# NTSV30H100CT

# Very Low Forward Voltage Trench-based Schottky Rectifier

## Exceptionally Low $V_F$ = 0.471 V at $I_F$ = 5 A

### Features

- Fine Lithography Trench−based Schottky Technology for Very Low Forward Voltage and Low Leakage
- Fast Switching with Exceptional Temperature Stability
- Low Power Loss and Lower Operating Temperature
- Higher Efficiency for Achieving Regulatory Compliance
- Low Thermal Resistance
- High Surge Capability
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

### Typical Applications

- Switching Power Supplies including Notebook / Netbook Adapters, ATX and Flat Panel Display
- High Frequency and DC−DC Converters
- Freewheeling and OR−ing diodes
- Reverse Battery Protection
- Instrumentation

### Mechanical Characteristics

- Case: Epoxy, Molded
- Epoxy Meets Flammability Rating UL 94−0 @ 0.125 in
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Maximum for 10 sec

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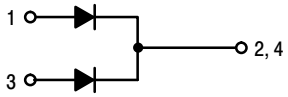
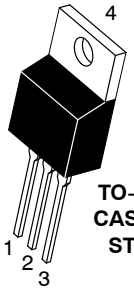
### PIN CONNECTIONS




**TO−220AB**
**CASE 221A**
**STYLE 6**

### MARKING DIAGRAM

| | |
|---|---|
| A | = Assembly Location |
| Y | = Year |
| WW | = Work Week |
| AKA | = Polarity Designator |
| G | = Pb−Free Package |

### ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

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## MAXIMUM RATINGS

| Rating | | Symbol | Value | Unit |
|---|---|---|---|---|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 100 | V |
| Average Rectified Forward Current<br>(Rated $V_R$, $T_C$ = 116°C)<br>(Rated $V_R$, $T_C$ = 133°C) | <br>Per device<br>Per diode | $I_{F(AV)}$ | <br>30<br>15 | A |
| Peak Repetitive Forward Current<br>(Rated $V_R$, Square Wave, 20 kHz, $T_C$ = 108°C)<br>(Rated $V_R$, Square Wave, 20 kHz, $T_C$ = 133°C) | <br>Per device<br>Per diode | $I_{FRM}$ | <br>60<br>30 | A |
| Nonrepetitive Peak Surge Current<br>(Surge applied at rated load conditions halfwave, single phase, 60 Hz) | | $I_{FSM}$ | 125 | A |
| Operating Junction Temperature | | $T_J$ | −40 to +150 | °C |
| Storage Temperature | | $T_{stg}$ | −40 to +150 | °C |

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

## THERMAL CHARACTERISTICS

| Rating | | Symbol | Value | Unit |
|---|---|---|---|---|
| Typical Thermal Resistance | Junction−to−Case<br>Junction−to−Ambient | $R_{\theta JC}$<br>$R_{\theta JA}$ | 1.4<br>47 | °C/W<br>°C/W |

## ELECTRICAL CHARACTERISTICS (Per Leg unless otherwise noted)

| Rating | Symbol | Typ | Max | Unit |
|---|---|---|---|---|
| Maximum Instantaneous Forward Voltage (Note 1) | $v_F$ | | | V |
| ($I_F$ = 5 A, $T_J$ = 25°C) | | 0.517 | – | |
| ($I_F$ = 7.5 A, $T_J$ = 25°C) | | 0.579 | – | |
| ($I_F$ = 15 A, $T_J$ = 25°C) | | 0.742 | 0.85 | |
| ($I_F$ = 5 A, $T_J$ = 125°C) | | 0.471 | – | |
| ($I_F$ = 7.5 A, $T_J$ = 125°C) | | 0.539 | – | |
| ($I_F$ = 15 A, $T_J$ = 125°C) | | 0.651 | 0.72 | |
| Maximum Instantaneous Reverse Current (Note 1) | $I_R$ | | | |
| ($V_R$ = 70 V, $T_J$ = 25°C) | | 3.9 | | μA |
| ($V_R$ = 70 V, $T_J$ = 125°C) | | 4.2 | | mA |
| (Rated dc Voltage, $T_J$ = 25°C) | | 15.2 | 95 | μA |
| (Rated dc Voltage, $T_J$ = 125°C) | | 10.0 | 30 | mA |

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

1. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%

## ORDERING INFORMATION

| Device | Package | Shipping |
|---|---|---|
| NTSV30H100CTG | TO−220AB<br>(Pb−Free) | 50 Units / Rail |

## TYPICAL CHARACTERISTICS

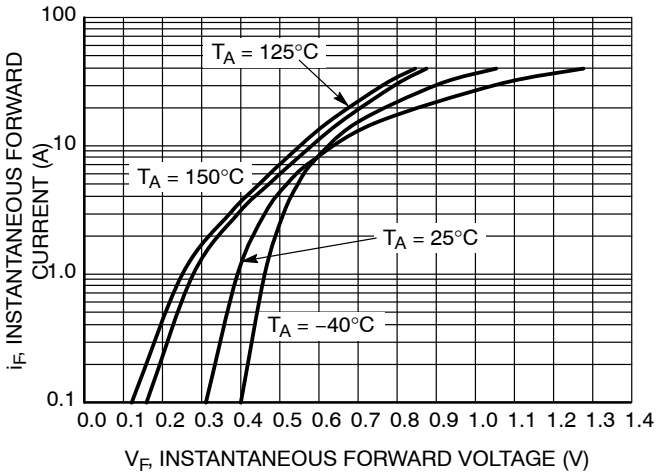


**Figure 1. Typical Instantaneous Forward Characteristics**

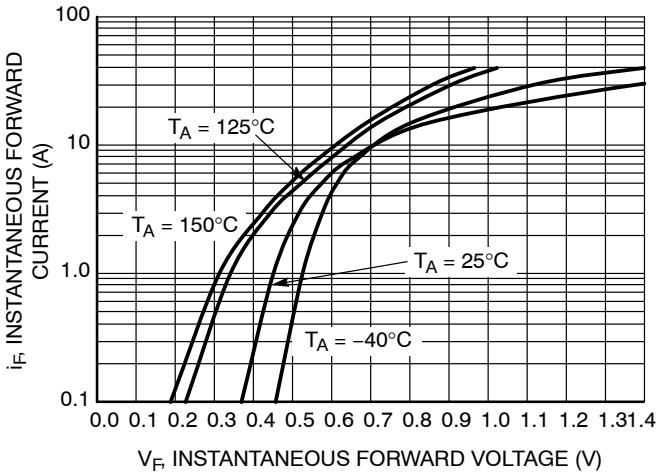


**Figure 2. Maximum Instantaneous Forward Characteristics**

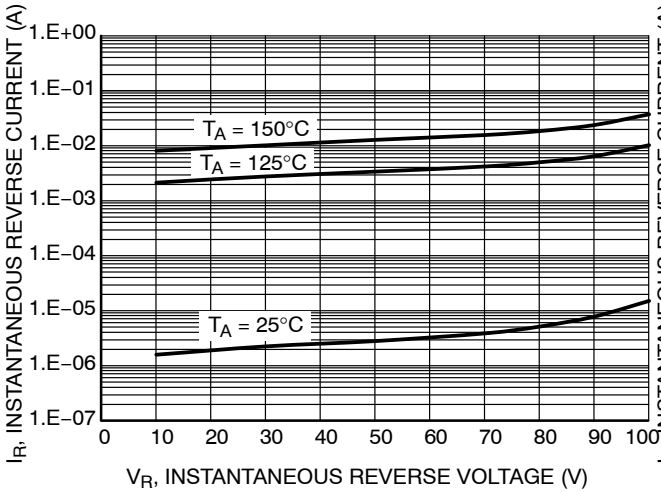


**Figure 3. Typical Reverse Characteristics**

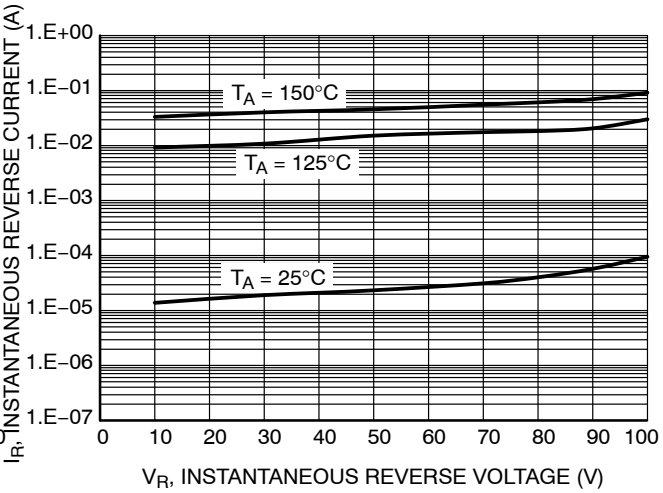


**Figure 4. Maximum Reverse Characteristics**

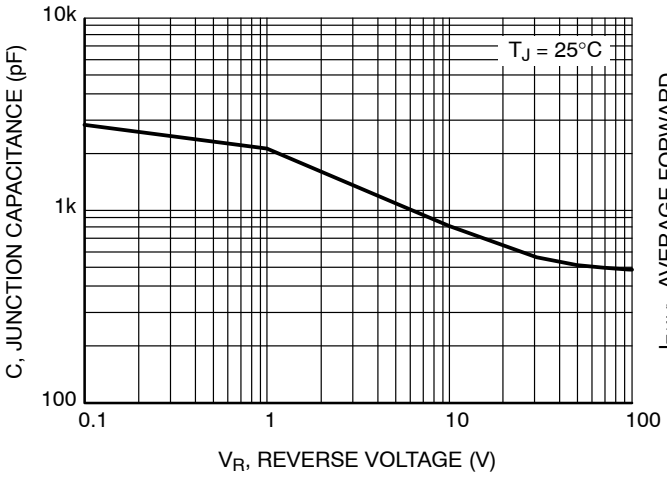


**Figure 5. Typical Junction Capacitance**

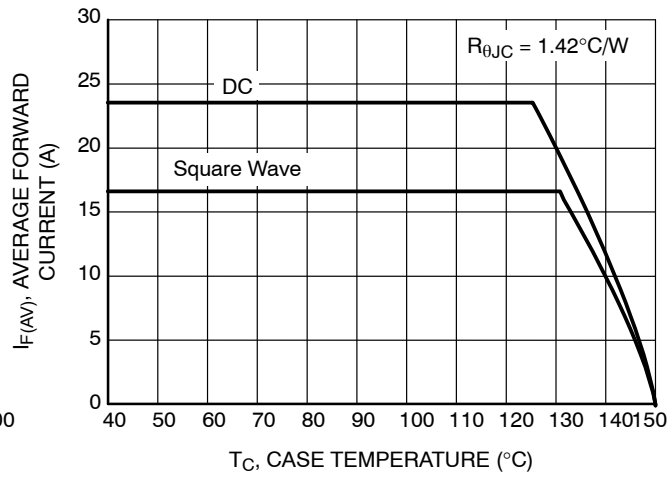


**Figure 6. Current Derating per Leg**

## TYPICAL CHARACTERISTICS

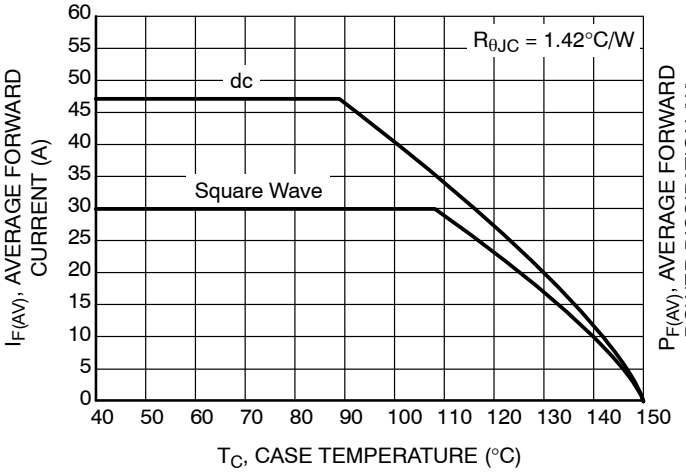


**Figure 7. Current Derating per Leg**

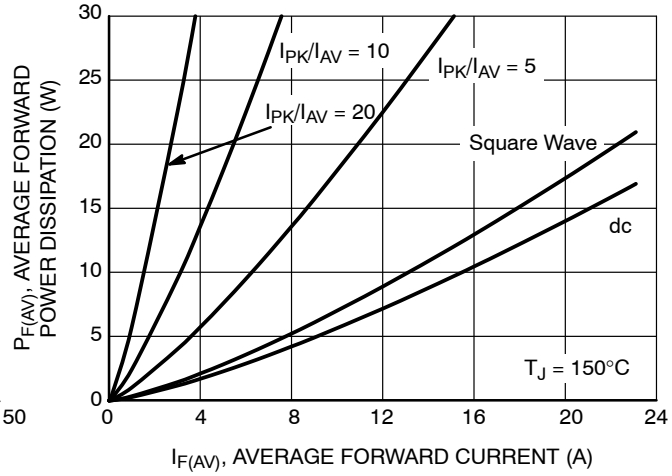


**Figure 8. Forward Power Dissipation**

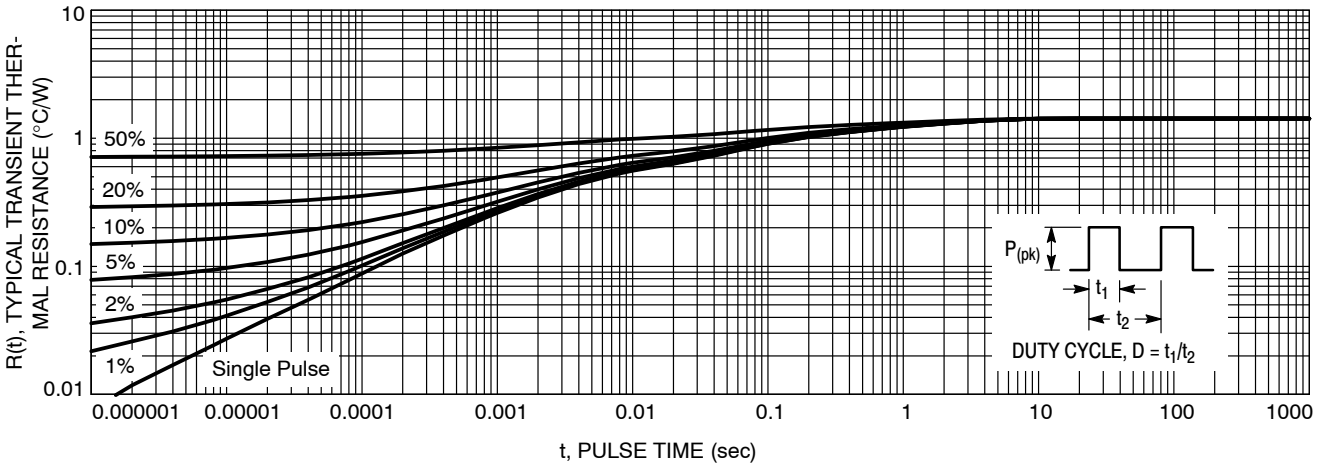


**Figure 9. Typical Transient Thermal Response**

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