



**THE DATASHEET OF  
NTS10100MFST3G**



# NTS10100MFS, NRVTS10100MFS

## Very Low Forward Voltage Trench-based Schottky Rectifier

### 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
- NRV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These are Pb-Free and Halide-Free Devices

### 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:

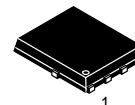
- Case: Epoxy, Molded
- Epoxy Meets Flammability Rating UL 94-0 @ 0.125 in.
- Lead Finish: 100% Matte Sn (Tin)
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Device Meets MSL 1 Requirements



ON Semiconductor®

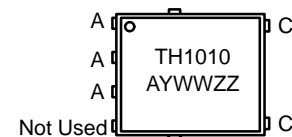
<http://onsemi.com>

**SCHOTTKY BARRIER  
RECTIFIERS  
10 AMPERES  
100 VOLTS**



SO-8 FLAT LEAD  
CASE 488AA  
STYLE 2

### MARKING DIAGRAM



TH1010 = Specific Device Code  
A = Assembly Location  
Y = Year  
W = Work Week  
ZZ = Lot Traceability

### ORDERING INFORMATION

Device	Package	Shipping†
NTS10100MFST1G	SO-8 FL (Pb-Free)	1500 / Tape & Reel
NTS10100MFST3G	SO-8 FL (Pb-Free)	5000 / Tape & Reel
NRVTS10100MFST1G	SO-8 FL (Pb-Free)	1500 / Tape & Reel
NRVTS10100MFST3G	SO-8 FL (Pb-Free)	5000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

# NTS10100MFS, NRVTS10100MFS

## MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	100	V
Average Rectified Forward Current (Rated $V_R$ , $T_C = 137^\circ\text{C}$ )	$I_{F(AV)}$	10	A
Peak Repetitive Forward Current, (Rated $V_R$ , Square Wave, 20 kHz, $T_C = 134^\circ\text{C}$ )	$I_{FRM}$	16	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	$I_{FSM}$	200	A
Storage Temperature Range	$T_{stg}$	-65 to +150	$^\circ\text{C}$
Operating Junction Temperature	$T_J$	-55 to +150	$^\circ\text{C}$
Unclamped Inductive Switching Energy (10 mH Inductor, Non-repetitive)	$E_{AS}$	100	mJ
ESD Rating (Human Body Model)		3B	
ESD Rating (Machine Model)		M4	

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

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance, Junction-to-Case, Steady State (Assumes 600 mm <sup>2</sup> 1 oz. copper bond pad, on a FR4 board)	$R_{\theta JC}$	2.0	-	$^\circ\text{C/W}$

## ELECTRICAL CHARACTERISTICS

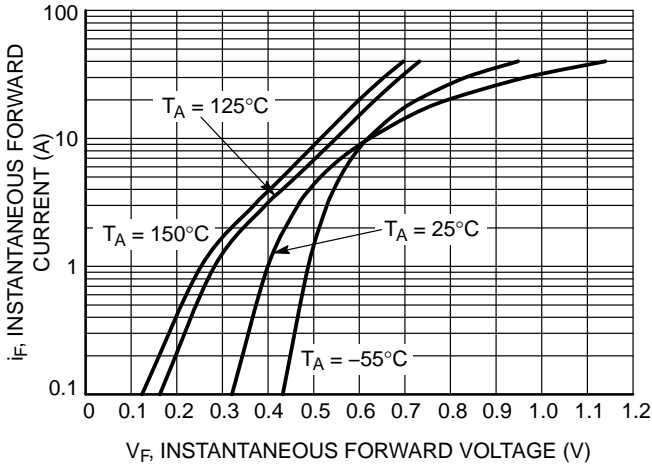
Instantaneous Forward Voltage (Note 1) ( $i_F = 5$ Amps, $T_J = 25^\circ\text{C}$ ) ( $i_F = 10$ Amps, $T_J = 25^\circ\text{C}$ )  ( $i_F = 5$ Amps, $T_J = 125^\circ\text{C}$ ) ( $i_F = 10$ Amps, $T_J = 125^\circ\text{C}$ )	$V_F$	0.512 0.620  0.450 0.574	- 0.690  - 0.590	V
Instantaneous Reverse Current (Note 1) ( $V_R = 70$ V, $T_J = 25^\circ\text{C}$ ) (Rated dc Voltage, $T_J = 25^\circ\text{C}$ )  ( $V_R = 70$ V, $T_J = 125^\circ\text{C}$ ) (Rated dc Voltage, $T_J = 125^\circ\text{C}$ )	$i_R$	7.0 15  4.0 10	- 70  - 35	$\mu\text{A}$ $\mu\text{A}$  mA 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.

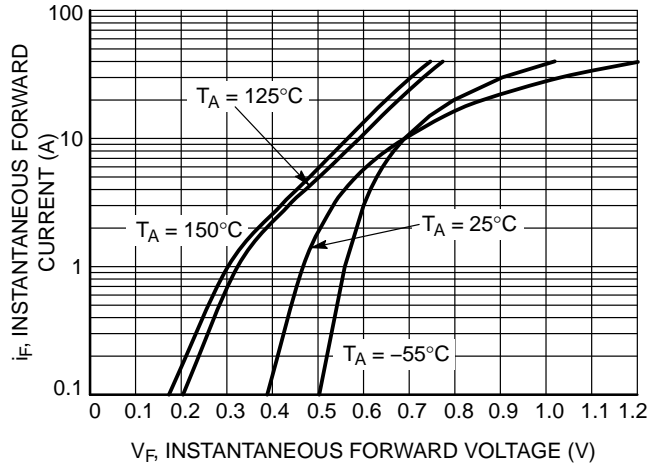
1. Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

# NTS10100MFS, NRVTS10100MFS

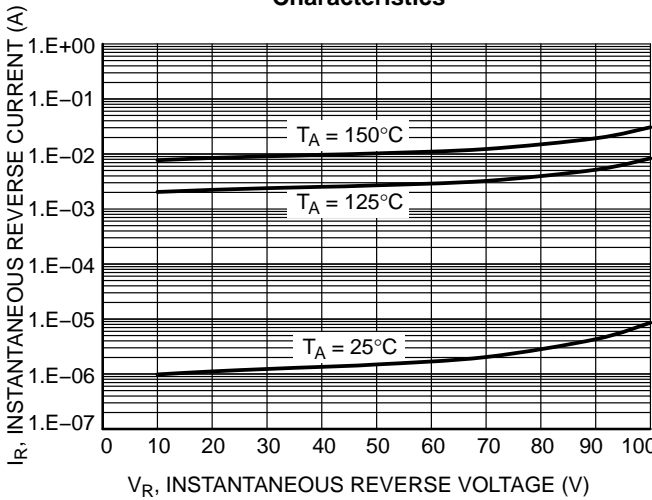
## TYPICAL CHARACTERISTICS



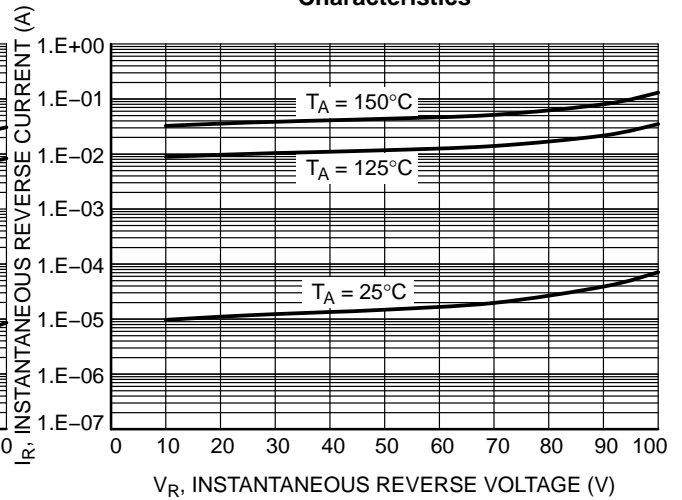
**Figure 1. Typical Instantaneous Forward Characteristics**



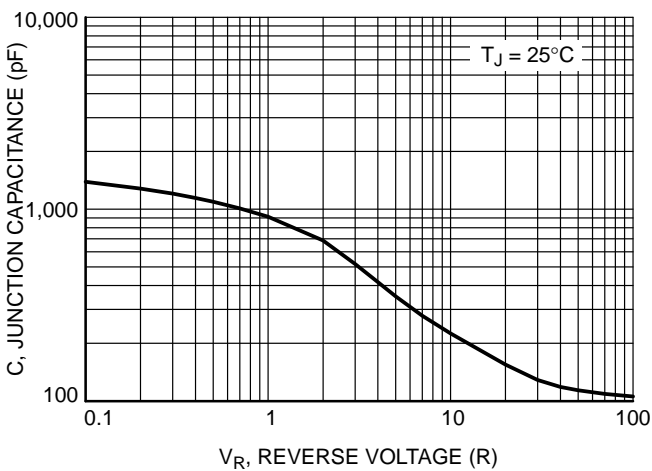
**Figure 2. Maximum Instantaneous Forward Characteristics**



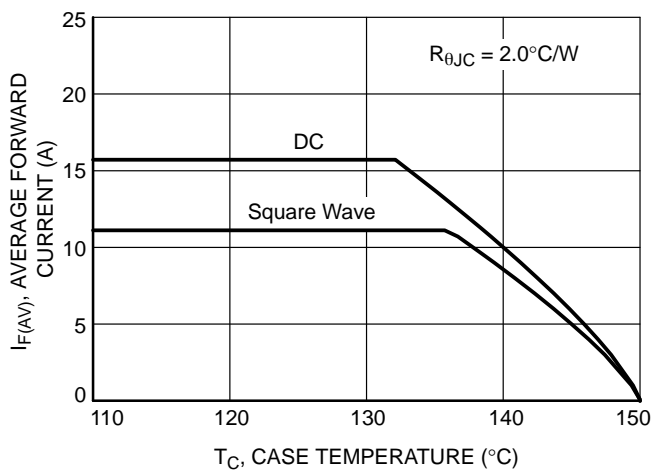
**Figure 3. Typical Reverse Characteristics**



**Figure 4. Maximum Reverse Characteristics**



**Figure 5. Typical Junction Capacitance**



**Figure 6. Current Derating**

TYPICAL CHARACTERISTICS

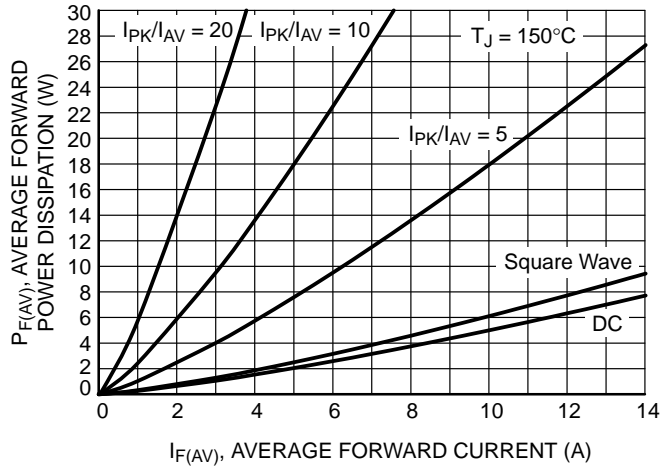


Figure 7. Forward Power Dissipation

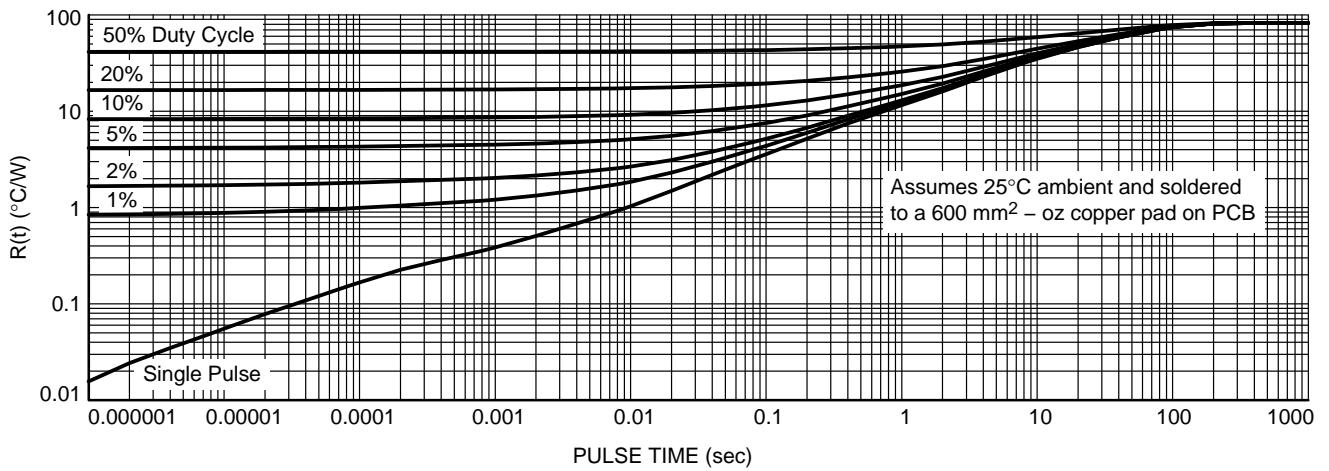


Figure 8. Thermal Characteristics

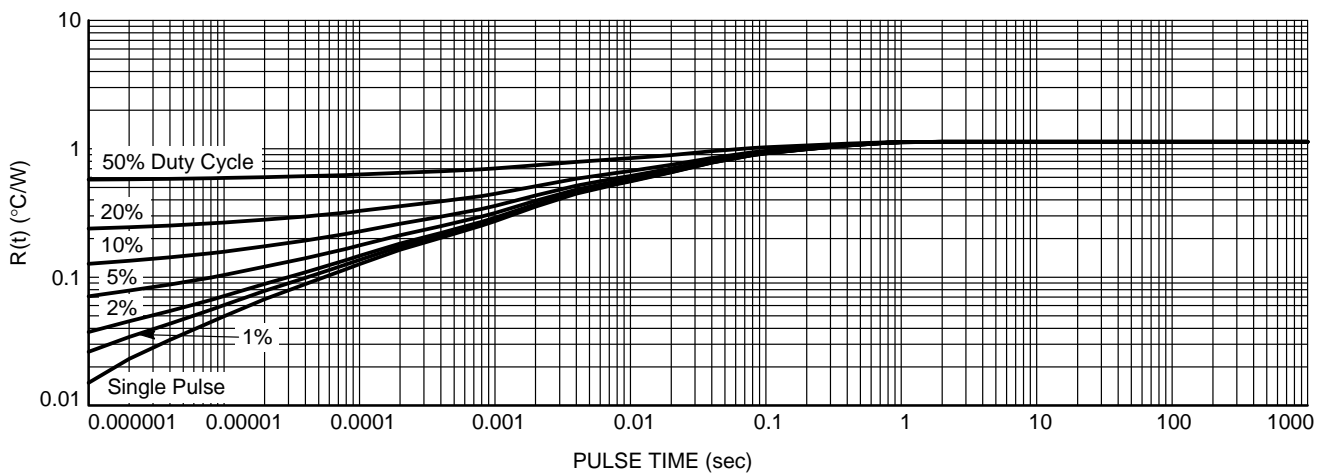


Figure 9. Typical Transient Thermal Response Characteristics, Junction-to-Case



## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- ⊖ [View NTS10100MFST3G on WIN SOURCE](#)
- ⊖ [ON Semiconductor Information](#)

## Optimize Your Supply Chain with WIN SOURCE Solutions

- ✓ Global Sourcing Solution
- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management