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Schottky Barrier Rectifier, Trench-based

NRTS15100PFS, NRVTS15100PFS

This TO-277 trench Schottky rectifier provides fast switching performance in a compact thermally efficient package. The TO-277 package provides an excellent alternative to the DPAK, offering thermal performance nearly as good in a package occupying less than half the board space. Its low profile makes it a good option for flat panel display and other applications with limited vertical clearance. The device offers low leakage over temperature making it a good match for applications requiring low quiescent current.

Features

- Package Provides Capability of Inspection and Probe After Board Mounting
- Low Forward Voltage Drop
- 175°C Operating Junction Temperature
- NRV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb–Free, Halogen Free/BFR Free and are RoHS Compliant

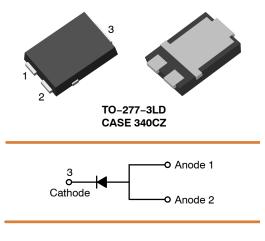
Mechanical Characteristics:

- 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

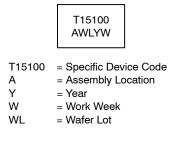
Applications

- Excellent Alternative to DPAK in Space–Constrained Automotive Applications
- Low Leakage for Higher Temperature Operation
- Output Rectification in Compact Portable Consumer Applications
- Freewheeling Diode used with Inductive Loads

SCHOTTKY BARRIER RECTIFIER, 15 AMPERES 100 VOLTS



MARKING DIAGRAM



ORDERING INFORMATION

Device	Package	Shipping†
NRTS15100PFST3G	TO–277 (Pb–Free)	1500 / Tape & Reel
NRVTS15100PFST3G	TO–277 (Pb–Free)	1500 / 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.

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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 $(T_C = 157^{\circ}C)$	I _{F(AV)}	15	A	
Peak Repetitive Forward Current, (T _C = 152°C, Square Wave, Duty = 0.5)	I _{FRM}	30	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 +175	°C	
Operating Junction Temperature	TJ	–55 to +175	°C	
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	Мах	Unit
Thermal Resistance, Junction-to-Ambient (Assumes 600 mm ² , 1 oz. copper bond pad on a FR4 board)	R _{θJA}	68	°C/W
Thermal Resistance, Junction-to-Case, Top (Assumes 600 mm ² , 1 oz. copper bond pad on a FR4 board)	R _{θJCT}	56	°C/W
Thermal Resistance, Junction-to-Case, Bottom (Assumes 600 mm ² , 1 oz. copper bond pad on a FR4 board)	R _{θJCB}	1.8	°C/W

ELECTRICAL CHARACTERISTICS

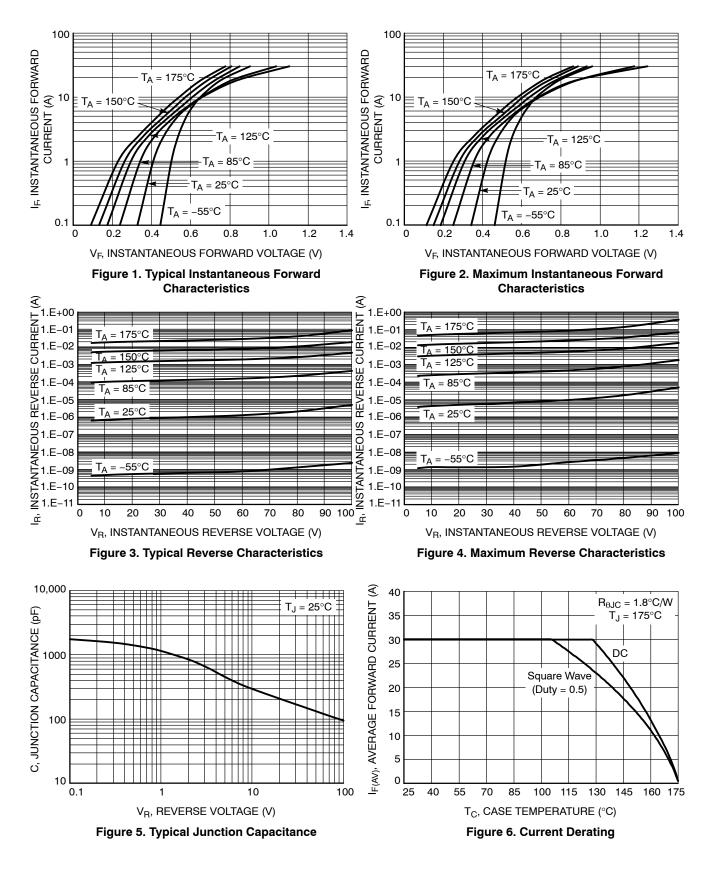
Characteristic	Symbol	Тур	Max	Unit
$ \begin{array}{l} \mbox{Instantaneous Forward Voltage (Note 1)} \\ (i_F = 7.5 \mbox{ A}, T_J = 25^{\circ}\mbox{C}) \\ (i_F = 7.5 \mbox{ A}, T_J = 125^{\circ}\mbox{C}) \\ (i_F = 15 \mbox{ A}, T_J = 25^{\circ}\mbox{C}) \\ (i_F = 15 \mbox{ A}, T_J = 125^{\circ}\mbox{C}) \end{array} $	VF	0.60 0.56 0.77 0.68	 0.81 0.73	V
Instantaneous Reverse Current (Note 1) (Rated dc Voltage, T _J = 25°C) (Rated dc Voltage, T _J = 125°C)	i _R	5 4.5	50 18	μA mA
Junction Capacitance (V _R = 1 V, T _J = 125°C, 1 MHz)	CJ	1150	_	pF

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 μ s, Duty Cycle \leq 2.0%.

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TYPICAL CHARACTERISTICS



NRTS15100PFS, NRVTS15100PFS

TYPICAL CHARACTERISTICS

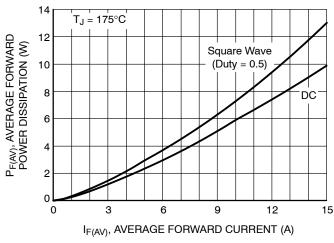


Figure 7. Forward Power Dissipation

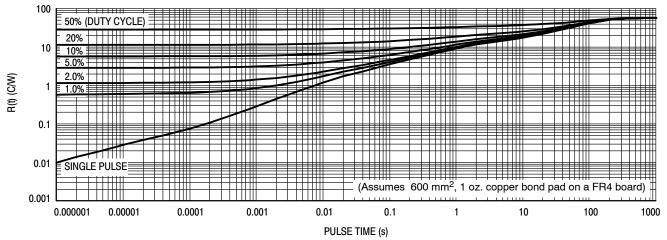


Figure 8. Typical Thermal Characteristics, Junction-to-Ambient

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TO-277-3LD CASE 340CZ

ISSUE A

NDTES:

3.

В

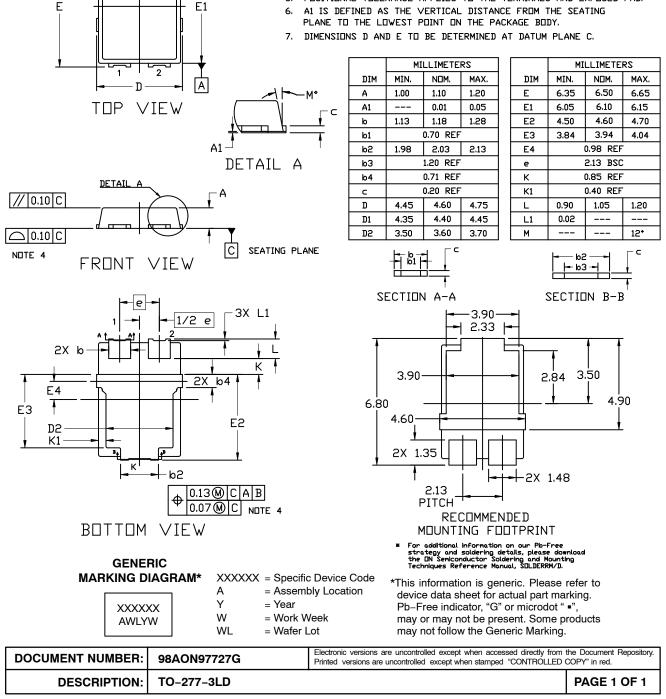
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DATE 14 FEB 2020



- 2. CONTROLLING DIMENSION: MILLIMETERS
 - DIMENSIONS b, b1,b2,b3,b6 AND c TO BE MEASURED ON FLAT
 - SECTION OF THE LEAD, BETWEEN 0.13 AND 0.25mm FROM LEAD TIP.
- 4. COPLANARITY APPLES TO THE EXPOSED PAD AS WELL AS THE TERMINALS.
- POSITIONAL TOLERANCE APPLIES TO THE TERMINALS AND EXPOSED PAD. 5.



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