

# HN2D02FUTW1T1G, SHN2D02FUTW1T1G

## Ultra High Speed Switching Diodes

These Silicon Epitaxial Planar Diodes are designed for use in ultra high speed switching applications. These devices are housed in the SC-88 package which is designed for low power surface mount applications.

### Features

- Fast  $t_{rr}$ , < 3.0 ns
- Low  $C_D$ , < 2.0 pF
- AEC-Q101 Qualified and PPAP Capable
- S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant\*

### MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ )

Rating	Symbol	Value	Unit
Reverse Voltage	$V_R$	80	V
Peak Reverse Voltage	$V_{RM}$	85	V
Forward Current (Note 1)	$I_F$	100	mAdc
Peak Forward Current (Note 1)	$I_{FM}$	240	mAdc
Peak Forward Surge Current (10 ms) (Note 1)	$I_{FSM}$	1.0	Adc

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. This is maximum rating for a single diode. In the case of using 2 or 3 diodes, the maximum ratings per diodes is 75% of the single diode.

### THERMAL CHARACTERISTICS

Rating	Symbol	Max	Unit
Power Dissipation	$P_D$	300	mW
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

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

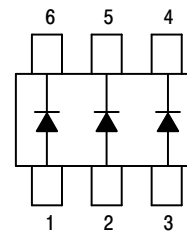


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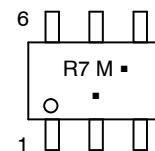
<http://onsemi.com>



SC-88  
CASE 419B  
STYLE 1



### MARKING DIAGRAM



R7 = Specific Device Code  
M = Date Code  
▪ = Pb-Free Package

(Note: Microdot may be in either location)

### ORDERING INFORMATION

Device	Package	Shipping†
HN2D02FUTW1T1G	SC-88 (Pb-Free)	3000 / Tape & Reel
SHN2D02FUTW1T1G	SC-88 (Pb-Free)	3000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

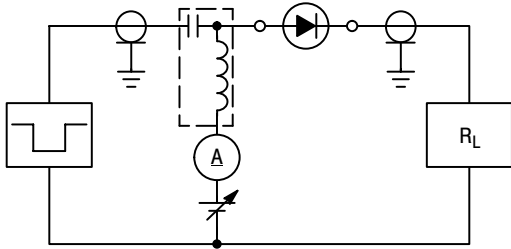
# HN2D02FUTW1T1G, SHN2D02FUTW1T1G

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C)

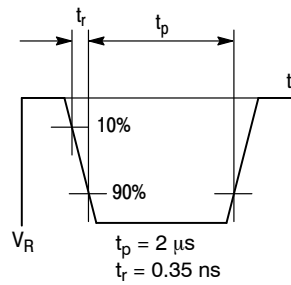
Characteristic	Symbol	Condition	Min	Max	Unit
Reverse Voltage Leakage Current	I <sub>R</sub>	V <sub>R</sub> = 30 V	-	0.1	μA <sub>dc</sub>
		V <sub>R</sub> = 80 V	-	0.5	
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 100 mA	-	1.2	V <sub>dc</sub>
Reverse Breakdown Voltage	V <sub>R</sub>	I <sub>R</sub> = 100 μA	80	-	V <sub>dc</sub>
Diode Capacitance	C <sub>D</sub>	V <sub>R</sub> = 0, f = 1.0 MHz	-	2.0	pF
Reverse Recovery Time (Figure 1)	t <sub>rr</sub> (Note 2)	I <sub>F</sub> = 10 mA, V <sub>R</sub> = 6.0 V, R <sub>L</sub> = 100 Ω, I <sub>rr</sub> = 0.1 I <sub>F</sub>	-	3.0	ns

2. t<sub>rr</sub> Test Circuit

### RECOVERY TIME EQUIVALENT TEST CIRCUIT



### INPUT PULSE



### OUTPUT PULS

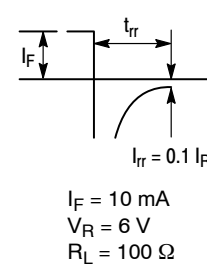


Figure 1. Reverse Recovery Time Equivalent Test Circuit

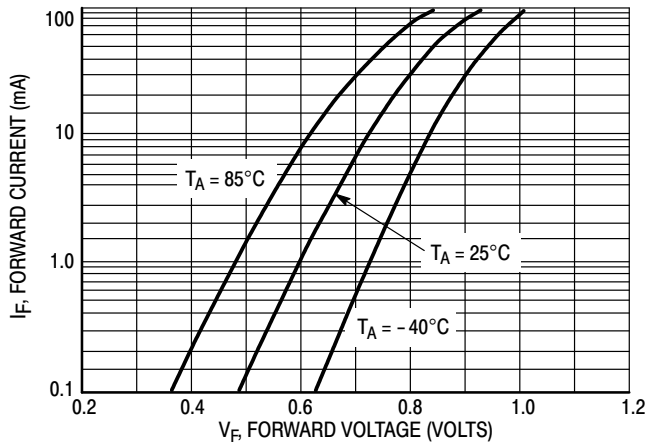


Figure 2. Forward Voltage

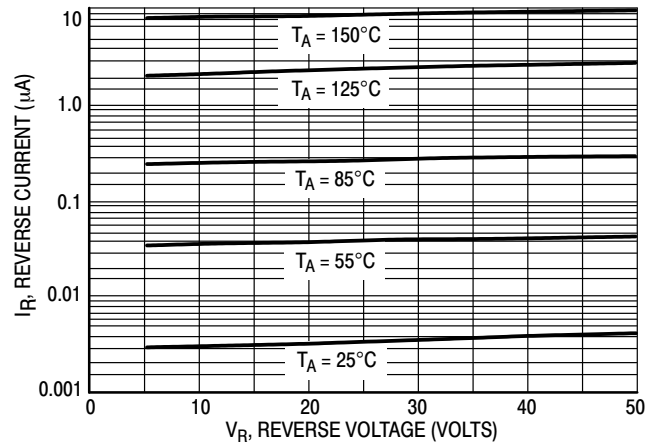


Figure 3. Leakage Current

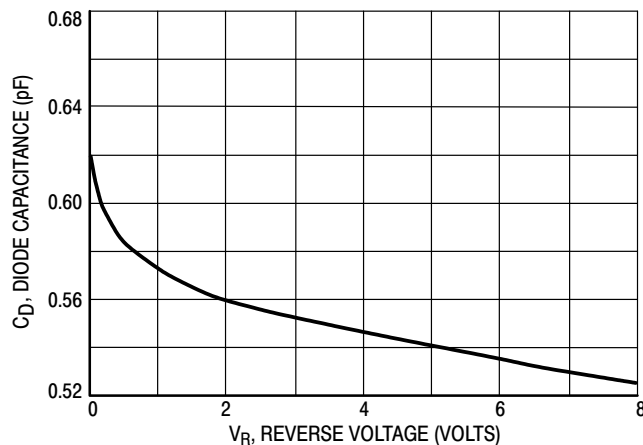
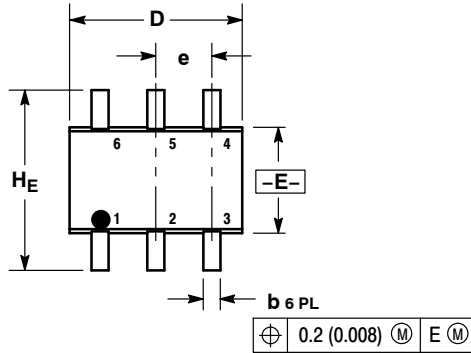


Figure 4. Capacitance

# HN2D02FUTW1T1G, SHN2D02FUTW1T1G

## PACKAGE DIMENSIONS

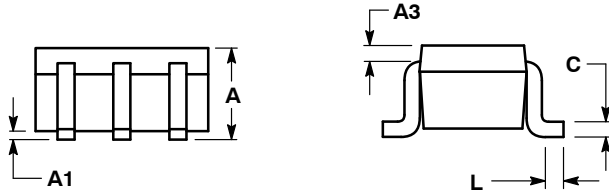
SC-88 (SOT-363)  
CASE 419B-02  
ISSUE W



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 419B-01 OBSOLETE, NEW STANDARD 419B-02.

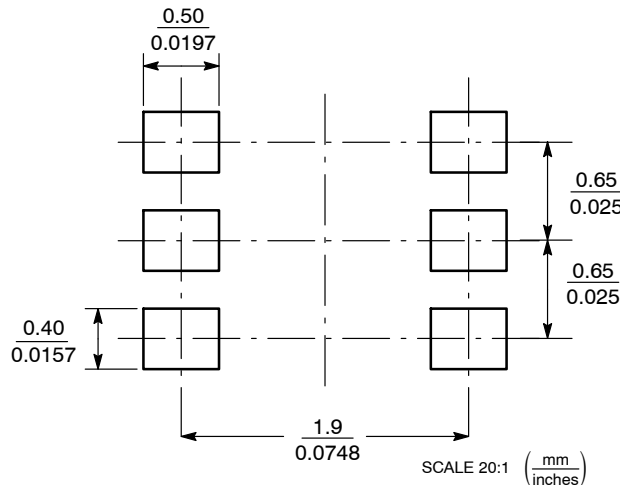
DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	0.95	1.10	0.031	0.037	0.043
A1	0.00	0.05	0.10	0.000	0.002	0.004
A3	0.20 REF			0.008 REF		
b	0.10	0.21	0.30	0.004	0.008	0.012
C	0.10	0.14	0.25	0.004	0.005	0.010
D	1.80	2.00	2.20	0.070	0.078	0.086
E	1.15	1.25	1.35	0.045	0.049	0.053
e	0.65 BSC			0.026 BSC		
L	0.10	0.20	0.30	0.004	0.008	0.012
HE	2.00	2.10	2.20	0.078	0.082	0.086



STYLE 1:

- PIN 1. EMITTER 2
2. BASE 2
3. COLLECTOR 1
4. EMITTER 1
5. BASE 1
6. COLLECTOR 2

### 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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