# Monolithic Dual Switching Diode Common Cathode

# BAV70DXV6, NSVBAV70DXV6

## Features

- 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 (EACH DIODE)

| Rating | Symbol | Value | Unit |
|---|---|---|---|
| Reverse Voltage | $V_R$ | 100 | Vdc |
| Forward Current | $I_F$ | 200 | mAdc |
| Peak Forward Surge Current | $I_{FM(surge)}$ | 500 | mAdc |

## THERMAL CHARACTERISTICS

| Characteristic (One Junction Heated) | Symbol | Max | Unit |
|---|---|---|---|
| Total Device Dissipation, $T_A = 25°C$ Derate above 25°C | $P_D$ | 357 (Note 1) 2.9 (Note 1) | mW mW/°C |
| Thermal Resistance, Junction-to-Ambient | $R_{\theta JA}$ | 350 (Note 1) | °C/W |
| **Characteristic (Both Junctions Heated)** | **Symbol** | **Max** | **Unit** |
| Total Device Dissipation, $T_A = 25°C$ Derate above 25°C | $P_D$ | 500 (Note 1) 4.0 (Note 1) | mW mW/°C |
| Thermal Resistance, Junction-to-Ambient | $R_{\theta JA}$ | 250 (Note 1) | °C/W |
| Junction and Storage Temperature Range | $T_J$, $T_{stg}$ | −55 to +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.
1. FR−4 @ Minimum Pad
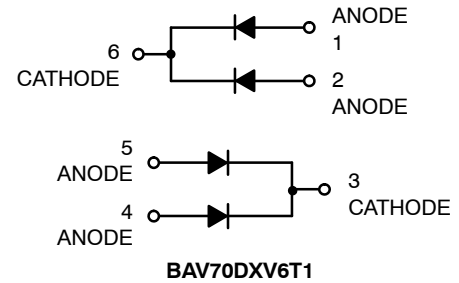


**BAV70DXV6T1**

**SOT−563**
**CASE 463A**

## MARKING DIAGRAM
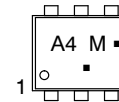


A4 = Specific Device Code
M = Month Code
■ = Pb−Free Package
(Note: Microdot may be in either location)

## ORDERING INFORMATION

| Device | Package | Shipping[†] |
|---|---|---|
| BAV70DXV6T1G | SOT−563 (Pb−Free) | 4000 / Tape & Reel |
| BAV70DXV6T5G | SOT−563 (Pb−Free) | 8000 / Tape & Reel |
| NSVBAV70DXV6T5G | SOT−563 (Pb−Free) | 8000 / Tape & Reel |
| NSVBAV70DXV6T1G | SOT−563 (Pb−Free) | 4000 / 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 unless otherwise noted) **(EACH DIODE)**

| Characteristic | | Symbol | Min | Max | Unit |
|---|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | | |
| Reverse Breakdown Voltage (Note 2)<br>($I_{(BR)}$ = 100 µAdc) | | $V_{(BR)}$ | 100 | – | Vdc |
| Reverse Voltage Leakage Current (Note 2)<br>($V_R$ = 25 Vdc, $T_J$ = 150°C)<br>($V_R$ = 100 Vdc)<br>($V_R$ = 70 Vdc, $T_J$ = 150°C) | | $I_R$ | <br>–<br>–<br>– | <br>60<br>1.0<br>100 | µAdc |
| Diode Capacitance (Note 2)<br>($V_R$ = 0, f = 1.0 MHz) | | $C_D$ | – | 1.5 | pF |
| Forward Voltage (Note 2)<br>($I_F$ = 1.0 mAdc)<br>($I_F$ = 10 mAdc)<br>($I_F$ = 50 mAdc)<br>($I_F$ = 150 mAdc) | | $V_F$ | <br>–<br>–<br>–<br>– | <br>715<br>855<br>1000<br>1250 | mVdc |
| Reverse Recovery Time (Note 2)<br>($I_F$ = $I_R$ = 10 mAdc, $V_R$ = 5.0 Vdc, $I_{R(REC)}$ = 1.0 mAdc) (Figure 1) | $R_L$ = 100 Ω | $t_{rr}$ | – | 6.0 | 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.
2. For each individual diode while second diode is unbiased.
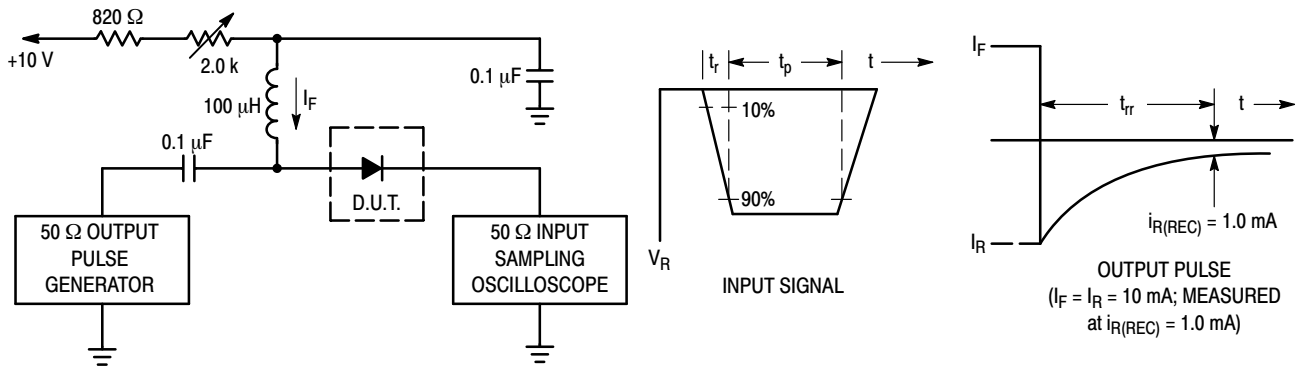


Notes: 1. A 2.0 kΩ variable resistor adjusted for a Forward Current ($I_F$) of 10 mA.
      2. Input pulse is adjusted so $I_{R(peak)}$ is equal to 10 mA.
      3. $t_p$ » $t_{rr}$

**Figure 1. Recovery Time Equivalent Test Circuit**

# BAV70DXV6, NSVBAV70DXV6

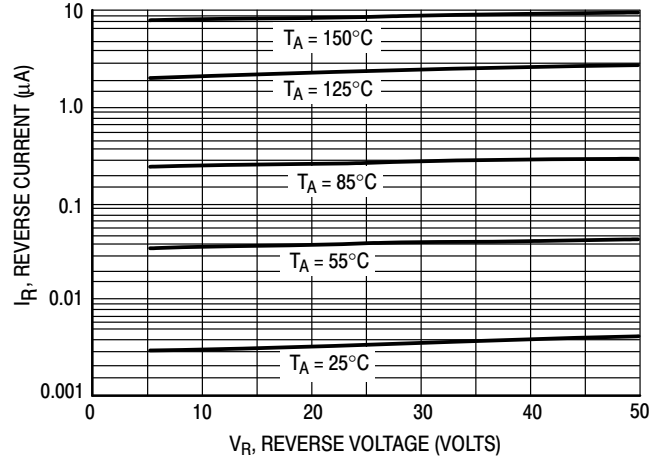**Curves Applicable to Each Anode**
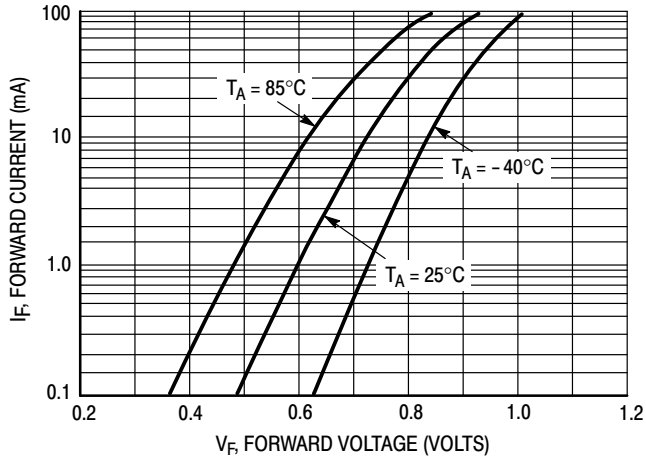


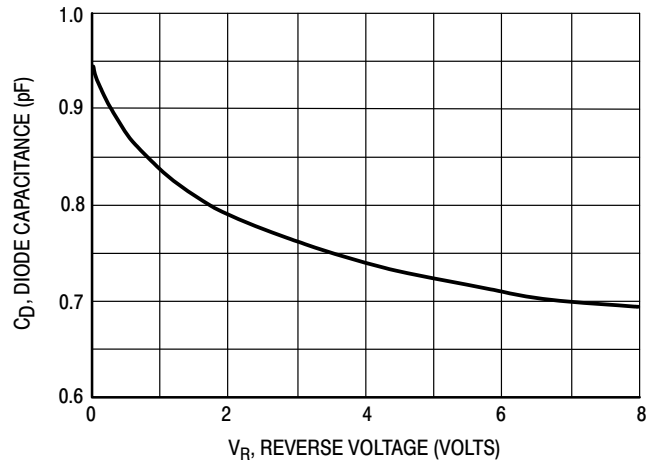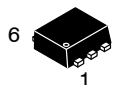**Figure 2. Forward Voltage**



**Figure 3. Leakage Current**
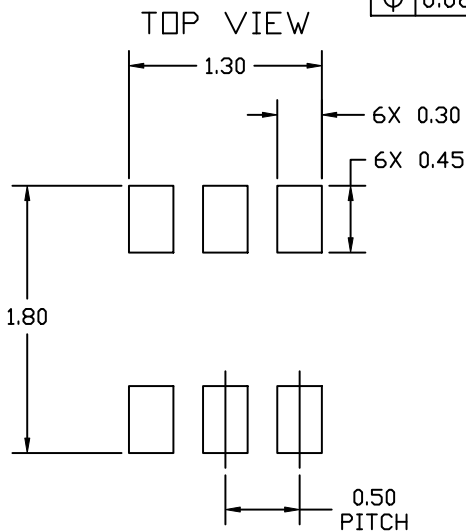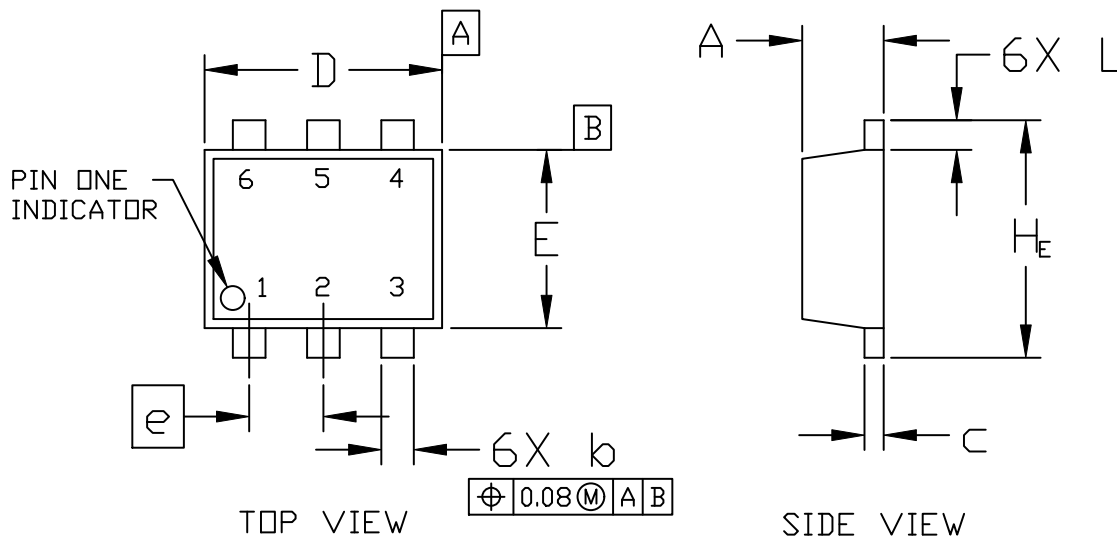


**Figure 4. Capacitance**

**6**
**1**

**SCALE 4:1**

**SOT−563, 6 LEAD**
CASE 463A
ISSUE H

DATE 26 JAN 2021

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2009.
2. CONTROLLING DIMENSION: MILLIMETERS
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.



TOP VIEW

SIDE VIEW

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.

| DIM | MILLIMETERS | | |
|-----|------|------|------|
|     | MIN. | NOM. | MAX. |
| A | 0.50 | 0.55 | 0.60 |
| b | 0.17 | 0.22 | 0.27 |
| c | 0.08 | 0.13 | 0.18 |
| D | 1.50 | 1.60 | 1.70 |
| E | 1.10 | 1.20 | 1.30 |
| e | 0.50 BSC | | |
| L | 0.10 | 0.20 | 0.30 |
| $H_E$ | 1.50 | 1.60 | 1.70 |

| DOCUMENT NUMBER: | 98AON11126D | | |
|---|---|---|---|
| DESCRIPTION: | SOT−563, 6 LEAD | | PAGE 1 OF 2 |

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

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

STYLE 3:
PIN 1. CATHODE 1
    2. CATHODE 1
    3. ANODE/ANODE 2
    4. CATHODE 2
    5. CATHODE 2
    6. ANODE/ANODE 1

STYLE 4:
PIN 1. COLLECTOR
    2. COLLECTOR
    3. BASE
    4. EMITTER
    5. COLLECTOR
    6. COLLECTOR

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

STYLE 6:
PIN 1. CATHODE
    2. ANODE
    3. CATHODE
    4. CATHODE
    5. CATHODE
    6. CATHODE

STYLE 7:
PIN 1. CATHODE
    2. ANODE
    3. CATHODE
    4. CATHODE
    5. ANODE
    6. CATHODE

STYLE 8:
PIN 1. DRAIN
    2. DRAIN
    3. GATE
    4. SOURCE
    5. DRAIN
    6. DRAIN

STYLE 9:
PIN 1. SOURCE 1
    2. GATE 1
    3. DRAIN 2
    4. SOURCE 2
    5. GATE 2
    6. DRAIN 1

STYLE 10:
PIN 1. CATHODE 1
    2. N/C
    3. CATHODE 2
    4. ANODE 2
    5. N/C
    6. ANODE 1

STYLE 11:
PIN 1. EMITTER 2
    2. BASE 2
    3. COLLECTOR 1
    4. EMITTER 1
    5. BASE 1
    6. COLLECTOR 2

**GENERIC
MARKING DIAGRAM\***
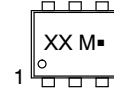


XX = Specific Device Code
M = Month Code
▪ = Pb−Free Package

*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.

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| DESCRIPTION: | SOT−563, 6 LEAD | | PAGE 2 OF 2 |

## ADDITIONAL INFORMATION

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