

## 10A, 100V - 200V Trench Schottky Rectifier

### FEATURES

- Patented Trench Schottky technology
- Excellent high temperature stability
- Low forward voltage
- Low power loss/ High efficiency
- High forward surge capability
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

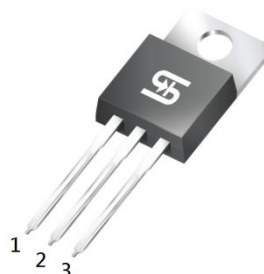
### APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- DC to DC converters

### MECHANICAL DATA

- Case: TO-220AB
- Molding compound meets UL 94V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Mounting torque: 0.56 N·m maximum
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 1.88g (approximately)

| KEY PARAMETERS |           |      |
|----------------|-----------|------|
| PARAMETER      | VALUE     | UNIT |
| $I_F$          | 10        | A    |
| $V_{RRM}$      | 100 - 200 | V    |
| $I_{FSM}$      | 100       | A    |
| $T_{JMAX}$     | 150       | °C   |
| Package        | TO-220AB  |      |
| Configuration  | Dual dies |      |



TO-220AB



| ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)        |              |                 |                 |                 |                 |                  |
|--|--------------|-----------------|-----------------|-----------------|-----------------|------------------|
| PARAMETER  | SYMBOL       | TST10H<br>100CW | TST10H<br>120CW | TST10H<br>150CW | TST10H<br>200CW | UNIT             |
| Marking code on the device   |              | TST10H<br>100CW | TST10H<br>120CW | TST10H<br>150CW | TST10H<br>200CW |                  |
| Repetitive peak reverse voltage  | $V_{RRM}$    | 100             | 120             | 150             | 200             | V                |
| Reverse voltage, total rms value   | $V_{R(RMS)}$ | 70              | 84              | 105             | 140             | V                |
| Forward current  | $I_F$        | 10              |                 |                 |                 | A                |
| Surge peak forward current, 8.3ms single half sine wave superimposed on rated load | $I_{FSM}$    | 100             |                 |                 |                 | A                |
| Critical rate of rise of off-state voltage   | dv/dt        | 10,000          |                 |                 |                 | V/ $\mu\text{s}$ |
| Junction temperature   | $T_J$        | -55 to +150     |                 |                 |                 | °C               |
| Storage temperature  | $T_{STG}$    | -55 to +150     |                 |                 |                 | °C               |

| <b>THERMAL PERFORMANCE</b>          |                 |            |             |
|-------------------------------------|-----------------|------------|-------------|
| <b>PARAMETER</b>                    | <b>SYMBOL</b>   | <b>TYP</b> | <b>UNIT</b> |
| Junction-to-case thermal resistance | $R_{\theta JC}$ | 3.2        | °C/W        |

| <b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted) |             |  |               |            |            |               |
|---|-------------|--|---------------|------------|------------|---------------|
| <b>PARAMETER</b>  |             | <b>CONDITIONS</b>                          | <b>SYMBOL</b> | <b>TYP</b> | <b>MAX</b> | <b>UNIT</b>   |
| Forward voltage per diode <sup>(1)</sup>  | TST10H100CW | $I_F = 5\text{A}, T_J = 25^\circ\text{C}$  | $V_F$         | 0.62       | 0.70       | V             |
|   | TST10H120CW |  |               | 0.69       | 0.79       | V             |
|   | TST10H150CW |  |               | 0.78       | 0.88       | V             |
|   | TST10H200CW |  |               | 0.81       | 0.91       | V             |
|   | TST10H100CW | $I_F = 5\text{A}, T_J = 125^\circ\text{C}$ |               | 0.55       | 0.63       | V             |
|   | TST10H120CW |  |               | 0.58       | 0.66       | V             |
|   | TST10H150CW |  |               | 0.64       | 0.72       | V             |
|   | TST10H200CW |  |               | 0.67       | 0.75       | V             |
| Reverse current @ rated $V_R$ per diode <sup>(2)</sup>                              | TST10H100CW | $T_J = 25^\circ\text{C}$                   | $I_R$         | -          | 100        | $\mu\text{A}$ |
|   | TST10H120CW |  |               | -          | 15         | mA            |
|   | TST10H150CW |  |               |            |            |               |
|   | TST10H200CW |  |               |            |            |               |
|   | TST10H100CW | $T_J = 125^\circ\text{C}$                  |               | -          | 15         | mA            |
|   | TST10H120CW |  |               | -          | 10         | mA            |
| TST10H150CW   |             |  |               |            |            |               |
| TST10H200CW   |             |  |               |            |            |               |

**Notes:**

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

| <b>ORDERING INFORMATION</b>        |                |                |
|------------------------------------|----------------|----------------|
| <b>ORDERING CODE<sup>(1)</sup></b> | <b>PACKAGE</b> | <b>PACKING</b> |
| TST10HxCW                          | TO-220AB       | 50 / Tube      |

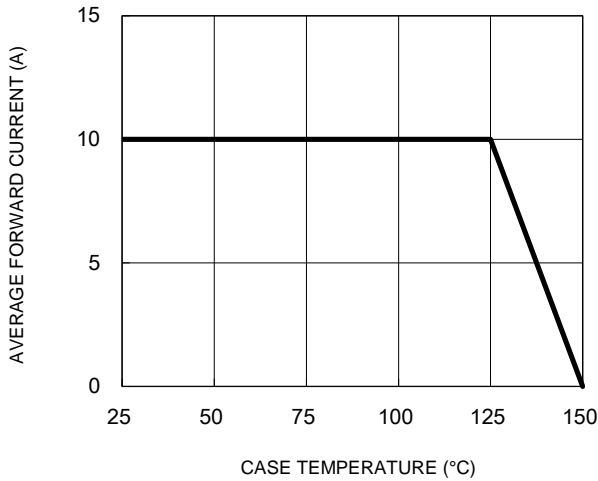
**Notes:**

1. "x" defines voltage from 100V(TST10H100CW) to 200V(TST10H200CW)

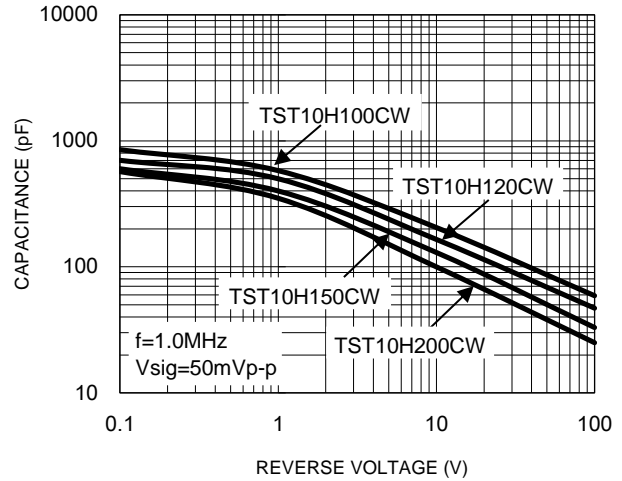
**CHARACTERISTICS CURVES**

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

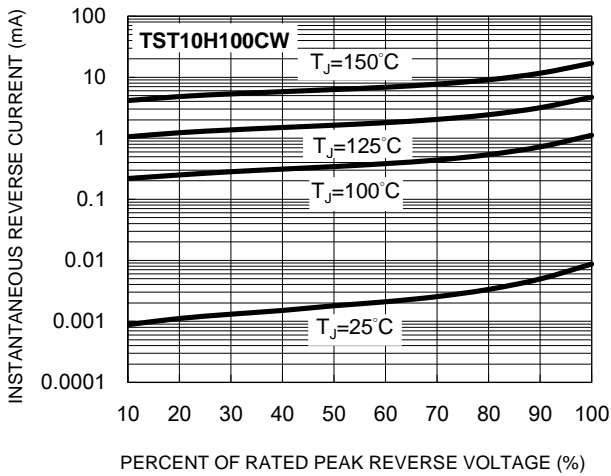
**Fig.1 Forward Current Derating Curve**



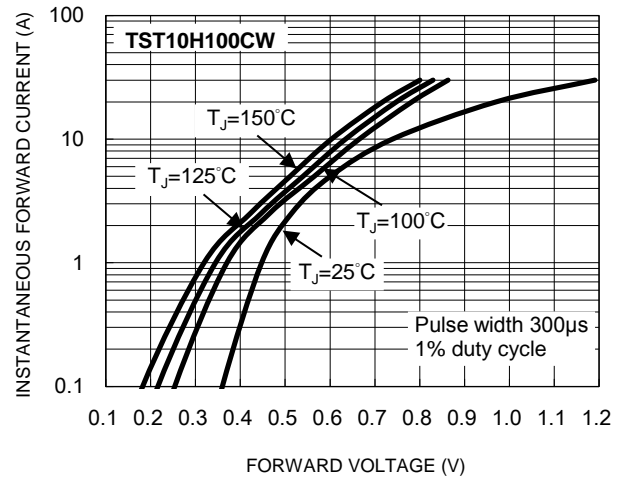
**Fig.2 Typical Junction Capacitance**



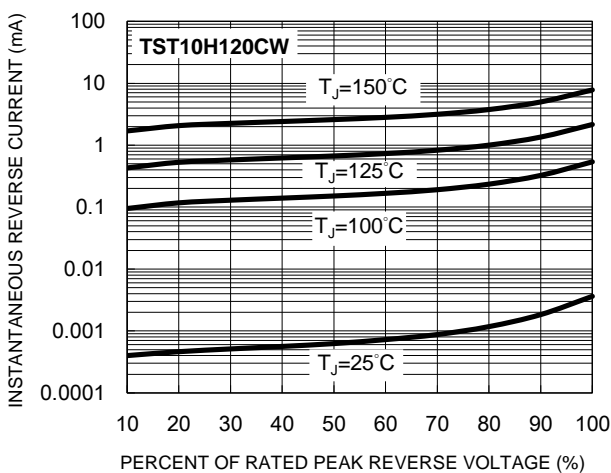
**Fig.3 Typical Reverse Characteristics**



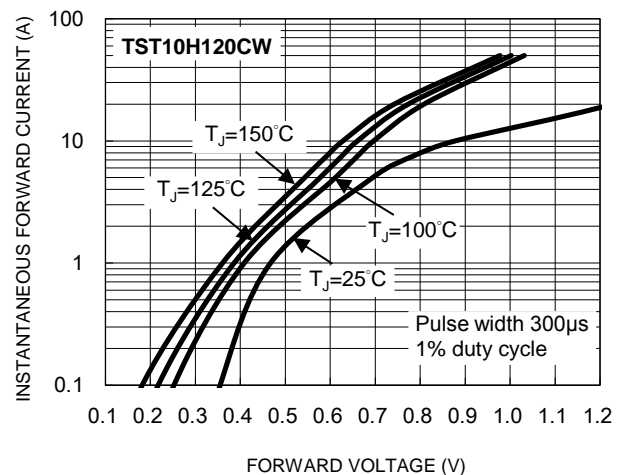
**Fig.4 Typical Forward Characteristics**



**Fig.5 Typical Reverse Characteristics**



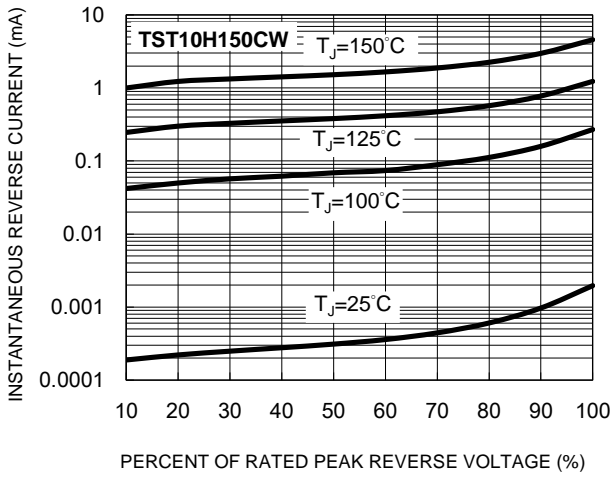
**Fig.6 Typical Forward Characteristics**



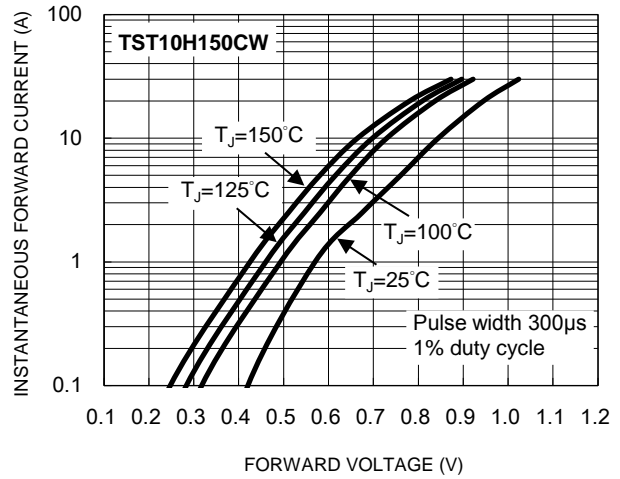
**CHARACTERISTICS CURVES**

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

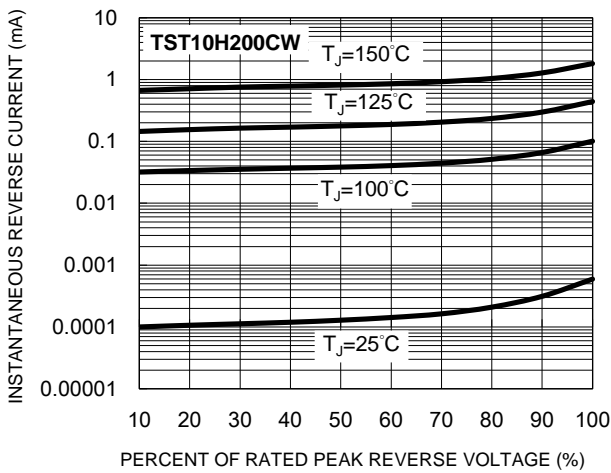
**Fig.7 Typical Reverse Characteristics**



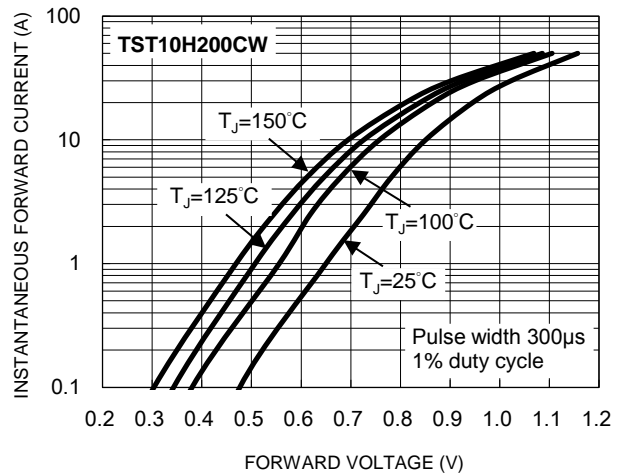
**Fig.8 Typical Forward Characteristics**



**Fig.9 Typical Reverse Characteristics**

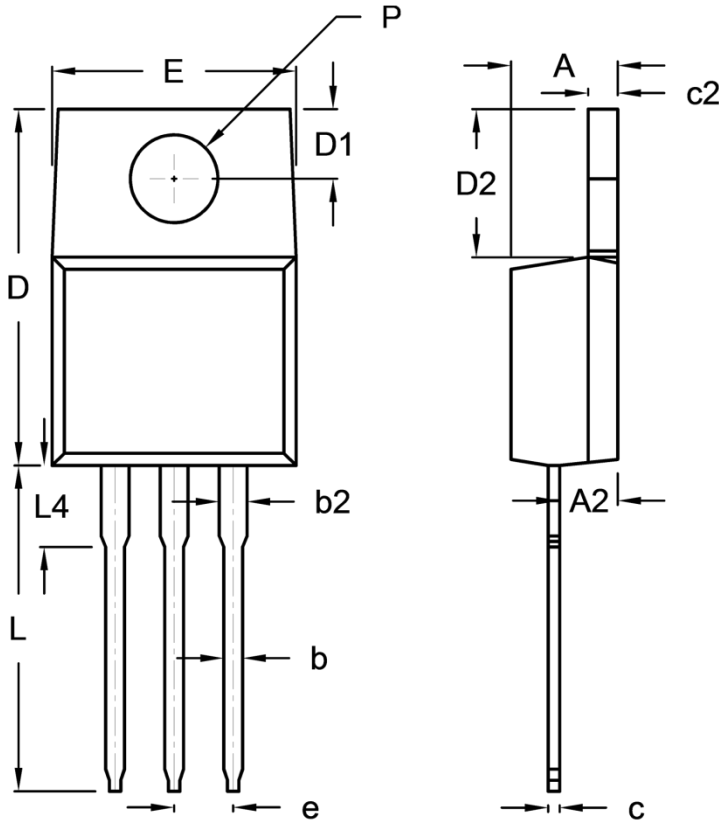


**Fig.10 Typical Forward Characteristics**



**PACKAGE OUTLINE DIMENSIONS**

TO-220AB



| DIM. | Unit (mm) |       | Unit (inch) |       |
|------|-----------|-------|-------------|-------|
|      | Min.      | Max.  | Min.        | Max.  |
| A    | 4.42      | 4.76  | 0.174       | 0.187 |
| A2   | 2.20      | 2.80  | 0.087       | 0.110 |
| b    | 0.68      | 0.94  | 0.027       | 0.037 |
| b2   | 0.95      | 1.45  | 0.037       | 0.057 |
| c    | 0.35      | 0.64  | 0.014       | 0.025 |
| c2   | 1.14      | 1.40  | 0.045       | 0.055 |
| D    | 14.60     | 16.00 | 0.575       | 0.630 |
| D1   | 2.54      | 3.44  | 0.100       | 0.135 |
| D2   | 5.84      | 6.86  | 0.230       | 0.270 |
| E    | -         | 10.50 | -           | 0.413 |
| e    | 2.41      | 2.67  | 0.095       | 0.105 |
| L    | 13.19     | 14.79 | 0.519       | 0.582 |
| L4   | 2.80      | 4.20  | 0.110       | 0.165 |
| P    | 3.54      | 4.00  | 0.139       | 0.157 |

**MARKING DIAGRAM**



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

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