

## 20A, 300V 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

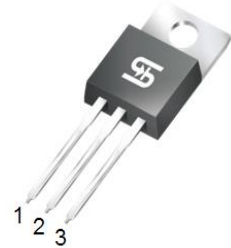
### APPLICATIONS

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

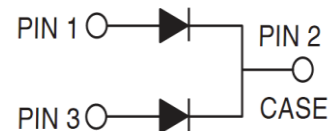
### MECHANICAL DATA

- 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 J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: As marked
- Mounting torque: 0.56 Nm max.
- Weight: 1.88 g (approximately)

| KEY PARAMETERS |          |      |
|----------------|----------|------|
| PARAMETER      | VALUE    | UNIT |
| $I_{F(AV)}$    | 2 x 10   | A    |
| $V_{RRM}$      | 300      | V    |
| $I_{FSM}$      | 180      | A    |
| $T_{J\ MAX}$   | 150      | °C   |
| Package        | TO-220AB |      |
| Configuration  | Dual die |      |



**TO-220AB**



| ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)                   |            |              |                  |
|-----------------------------------------------------------------------------------------------|------------|--------------|------------------|
| PARAMETER                                                                                     | SYMBOL     | TST20H300CW  | UNIT             |
| Marking code on the device                                                                    |            | TST20H300CW  |                  |
| Repetitive peak reverse voltage                                                               | $V_{RRM}$  | 300          | V                |
| Forward current                                                                               | Per device | 20           | A                |
|                                                                                               | Per diode  | 10           |                  |
| Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode | $I_{FSM}$  | 180          | A                |
| Voltage rate of change (Rated VR)                                                             | $dV/dt$    | 10,000       | V/ $\mu\text{s}$ |
| Junction temperature                                                                          | $T_J$      | - 55 to +150 | °C               |
| Storage temperature                                                                           | $T_{STG}$  | - 55 to +150 | °C               |

**THERMAL PERFORMANCE**

| PARAMETER                           | SYMBOL          | LIMIT | UNIT                 |
|-------------------------------------|-----------------|-------|----------------------|
| Junction-to-case thermal resistance | $R_{\theta JC}$ | 3     | $^{\circ}\text{C/W}$ |

**Thermal Performance Note:** Mounted on Heatsink Size of 3"x5"x0.25" Al-Plate.

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

| PARAMETER                                              | CONDITIONS                                    | SYMBOL | TYP  | MAX  | UNIT          |
|--------------------------------------------------------|-----------------------------------------------|--------|------|------|---------------|
| Forward voltage per diode <sup>(1)</sup>               | $I_F = 10\text{A}, T_J = 25^{\circ}\text{C}$  | $V_F$  | 0.89 | 0.98 | V             |
|                                                        | $I_F = 10\text{A}, T_J = 125^{\circ}\text{C}$ |        | 0.75 | 0.84 | V             |
| Reverse current @ rated $V_R$ per diode <sup>(2)</sup> | $T_J = 25^{\circ}\text{C}$                    | $I_R$  | -    | 100  | $\mu\text{A}$ |
|                                                        | $T_J = 125^{\circ}\text{C}$                   |        | -    | 10   | mA            |

**Notes:**

1. Pulse test with  $PW=0.3\text{ ms}$
2. Pulse test with  $PW=30\text{ ms}$

**ORDERING INFORMATION**

| PART NO.                | PACKING CODE | PACKING CODE SUFFIX | PACKAGE  | PACKING   |
|-------------------------|--------------|---------------------|----------|-----------|
| TST20H300CW<br>(Note 1) | C0           | G                   | TO-220AB | 50 / Tube |

**Note:**

1. Whole series with green compound (halogen-free)

**EXAMPLE**

| EXAMPLE P/N     | PART NO.    | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION    |
|-----------------|-------------|--------------|---------------------|----------------|
| TST20H300CW C0G | TST20H300CW | C0           | G                   | Green compound |

## CHARACTERISTICS CURVES

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

**Fig.1 Forward Current Derating Curve**

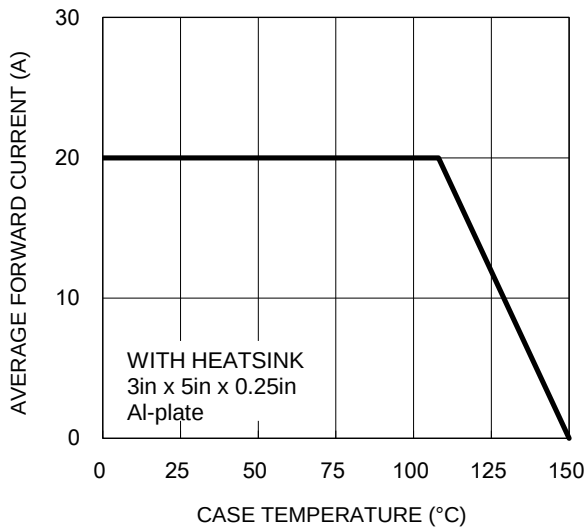


**Fig.2 Typical Junction Capacitance**

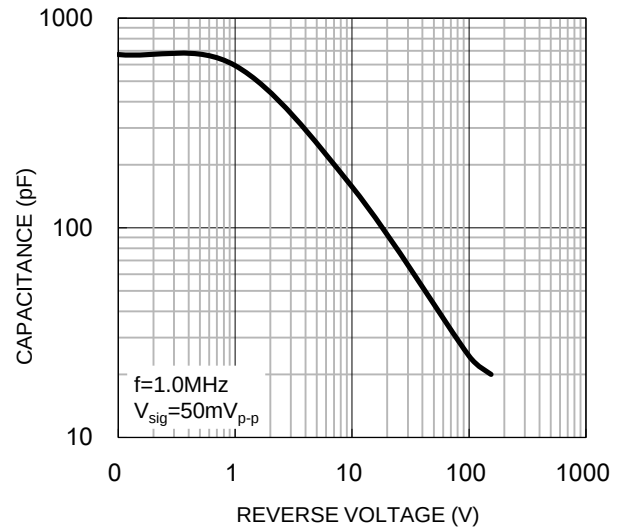


**Fig.3 Typical Reverse Characteristics**

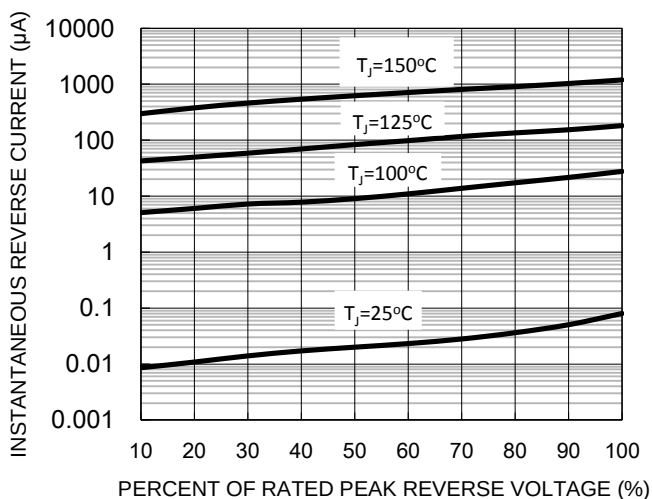
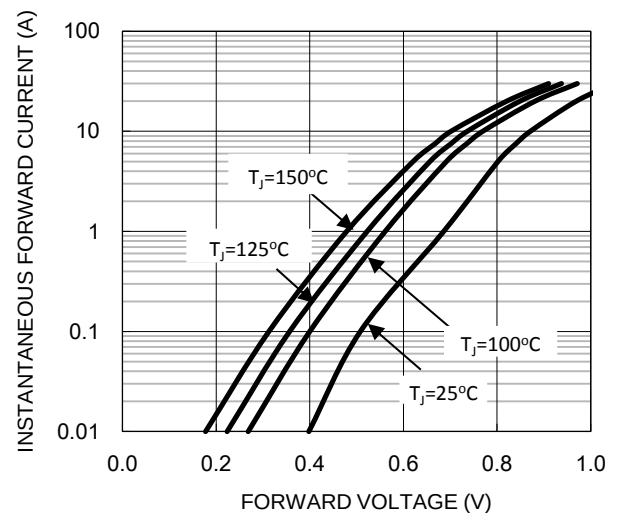
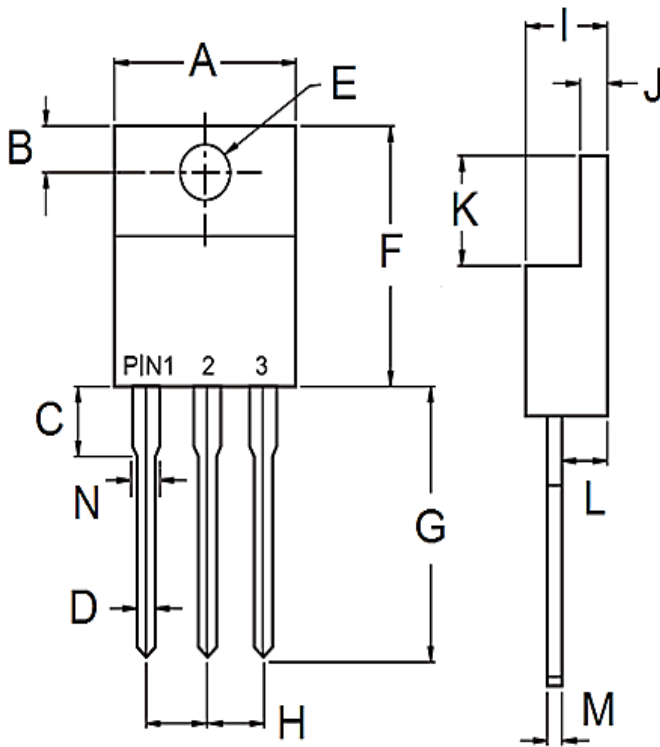


**Fig.4 Typical Forward Characteristics**



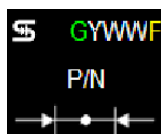
## PACKAGE OUTLINE DIMENSIONS

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 = Marking Code  
G = Green Compound  
YWW = Date Code  
F = Factory Code

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