

## Trench Schottky Rectifier

### FEATURES

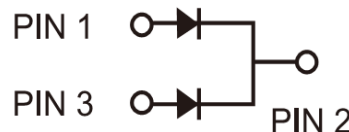
- Patented Trench Schottky technology
- Excellent high temperature stability
- Low forward voltage
- Low power loss/ High efficiency
- High forward surge capability
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



**ITO-220AB**

### 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:** ITO-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:** 1.7 g (approximately)

| MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T <sub>A</sub> =25°C unless otherwise noted)  |                      |                        |                |             |             |             |      |      |      |      |      |
|-----------------------------------------------------------------------------------------------|----------------------|------------------------|----------------|-------------|-------------|-------------|------|------|------|------|------|
| PARAMETER                                                                                     |                      | SYMBOL                 | TSF30H 100C    | TSF30H 120C | TSF30H 150C | TSF30H 200C | UNIT |      |      |      |      |
| Maximum repetitive peak reverse voltage                                                       |                      | V <sub>RRM</sub>       | 100            | 120         | 150         | 200         | V    |      |      |      |      |
| Maximum average forward rectified current                                                     | per device           | I <sub>F(AV)</sub>     | 30             |             |             |             | A    |      |      |      |      |
|                                                                                               | per diode            |                        | 15             |             |             |             |      |      |      |      |      |
| Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load per diode |                      | I <sub>FSM</sub>       | 150            |             |             |             | A    |      |      |      |      |
| Voltage rate of change (Rated V <sub>R</sub> )                                                |                      | dV/dt                  | 10000          |             |             |             | V/μs |      |      |      |      |
| Isolation voltage from terminal to heatsink t = 1 min                                         |                      | V <sub>AC</sub>        | 1500           |             |             |             | V    |      |      |      |      |
|                                                                                               |                      |                        | Typ            | Max         | Typ         | Max         | Typ  | Max  | Typ  | Max  |      |
| Instantaneous forward voltage per diode ( Note1 )                                             | I <sub>F</sub> = 15A | T <sub>J</sub> = 25°C  | V <sub>F</sub> | 0.76        | 0.82        | 0.80        | 0.88 | 0.81 | 0.90 | 0.84 | 0.92 |
|                                                                                               |                      | T <sub>J</sub> = 125°C |                | 0.64        | 0.69        | 0.65        | 0.73 | 0.68 | 0.77 | 0.70 | 0.79 |
|                                                                                               | I <sub>F</sub> = 30A | T <sub>J</sub> = 25°C  |                | 0.86        | 0.92        | 0.90        | 0.96 | 0.89 | 0.98 | 0.91 | 1.00 |
|                                                                                               |                      | T <sub>J</sub> = 125°C |                | 0.75        | 0.80        | 0.78        | 0.86 | 0.77 | 0.86 | 0.80 | 0.89 |
| Instantaneous reverse current per diode at rated reverse voltage                              |                      | T <sub>J</sub> = 25°C  | 150            |             |             |             | μA   |      |      |      |      |
|                                                                                               |                      | T <sub>J</sub> = 125°C | 20             |             |             |             | mA   |      |      |      |      |
| Typical thermal resistance                                                                    |                      | R <sub>θJC</sub>       | 4.5            |             |             |             | °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   |
|------------------------|--------------|---------------------|-----------|-----------|
| TSF30HXXXC<br>(Note 1) | C0           | G                   | ITO-220AB | 50 / Tube |

Note 1: "xxx" defines voltage from 100V (TSF30H100C) to 200V (TSF30H200C)

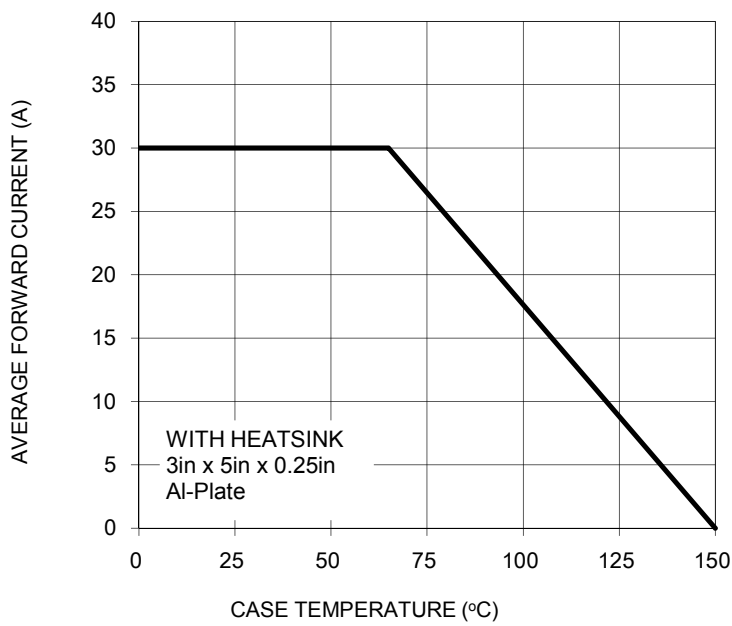
**EXAMPLE**

| PREFERRED PART NO. | PART NO.   | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION    |
|--------------------|------------|--------------|---------------------|----------------|
| TSF30H120C C0G     | TSF30H120C | C0           | G                   | Green compound |

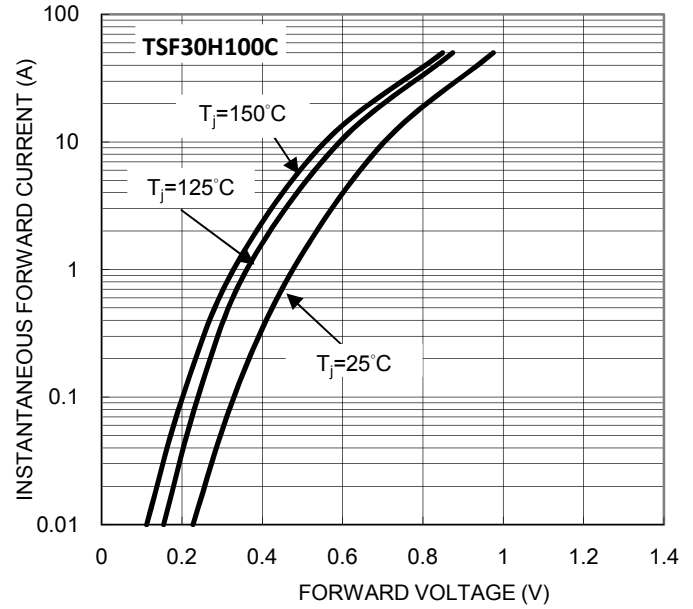
**RATINGS AND CHARACTERISTICS CURVES**

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

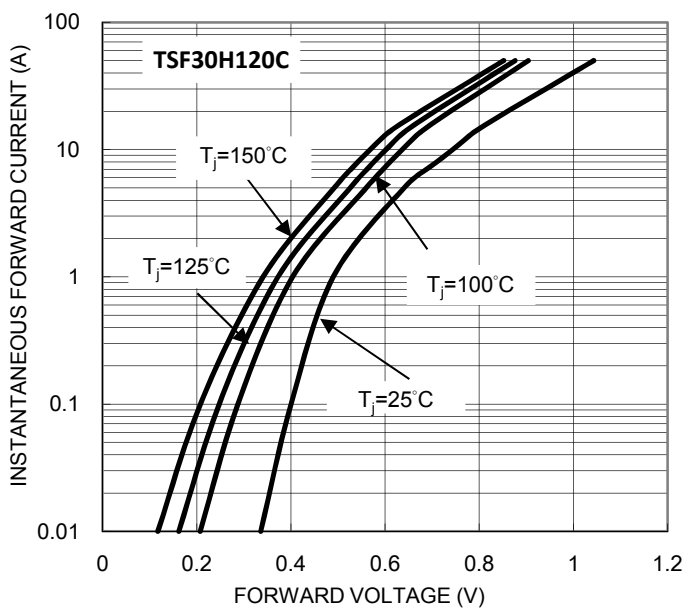
**FIG.1 FORWARD CURRENT DERATING CURVE**



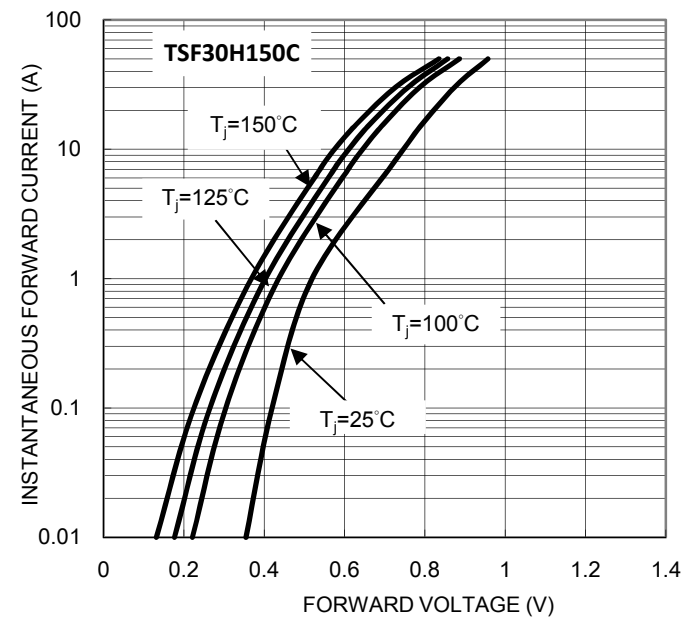
**FIG. 2 TYPICAL FORWARD CHARACTERISTICS**



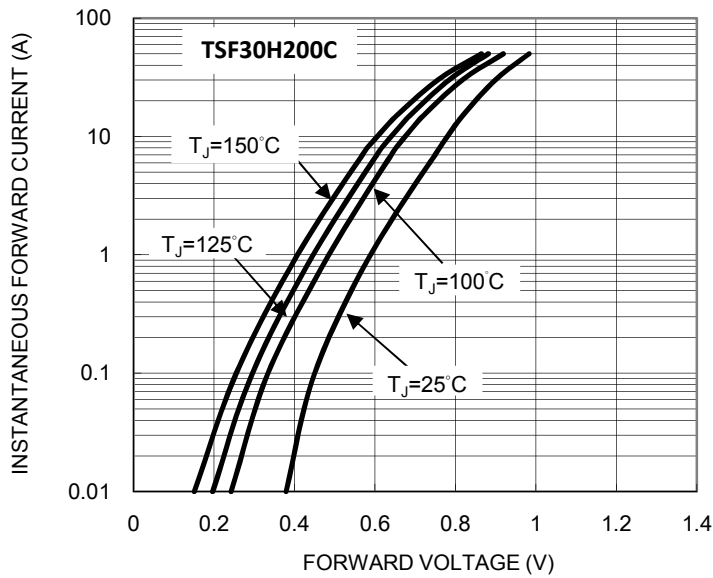
**FIG. 3 TYPICAL REVERSE CHARACTERISTICS**



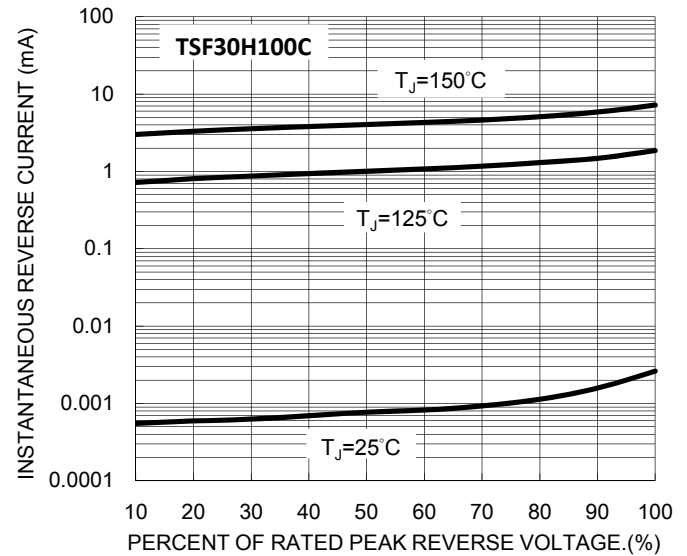
**FIG. 4 TYPICAL FORWARD CHARACTERISTICS**



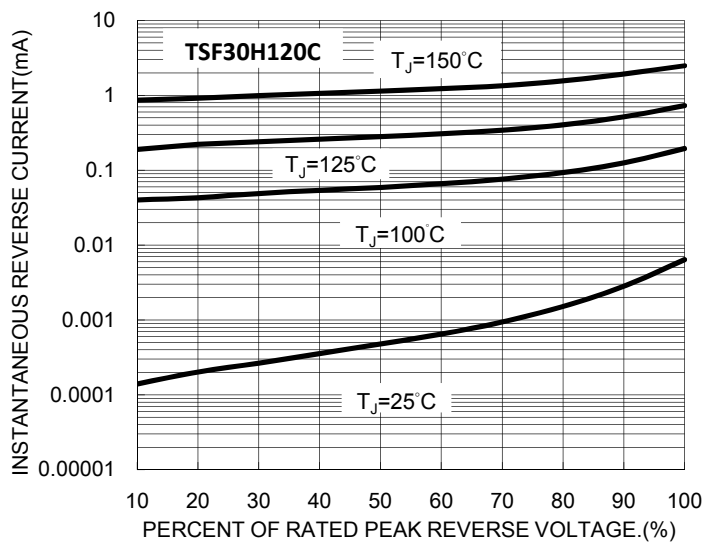
**FIG. 5 TYPICAL FORWARD CHARACTERISTICS**



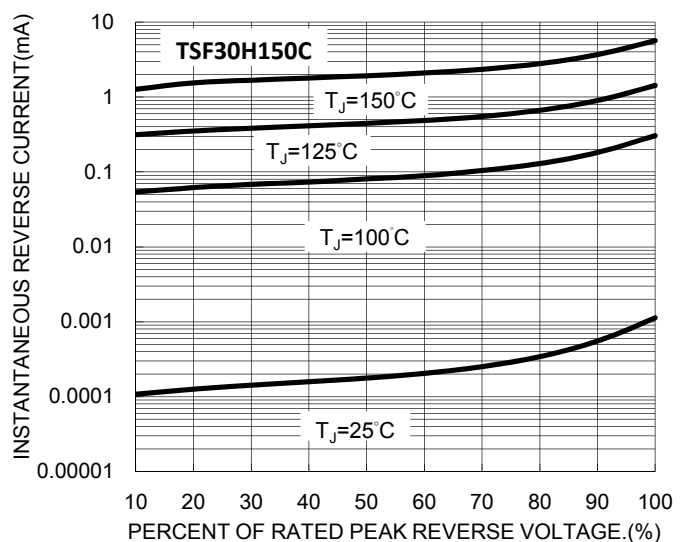
**FIG. 6 TYPICAL REVERSE CHARACTERISTICS**



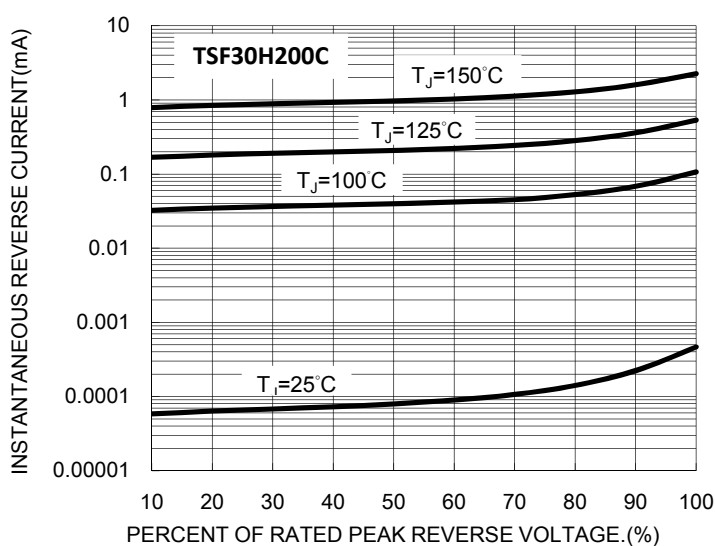
**FIG. 7 TYPICAL REVERSE CHARACTERISTICS**



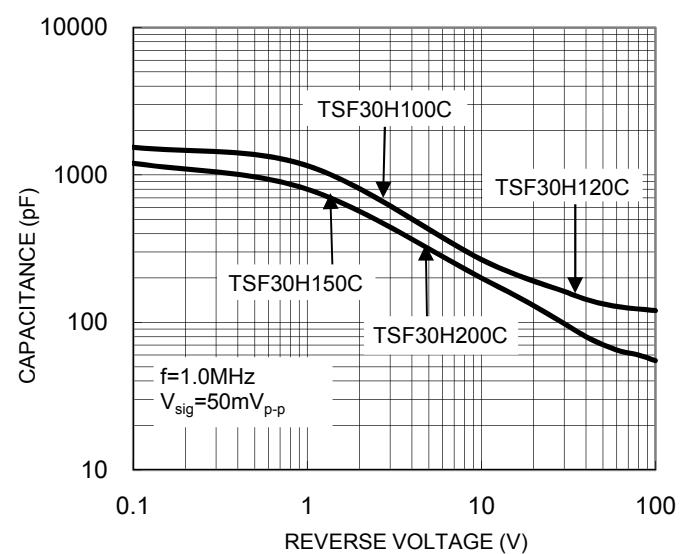
**FIG. 8 TYPICAL REVERSE CHARACTERISTICS**



**FIG. 9 TYPICAL REVERSE CHARACTERISTICS**

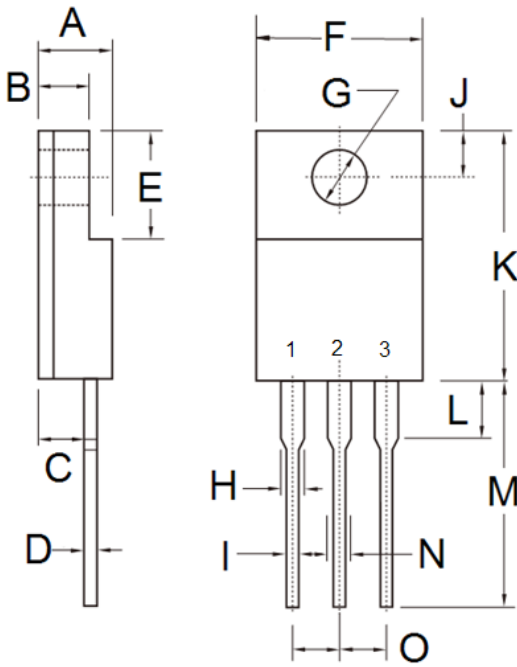


**FIG. 10 TYPICAL JUNCTION CAPACITANCE**



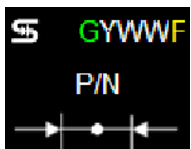
PACKAGE OUTLINE DIMENSIONS

**ITO-220AB**



| DIM. | Unit (mm) |       | Unit (inch) |       |
|------|-----------|-------|-------------|-------|
|      | Min       | Max   | Min         | Max   |
| A    | 4.30      | 4.70  | 0.169       | 0.185 |
| B    | 2.50      | 3.16  | 0.098       | 0.124 |
| C    | 2.30      | 2.96  | 0.091       | 0.117 |
| D    | 0.46      | 0.76  | 0.018       | 0.030 |
| E    | 6.30      | 6.90  | 0.248       | 0.272 |
| F    | 9.60      | 10.30 | 0.378       | 0.406 |
| G    | 3.00      | 3.40  | 0.118       | 0.134 |
| H    | 0.95      | 1.45  | 0.037       | 0.057 |
| I    | 0.50      | 0.90  | 0.020       | 0.035 |
| J    | 2.40      | 3.20  | 0.094       | 0.126 |
| K    | 14.80     | 15.50 | 0.583       | 0.610 |
| L    | -         | 4.10  | -           | 0.161 |
| M    | 12.60     | 13.80 | 0.496       | 0.543 |
| N    | -         | 1.80  | -           | 0.071 |
| O    | 2.41      | 2.67  | 0.095       | 0.105 |

MARKING DIAGRAM



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

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