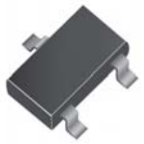
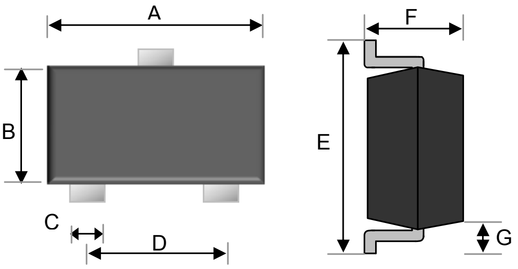
TAIWAN
SEMICONDUCTOR

# BAS21 / A / C / S
# 225mW SMD Switching Diode

## Small Signal Diode



SOT-23



## Features

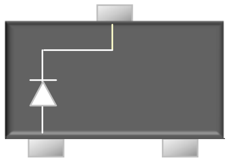
✧Fast switching speed
✧Surface device type mounting
✧Moisture sensitivity level 1
✧Matte Tin(Sn) lead finish with Nickel(Ni) underplate
✧Pb free version and RoHS compliant
✧Green compound (Halogen free) with suffix "G" on packing code and prefix "G" on date code

| Dimensions | Unit (mm) | | Unit (inch) | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 2.80 | 3.00 | 0.110 | 0.118 |
| B | 1.20 | 1.40 | 0.047 | 0.055 |
| C | 0.30 | 0.50 | 0.012 | 0.020 |
| D | 1.80 | 2.00 | 0.071 | 0.079 |
| E | 2.25 | 2.55 | 0.089 | 0.100 |
| F | 0.90 | 1.20 | 0.035 | 0.043 |
| G | 0.550 REF | | 0.022 REF | |

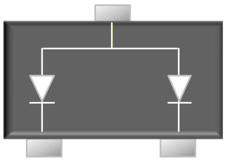
## Mechanical Data

✧Case :SOT-23 small outline plastic package
✧Terminal: Matte tin plated, lead free., solderable per MIL-STD-202, Method 208 guaranteed
✧High temperature soldering guaranteed: 260°C/10s
✧Weight : 0.008gram (approximately)
✧Marking Code : JS,JS2,JS3,JS4

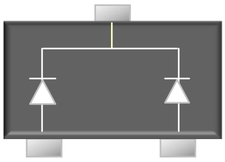
## Pin Configuration



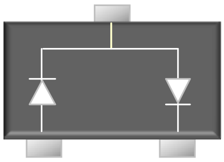
**BAS21**



**BAS21A**



**BAS21C**

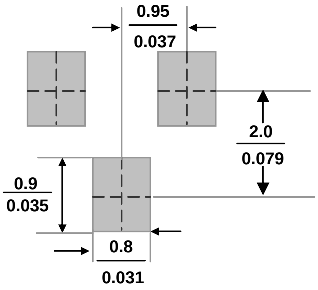


**BAS21S**

## Ordering Information

| Package | Part No. | Packing | Marking |
|---|---|---|---|
| SOT-23 | BAS21 RF | 3K / 7" Reel | JS |
| SOT-23 | BAS21A RF | 3K / 7" Reel | JS2 |
| SOT-23 | BAS21C RF | 3K / 7" Reel | JS3 |
| SOT-23 | BAS21S RF | 3K / 7" Reel | JS4 |
| SOT-23 | BAS21 RFG | 3K / 7" Reel | JS |
| SOT-23 | BAS21A RFG | 3K / 7" Reel | JS2 |
| SOT-23 | BAS21C RFG | 3K / 7" Reel | JS3 |
| SOT-23 | BAS21S RFG | 3K / 7" Reel | JS4 |

## Suggested PAD Layout



## Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

### Maximum Ratings

| Type Number | Symbol | Value | Units |
|---|---|---|---|
| Power Dissipation | $P_D$ | 225 | mW |
| Repetitive Peak Reverse Voltage | $V_{RRM}$ | 250 | V |
| Repetitive Peak Forward Current | $I_{FRM}$ | 625 | mA |
| Mean Forward Current | $I_O$ | 200 | mA |
| Non-Repetitive Peak Forward Surge Current (Note 1) | $I_{FSM}$ | 1 | A |
| Thermal Resistance (Junction to Ambient) (Note 2) | $R_{\theta JA}$ | 500 | °C/W |
| Junction and Storage Temperature Range | $T_J$, $T_{STG}$ | -55 to + 150 | °C |

Notes:1. Test Condition : 8.3ms Single half Sine-Wave Superimposed on Rated Load (JEDEC Method) Pulse Width=1 μsec
Notes:2. Valid provided that electrodes are kept at ambient temperature

Version : C10

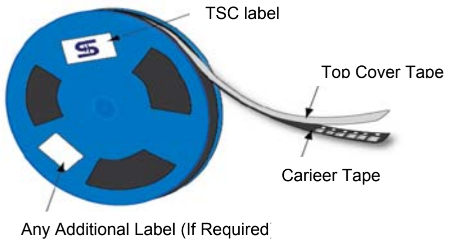
## Small Signal Diode

## Electrical Characteristics

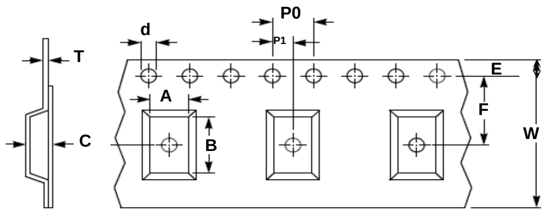
### Electrical Characteristics

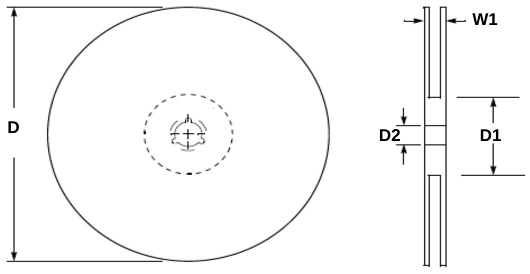
| Type Number | | Symbol | Min | Max | Units |
|---|---|---|---|---|---|
| Reverse Breakdown Voltage | $I_R$= 100μA | $V_{(BR)}$ | 250 | - | V |
| Forward Voltage | $I_F$= 100mA | $V_F$ | - | 1.00 | V |
| | $I_F$= 200mA | | - | 1.25 | V |
| Reverse Leakage Current | $V_R$= 200V | $I_R$ | - | 0.1 | μA |
| Junction Capacitance | $V_R$=1V, f=1.0MHz | $C_J$ | - | 5 | pF |
| Reverse Recovery Time | $I_F$=$I_R$=10mA, $R_L$=100Ω, $I_{RR}$=1mA | Trr | - | 50.0 | ns |

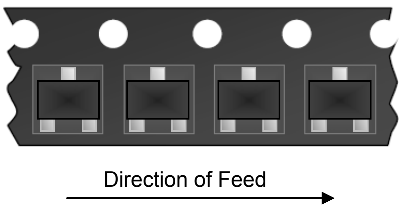
## Tape & Reel specification



| Item | Symbol | Dimension(mm) |
|---|---|---|
| Carrier width | A | 3.15 ±0.10 |
| Carrier length | B | 2.77 ±0.10 |
| Carrier depth | C | 1.22 ±0.10 |
| Sprocket hole | d | 1.50 ± 0.10 |
| Reel outside diameter | D | 178 ± 1 |
| Reel inner diameter | D1 | 55 Min |
| Feed hole width | D2 | 13.0 ± 0.20 |
| Sprocke hole position | E | 1.75 ±0.10 |
| Punch hole position | F | 3.50 ±0.05 |
| Sprocke hole pitch | P0 | 4.00 ±0.10 |
| Embossment center | P1 | 2.00 ±0.05 |
| Overall tape thickness | T | 0.229 ±0.013 |
| Tape width | W | 8.10 ±0.20 |
| Reel width | W1 | 12.30 ±0.20 |







## Rating and Sharacteristic Curves

**FIG 1 Typical Forward Characteristics**

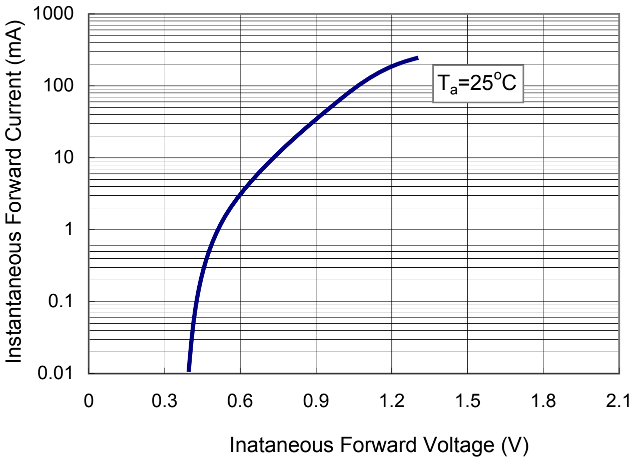


**FIG 2 Reverse Current vs Junction Temperature**

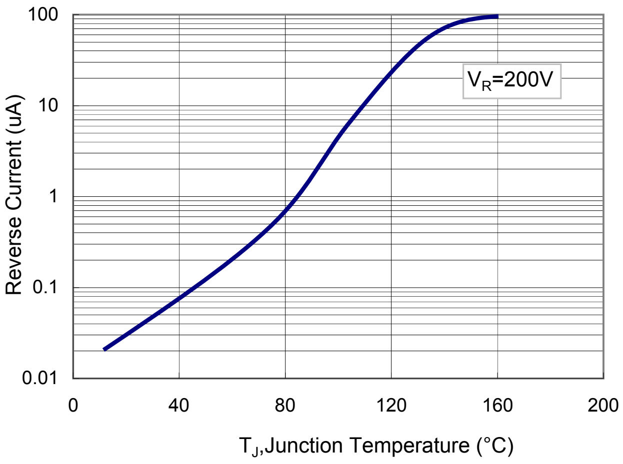
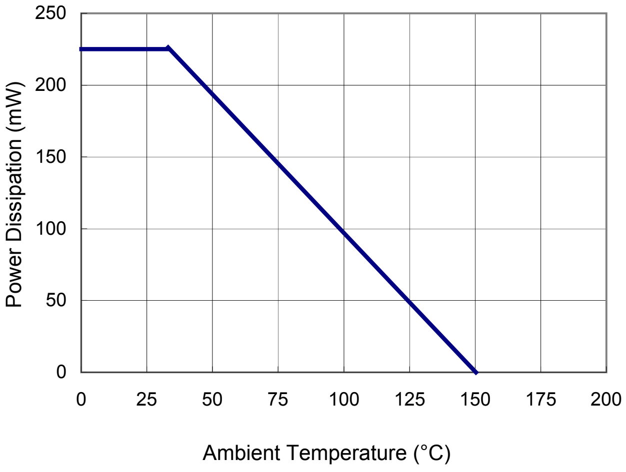


**FIG 3 Admissible Power Dissipation Curve**



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