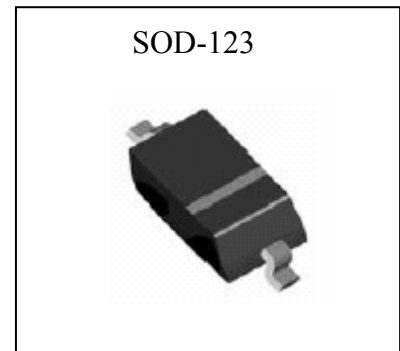


Fast Switching Diodes

BAS21SH


Features

- Fast switching speed
- Low forward voltage drop
- Pb-free lead plating package

Mechanical Data

- Case: Molded plastic, JEDEC SOD-123.
- Terminals: Pure tin plated, solderable per MIL-STD-202 method 208
- Polarity: Indicated by cathode band.
- Weight: 0.01 gram approximately

Maximum Ratings and Electrical Characteristics

(Rating at 25°C ambient temperature unless otherwise specified.)

| Parameter | Symbol | Type | Units |
|---|-----------------|------------|-------|
| Non-repetitive peak reverse voltage | V_{RM} | 250 | V |
| Repetitive peak reverse voltage | V_{RRM} | 250 | |
| Working peak reverse voltage | V_{RWM} | 250 | |
| RMS voltage | V_{RMS} | 141 | |
| DC blocking voltage | V_R | 250 | |
| Forward continuous current | I_{FM} | 400 | mA |
| Average rectified output current | I_O | 200 | |
| Peak forward surge current @ | I_{FSM} | $t=1ms$ | A |
| | | $t=1s$ | |
| Repetitive peak forward current | I_{FRM} | 625 | mA |
| Power dissipation | P_D | 500 | mW |
| Thermal resistance, Junction to ambient | $R_{\theta JA}$ | 250 | °C/W |
| Operating and storage temperature range | $T_J; T_{STG}$ | -65 ~ +150 | °C |

Ordering Information

| Device | Package | Shipping | Marking |
|---------|---|------------------------|---------|
| BAS21SH | SOD-123 (Pb-free lead plating package) | 3000 pcs / Tape & Reel | T3 |

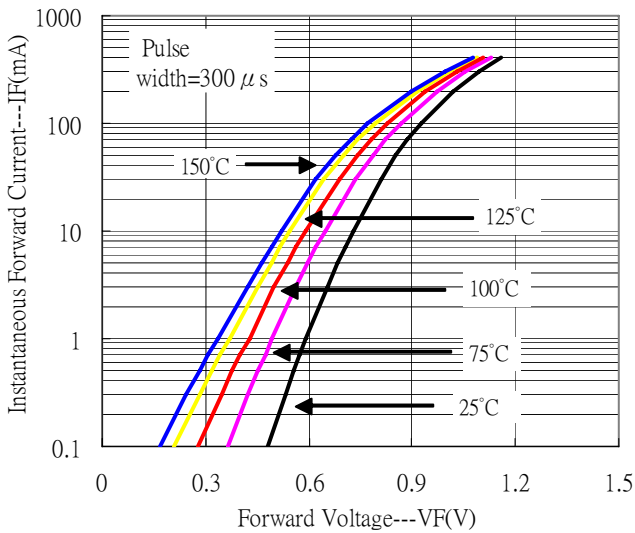


Electrical Characteristics @ $T_A=25^\circ\text{C}$ unless otherwise specified

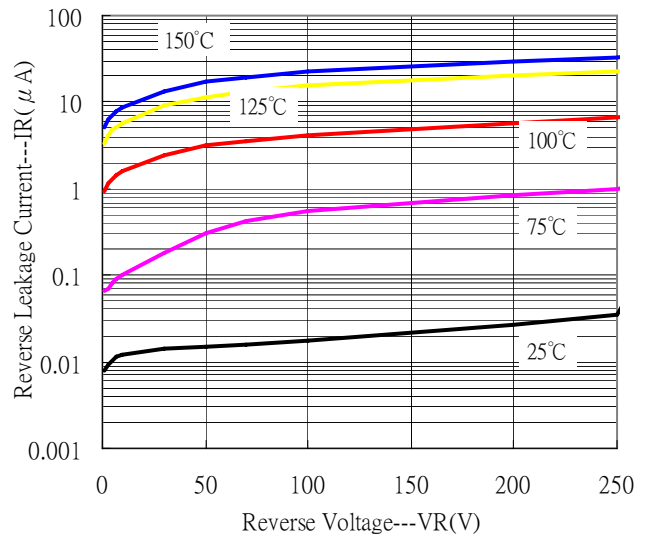
| Parameters | Symbol | Conditions | Min | Typ. | Max | Unit |
|-----------------------|----------|--|-----|------|-----------|------|
| Forward voltage | V_F | $I_F=100\text{mA}$ $I_F=200\text{mA}$ | - | - | 1 1.25 | V |
| Reverse current | I_R | $V_R=200\text{V}$ | - | - | 100 | nA |
| Junction Capacitance | C_J | $V_R=0\text{V}$, $f=1\text{MHz}$ | - | - | 5 | pF |
| Reverse recovery time | t_{rr} | $I_F=I_R=30\text{mA}$, $I_{rr}=0.1 \times I_R$, $R_L=100\ \Omega$ | - | - | 50 | ns |

Typical Characteristics

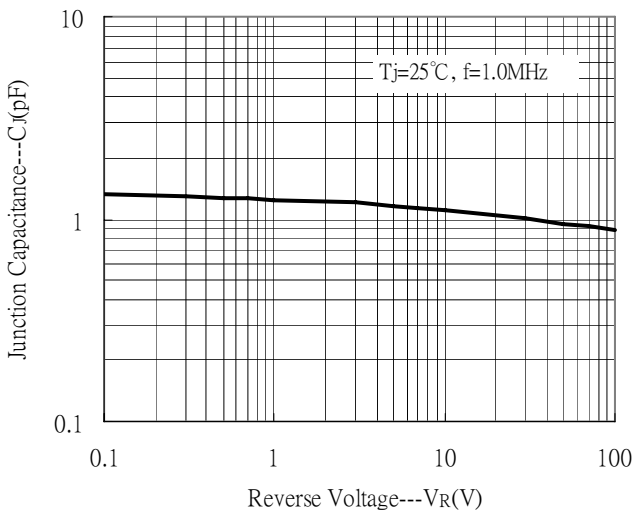
Forward Current vs Forward Voltage



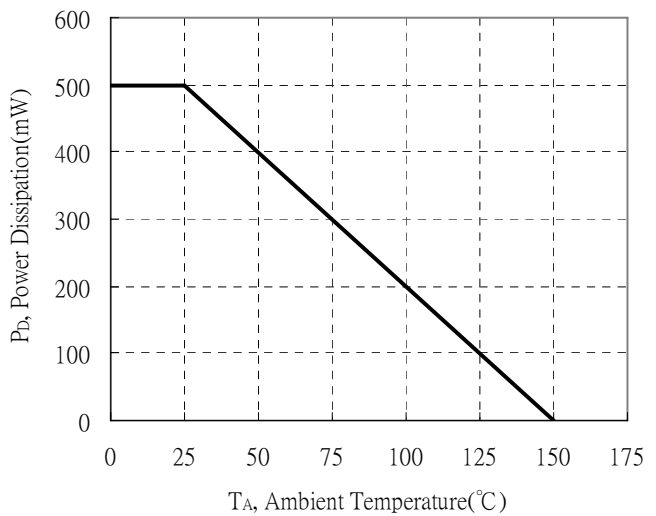
Reverse Leakage Current vs Reverse Voltage



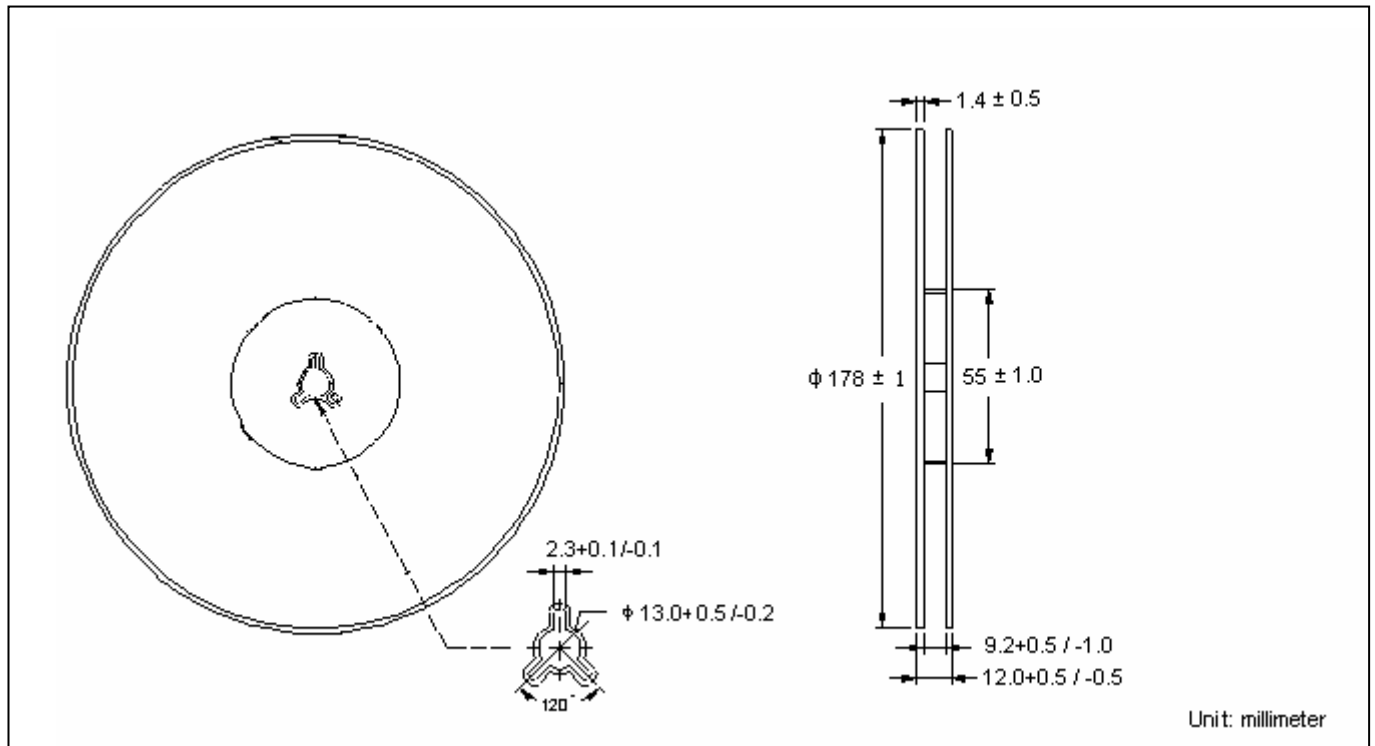
Junction Capacitance vs Reverse Voltage



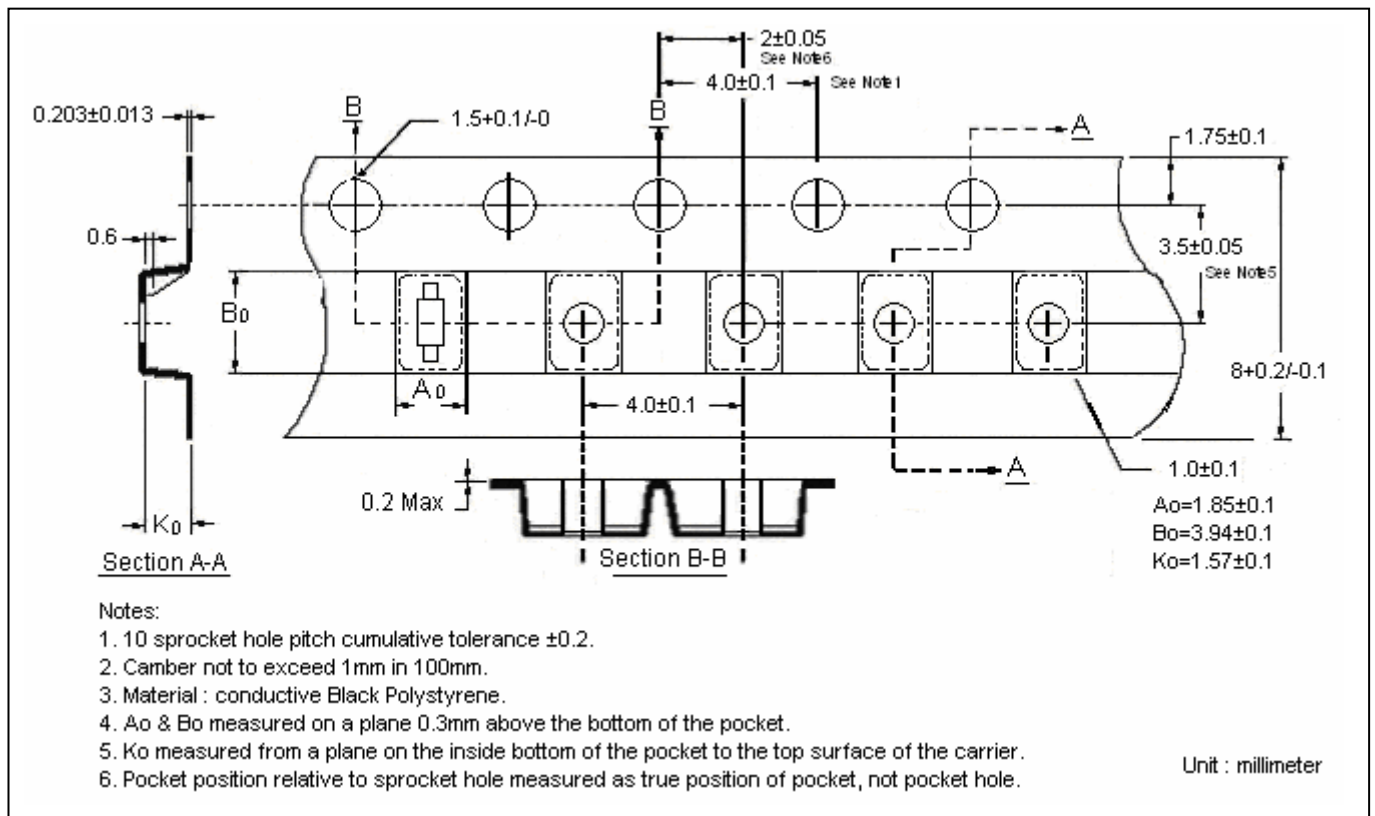
Power Derating Curve



Reel Dimension



Carrier Tape Dimension



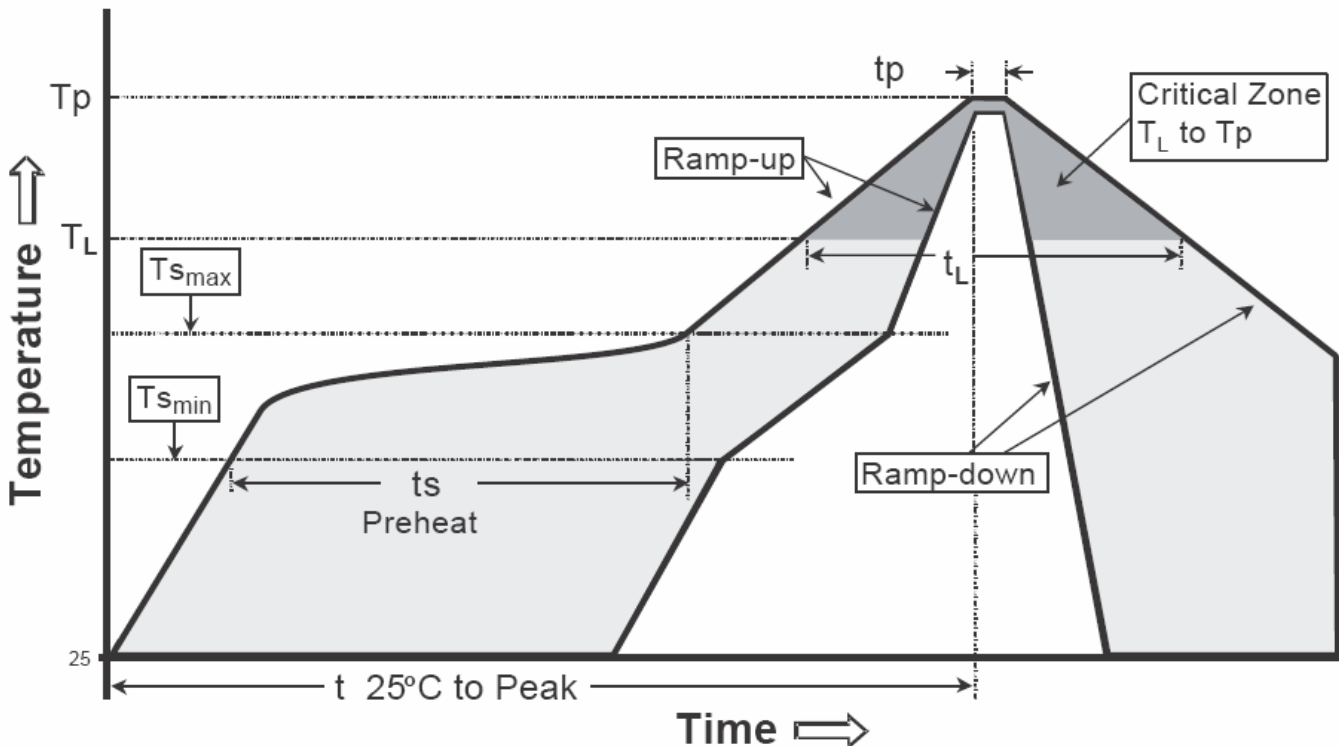
Notes:

1. 10 sprocket hole pitch cumulative tolerance ± 0.2 .
2. Camber not to exceed 1mm in 100mm.
3. Material : conductive Black Polystyrene.
4. A_o & B_o measured on a plane 0.3mm above the bottom of the pocket.
5. K_o measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
6. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

Recommended wave soldering condition

| | | |
|-----------------|------------------|-----------------|
| Product | Peak Temperature | Soldering Time |
| Pb-free devices | 260 +0/-5 °C | 5 +1/-1 seconds |

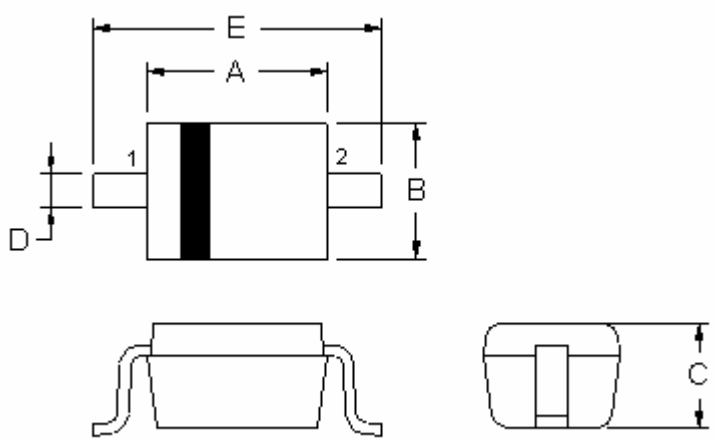
Recommended temperature profile for IR reflow



| Profile feature | Sn-Pb eutectic Assembly | Pb-free Assembly |
|---|-------------------------|------------------|
| Average ramp-up rate (T _{smax} to T _p) | 3°C/second max. | 3°C/second max. |
| Preheat | | |
| -Temperature Min(T _{s min}) | 100°C | 150°C |
| -Temperature Max(T _{s max}) | 150°C | 200°C |
| -Time(t _{s min} to t _{s max}) | 60-120 seconds | 60-180 seconds |
| Time maintained above: | | |
| -Temperature (T _L) | 183°C | 217°C |
| - Time (t _L) | 60-150 seconds | 60-150 seconds |
| Peak Temperature(T _P) | 240 +0/-5 °C | 260 +0/-5 °C |
| Time within 5°C of actual peak temperature(tp) | 10-30 seconds | 20-40 seconds |
| Ramp down rate | 6°C/second max. | 6°C/second max. |
| Time 25 °C to peak temperature | 6 minutes max. | 8 minutes max. |

Note : All temperatures refer to topside of the package, measured on the package body surface.

SOD-123 Dimension



2-Lead SOD-123 Plastic
 Surface Mounted Package
 CYStek Package Code: SH

Style: Pin 1.Cathode 2.Anode

| DIM | Inches | | Millimeters | | DIM | Inches | | Millimeters | |
|-----|--------|-------|-------------|-------|-----|--------|-------|-------------|-------|
| | Min. | Max. | Min. | Max. | | Min. | Max. | Min. | Max. |
| A | 0.102 | 0.110 | 2.600 | 2.800 | D | 0.018 | 0.026 | 0.450 | 0.650 |
| B | 0.059 | 0.067 | 1.500 | 1.700 | E | 0.140 | 0.152 | 3.550 | 3.850 |
| C | 0.041 | 0.049 | 1.050 | 1.250 | | | | | |

Notes: 1.Controlling dimension : millimeters.
 2.Lead thickness specified per L/F drawing with solder plating.
 3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material:

- Lead: Pure tin plated.
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0.

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