

# NRVTS360TFS

## Trench Surface Mount Schottky Rectifier

This  $\mu$ 8FL flat lead ultrafast rectifier provides fast switching performance with soft recovery in a compact thermally efficient package. Its compact footprint makes it ideally suited to portable and automotive applications where board space is at a premium. 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

- Fast Soft Switching for Reduced EMI and Higher Efficiency
- Low Profile – Maximum Height of 1.1 mm
- Small Footprint – Footprint Area of 13.5 mm<sup>2</sup>
- NRV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC–Q101 Qualified and PPAP Capable
- WF in Suffix of Part Number Denotes Wettable Flanks Option for Enhanced Automated Inspection
- These Devices are Pb–Free, Halogen Free/BFR Free and are RoHS Compliant

### Mechanical Characteristics:

- Case: Molded Epoxy
- Epoxy Meets UL 94 V–0 @ 0.125 in
- Weight: 95 mg (Approximately)
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Maximum for 10 Seconds
- MSL 1

### Applications

- Switching Power Supplies including Mini–adapters and Displays
- Instrumentation
- Engine Control Recirculation Diodes
- Freewheeling Diode Where Space is at a Premium
- Automotive LED Lighting



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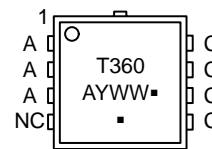
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## TRENCH SCHOTTKY RECTIFIER 3.0 AMPERE 60 VOLTS



**WDFN8**  
( $\mu$ 8FL)  
**CASE 511AB**  
**FLAT LEAD**

### MARKING DIAGRAM



T360 = Specific Device Code  
A = Assembly Location  
Y = Year  
WW = Work Week  
▪ = Pb–Free Package

(Note: Microdot may be in either location)

### ORDERING INFORMATION

Device	Package	Shipping†
NRVTS360TFSTAG	WDFN8 (Pb–Free)	1500 / Tape & Reel
NRVTS360TFSWFTAG		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.

# NRVTS360TFS

## 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 ( $T_L = 163^\circ\text{C}$ )	$I_O$	3.0	A
Peak Repetitive Forward Current (Rated $V_R$ , Square Wave, 20 kHz) $T_L = 166^\circ\text{C}$	$I_{FRM}$	6.0	A
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	$I_{FSM}$	50	A
Storage Temperature Range	$T_{stg}$	-65 to +175	$^\circ\text{C}$
Operating Junction Temperature	$T_J$	-65 to +175	$^\circ\text{C}$

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.

## THERMAL CHARACTERISTICS

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction-to-Tab (Note 1)	$\Psi_{JCT}$	2.7	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Ambient (Note 1)	$R_{\theta JA}$	57.7	$^\circ\text{C}/\text{W}$

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

## ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Typ	Max	Unit
Instantaneous Forward Voltage (Note 1) ( $i_F = 3.0$ Amps, $T_J = 25^\circ\text{C}$ ) ( $i_F = 6.0$ Amps, $T_J = 25^\circ\text{C}$ )  ( $i_F = 3.0$ Amps, $T_J = 125^\circ\text{C}$ ) ( $i_F = 6.0$ Amps, $T_J = 125^\circ\text{C}$ )	$V_F$	0.60 0.75  0.57 0.69	0.70 0.90  0.65 0.77	V
Instantaneous Reverse Current (Note 1) (Rated dc Voltage, $T_J = 25^\circ\text{C}$ ) (Rated dc Voltage, $T_J = 125^\circ\text{C}$ )	$i_R$	1.0 0.8	12 4.0	$\mu\text{A}$ 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  $\leq 2.0\%$ .

TYPICAL CHARACTERISTICS

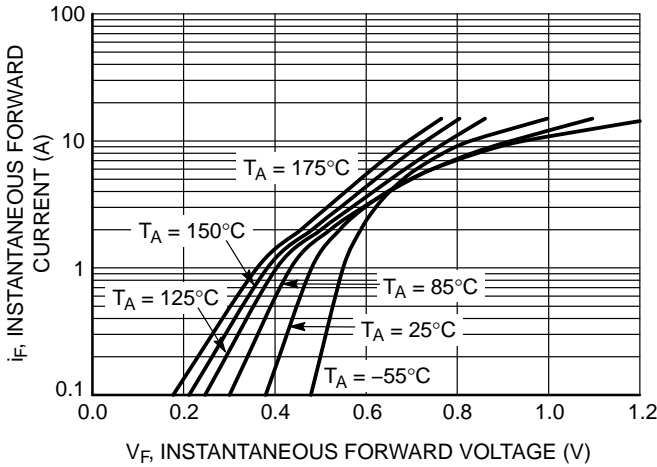


Figure 1. Typical Instantaneous Forward Characteristics

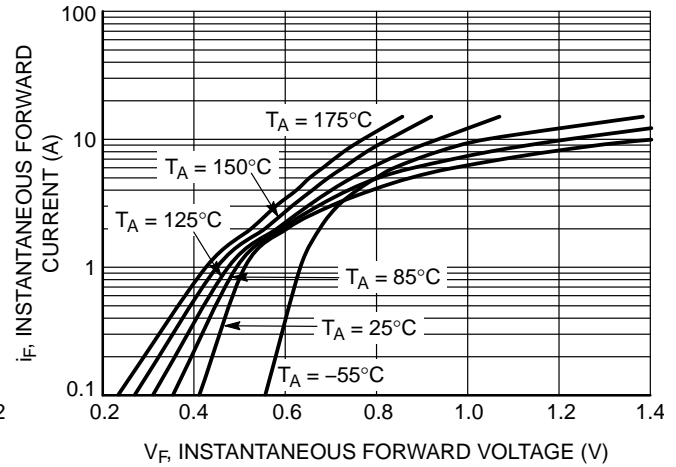


Figure 2. Maximum Instantaneous Forward Characteristics

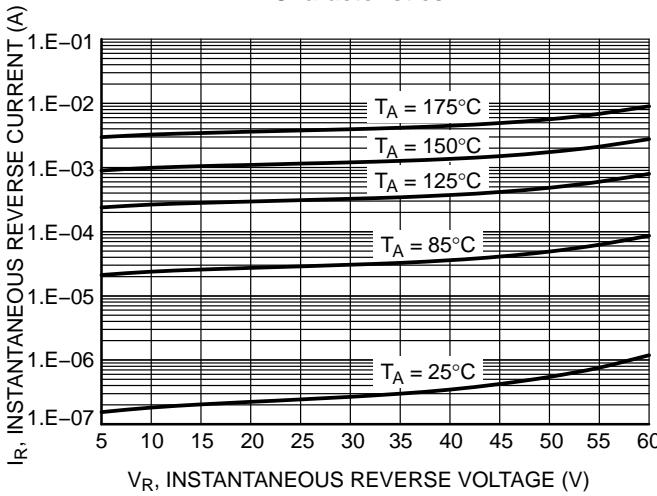


Figure 3. Typical Reverse Characteristics

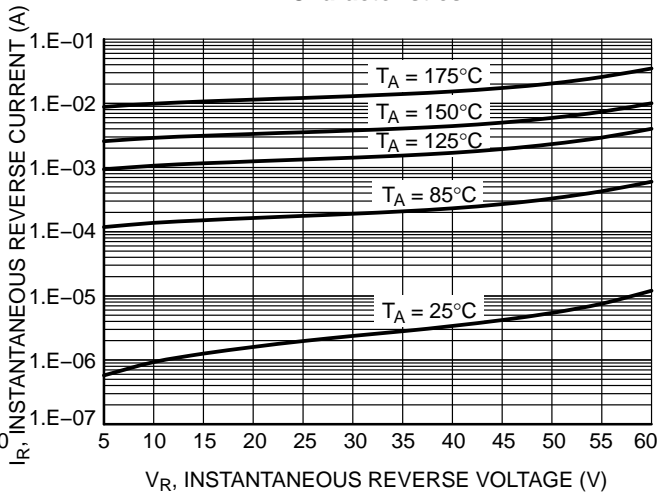


Figure 4. Maximum Reverse Characteristics

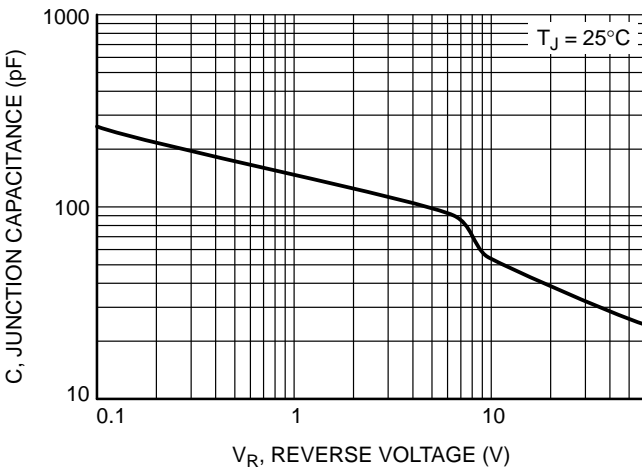


Figure 5. Typical Junction Capacitance

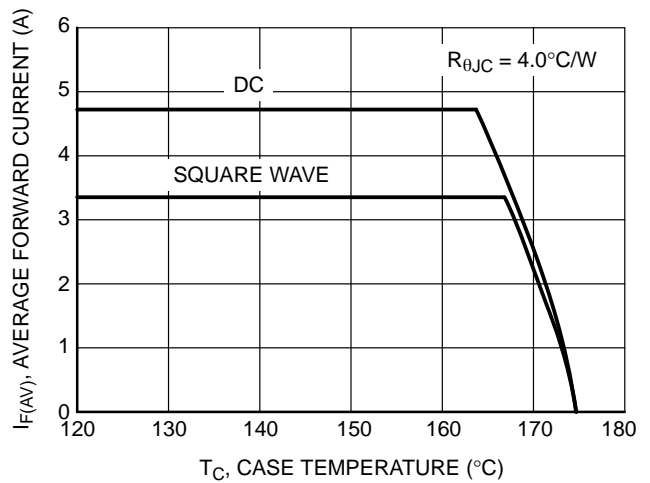


Figure 6. Current Derating per Diode

# NRVTS360TFS

## TYPICAL CHARACTERISTICS

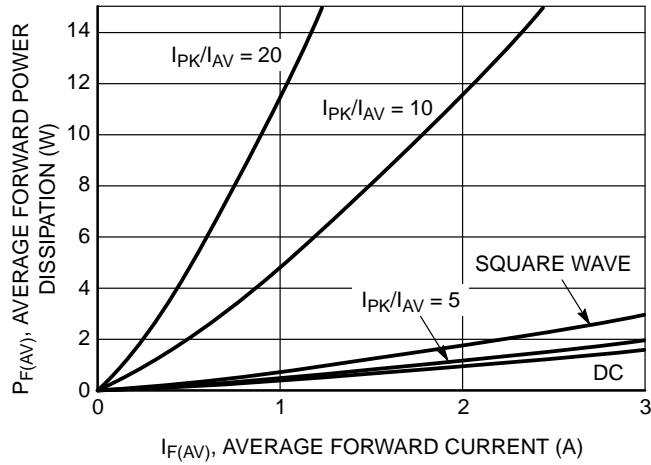


Figure 7. Forward Power Dissipation

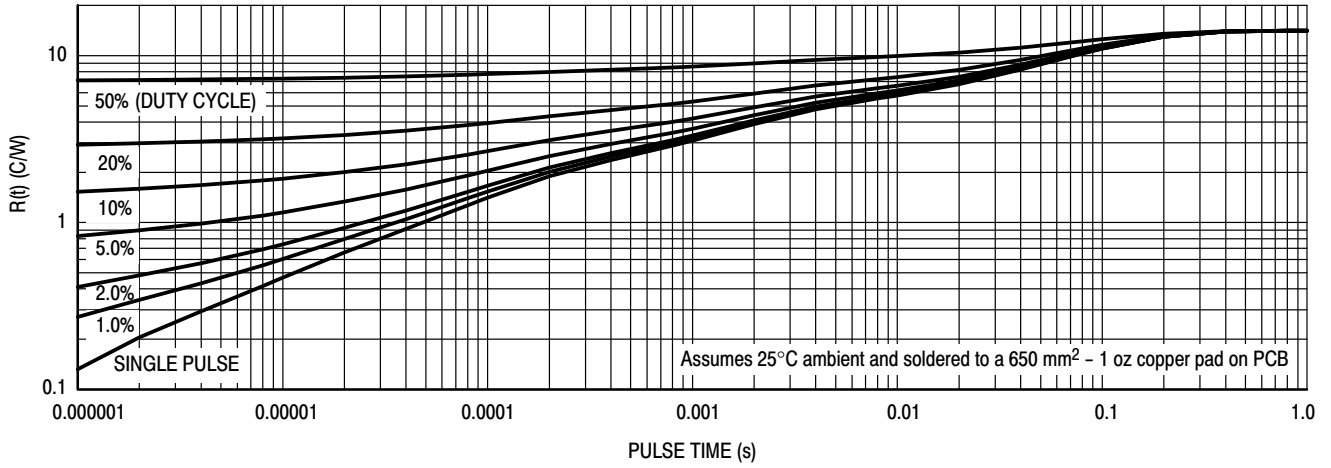
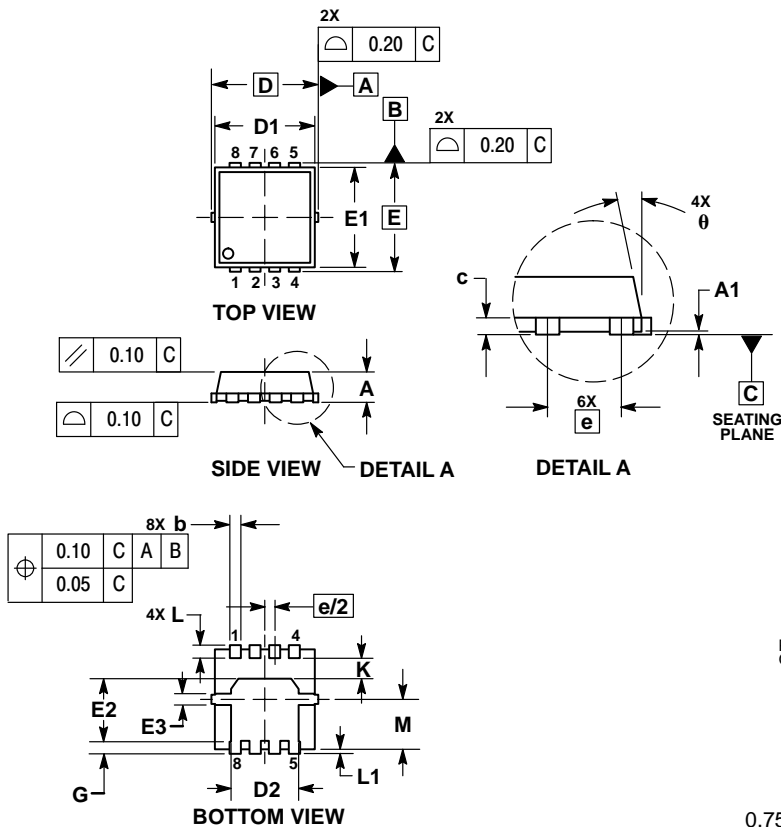


Figure 8. Typical Thermal Characteristics

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## PACKAGE DIMENSIONS

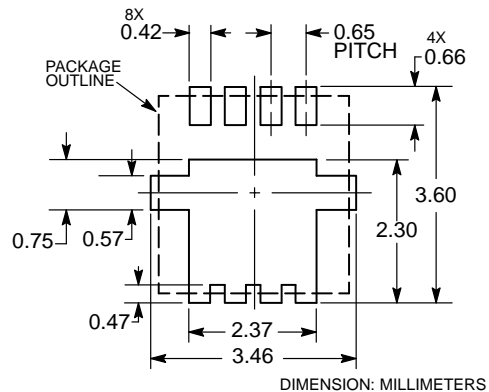
WDFN8 3.3x3.3, 0.65P  
CASE 511AB  
ISSUE D



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

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.70	0.75	0.80	0.028	0.030	0.031
A1	0.00	---	0.05	0.000	---	0.002
b	0.23	0.30	0.40	0.009	0.012	0.016
c	0.15	0.20	0.25	0.006	0.008	0.010
D	3.30 BSC			0.130 BSC		
D1	2.95	3.05	3.15	0.116	0.120	0.124
D2	1.98	2.11	2.24	0.078	0.083	0.088
E	3.30 BSC			0.130 BSC		
E1	2.95	3.05	3.15	0.116	0.120	0.124
E2	1.47	1.60	1.73	0.058	0.063	0.068
E3	0.23	0.30	0.40	0.009	0.012	0.016
e	0.65 BSC			0.026 BSC		
G	0.30	0.41	0.51	0.012	0.016	0.020
K	0.65	0.80	0.95	0.026	0.032	0.037
L	0.30	0.43	0.56	0.012	0.017	0.022
L1	0.06	0.13	0.20	0.002	0.005	0.008
M	1.40	1.50	1.60	0.055	0.059	0.063
$\theta$	0°	---	12°	0°	---	12°

### SOLDERING FOOTPRINT\*



\*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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