

# Common Cathode Silicon Dual Switching Diode

## DAN222, NSVDAN222

This Common Cathode Silicon Epitaxial Planar Dual Diode is designed for use in ultra high speed switching applications. This device is housed in the SOT-416/SC-75 package which is designed for low power surface mount applications, where board space is at a premium.

### Features

- Fast  $t_{rr}$
- Low  $C_D$
- NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

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

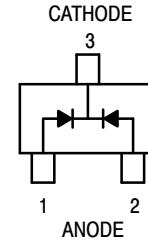
| Rating                              | Symbol    | Value | Unit |
|-------------------------------------|-----------|-------|------|
| Reverse Voltage                     | $V_R$     | 80    | Vdc  |
| Peak Reverse Voltage                | $V_{RM}$  | 80    | Vdc  |
| Forward Current                     | $I_F$     | 100   | mAdc |
| Peak Forward Current                | $I_{FM}$  | 300   | mAdc |
| Peak Forward Surge Current (Note 1) | $I_{FSM}$ | 2.0   | Adc  |

### THERMAL CHARACTERISTICS

| Characteristic            | Symbol    | Max         | Unit               |
|---------------------------|-----------|-------------|--------------------|
| Power Dissipation         | $P_D$     | 150         | mW                 |
| Junction Temperature      | $T_J$     | 150         | $^\circ\text{C/W}$ |
| Storage Temperature Range | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$   |

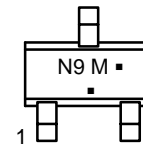
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1.  $t = 1\text{ }\mu\text{s}$



SC-75/SOT-416  
CASE 463  
STYLE 3

### MARKING DIAGRAM



N9 = Specific Device Code  
M = Date Code\*  
▪ = Pb-Free Package  
(Note: Microdot may be in either location)  
\*Date Code orientation may vary depending upon manufacturing location.

### ORDERING INFORMATION

| Device       | Package         | Shipping†          |
|--------------|-----------------|--------------------|
| DAN222G      | SC-75 (Pb-Free) | 3000 / Tape & Reel |
| DAN222T1G    | SC-75 (Pb-Free) | 3000 / Tape & Reel |
| NSVDAN222T1G | SC-75 (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.

# DAN222, NSVDAN222

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

| Characteristic                  | Symbol            | Condition   | Min | Max | Unit             |
|---------------------------------|-------------------|---|-----|-----|------------------|
| Reverse Voltage Leakage Current | $I_R$             | $V_R = 70\text{ V}$   | –   | 0.1 | $\mu\text{A}$ dc |
| 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               | $C_D$             | $V_R = 6.0\text{ V}, f = 1.0\text{ MHz}$  | –   | 3.5 | pF               |
| Reverse Recovery Time           | $t_{rr}$ (Note 2) | $I_F = 5.0\text{ mA}, V_R = 6.0\text{ V}, R_L = 100\text{ }\Omega, I_{rr} = 0.1\text{ }I_R$ | –   | 4.0 | ns               |

2.  $t_{rr}$  Test Circuit on following page.

## TYPICAL ELECTRICAL CHARACTERISTICS

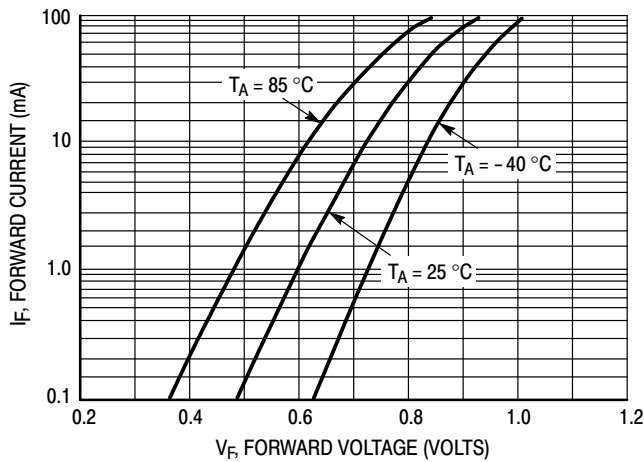


Figure 1. Forward Voltage

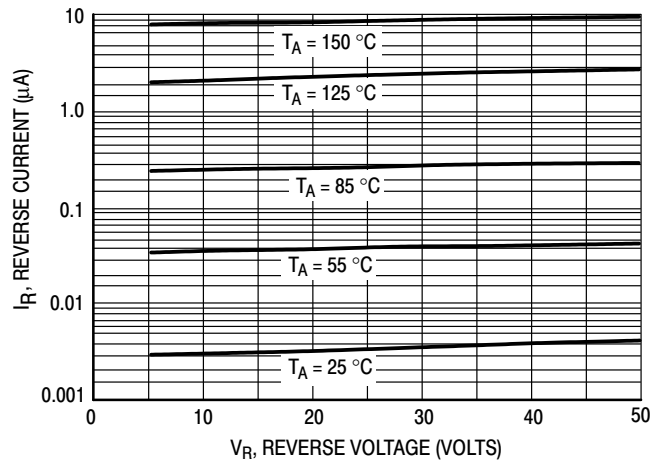


Figure 2. Reverse Current

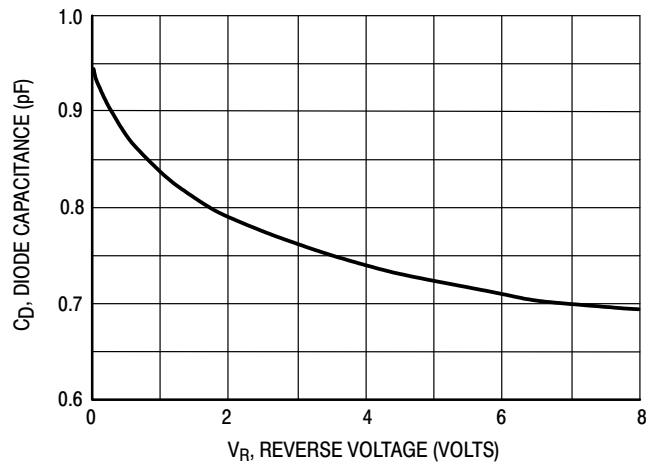
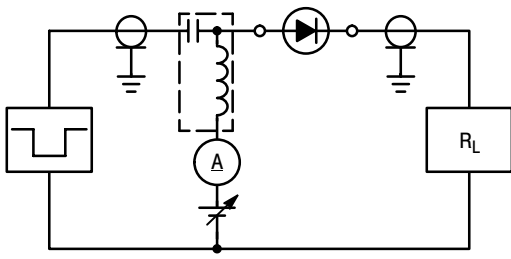
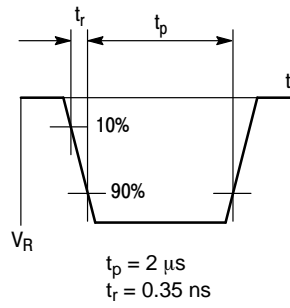


Figure 3. Diode Capacitance

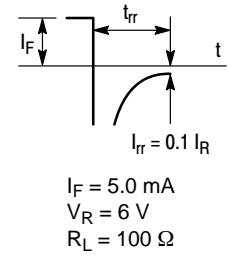
# DAN222, NSVDAN222



RECOVERY TIME EQUIVALENT TEST CIRCUIT



INPUT PULSE

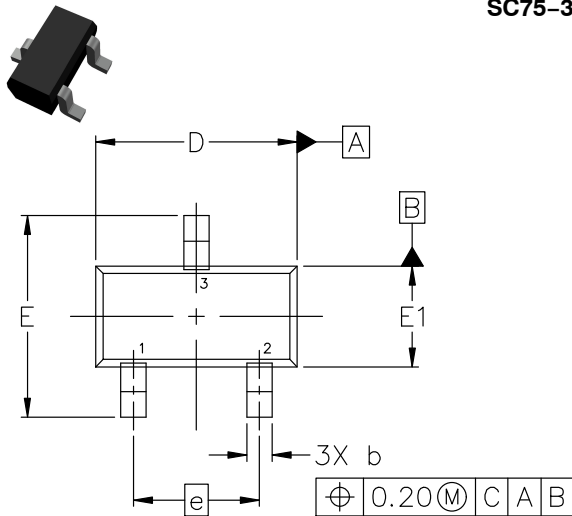


OUTPUT PULSE

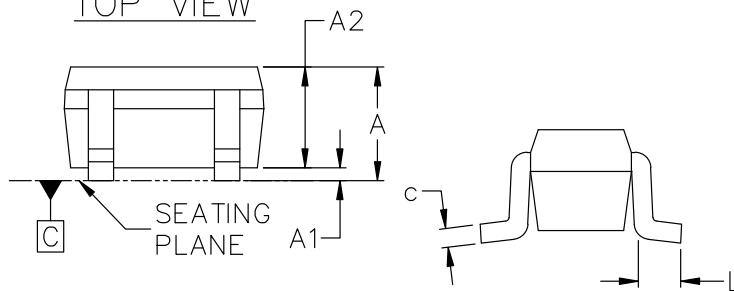
Figure 4. Reverse Recovery Time Test Circuit for the DAN222

**SC75-3 1.60x0.80x0.80, 1.00P**  
CASE 463  
ISSUE H

DATE 01 FEB 2024



TOP VIEW

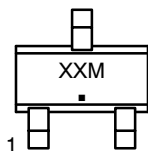


SIDE VIEW

END VIEW

| DIM | MILLIMETERS |      |      |
|-----|-------------|------|------|
|     | MIN.        | NOM. | MAX. |
| A   | 0.70        | 0.80 | 0.90 |
| A1  | 0.00        | 0.05 | 0.10 |
| A2  | 0.80 REF.   |      |      |
| b   | 0.15        | 0.20 | 0.30 |
| c   | 0.10        | 0.15 | 0.25 |
| D   | 1.55        | 1.60 | 1.65 |
| E   | 1.50        | 1.60 | 1.70 |
| E1  | 0.70        | 0.80 | 0.90 |
| e   | 1.00 BSC    |      |      |
| L   | 0.10        | 0.15 | 0.20 |

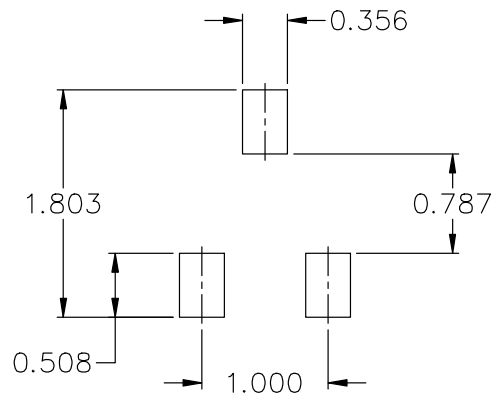
**GENERIC MARKING DIAGRAM\***



- XX = Specific Device Code
- M = Date Code
- = Pb-Free Package

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.

- STYLE 1:  
PIN 1. BASE  
2. EMITTER  
3. COLLECTOR
- STYLE 2:  
PIN 1. ANODE  
2. N/C  
3. CATHODE
- STYLE 3:  
PIN 1. ANODE  
2. ANODE  
3. CATHODE
- STYLE 4:  
PIN 1. CATHODE  
2. CATHODE  
3. ANODE
- STYLE 5:  
PIN 1. GATE  
2. SOURCE  
3. DRAIN



RECOMMENDED MOUNTING 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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| <b>DESCRIPTION:</b>     | <b>SC75-3 1.60x0.80x0.80, 1.00P</b> | <b>PAGE 1 OF 1</b>   |

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