Schottky Barrier Rectifier, Trench-based, High Performance

NRTS6100PFS, NRVTS6100PFS

This Trench Schottky rectifier is a high performance device in a TO-277 package. The lower forward voltage, less leakage current, and small junction capacitance are suitable to high switching frequency high density DC to DC conversion applications. It offers higher avalanche energy capability for Oring or reverse protection applications. The TO-277 package provides excellent thermal performance, less land area of board space, and a low profile.

Features

- Lower Forward Voltage Drop
- Less Leakage Current in High Temperature
- Small Junction Capacitance for High Switching Frequency
- Higher Avalanche Energy Capability
- 175 °C Operating Junction Temperature
- Package Provided Capability of Inspection and Probe After Board Mounting
- Good Alternative Solution of SMC and DPAK Package
- NRV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable

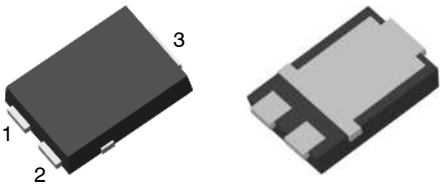
Mechanical Characteristics:

- 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
- ESD Ratings:
  - Human Body Model: ≥ 8000 V (Class 3B)
  - Charged Device Model: > 1000 V (Class C5)

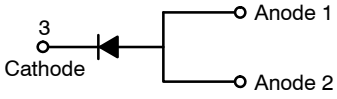
Applications

- High Switching Frequency DC/DC Converters
- 2nd Rectifier
- Oring / Reverse Protection
- Freewheeling Diode for Inductive Loads

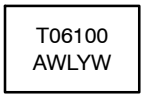
SCHOTTKY BARRIER RECTIFIER, 6 AMPERES 100 VOLTS



TO-277-3LD
CASE 340CZ



MARKING DIAGRAM



T06100	= Specific Device Code
A	= Assembly Location
Y	= Year
W	= Work Week
WL	= Wafer Lot

ORDERING INFORMATION

Device	Package	Shipping†
NRTS6100PFST3G	TO-277 (Pb-Free)	1500 / Tape & Reel
NRVTS6100PFST3G	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
Continuous Forward Current (T_C = 168 °C, DC)	$I_{F(DC)}$	6	A
Peak Repetitive Forward Current, (T_C = 166 °C, Square Wave, Duty = 0.5)	I_{FRM}	12	A
Non-Repetitive Avalanche Energy (T_J = 25 °C)	E_{AS}	145	mJ
Storage Temperature Range	T_{stg}	−65 to +175	°C
Operating Junction Temperature (Note 1)	T_J	−55 to +175	°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.

1. The heat generated must be less than the thermal conductivity from Junction-to-Ambient $dP_D/dT_J < 1/R_{\theta JA}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	70	°C/W
Thermal Resistance, Junction-to-Case Bottom	$R_{\theta JCB}$	2.2	°C/W
Thermal Characterization, Junction-to-Case Top	Ψ_{JCT}	1.1	°C/W
Thermal Characterization, Junction-to-Lead of Cathode	Ψ_{JLC}	0.7	°C/W

NOTE: (Assumes 600 mm^2, 1 oz. copper bond pad on a FR4 board)

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Typ	Max	Unit
Instantaneous Forward Voltage (Note 2) (I_F = 3 A, T_J = 25 °C) (I_F = 3 A, T_J = 125 °C) (I_F = 6 A, T_J = 25 °C) (I_F = 6 A, T_J = 125 °C)	V_F	 0.52 0.47 0.62 0.56	 0.68 0.62	V
Instantaneous Reverse Current (Note 2) (V_R = Rated DC Voltage, T_J = 25 °C) (V_R = Rated DC Voltage, T_J = 125 °C)	I_R	 6.2 3.3	 50 15	 μA mA
Junction Capacitance (V_R = 1 V, T_J = 25 °C, 1 MHz)	C_J	 827		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.

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

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TYPICAL CHARACTERISTICS

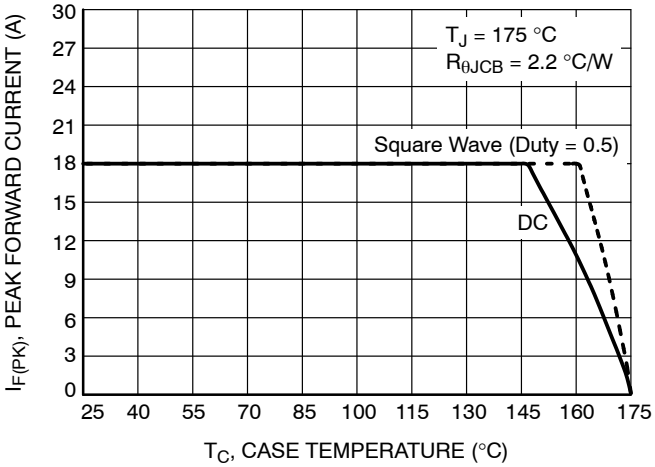


Figure 1. Forward Current Derating of Case Temperature

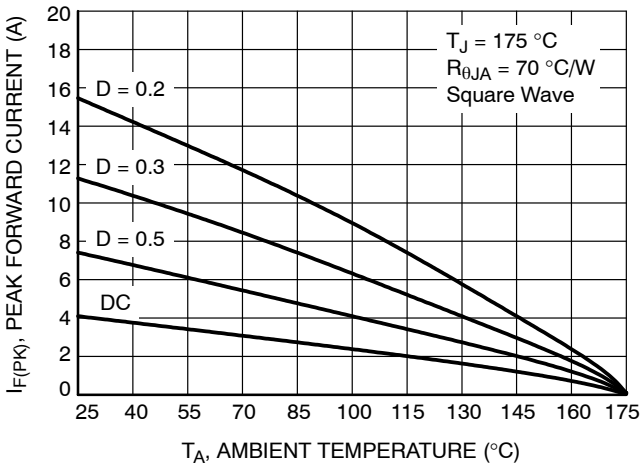


Figure 2. Forward Current Derating of Ambient Temperature

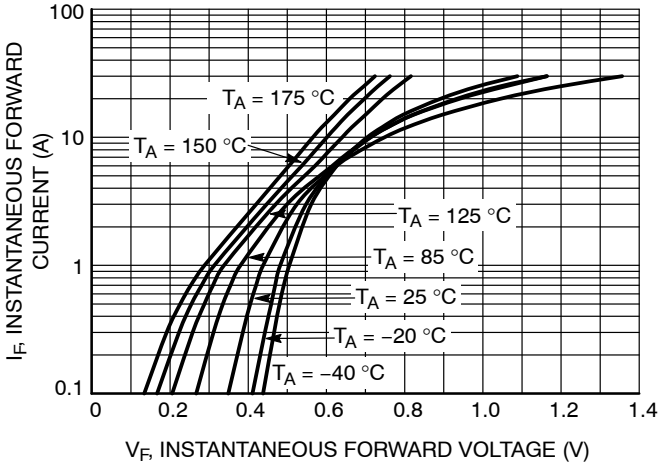


Figure 3. Typical Forward Characteristics

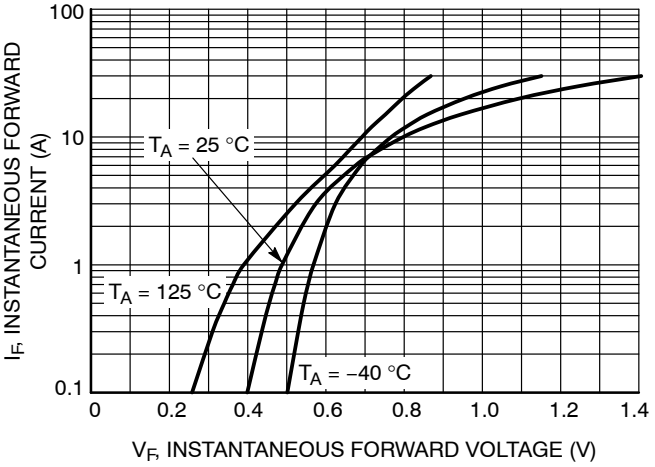


Figure 4. Maximum Forward Characteristics

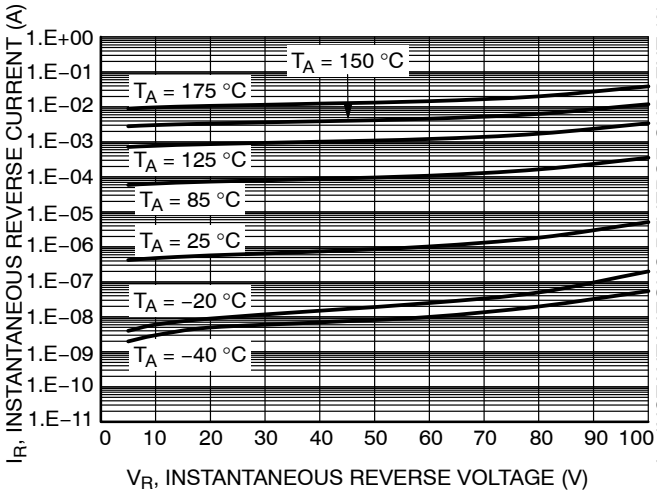


Figure 5. Typical Reverse Characteristics

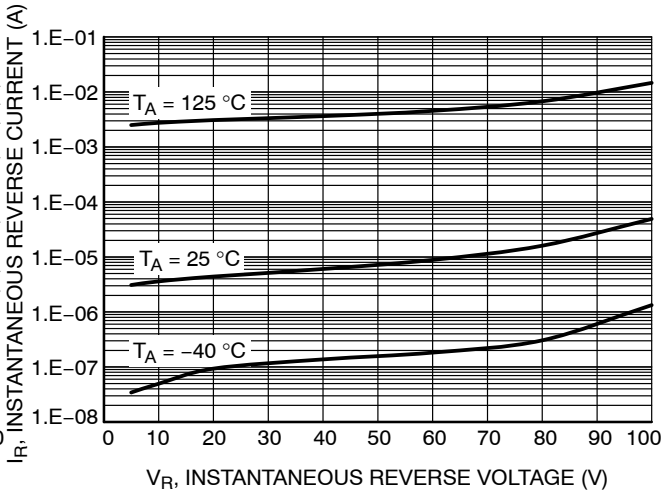


Figure 6. Maximum Reverse Characteristics

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TYPICAL CHARACTERISTICS

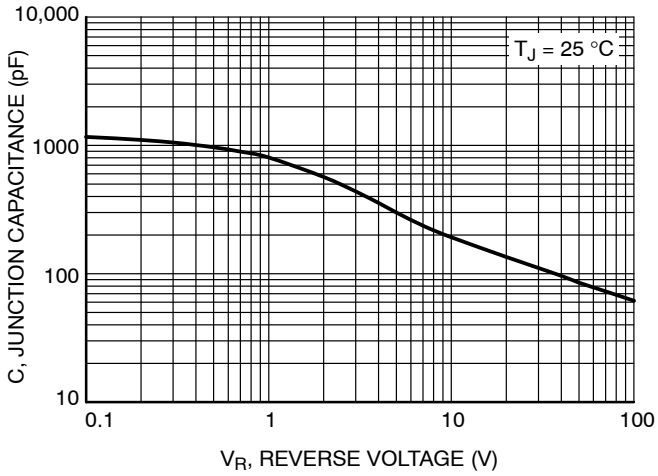


Figure 7. Typical Junction Capacitance

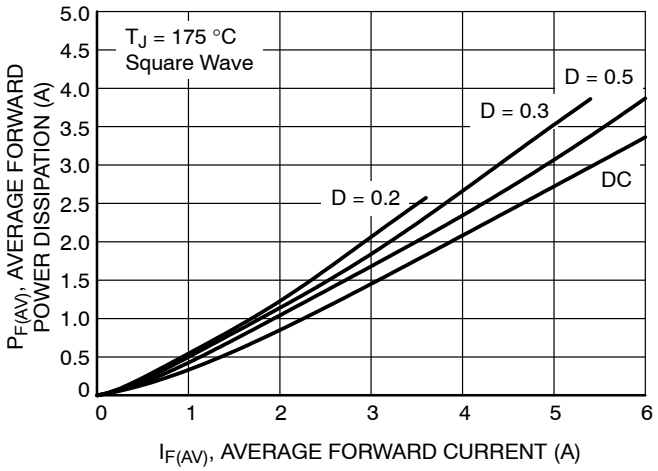


Figure 8. Average Forward Power Dissipation

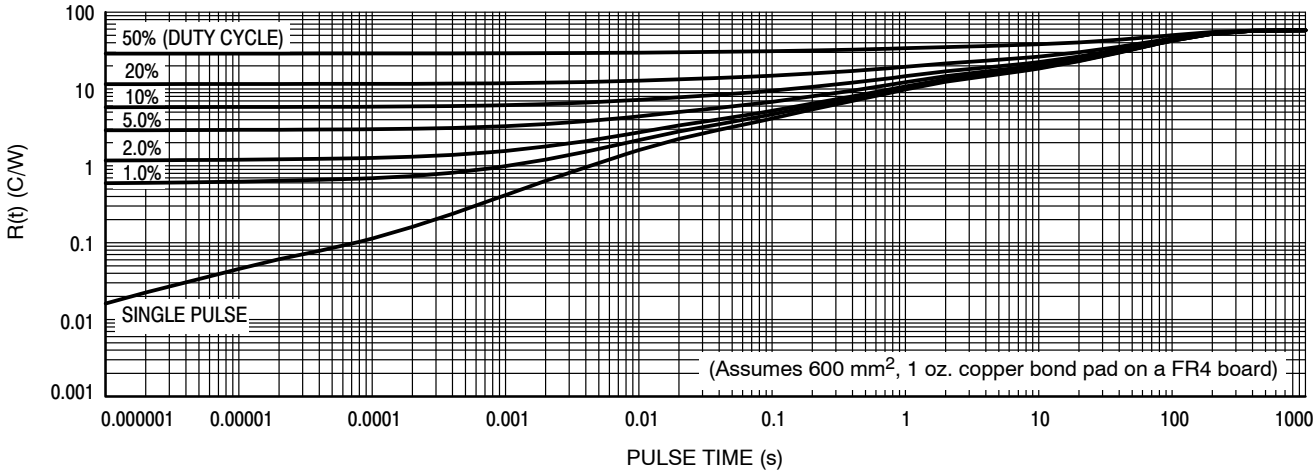


Figure 9. Typical Thermal Characteristics, Junction-to-Ambient

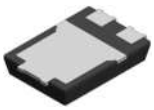
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REVISION HISTORY

Revision	Description of Changes	Date
2	AEC-Q101 bullet added to the front page Features section.	4/16/2026

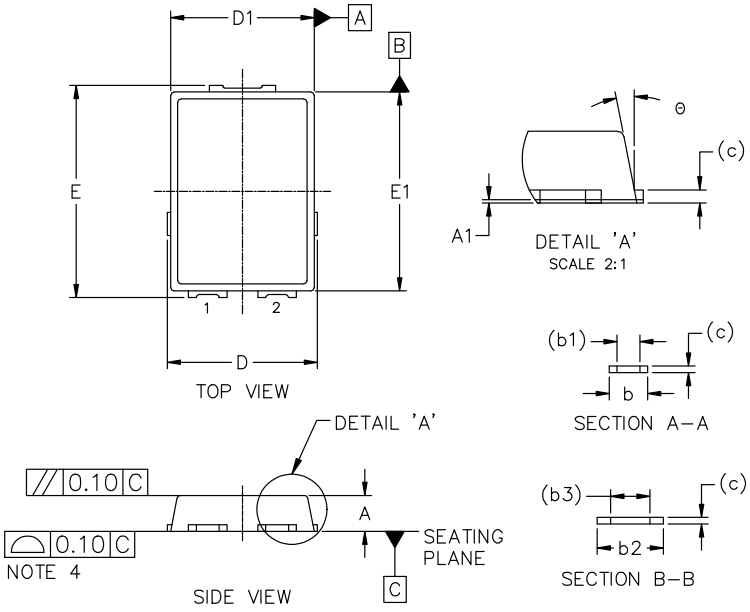
This document has undergone updates prior to the inclusion of this revision history table. The changes tracked here only reflect updates made on the noted approval dates.

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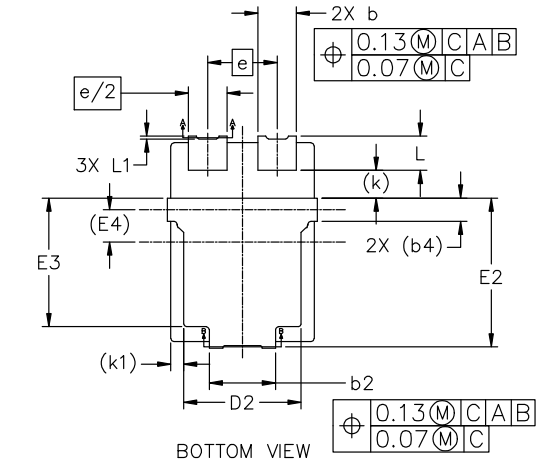


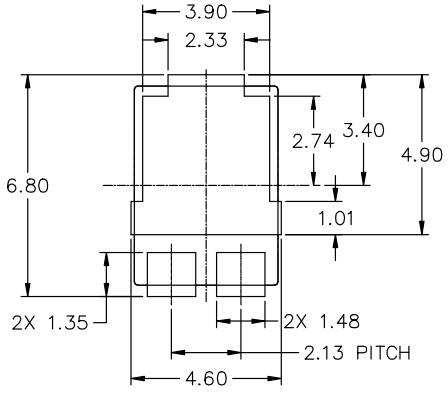
TO−277−3 4.40x6.10x1.10, 2.13P
CASE 340CZ
ISSUE B

DATE 04 MAY 2026



MILLIMETERS			
DIM	MIN	NOM	MAX
A	1.00	1.10	1.20
A1	−−−	0.01	0.05
b	1.13	1.18	1.28
b1		0.70 REF	
b2	1.98	2.03	2.13
b3		1.20 REF	
b4		0.71 REF	
c		0.20 REF	
D	4.45	4.60	4.75
D1	4.35	4.40	4.45
D2	3.50	3.60	3.70
E	6.35	6.50	6.65
E1	6.05	6.10	6.15
E2	4.50	4.60	4.70
E3	3.84	3.94	4.04
E4		0.98 REF	
e		2.13 BSC	
k		0.85 REF	
k1		0.40 REF	
L	0.90	1.05	1.20
L1	0.02	−−−	−−−
Θ	−−−	−−−	12°





RECOMMENDED MOUNTING FOOTPRINT

*For additional information on our Pb−Free strategy and soldering details, please download the onsemi Soldering and Mounting Techniques Reference Manual, SOLDERM/D.

NOTES:
1. DIMENSIONING AND TOLERANCING AS PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSION b, b1, b2, b3, b4 and c TO BE MEASURED ON FLAT SECTION OF THE LEAD, BETWEEN 0.13 AND 0.25mm FROM LEAD TIP.
4. COPLANARITY APPLIES TO THE EXPOSED PAD AS WELL AS THE TERMINALS.
5. POSITIONAL TOLERANCE APPLIES TO THE TERMINALS AND EXPOSED PAD.
6. A1 IS DEFINED AS THE VERTICAL DISTANCE FROM THE SEATING PLANE TO THE LOWEST POINT ON THE PACKAGE BODY.
7. DIMENSION D1 AND E1 TO BE DETERMINED AT DATUM PLANE C.

GENERIC MARKING DIAGRAM*



XXXXXX = Specific Device Code
A = Assembly Location
Y = Year
W = Work Week
WL = Wafer Lot

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, "G" or microdot " ▪", may or may not be present. Some products may not follow the Generic Marking.

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