

BAS21M3T5G

High Voltage Switching Diode

The BAS21M3T5G device is a spin-off of our popular SOT-23 three-leaded device. It is designed for high voltage switching applications and is housed in the SOT-723 surface mount package. This device is ideal for low-power surface mount applications where board space is at a premium.

Features

- Reduces Board Space
- This is a Halide-Free Device
- This is a Pb-Free Device

MAXIMUM RATINGS (EACH DIODE)

| Rating | Symbol | Value | Unit |
|----------------------------|-----------------|-------|------|
| Reverse Voltage | V_R | 250 | Vdc |
| Forward Current | I_F | 200 | mAdc |
| Peak Forward Surge Current | $I_{FM(surge)}$ | 625 | mAdc |

THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|---|-----------------|----------------|----------------------------|
| Total Device Dissipation FR-5 Board (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D | 265 2.1 | mW mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction-to-Ambient | $R_{\theta JA}$ | 470 | $^\circ\text{C/W}$ |
| Total Device Dissipation Alumina Substrate, (Note 2) $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D | 640 5.1 | mW mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction-to-Ambient | $R_{\theta JA}$ | 195 | $^\circ\text{C/W}$ |
| Junction and Storage Temperature | T_J, T_{stg} | -55 to +150 | $^\circ\text{C}$ |

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. FR-5 = $1.0 \times 0.75 \times 0.062$ in.

2. Alumina = $0.4 \times 0.3 \times 0.024$ in. 99.5% alumina.



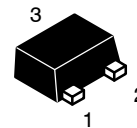
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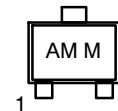
**250 V
HIGH VOLTAGE
SWITCHING DIODE**



MARKING DIAGRAM



SOT-723
CASE 631AA
STYLE 2



AM = Specific Device Code
M = Date Code

ORDERING INFORMATION

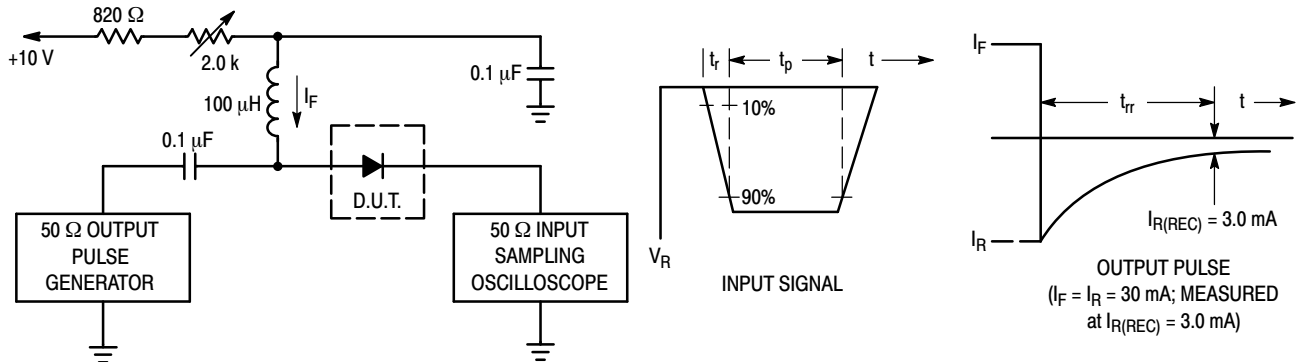
| Device | Package | Shipping† |
|------------|----------------------|------------------|
| BAS21M3T5G | SOT-723 (Pb-Free) | 8000/Tape & Reel |

†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.

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ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| Characteristic | Symbol | Min | Max | Unit |
|---|------------|-----|-------------|------------------|
| Reverse Voltage Leakage Current ($V_R = 200\text{ Vdc}$) ($V_R = 200\text{ Vdc}$, $T_J = 150^\circ\text{C}$) | I_R | - | 0.1 100 | μA dc |
| Reverse Breakdown Voltage ($I_{BR} = 100\ \mu\text{A}$ dc) | $V_{(BR)}$ | 250 | - | Vdc |
| Forward Voltage ($I_F = 100\ \text{mA}$ dc) ($I_F = 200\ \text{mA}$ dc) | V_F | - | 1.0 1.25 | Vdc |
| Diode Capacitance ($V_R = 0$, $f = 1.0\ \text{MHz}$) | C_D | - | 5.0 | pF |
| Reverse Recovery Time ($I_F = I_R = 30\ \text{mA}$ dc, $I_{R(REC)} = 3.0\ \text{mA}$ dc, $R_L = 100$) | t_{rr} | - | 50 | ns |



- Notes: 1. A 2.0 k Ω variable resistor adjusted for a Forward Current (I_F) of 30 mA.
 2. Input pulse is adjusted so $I_{R(\text{peak})}$ is equal to 30 mA.
 3. $t_p \gg t_{rr}$

Figure 1. Recovery Time Equivalent Test Circuit

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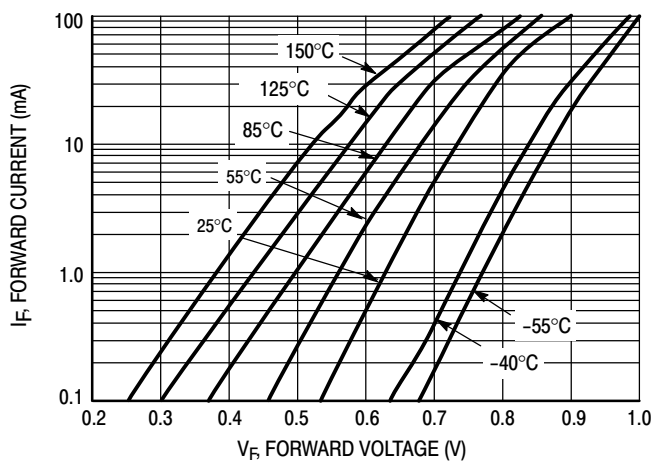


Figure 2. V_F vs. I_F

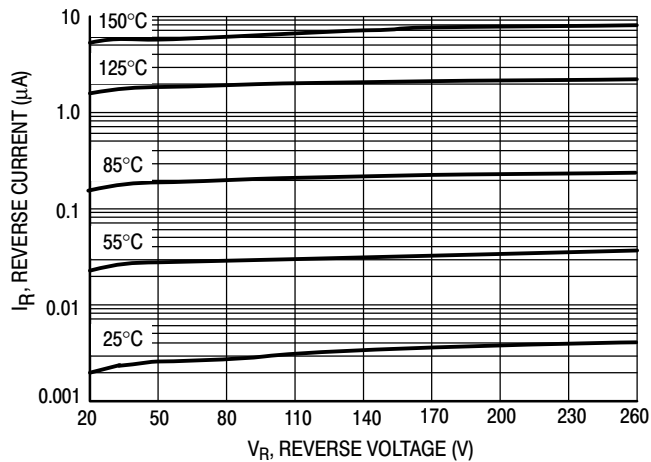


Figure 3. I_R vs. V_R

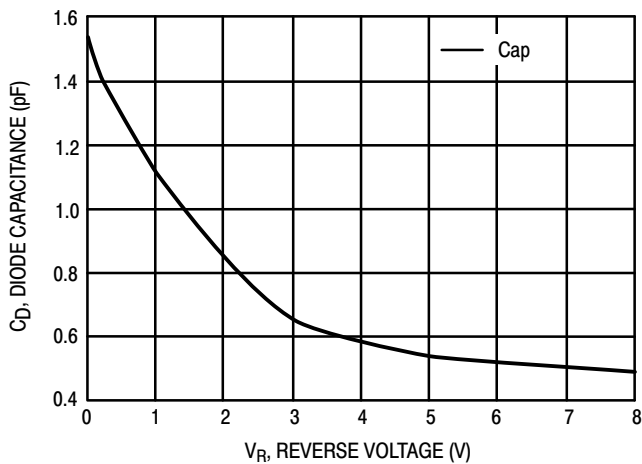
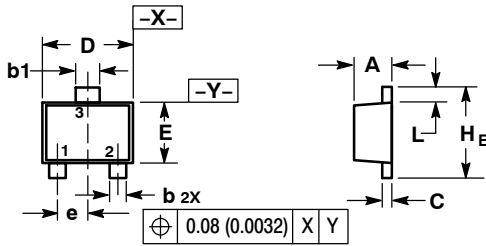


Figure 4. Capacitance

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PACKAGE DIMENSIONS

SOT-723
CASE 631AA-01
ISSUE C



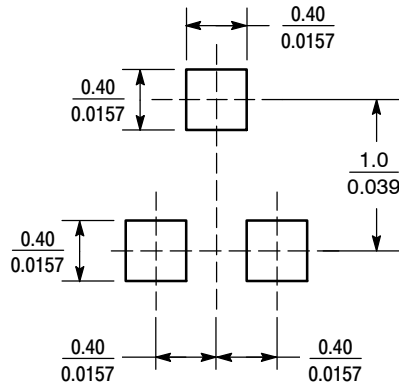
NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
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 | | | INCHES | | |
|-----|-------------|------|------|-----------|--------|--------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.45 | 0.50 | 0.55 | 0.018 | 0.020 | 0.022 |
| b | 0.15 | 0.21 | 0.27 | 0.0059 | 0.0083 | 0.0106 |
| b1 | 0.25 | 0.31 | 0.37 | 0.010 | 0.012 | 0.015 |
| C | 0.07 | 0.12 | 0.17 | 0.0028 | 0.0047 | 0.0067 |
| D | 1.15 | 1.20 | 1.25 | 0.045 | 0.047 | 0.049 |
| E | 0.75 | 0.80 | 0.85 | 0.03 | 0.032 | 0.034 |
| e | 0.40 BSC | | | 0.016 BSC | | |
| H E | 1.15 | 1.20 | 1.25 | 0.045 | 0.047 | 0.049 |
| L | 0.15 | 0.20 | 0.25 | 0.0059 | 0.0079 | 0.0098 |

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

SOLDERING FOOTPRINT*



SCALE 20:1 (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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