



**THE DATASHEET OF
TST30H120CW**



30A, 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

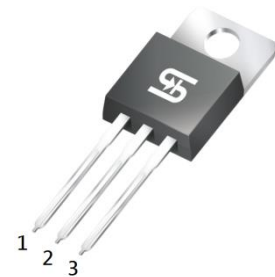
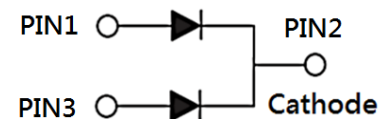
APPLICATIONS

- 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 1A whisker test
- Polarity: As marked
- Weight: 1.88g (approximately)

| KEY PARAMETERS | | |
|----------------|-----------|------|
| PARAMETER | VALUE | UNIT |
| I_F | 30 | A |
| V_{RRM} | 100 - 200 | V |
| I_{FSM} | 200 | 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 | TST30H 100CW | TST30H 120CW | TST30H 150CW | TST30H 200CW | UNIT |
| Marking code on the device | | TST30H 100CW | TST30H 120CW | TST30H 150CW | TST30H 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 | 30 | | | | A |
| Surge peak forward current, 8.3ms single half sine wave superimposed on rated load | I_{FSM} | 200 | | | | A |
| Critical rate of rise of off-state voltage | dv/dt | 10,000 | | | | V/ μs |
| Junction temperature | T_J | -55 to +150 | | | | °C |
| Storage temperature | T_{STG} | -55 to +150 | | | | °C |

| THERMAL PERFORMANCE | | | | |
|-------------------------------------|----------------------------|-----------------|------------|----------------------|
| PARAMETER | | SYMBOL | TYP | UNIT |
| Junction-to-case thermal resistance | TST30H100CW TST30H120CW | $R_{\theta JC}$ | 2.2 | $^{\circ}\text{C/W}$ |
| Junction-to-case thermal resistance | TST30H150CW TST30H200CW | $R_{\theta JC}$ | 3.0 | $^{\circ}\text{C/W}$ |

| ELECTRICAL SPECIFICATIONS ($T_A = 25^{\circ}\text{C}$ unless otherwise noted) | | | | | | |
|---|----------------------------|---|---------------|------------|---------------|---------------|
| PARAMETER | | CONDITIONS | SYMBOL | TYP | MAX | UNIT |
| Forward voltage per diode ⁽¹⁾ | TST30H100CW | $I_F = 15\text{A}, T_J = 25^{\circ}\text{C}$ | V_F | 0.69 | 0.78 | V |
| | TST30H120CW | | | 0.75 | 0.88 | V |
| | TST30H150CW | | | 0.81 | 0.90 | V |
| | TST30H200CW | | | 0.84 | 0.92 | V |
| | TST30H100CW | $I_F = 15\text{A}, T_J = 125^{\circ}\text{C}$ | | 0.61 | 0.68 | V |
| | TST30H120CW | | | 0.64 | 0.75 | V |
| | TST30H150CW | | | 0.68 | 0.77 | V |
| | TST30H200CW | | | 0.70 | 0.79 | V |
| Reverse current @ rated V_R per diode ⁽²⁾ | TST30H100CW TST30H120CW | $T_J = 25^{\circ}\text{C}$ | I_R | - | 250 | μA |
| | TST30H150CW TST30H200CW | - | | 150 | μA | |
| | TST30H100CW TST30H120CW | $T_J = 125^{\circ}\text{C}$ | | - | 35 | mA |
| | TST30H150CW TST30H200CW | - | | 20 | mA | |

Notes:

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

| ORDERING INFORMATION | | |
|-------------------------------------|----------------|----------------|
| ORDERING CODE ⁽¹⁾ | PACKAGE | PACKING |
| TST30HxCW | TO-220AB | 50 / Tube |

Notes:

1. "x" defines voltage from 100V(TST30H100CW) to 200V(TST30H200CW)

CHARACTERISTICS CURVES

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

Fig.1 Forward Current Derating Curve

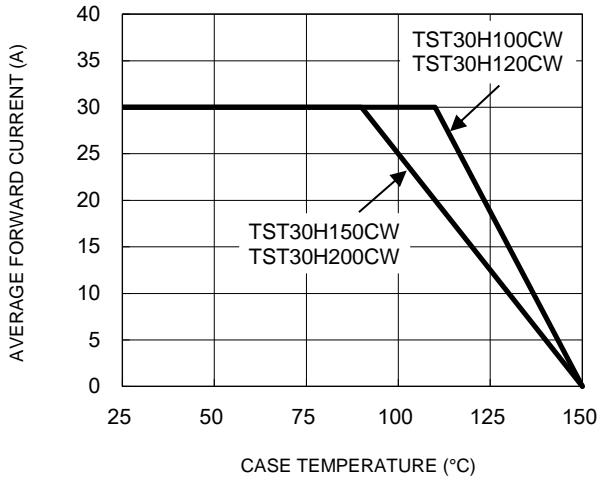


Fig.2 Typical Junction Capacitance

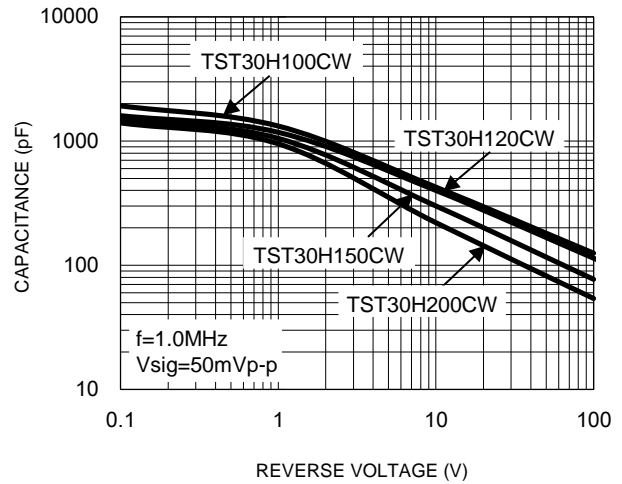


Fig.3 Typical Reverse Characteristics

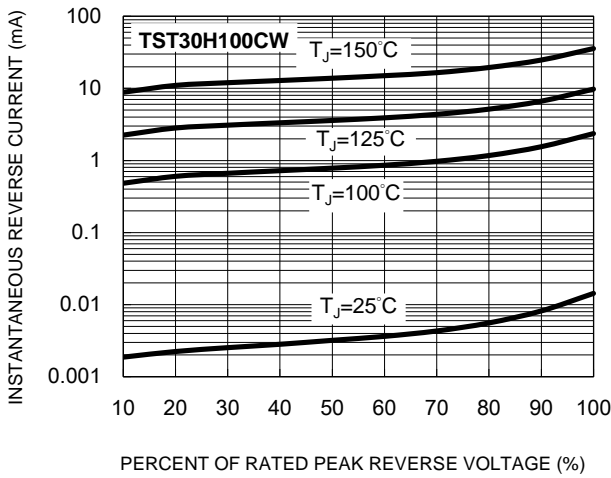


Fig.4 Typical Forward Characteristics

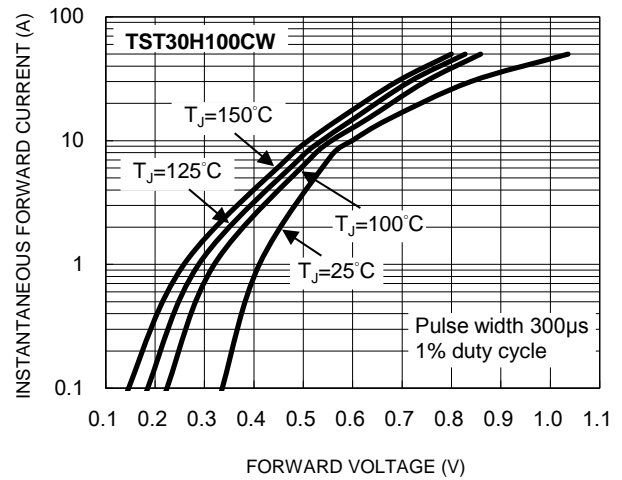


Fig.5 Typical Reverse Characteristics

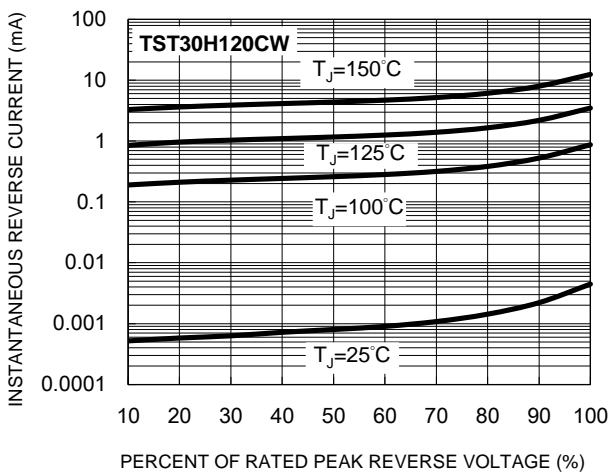
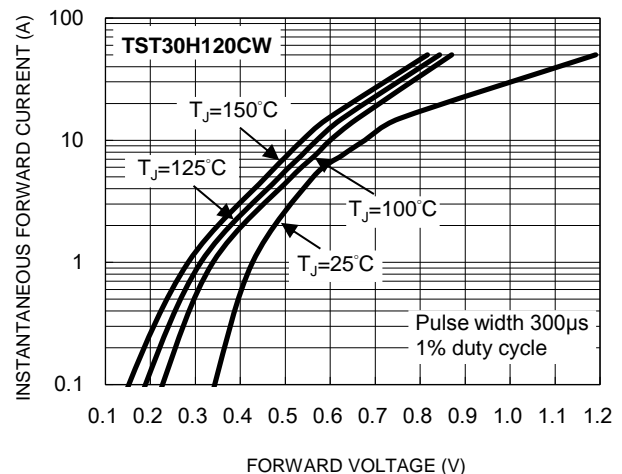


Fig.6 Typical Forward Characteristics



CHARACTERISTICS CURVES

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

Fig.7 Typical Reverse Characteristics

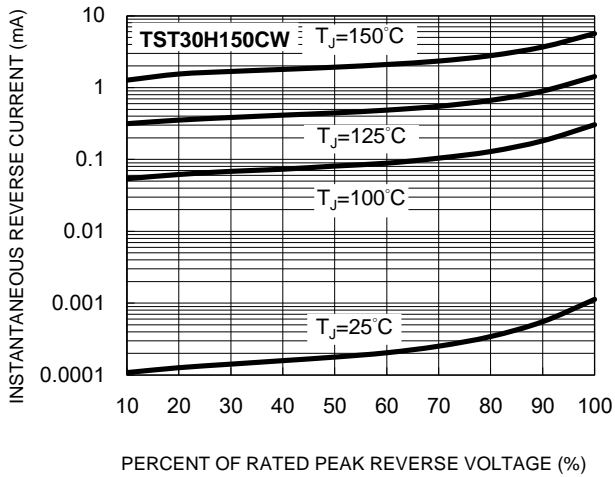


Fig.8 Typical Forward Characteristics

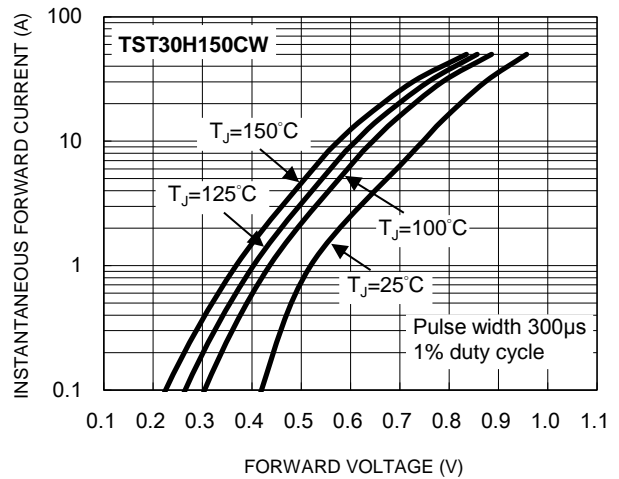


Fig.9 Typical Reverse Characteristics

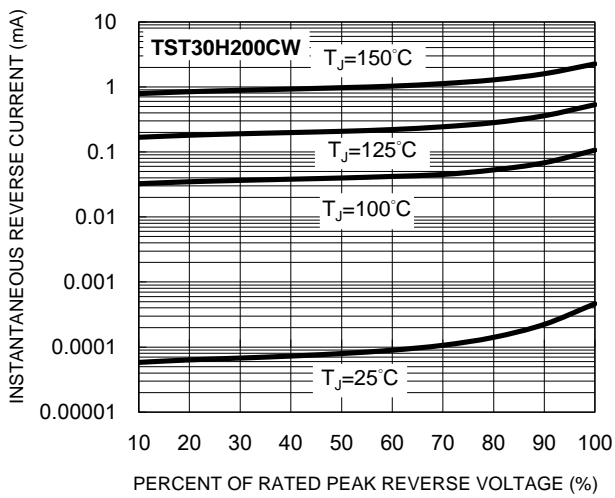
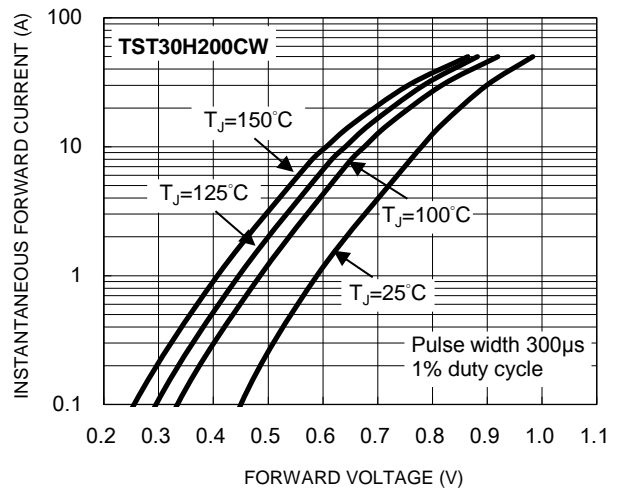
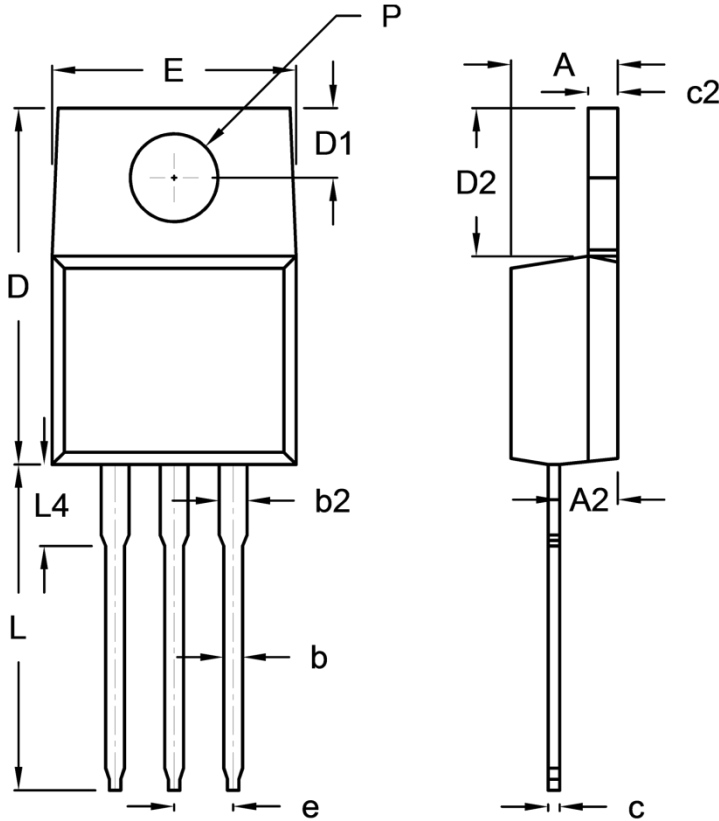


Fig.10 Typical Forward Characteristics



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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