

# DAP222, DAP202U

Preferred Device

## Common Anode Silicon Dual Switching Diodes

These Common Anode Silicon Epitaxial Planar Dual Diodes are designed for use in ultra high speed switching applications. The DAP222 device is housed in the SC-75/SOT-416 package which is designed for low power surface mount applications, where board space is at a premium. The DAP202U device is housed in the SC-70/SOT-323 package.

### Features

- Fast  $t_{rr}$
- Low  $C_D$
- Pb-Free Packages are Available

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

| 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 | $I_{FSM}(1)$ | 2.0   | Adc  |

### THERMAL CHARACTERISTICS

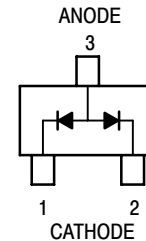
| Rating               | Symbol    | Max        | Unit             |
|----------------------|-----------|------------|------------------|
| Power Dissipation    | $P_D$     | 150        | mW               |
| Junction Temperature | $T_J$     | 150        | $^\circ\text{C}$ |
| Storage Temperature  |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

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.

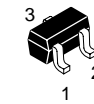


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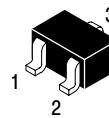
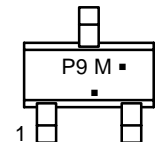
<http://onsemi.com>



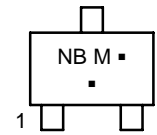
### MARKING DIAGRAMS



SC-75  
CASE 463  
STYLE 4



SC-70  
CASE 419



P9, NB = Device Codes  
M = Date Code\*  
▪ = Pb-Free Package

(Note: Microdot may be in either location)

\*Date Code orientation and/or orientation may vary depending upon manufacturing location.

### ORDERING INFORMATION

| Device    | Package            | Shipping†          |
|-----------|--------------------|--------------------|
| DAP222    | SC-75              | 3000 / Tape & Reel |
| DAP222G   | SC-75<br>(Pb-Free) | 3000 / Tape & Reel |
| DAP202U   | SC-70              | 3000 / Tape & Reel |
| DAP202UG  | SC-70<br>(Pb-Free) | 3000 / Tape & Reel |
| DAP222T1  | SC-75              | 3000 / Tape & Reel |
| DAP222T1G | SC-75<br>(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.

Preferred devices are recommended choices for future use and best overall value.

# DAP222, DAP202U

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

| 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           | DAP222 $t_{rr}(2)$  | $I_F = 5.0\text{ mA}, V_R = 6.0\text{ V}, R_L = 100\text{ }\Omega, I_{rr} = 0.1\text{ }I_R$ | -   | 4.0  | ns               |
|                                 | DAP202U $t_{rr}(3)$ |   | -   | 10.0 |                  |

- $t = 1\text{ }\mu\text{s}$
- $t_{rr}$  Test Circuit for DAP222 in Figure 4.
- $t_{rr}$  Test Circuit for DAP202U in Figure 5.

## TYPICAL ELECTRICAL CHARACTERISTICS

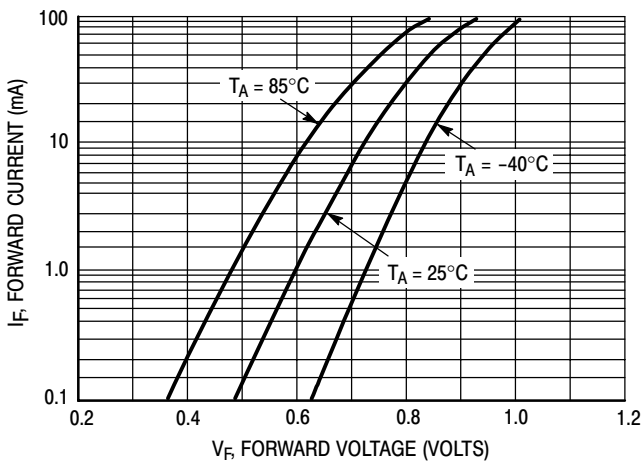


Figure 1. Forward Voltage

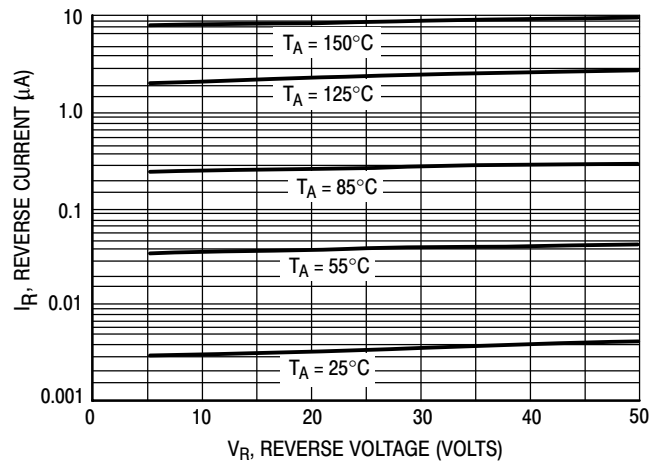


Figure 2. Reverse Current

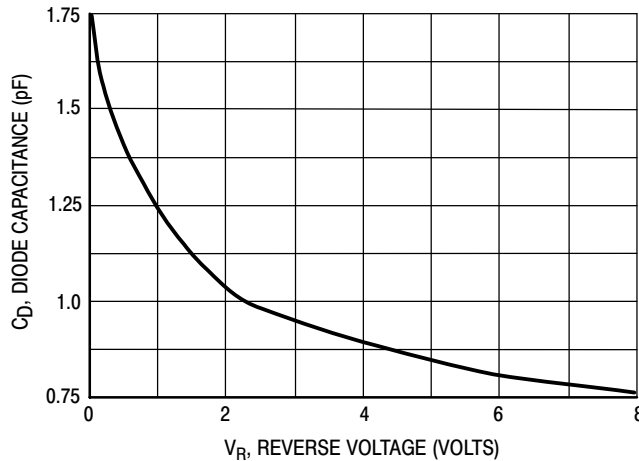
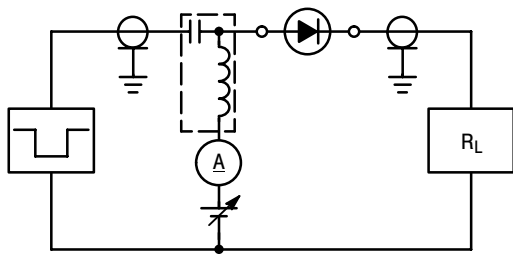
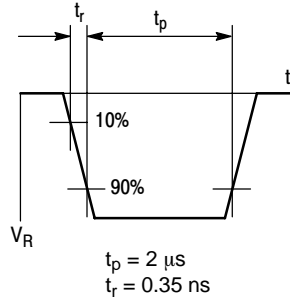


Figure 3. Diode Capacitance

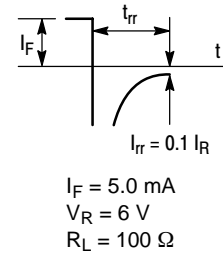
# DAP222, DAP202U



RECOVERY TIME EQUIVALENT TEST CIRCUIT

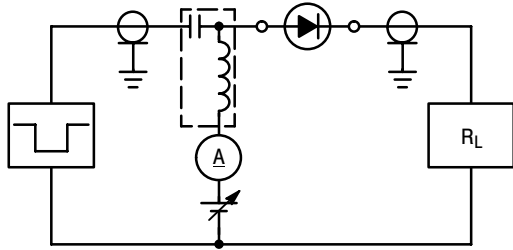


INPUT PULSE

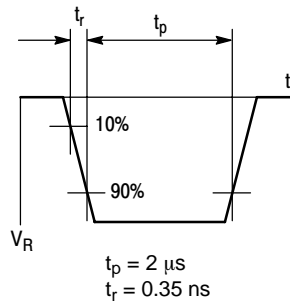


OUTPUT PULSE

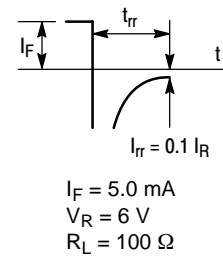
Figure 4. Reverse Recovery Time Test Circuit for the DAP222



RECOVERY TIME EQUIVALENT TEST CIRCUIT



INPUT PULSE



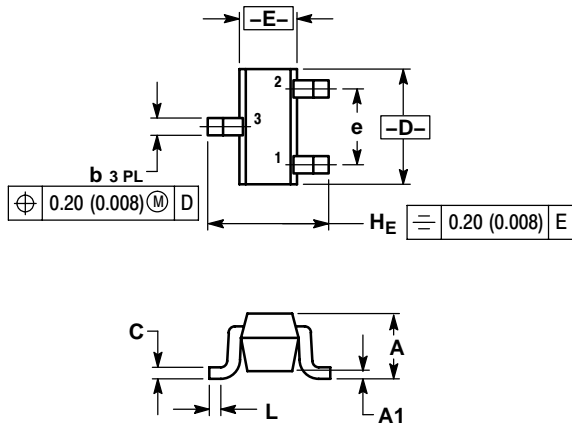
OUTPUT PULSE

Figure 5. Reverse Recovery Time Test Circuit for the DAP202U

# DAP222, DAP202U

## PACKAGE DIMENSIONS

SC-75 (SOT-416)  
CASE 463-01  
ISSUE F

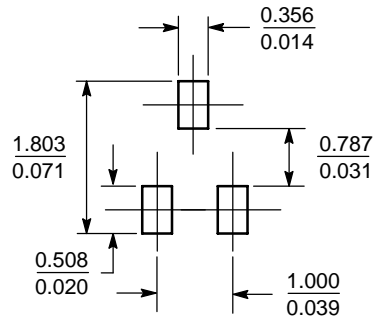


- NOTES:  
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
2. CONTROLLING DIMENSION: MILLIMETER.

| DIM            | MILLIMETERS |      |      | INCHES   |       |       |
|----------------|-------------|------|------|----------|-------|-------|
|                | MIN         | NOM  | MAX  | MIN      | NOM   | MAX   |
| A              | 0.70        | 0.80 | 0.90 | 0.027    | 0.031 | 0.035 |
| A1             | 0.00        | 0.05 | 0.10 | 0.000    | 0.002 | 0.004 |
| b              | 0.15        | 0.20 | 0.30 | 0.006    | 0.008 | 0.012 |
| C              | 0.10        | 0.15 | 0.25 | 0.004    | 0.006 | 0.010 |
| D              | 1.55        | 1.60 | 1.65 | 0.059    | 0.063 | 0.067 |
| E              | 0.70        | 0.80 | 0.90 | 0.027    | 0.031 | 0.035 |
| e              | 1.00 BSC    |      |      | 0.04 BSC |       |       |
| L              | 0.10        | 0.15 | 0.20 | 0.004    | 0.006 | 0.008 |
| H <sub>E</sub> | 1.50        | 1.60 | 1.70 | 0.061    | 0.063 | 0.065 |

- STYLE 4:  
PIN 1. CATHODE  
2. CATHODE  
3. ANODE

### SOLDERING FOOTPRINT\*



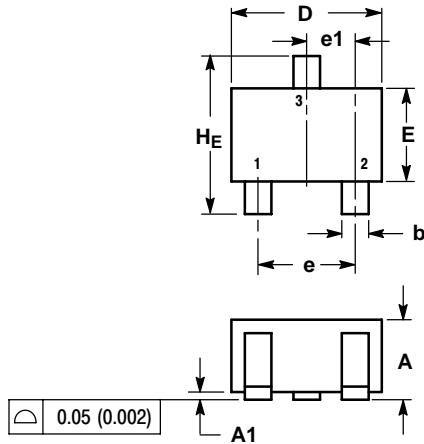
SCALE 10:1  $\left( \frac{\text{mm}}{\text{inches}} \right)$

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

# DAP222, DAP202U

## PACKAGE DIMENSIONS

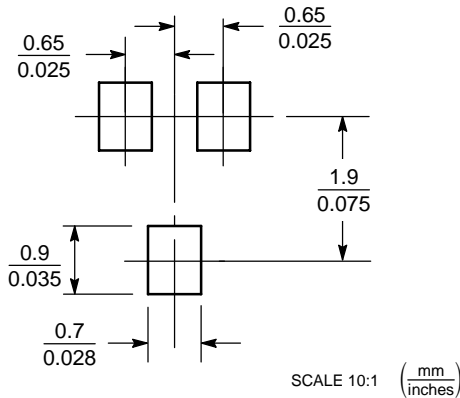
### SC-70 (SOT-323) CASE 419-04 ISSUE M



- NOTES:  
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
2. CONTROLLING DIMENSION: INCH.

| DIM | MILLIMETERS |      |      | INCHES    |       |       |
|-----|-------------|------|------|-----------|-------|-------|
|     | MIN         | NOM  | MAX  | MIN       | NOM   | MAX   |
| A   | 0.80        | 0.90 | 1.00 | 0.032     | 0.035 | 0.040 |
| A1  | 0.00        | 0.05 | 0.10 | 0.000     | 0.002 | 0.004 |
| A2  | 0.7 REF     |      |      | 0.028 REF |       |       |
| b   | 0.30        | 0.35 | 0.40 | 0.012     | 0.014 | 0.016 |
| c   | 0.10        | 0.18 | 0.25 | 0.004     | 0.007 | 0.010 |
| D   | 1.80        | 2.10 | 2.20 | 0.071     | 0.083 | 0.087 |
| E   | 1.15        | 1.24 | 1.35 | 0.045     | 0.049 | 0.053 |
| e   | 1.20        | 1.30 | 1.40 | 0.047     | 0.051 | 0.055 |
| e1  | 0.65 BSC    |      |      | 0.026 BSC |       |       |
| L   | 0.425 REF   |      |      | 0.017 REF |       |       |
| HE  | 2.00        | 2.10 | 2.40 | 0.079     | 0.083 | 0.095 |

### 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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