# DAP222, DAP202U

# 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 $C_D$
- 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

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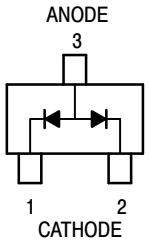



### MAXIMUM RATINGS ($T_A$ = 25°C)

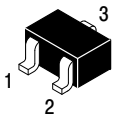
| Rating | Symbol | Value | Unit |
|---|---|---|---|
| Reverse Voltage | $V_R$ | 80 | Vdc |
| Peak Reverse Voltage | $V_{RM}$ | 80 | Vdc |
| Forward Current | $I_F$ | 100 | mAdc |
| Peak Forward Current | $I_{FM}$ | 300 | mAdc |
| Peak Forward Surge Current | $I_{FSM}$(1) | 2.0 | Adc |

### THERMAL CHARACTERISTICS

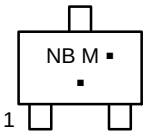
| Rating | Symbol | Max | Unit |
|---|---|---|---|
| Power Dissipation | $P_D$ | 150 | mW |
| Junction Temperature | $T_J$ | 150 | °C |
| Storage Temperature | $T_{stg}$ | −55 ~ +150 | °C |

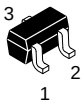
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

### MARKING DIAGRAMS

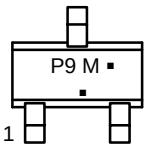



**SC−70**
**CASE 419**




**SC−75**
**CASE 463**
**STYLE 4**




NB, P9 = 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† |
|---|---|---|
| DAP202UG | SC−70 (Pb−Free) | 3000 / Tape & Reel |
| DAP222G | SC−75 (Pb−Free) | 3000 / Tape & Reel |
| DAP222T1G | SC−75 (Pb−Free) | 3000 / Tape & Reel |
| NSVDAP222T1G | 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.

**ELECTRICAL CHARACTERISTICS** ($T_A$ = 25°C)

| Characteristic | Symbol | Condition | Min | Max | Unit |
|---|---|---|---|---|---|
| Reverse Voltage Leakage Current | $I_R$ | $V_R$ = 70 V | – | 0.1 | μAdc |
| Forward Voltage | $V_F$ | $I_F$ = 100 mA | – | 1.2 | Vdc |
| Reverse Breakdown Voltage | $V_R$ | $I_R$ = 100 μA | 80 | – | Vdc |
| Diode Capacitance | $C_D$ | $V_R$ = 6.0 V, f = 1.0 MHz | – | 3.5 | pF |
| Reverse Recovery Time DAP222<br>DAP202U | $t_{rr}$(2)<br>$t_{tt}$(3) | $I_F$ = 5.0 mA, $V_R$ = 6.0 V, $R_L$ = 100 Ω, $I_{rr}$ = 0.1 $I_R$<br>$I_F$ = 5.0 mA, $V_R$ = 6.0 V, $R_L$ = 50 Ω, $I_{rr}$ = 0.1 $I_R$ | –<br>– | 4.0<br>10.0 | ns |

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. t = 1 μS
2. $t_{rr}$ Test Circuit for DAP222 in Figure 4.
3. trr Test Circuit for DAP202U in Figure 5.

## TYPICAL ELECTRICAL CHARACTERISTICS

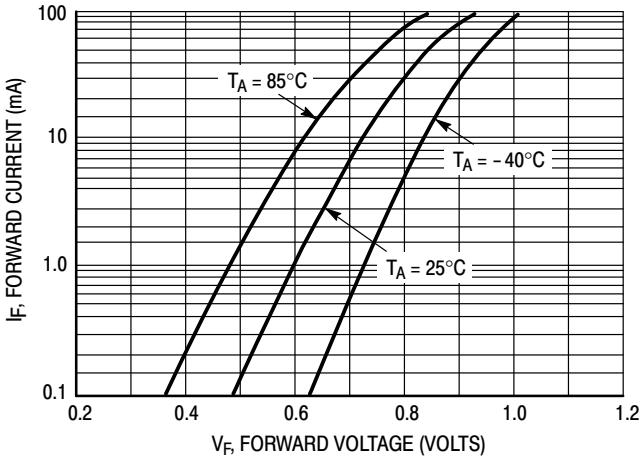



**Figure 1. Forward Voltage**

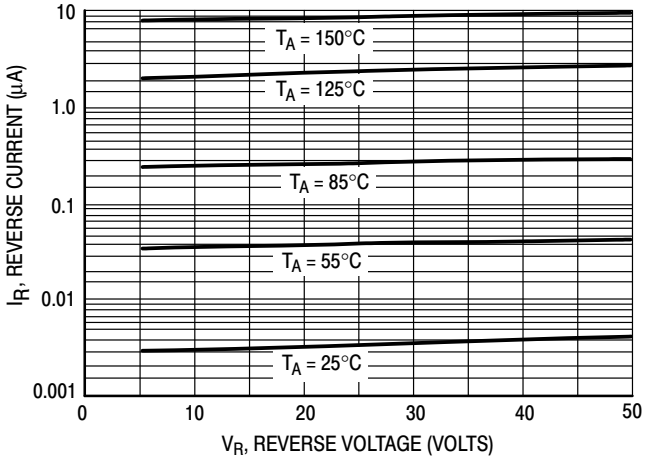



**Figure 2. Reverse Current**

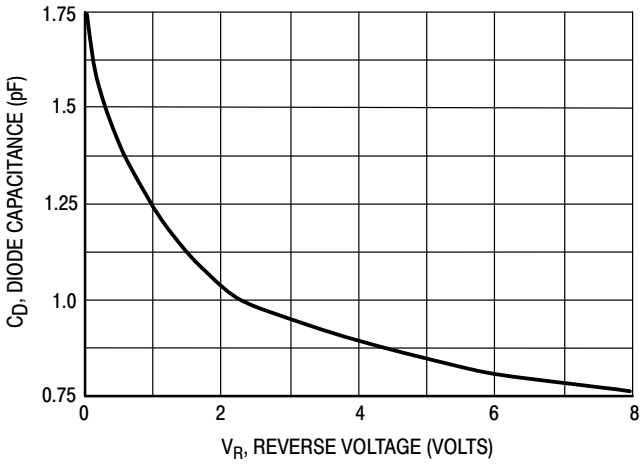
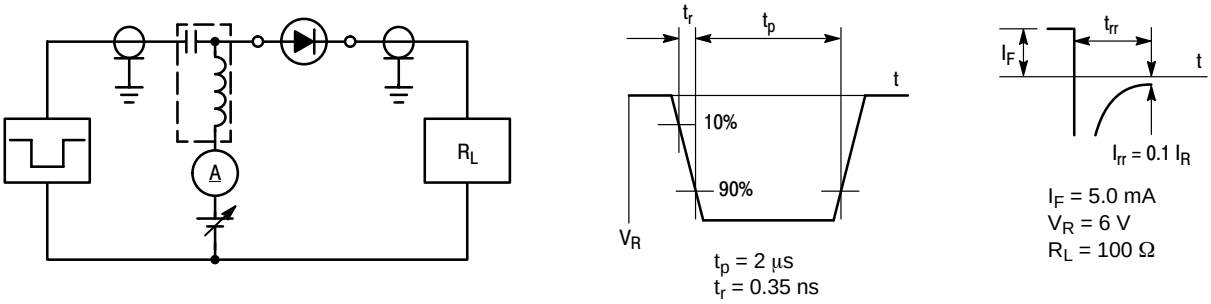
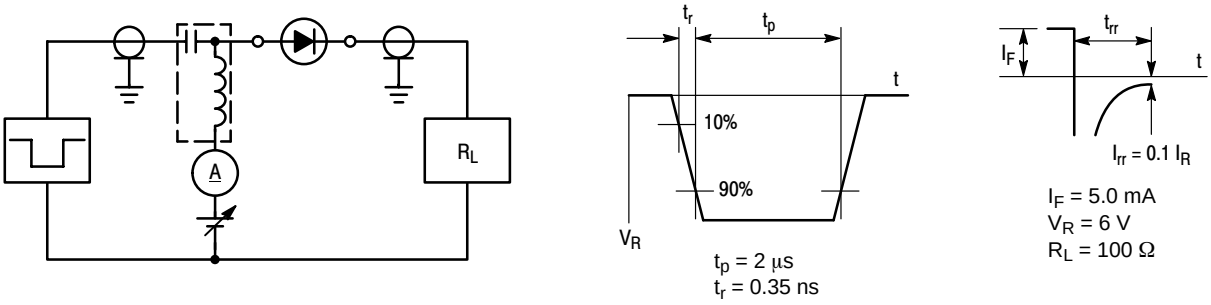



**Figure 3. Diode Capacitance**




**RECOVERY TIME EQUIVALENT TEST CIRCUIT** **INPUT PULSE** **OUTPUT PULSE**

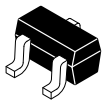
**Figure 4. Reverse Recovery Time Test Circuit for the DAP222**




**RECOVERY TIME EQUIVALENT TEST CIRCUIT** **INPUT PULSE** **OUTPUT PULSE**

**Figure 5. Reverse Recovery Time Test Circuit for the DAP202U**

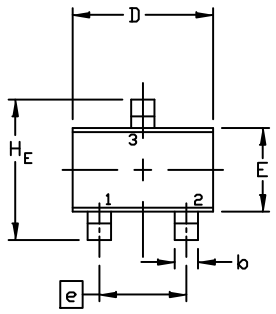
# MECHANICAL CASE OUTLINE
## PACKAGE DIMENSIONS



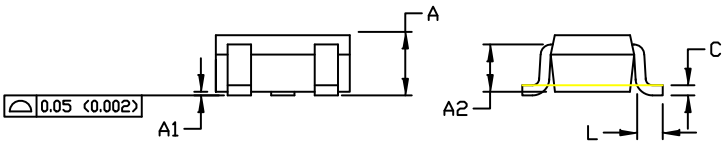
**SCALE 4:1**

**SC−70 (SOT−323)**
CASE 419
ISSUE P

DATE 07 OCT 2021




TOP VIEW

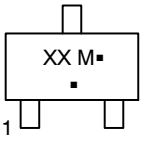



SIDE VIEW END VIEW

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

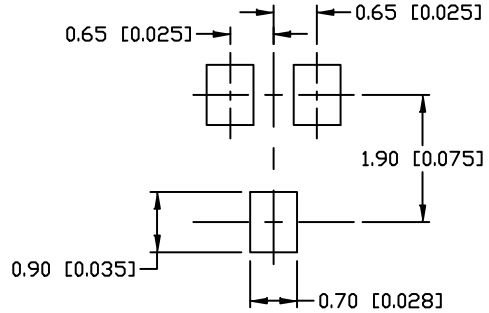
| | MILLIMETERS | | | INCHES | | |
|---|---|---|---|---|---|---|
| DIM | MIN. | NOM. | MAX. | MIN. | NOM. | MAX. |
| A | 0.80 | 0.90 | 1.00 | 0.032 | 0.035 | 0.040 |
| A1 | 0.00 | 0.05 | 0.10 | 0.000 | 0.002 | 0.004 |
| A2 | 0.70 REF | | | 0.028 BSC | | |
| b | 0.30 | 0.35 | 0.40 | 0.012 | 0.014 | 0.016 |
| 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 | 0.20 | 0.38 | 0.56 | 0.008 | 0.015 | 0.022 |
| $H_E$ | 2.00 | 2.10 | 2.40 | 0.079 | 0.083 | 0.095 |

### 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.




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

SOLDERING FOOTPRINT

STYLE 1:
CANCELLED

STYLE 2:
PIN 1. ANODE
2. N.C.
3. CATHODE

STYLE 3:
PIN 1. BASE
2. EMITTER
3. COLLECTOR

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

STYLE 5:
PIN 1. ANODE
2. ANODE
3. CATHODE

STYLE 6:
PIN 1. EMITTER
2. BASE
3. COLLECTOR

STYLE 7:
PIN 1. BASE
2. EMITTER
3. COLLECTOR

STYLE 8:
PIN 1. GATE
2. SOURCE
3. DRAIN

STYLE 9:
PIN 1. ANODE
2. CATHODE
3. CATHODE−ANODE

STYLE 10:
PIN 1. CATHODE
2. ANODE
3. ANODE−CATHODE

STYLE 11:
PIN 1. CATHODE
2. CATHODE
3. CATHODE

| | | |
|---|---|---|
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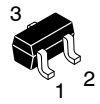
| **DESCRIPTION:** | **SC−70 (SOT−323)** | **PAGE 1 OF 1** |

# MECHANICAL CASE OUTLINE
## PACKAGE DIMENSIONS

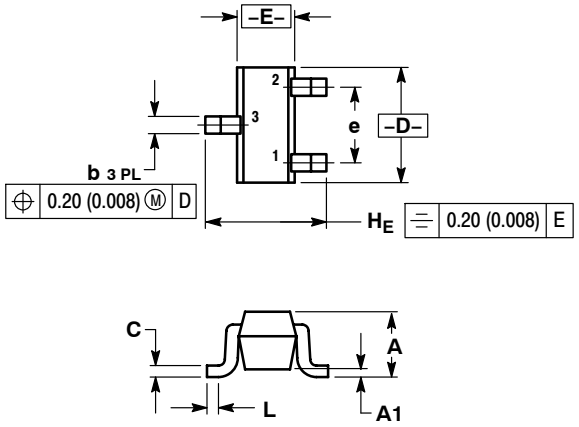
ON Semiconductor®

**SC−75/SOT−416**
CASE 463−01
ISSUE G

DATE 07 AUG 2015




**SCALE 4:1**




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

| | MILLIMETERS | | | INCHES | | |
|---|---|---|---|---|---|---|
| DIM | 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 | 0.061 | 0.063 | 0.065 |
| 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 |
| $H_E$ | 1.50 | 1.60 | 1.70 | 0.060 | 0.063 | 0.067 |

STYLE 1:
PIN 1. BASE
2. EMITTER
3. COLLECTOR

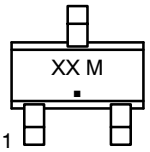
STYLE 2:
PIN 1. ANODE
2. N/C
3. CATHODE

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

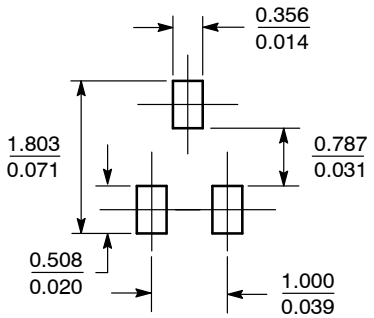
### GENERIC MARKING DIAGRAM*




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.

### SOLDERING FOOTPRINT*




SCALE 10:1 (mm / inches)

*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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| **DESCRIPTION:** | **SC−75/SOT−416** | **PAGE 1 OF 1** |

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