      | 0.94  | 0.027       | 0.037 |
| E    | 3.54      | 4.00  | 0.139       | 0.157 |
| F    | 14.60     | 16.00 | 0.575       | 0.630 |
| G    | 13.19     | 14.79 | 0.519       | 0.582 |
| H    | 2.41      | 2.67  | 0.095       | 0.105 |
| I    | 4.42      | 4.76  | 0.174       | 0.187 |
| J    | 1.14      | 1.40  | 0.045       | 0.055 |
| K    | 5.84      | 6.86  | 0.230       | 0.270 |
| L    | 2.20      | 2.80  | 0.087       | 0.110 |
| M    | 0.35      | 0.64  | 0.014       | 0.025 |
| N    | 0.95      | 1.45  | 0.037       | 0.057 |

**MARKING DIAGRAM**



P/N = Specific Device Code  
G = Green Compound  
YWW = Date Code  
F = Factory Code

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