NRTSAF360, NRVTSAF360

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
- 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 Tablet Adapters, and Flat Panel Display
- High Frequency and DC−DC Converters
- Freewheeling and OR−ing diodes
- Reverse Battery Protection
- Instrumentation
- Automotive LED Lighting

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
- Weight: 95 mg (Approximately)

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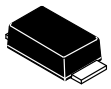
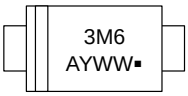
TRENCH SCHOTTKY RECTIFIER 3.0 AMPERE 60 VOLTS



SMA−FL
CASE 403AA
STYLE 6

MARKING DIAGRAM



3M6	= Specific Device Code
A	= Assembly Location
Y	= Year
WW	= Work Week
▪	= Pb−Free Package

ORDERING INFORMATION

Device	Package	Shipping†
NRTSAF360T3G	SMA−FL (Pb−Free)	5000 / Tape & Reel
NRVTSAF360T3G	SMA−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.

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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	60	V
Average Rectified Forward Current (T_L = 143°C)	I_O	3.0	A
Peak Repetitive Forward Current (Rated V_R, Square Wave, 20 kHz) T_L = 138°C	I_{FRM}	6.0	A
Non−Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I_{FSM}	100	A
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	Value	Unit
Thermal Resistance, Junction−to−Lead (Note 2)	Ψ_{JCL}	24.5	°C/W
Thermal Resistance, Junction−to−Ambient (Note 2)	$R_{\theta JA}$	81	°C/W

2. 1 inch square pad size (1 × 0.5 inch) for each lead on FR4 board.

ELECTRICAL CHARACTERISTICS

Rating	Symbol	Typ	Max	Unit
Instantaneous Forward Voltage (Note 3) (I_F = 3 A, T_J = 25°C) (I_F = 3 A, T_J = 125°C) (I_F = 6 A, T_J = 25°C)	V_F	 0.48 0.41 0.57	 0.64 0.58 0.78	V
Instantaneous Reverse Current (Note 3) (Rated dc Voltage, T_J = 25°C) (Rated dc Voltage, T_J = 125°C)	I_R	 4.5 3.5	 50 15	 μA 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.

3. Pulse Test: Pulse Width ≤ 380 μs, Duty Cycle ≤ 2.0%.

TYPICAL CHARACTERISTICS

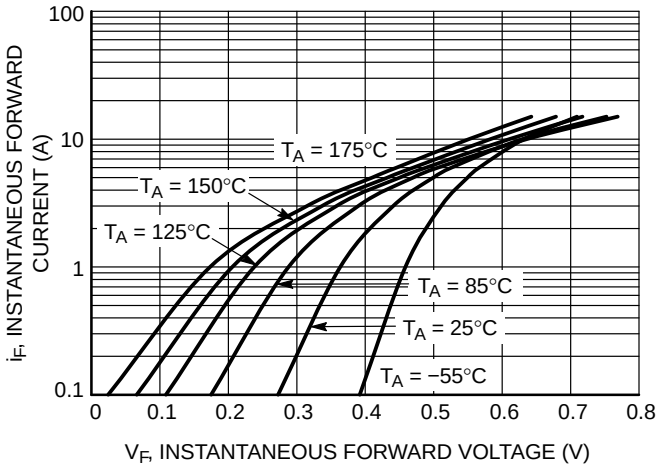

Figure 1. Typical Instantaneous Forward Characteristics

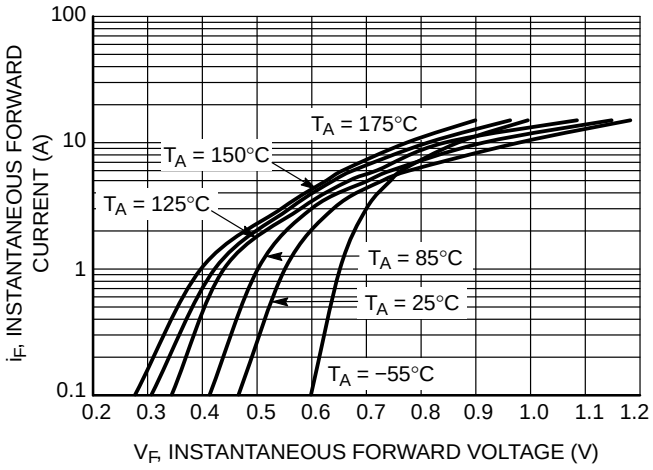

Figure 2. Maximum Instantaneous Forward Characteristics

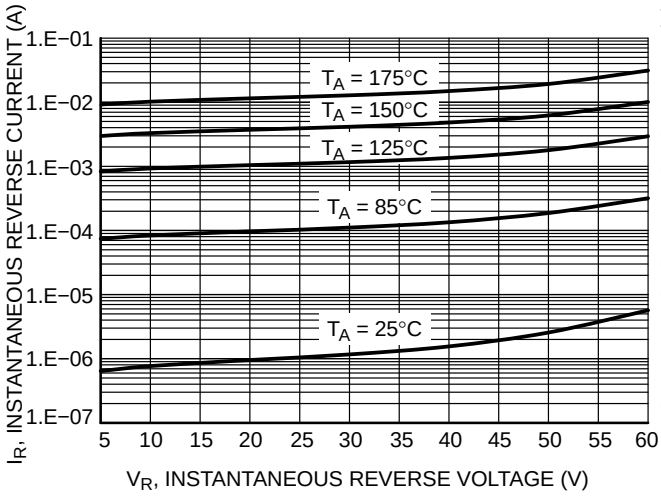

Figure 3. Typical Reverse Characteristics

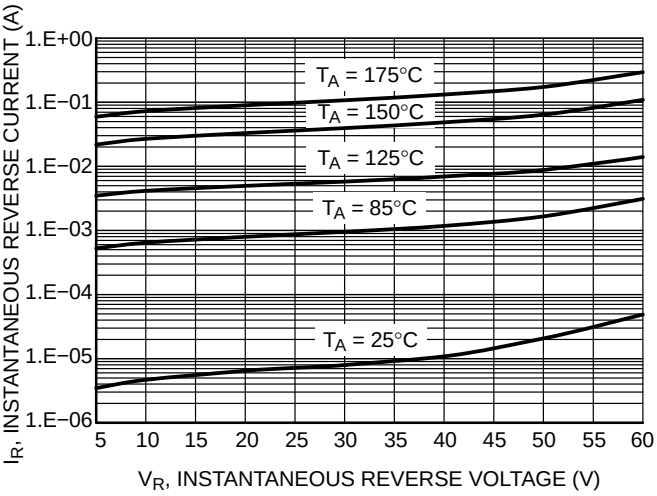

Figure 4. Maximum Reverse Characteristics

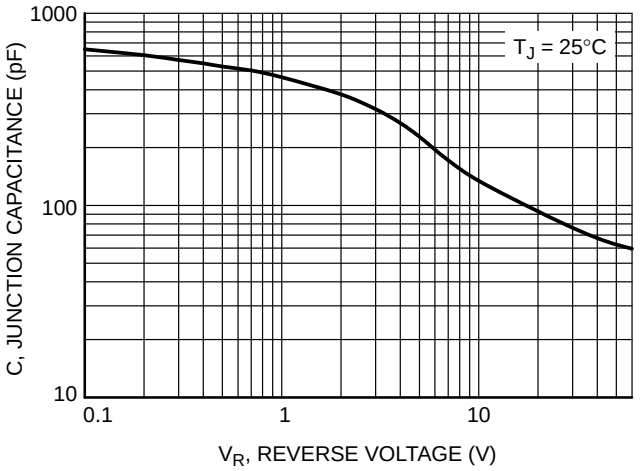

Figure 5. Typical Junction Capacitance

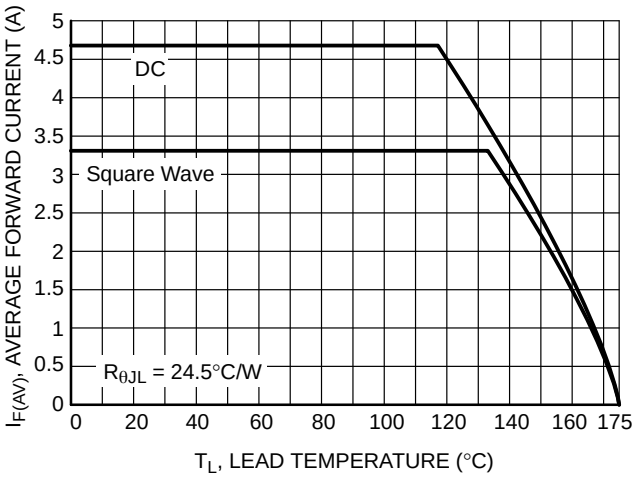

Figure 6. Current Derating

TYPICAL CHARACTERISTICS

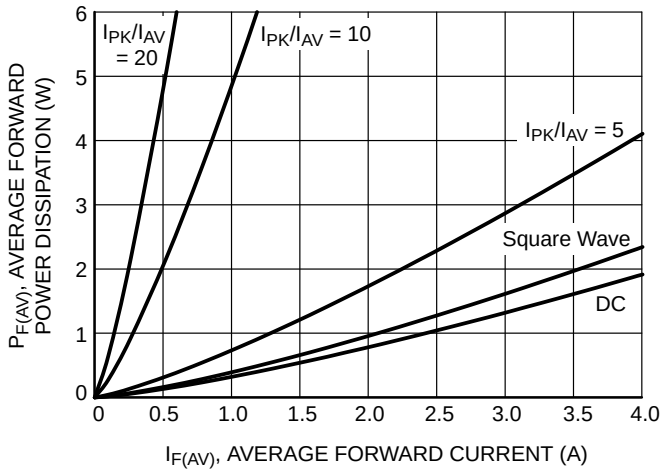

Figure 7. Forward Power Dissipation

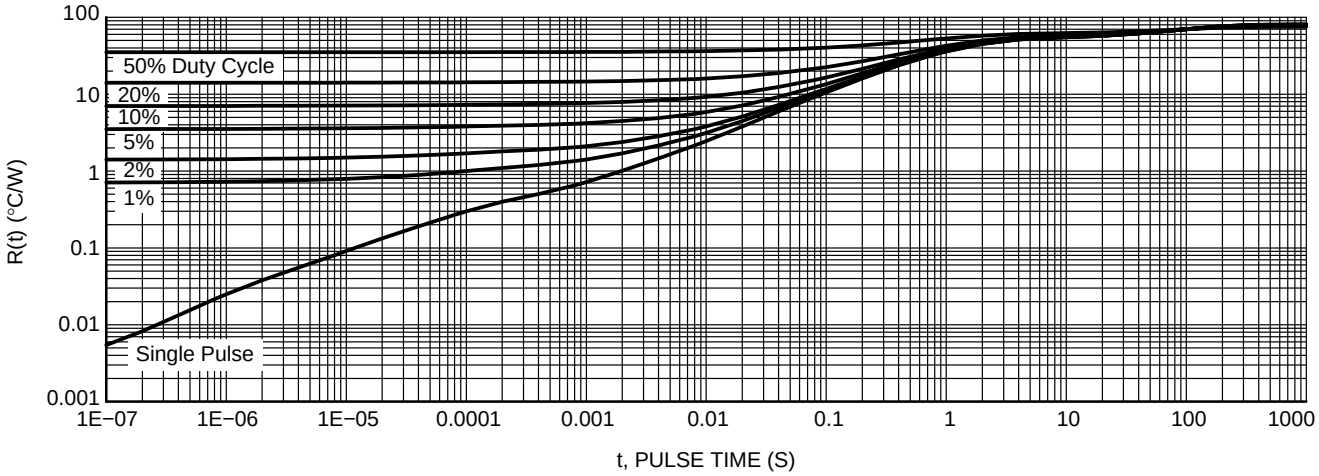

Figure 8. Typical Transient Thermal Response Characteristics, Junction−to−Ambient

MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

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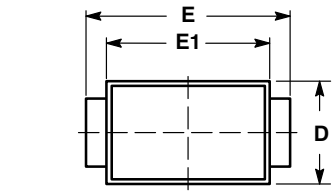
SMA−FL
CASE 403AA−01
ISSUE O

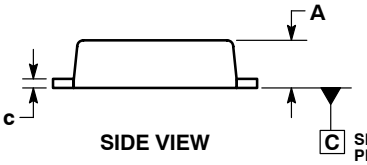
DATE 02 MAR 2011



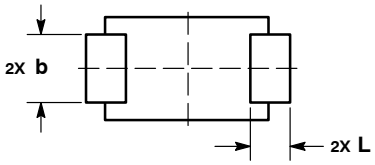
SCALE 2:1



TOP VIEW

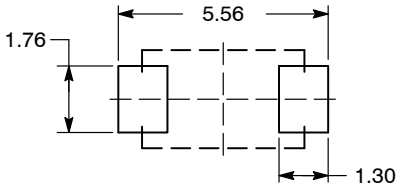


SIDE VIEW



BOTTOM VIEW

RECOMMENDED
SOLDER FOOTPRINT*



DIMENSIONS: MILLIMETERS

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

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.

	MILLIMETERS	
DIM	MIN	MAX
A	0.90	1.10
b	1.25	1.65
c	0.15	0.30
D	2.40	2.80
E	4.80	5.40
E1	4.00	4.60
L	0.70	1.10

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