

# HN2D02FUTW1T1

## 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  $t_{TR}$ , < 3.0 ns
- Low  $C_D$ , < 2.0 pF
- Pb-Free Package is Available

### 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  |

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

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.

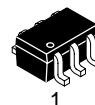
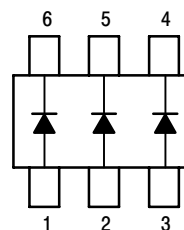
### THERMAL CHARACTERISTICS

| 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 | $^\circ\text{C}$ |



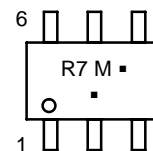
**ON Semiconductor**<sup>®</sup>

<http://onsemi.com>



**SC-88  
CASE 419B**

### MARKING DIAGRAM



R7 = Specific Device Code

M = Date Code

■ = Pb-Free Package

(Note: Microdot may be in either location)

### ORDERING INFORMATION

| Device         | Package            | Shipping <sup>†</sup> |
|----------------|--------------------|-----------------------|
| HN2D02FUTW1T1  | SC-88              | 3000/Tape & Reel      |
| HN2D02FUTW1T1G | SC-88<br>(Pb-Free) | 3000/Tape & Reel      |

<sup>†</sup>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.

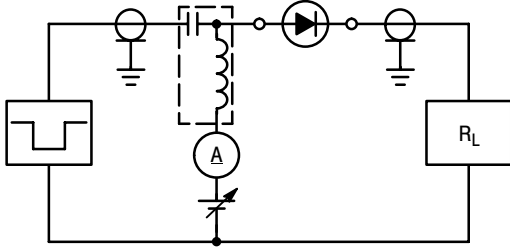
# HN2D02FUTW1T1

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ )

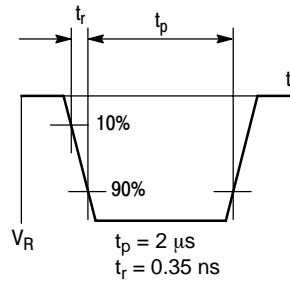
| Characteristic                   | Symbol            | Condition   | Min | Max | Unit             |
|----------------------------------|-------------------|---|-----|-----|------------------|
| Reverse Voltage Leakage Current  | $I_R$             | $V_R = 30\text{ V}$   | -   | 0.1 | $\mu\text{A dc}$ |
|                                  |                   | $V_R = 80\text{ V}$   | -   | 0.5 |                  |
| Forward Voltage                  | $V_F$             | $I_F = 100\text{ mA}$   | -   | 1.2 | Vdc              |
| Reverse Breakdown Voltage        | $V_R$             | $I_R = 100\text{ }\mu\text{A}$  | 80  | -   | Vdc              |
| Diode Capacitance                | $C_D$             | $V_R = 0, f = 1.0\text{ MHz}$   | -   | 2.0 | pF               |
| Reverse Recovery Time (Figure 1) | $t_{rr}$ (Note 2) | $I_F = 10\text{ mA}, V_R = 6.0\text{ V}, R_L = 100\text{ }\Omega, I_{rr} = 0.1 I_R$ | -   | 3.0 | ns               |

2.  $t_{rr}$  Test Circuit

### RECOVERY TIME EQUIVALENT TEST CIRCUIT



### INPUT PULSE



### OUTPUT PULSI

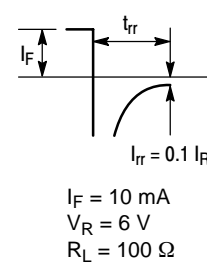


Figure 1. Reverse Recovery Time Equivalent Test Circuit

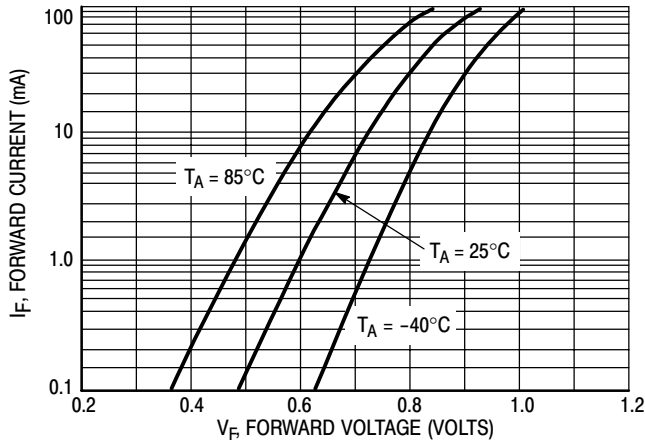


Figure 2. Forward Voltage

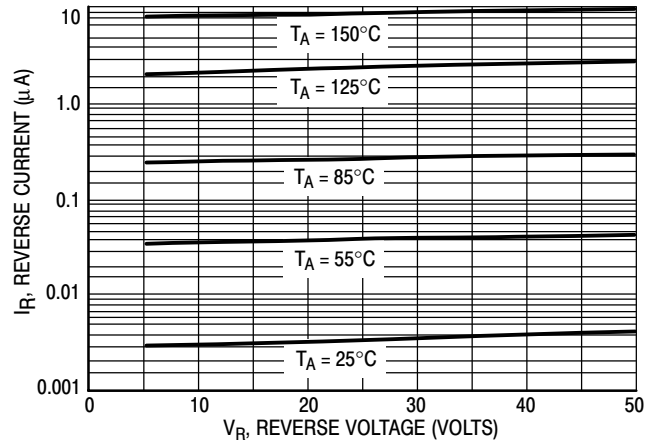


Figure 3. Leakage Current

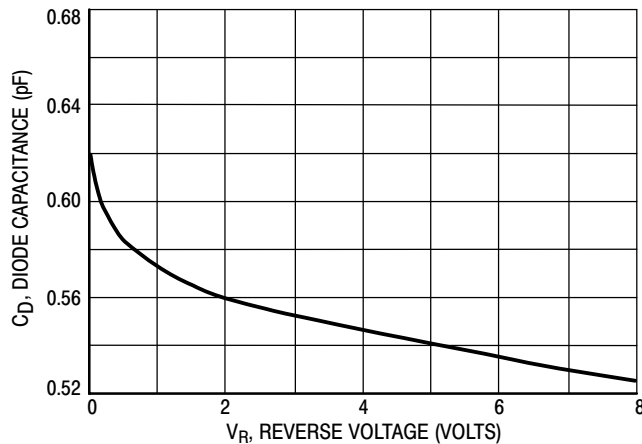
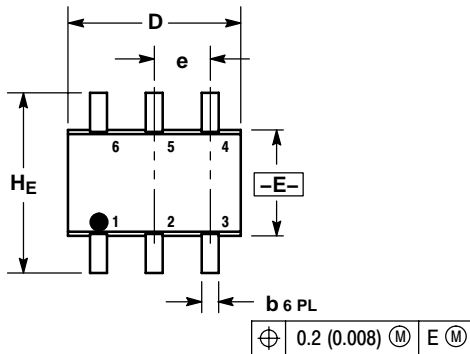


Figure 4. Capacitance

# HN2D02FUTW1T1

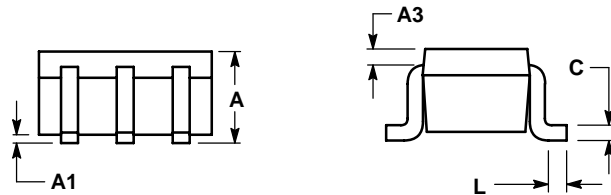
## PACKAGE DIMENSIONS

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

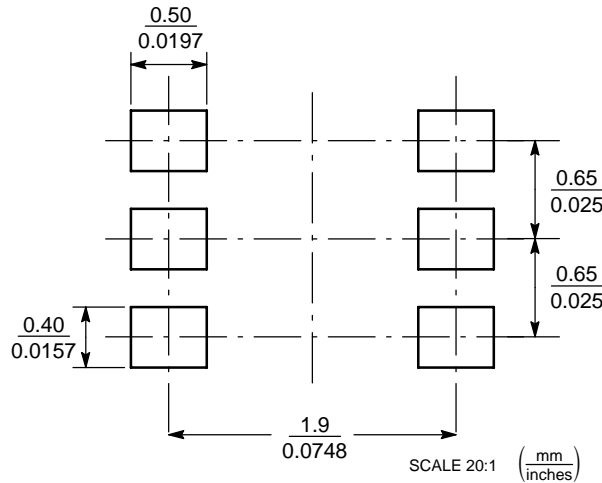


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: INCH.
  3. 419B-01 OBSOLETE, NEW STANDARD 419B-02.

| 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 |



### 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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