NRVTS560EMFS

Exceptionally Low Leakage Trench-based Schottky Rectifier

Features

- Fine Lithography Trench−based Schottky Technology for Very 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 Wireless, Smartphone and Notebook Adapters
- 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 SurfaceTemperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Device Meets MSL 1 Requirements

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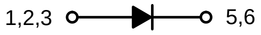
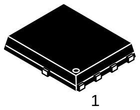
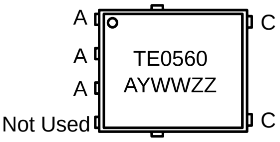
SCHOTTKY BARRIER RECTIFIERS 5 AMPERES 60 VOLTS





SO−8 FLAT LEAD
CASE 488AA
STYLE 2

MARKING DIAGRAM



TE0560 = Specific Device Code
A = Assembly Location
Y = Year
W = Work Week
ZZ = Lot Traceability

ORDERING INFORMATION

Device	Package	Shipping[†]
NRVTS560EMFST1G	SO−8 FL (Pb−Free)	1500 / Tape & Reel
NRVTS560EMFST3G	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.

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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 (Rated V_R, T_C = 168°C)	$I_{F(AV)}$	5.0	A
Peak Repetitive Forward Current, (Rated V_R, Square Wave, 20 kHz, T_C = 167°C)	I_{FRM}	10	A
Non−Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I_{FSM}	150	A
Storage Temperature Range	T_{stg}	−65 to +175	°C
Operating Junction Temperature	T_J	−55 to +175	°C
Unclamped Inductive Switching Energy (10 mH Inductor, Non−repetitive)	E_{AS}	60	mJ
ESD Rating (Human Body Model)		TBD	
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	Max	Unit
Thermal Resistance, Junction−to−Case, Steady State (Assumes 600 mm^2 1 oz. copper bond pad, on a FR4 board)	$R_{\theta JC}$	2.4	°C/W

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Typ	Max	Unit
Instantaneous Forward Voltage (Note 1) (i_F = 2.5 Amps, T_J = 25°C) (i_F = 5.0 Amps, T_J = 25°C) (i_F = 2.5 Amps, T_J = 125°C) (i_F = 5.0 Amps, T_J = 125°C)	v_F	 0.50 0.55 0.41 0.50	 – 0.61 – 0.59	V
Instantaneous Reverse Current (Note 1) (Rated dc Voltage, T_J = 25°C) (Rated dc Voltage, T_J = 125°C)	i_R	 – 2	 30 4	 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.

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

TYPICAL CHARACTERISTICS

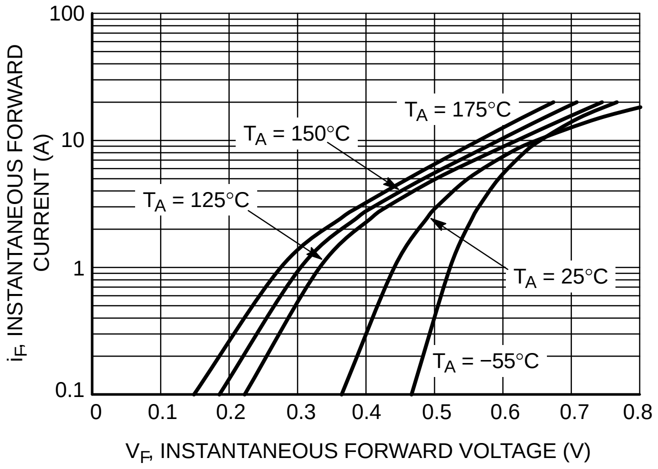


Figure 1. Typical Instantaneous Forward Characteristics

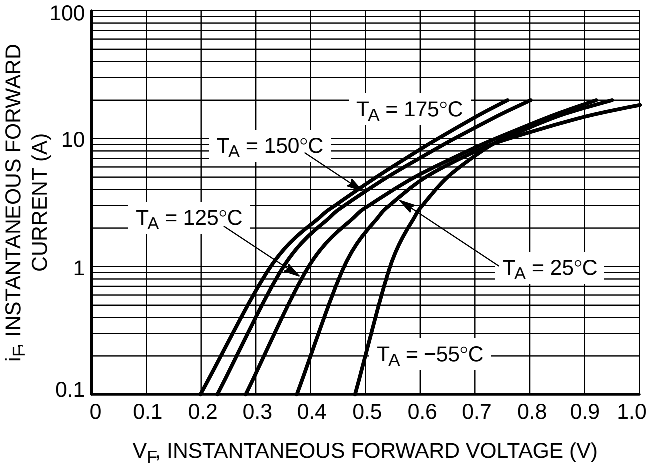


Figure 2. Maximum Instantaneous Forward Characteristics

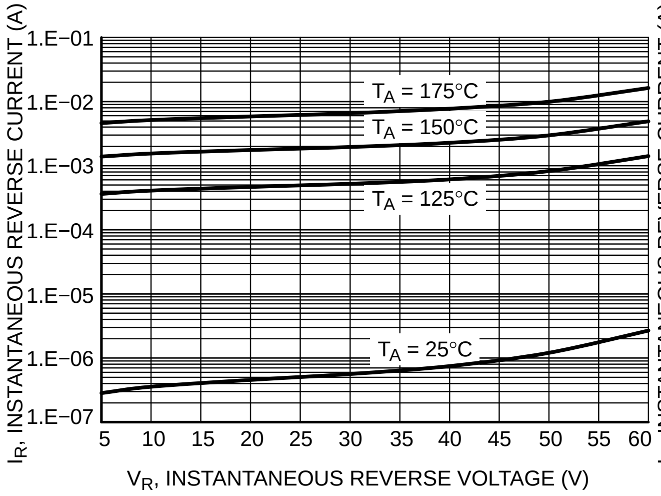


Figure 3. Typical Reverse Characteristics

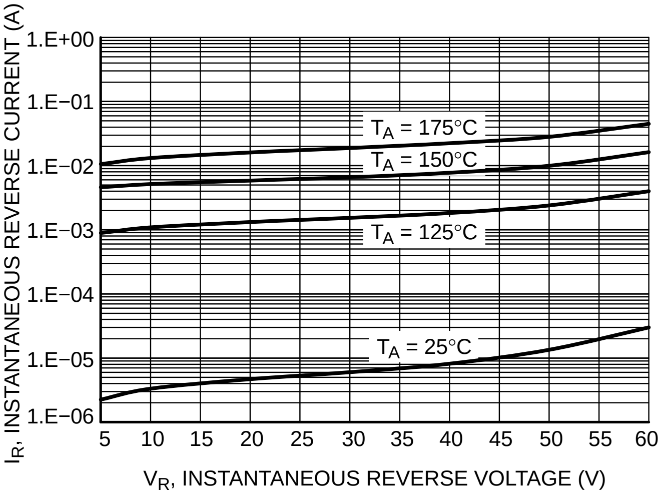


Figure 4. Maximum Reverse Characteristics

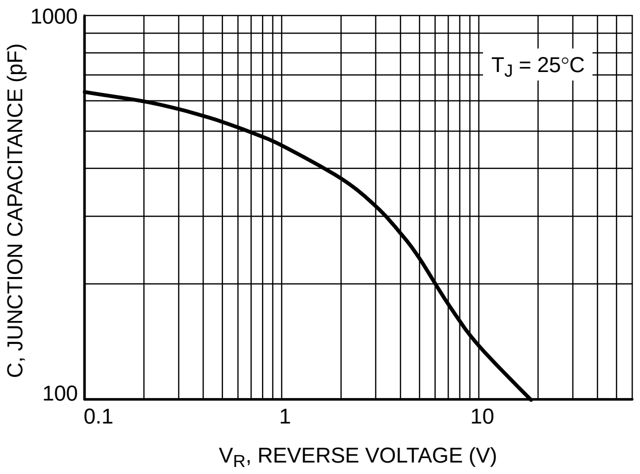


Figure 5. Typical Junction Capacitance

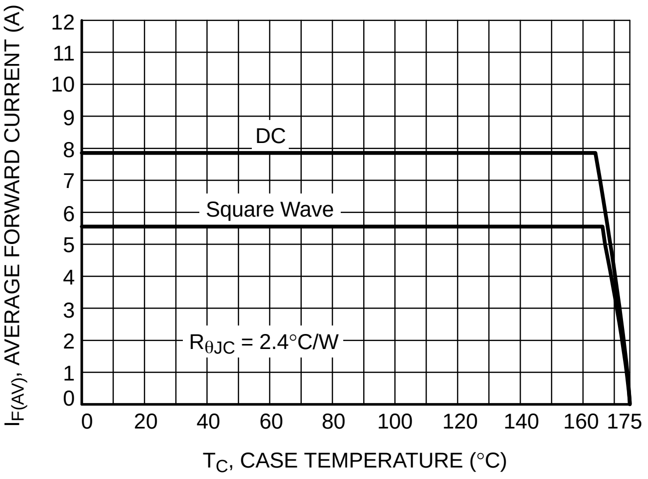


Figure 6. Current Derating per Device

TYPICAL CHARACTERISTICS

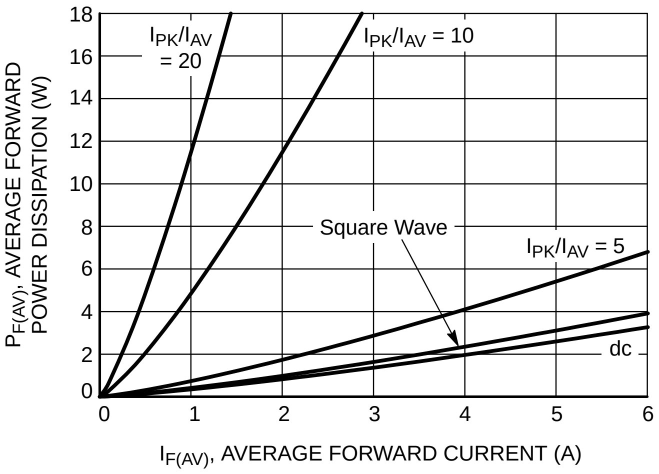


Figure 7. Forward Power Dissipation

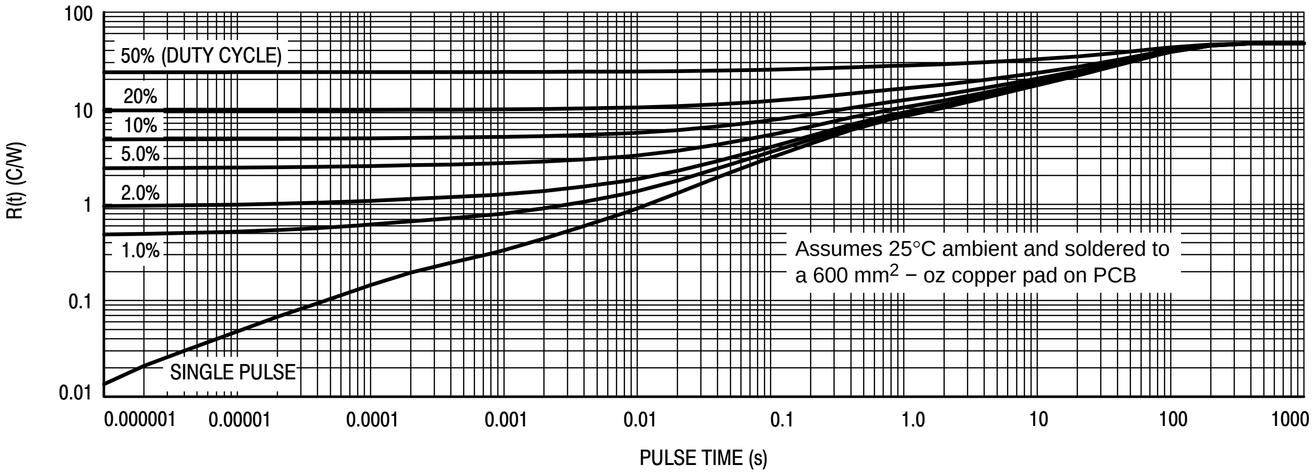


Figure 8. Typical Thermal Characteristics

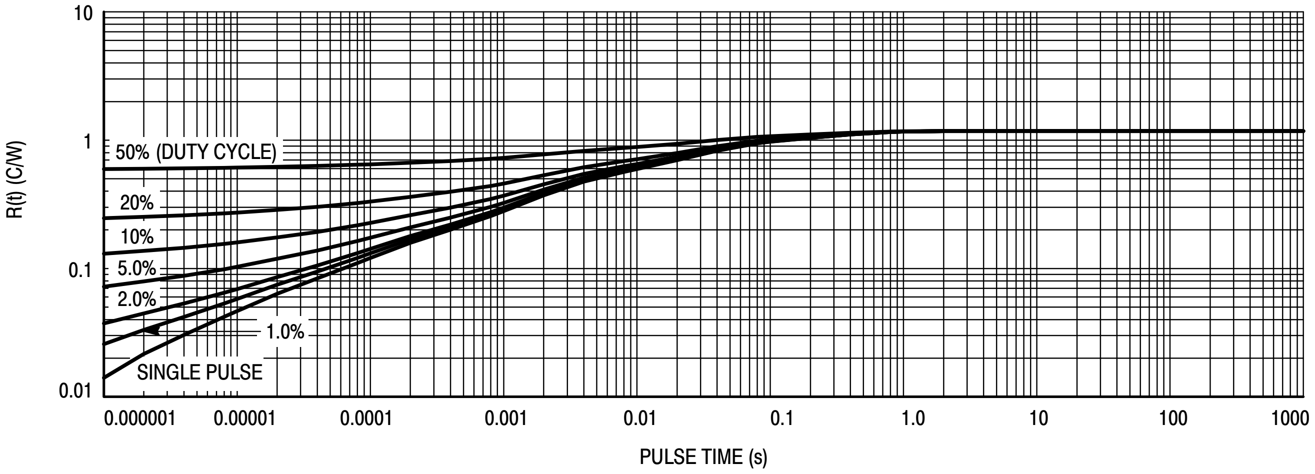


Figure 9. Typical Transient Thermal Response Characteristics, Junction−to−Case

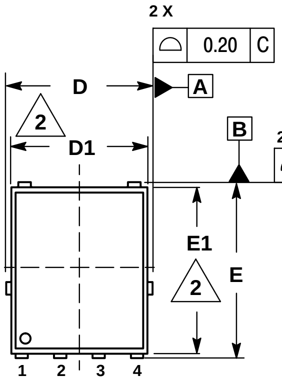
PACKAGE DIMENSIONS

DFN5 5x6, 1.27P
(SO−8FL)
CASE 488AA
ISSUE L

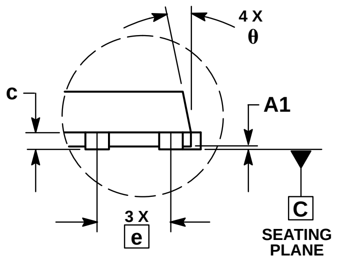
NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSION D1 AND E1 DO NOT INCLUDE MOLD FLASH PROTRUSIONS OR GATE BURRS.

DIM	MILLIMETERS		
	MIN	NOM	MAX
A	0.90	1.00	1.10
A1	0.00	−−−	0.05
b	0.33	0.41	0.51
c	0.23	0.28	0.33
D	5.00	5.15	5.30
D1	4.70	4.90	5.10
D2	3.80	4.00	4.20
E	6.00	6.15	6.30
E1	5.70	5.90	6.10
E2	3.45	3.65	3.85
e	1.27 BSC		
G	0.51	0.61	0.71
K	1.20	1.35	1.50
L	0.51	0.61	0.71
L1	0.125 REF		
M	3.00	3.40	3.80
θ	0 °	−−−	12 °

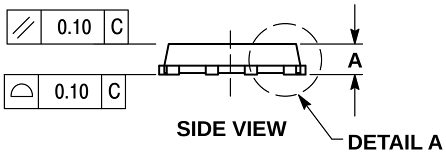
STYLE 2:
PIN 1. ANODE
2. ANODE
3. ANODE
4. NO CONNECT
5. CATHODE



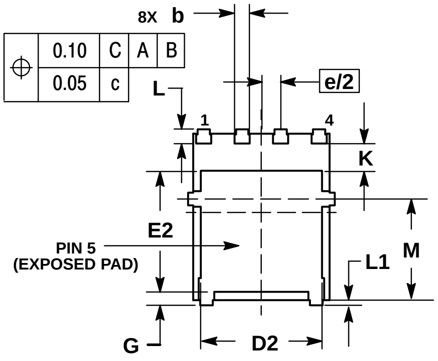
TOP VIEW



DETAIL A

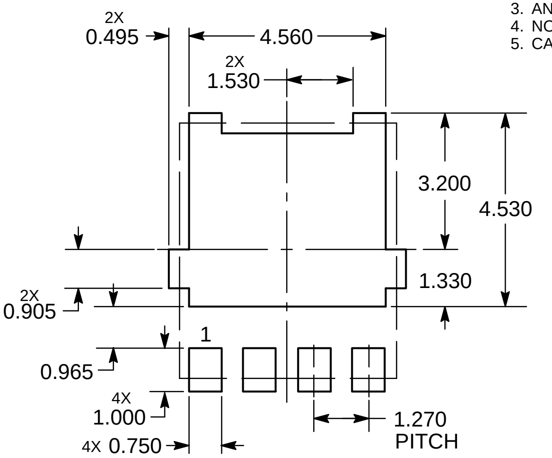


SIDE VIEW



BOTTOM VIEW

RECOMMENDED SOLDERING 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.

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