

FEATURES

For Use In Low Voltage, High Frequency Inverters Free Wheeling, and Polarity Protection Applications



SOD-323

MECHANICAL DATA

Encapsulation: SOD-323 Small Outline Plastic Package
 Polarity: Color band denotes cathode end
 Mounting Position: Any



Marking



Schematic Symbol

APPROVALS

RoHS Compliance with 2011/65/EU

HF Compliance with IEC61249-2-21:2003

MAXIMUM RATINGS($T_A=25^{\circ}\text{C}$)

| Symbol | Parameter | Value | Unit |
|-----------------|--|----------|-----------------------------|
| V_{RM} | Non-Repetitive Peak Reverse Voltage | 40 | V |
| V_{RRM} | Peak Repetitive Peak Reverse Voltage | | |
| V_{RWM} | Working Peak Reverse Voltage | | |
| V_R | DC Blocking Voltage | 28 | |
| $V_{R(RMS)}$ | Rms Reverse Voltage | | |
| I_O | Average Rectified Output Current | 1 | A |
| I_{FSM} | Non-repetitive Peak Forward Surge Current @ $t=8.3\text{ms}$ | 9 | |
| I_{FRM} | Repetitive Peak Forward Current | 1.5 | |
| P_d | Power Dissipation | 250 | mW |
| $R_{\theta JA}$ | Thermal Resistance Junction To Ambient | 400 | $^{\circ}\text{C}/\text{W}$ |
| T_J | Junction Temperature | 125 | $^{\circ}\text{C}$ |
| T_{STG} | Storage Temperature | -55~+150 | |

ELECTRICAL CHARACTERISTICS ($T_{amb}=25^{\circ}\text{C}$)

| Symbol | Parameter | Test | Min. | Max. | Unit |
|----------|---------------------------------|--------------------------------|------|------|------|
| V_{BR} | Reverse Breakdown Voltage | $I_R=1\text{mA}$ | 40 | | V |
| I_R | Reverse Voltage Leakage Current | $V_R=20$ | | 1 | mA |
| V_F | Reverse Leakage Current | $I_F=1\text{A}$ | | 0.6 | V |
| | | $I_F=3\text{A}$ | | 0.9 | |
| C_D | Diode Capacitance | $V_F=4\text{V}, f=1\text{MHz}$ | | 120 | pF |

CHARACTERISTIC CURVES

Fig.1 Forward Characteristics

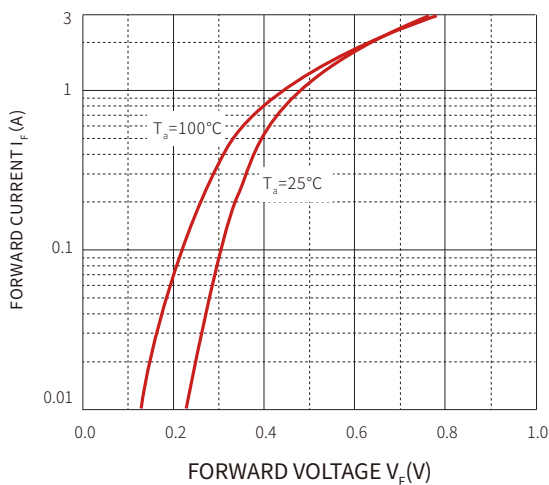


Fig.2 Reverse Characteristics

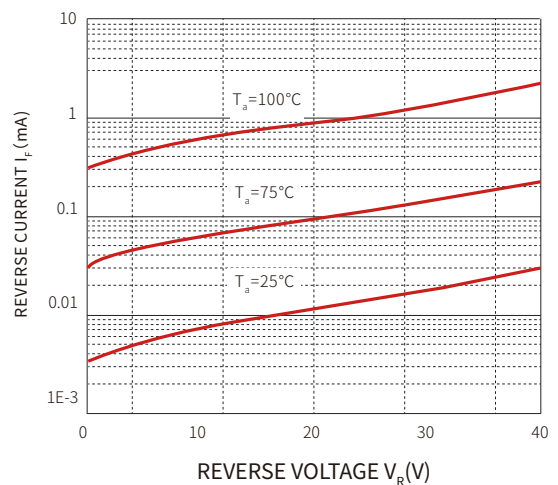


Fig.3 Capacitance Characteristics

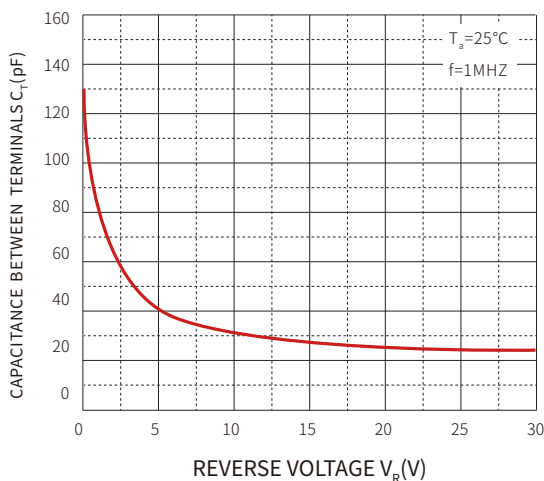
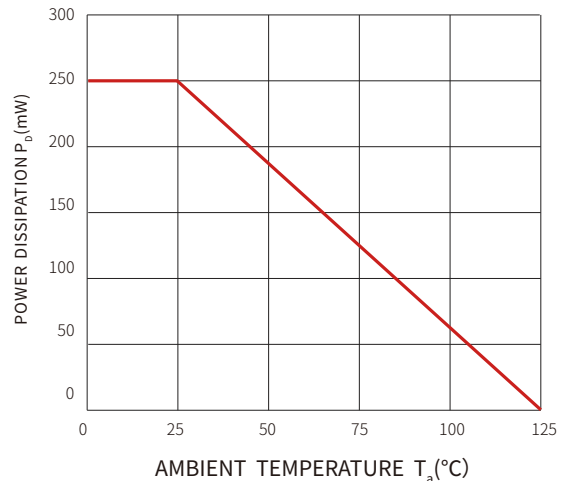
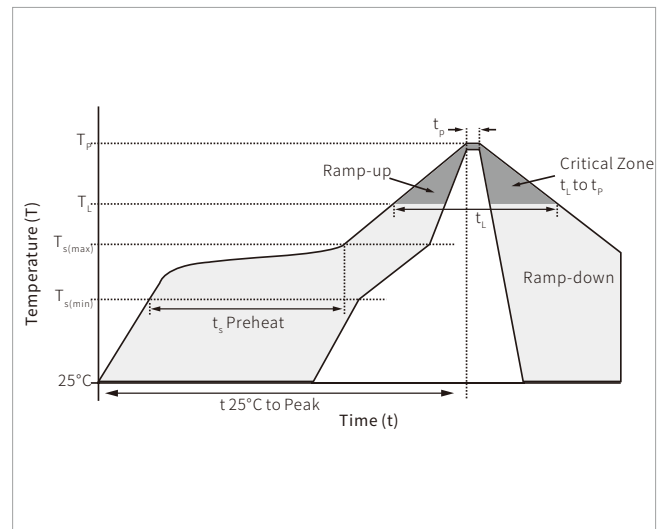


Fig.4 Power Derating Curve

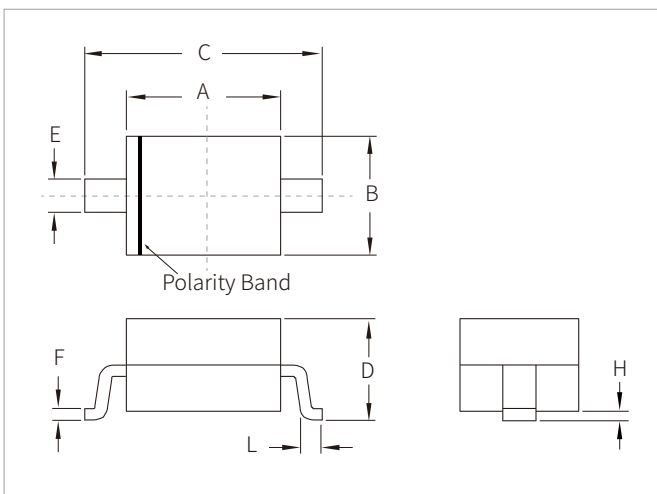


SOLDERING PARAMETERS

| Reflow Condition | | Lead-free assembly |
|--|----------------------------------|--------------------|
| Pre Heat | Temperature Max ($T_{s(min)}$) | 150°C |
| | Temperature Max ($T_{s(max)}$) | 200°C |
| | Time (min to max) (t_s) | 60 – 180 secs |
| Average ramp up rate (Liquidus Temp (T_L) to peak) | | 3°C/second max |
| $T_{s(max)}$ to T_L - Ramp-up Rate | | 3°C/second max |
| Reflow | Temperature (T_L) (Liquidus) | 217°C |
| | Time (min to max) (t_L) | 60 – 150 seconds |
| Peak Temperature (T_p) | | 260°C |
| Time within 5°C of actual peak Temperature (t_p) | | 20 – 40 seconds |
| Ramp-down Rate | | 6°C/second max |
| Time 25°C to peak Temperature (T_p) | | 8 minutes max. |
| Do not exceed | | 260°C |

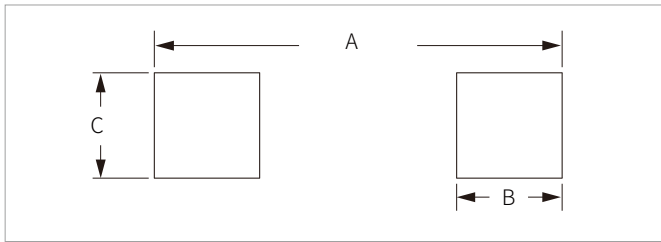


SOD-323 PACKAGE INFORMATION



| Ref. | Millimeters | | Inches | |
|------|-------------|------|--------|-------|
| | Min | Max | Min | Max |
| A | 1.60 | 1.90 | 0.063 | 0.075 |
| B | 1.15 | 1.45 | 0.045 | 0.057 |
| C | 2.35 | 2.70 | 0.093 | 0.106 |
| D | 0.80 | 1.10 | 0.031 | 0.042 |
| E | 0.25 | 0.40 | 0.010 | 0.016 |
| F | 0.10 | 0.20 | 0.004 | 0.008 |
| H | - | 0.10 | - | 0.004 |
| L | 0.20 | - | 0.008 | - |

RECOMMENDED PAD LAYOUT DIMENSIONS



| Ref. | Millimeters | | Inches | |
|------|-------------|------|--------|-------|
| | Min | Max | Min | Max |
| A | 2.87 | 3.12 | 0.113 | 0.123 |
| B | 0.66 | 0.91 | 0.026 | 0.036 |
| C | 0.66 | 0.91 | 0.026 | 0.036 |

ORDERING INFORMATION

| Part Number | Component Package | QTY/Reel | Reel Size |
|-------------|-------------------|----------|-----------|
| 1N5819WS | SOD-323 | 3000PCS | 7" |

Headquarters

No.3387 Shendu Road
Pujiang I&E Park
Minhang Shanghai China
201000

Hotline

400-021-5756

Web

<https://www.semiware.com>

Sales Center

Tel: 86-21-3463-7458
Email: sales18@semiware.com

Customer Service

Tel: 86-21-5484-1001
Email: sales17@semiware.com

Technical Support

Tel: 86-21-3463-7654
Email: fae01@semiware.com

Complaint & Suggestions

Tel: 86-21-3463-7172
Ext: 8868
Email: cs03@semiware.com

By QR Code

Website



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