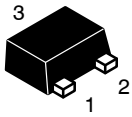
# Switching Diode

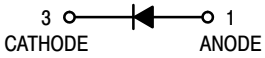
# BAS16M3T5G




SOT−723
CASE 631AA
STYLE 2

### Features

- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant




### MAXIMUM RATINGS

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

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.

### THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|---|---|---|---|
| Total Device Dissipation, FR−4 Board (Note 1) $T_A$ = 25°C<br>Derated above 25°C | $P_D$ | 260<br>2.0 | mW<br>mW/°C |
| Thermal Resistance, Junction−to−Ambient (Note 1) | $R_{\theta JA}$ | 490 | °C/W |
| Total Device Dissipation, FR−4 Board (Note 2) $T_A$ = 25°C<br>Derated above 25°C | $P_D$ | 580<br>4.6 | mW<br>mW/°C |
| Thermal Resistance, Junction−to−Ambient (Note 2) | $R_{\theta JA}$ | 215 | °C/W |
| Junction and Storage Temperature Range | $T_J$, $T_{stg}$ | −55 to +150 | °C |

1. FR−4 @ Minimum Pad
2. FR−4 @ 1.0 × 1.0 Inch Pad

### MARKINGDIAGRAM


A6 = Specific Device Code
M = Date Code

### ORDERING INFORMATION

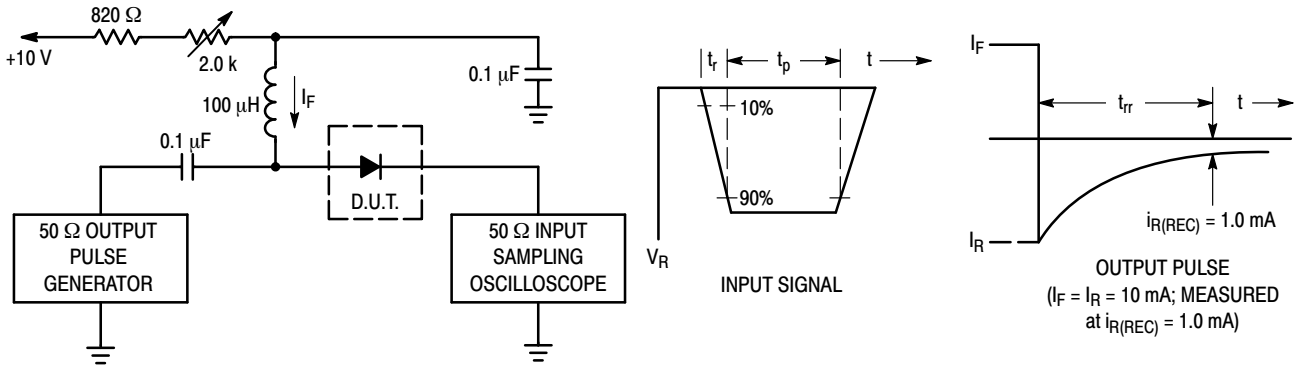
| Device | Package | Shipping† |
|---|---|---|
| BAS16M3T5G | SOT−723 (Pb−Free) | 8000 / Tape & Reel |

†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)

| Characteristic | Symbol | Min | Max | Unit |
|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | |
| Reverse Voltage Leakage Current | $I_R$ | | | μAdc |
| ($V_R$ = 100 Vdc) | | – | 1.0 | |
| ($V_R$ = 75 Vdc, $T_J$ = 150°C) | | – | 50 | |
| ($V_R$ = 25 Vdc, $T_J$ = 150°C) | | – | 30 | |
| Reverse Breakdown Voltage<br>($I_{BR}$ = 100 μAdc) | $V_{(BR)}$ | 100 | – | Vdc |
| Forward Voltage | $V_F$ | | | mV |
| ($I_F$ = 1.0 mAdc) | | – | 715 | |
| ($I_F$ = 10 mAdc) | | – | 855 | |
| ($I_F$ = 50 mAdc) | | – | 1000 | |
| ($I_F$ = 150 mAdc) | | – | 1250 | |
| Diode Capacitance<br>($V_R$ = 0, f = 1.0 MHz) | $C_D$ | – | 2.0 | pF |
| Forward Recovery Voltage<br>($I_F$ = 10 mAdc, $t_r$ = 20 ns) | $V_{FR}$ | – | 1.75 | Vdc |
| Reverse Recovery Time<br>($I_F$ = $I_R$ = 10 mAdc, $R_L$ = 50 Ω) | $t_{rr}$ | – | 6.0 | ns |
| Stored Charge<br>($I_F$ = 10 mAdc to $V_R$ = 5.0 Vdc,<br>$R_L$ = 500 Ω) | $Q_S$ | – | 45 | pC |

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.




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. $t_p \gg t_{rr}$

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

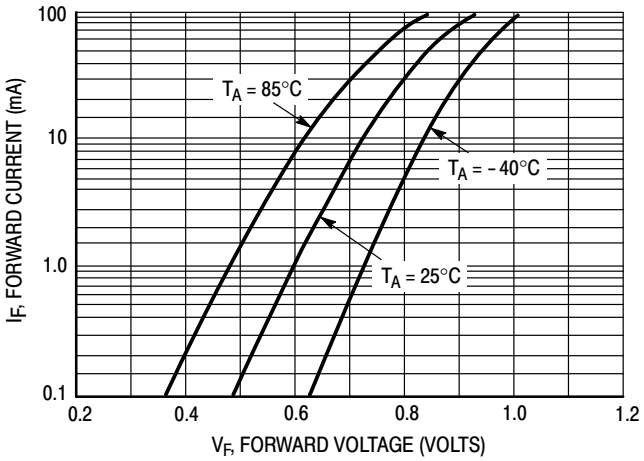



**Figure 2. Forward Voltage**

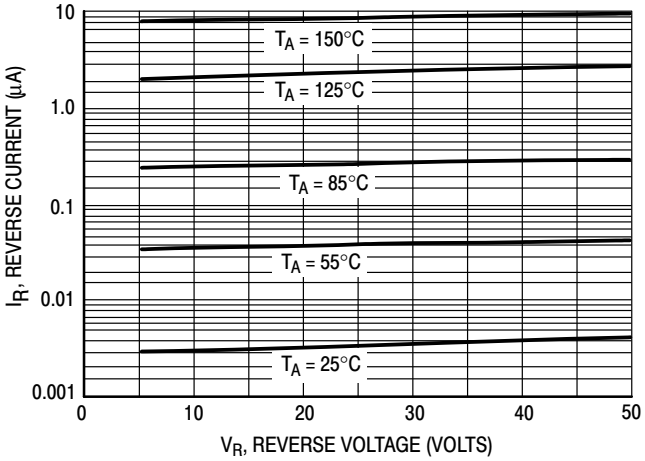



**Figure 3. Leakage Current**

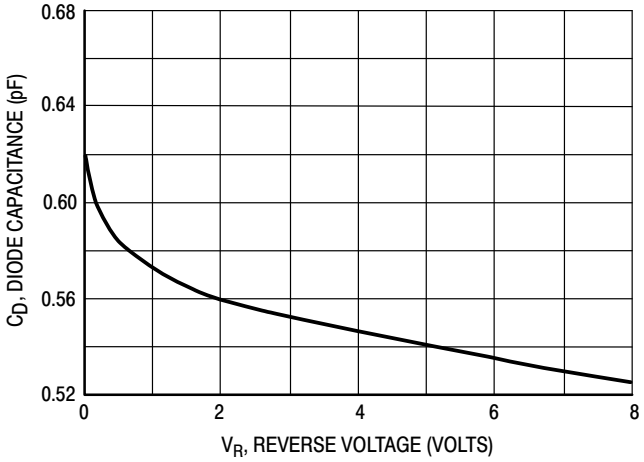
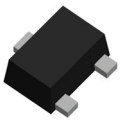



**Figure 4. Capacitance**

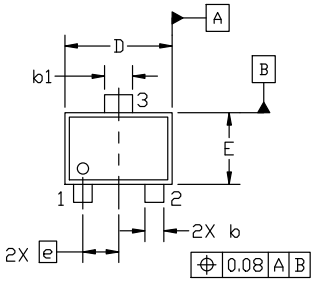


**SOT−723 1.20x0.80x0.50, 0.40P**
CASE 631AA
ISSUE E

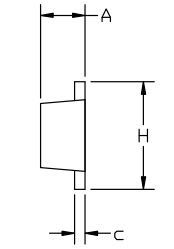
DATE 24 JAN 2024

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

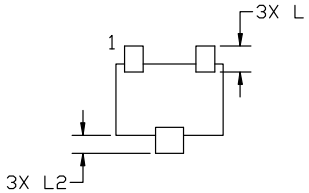
| DIM | MILLIMETERS | | |
|---|---|---|---|
| | MIN. | NOM. | MAX. |
| A | 0.45 | 0.50 | 0.55 |
| b | 0.15 | 0.21 | 0.27 |
| b1 | 0.25 | 0.31 | 0.37 |
| c | 0.07 | 0.12 | 0.17 |
| D | 1.15 | 1.20 | 1.25 |
| E | 0.75 | 0.80 | 0.85 |
| e | 0.40 BSC | | |
| H | 1.15 | 1.20 | 1.25 |
| L | 0.29 REF | | |
| L2 | 0.15 | 0.20 | 0.25 |



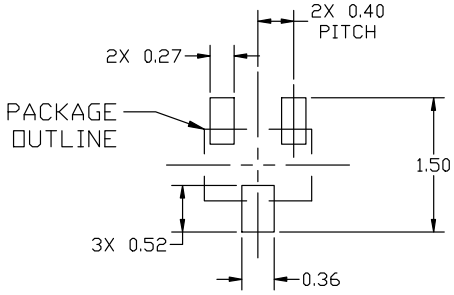
TOP VIEW



SIDE VIEW



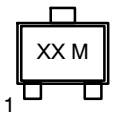
BOTTOM VIEW



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.

**GENERIC**
**MARKING DIAGRAM***




XX = Specific Device Code
M = Date Code

*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

| | | |
|---|---|---|
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| **DESCRIPTION:** | **SOT−723 1.20x0.80x0.50, 0.40P** | **PAGE 1 OF 1** |

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