

## 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

|             |                                    |
|-------------|------------------------------------|
| <b>RoHS</b> | Compliance with 2011/65/EU         |
| <b>HF</b>   | 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                | 20       | V                           |
| $V_{RRM}$       | Peak Repetitive Peak Reverse Voltage               |          |                             |
| $V_{RWM}$       | Working Peak Reverse Voltage                       |          |                             |
| $V_R$           | DC Blocking Voltage                                |          |                             |
| $V_{R(RMS)}$    | RMS Reverse Voltage                                | 14       |                             |
| $I_O$           | Average Rectified Output Current                   | 1        | A                           |
| $I_{FSM}$       | Non-repetitive Peak Forward Surge Current @t=8.3ms | 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       | $I_R=1\text{mA}$               | 20   |      | V    |
| $I_R$    | Reverse Voltage Leakage Current | $V_R=20$                       |      | 1    | mA   |
| $V_F$    | Peak Forward Voltage            | $I_F=1\text{A}$                |      | 0.45 | V    |
|          |                                 | $I_F=3\text{A}$                |      | 0.75 |      |
| $C_D$    | Diode Capacitance               | $V_F=4\text{V}, f=1\text{MHz}$ |      | 120  | pF   |

## CHARACTERISTIC CURVES

Fig.1 Forward Characteristics

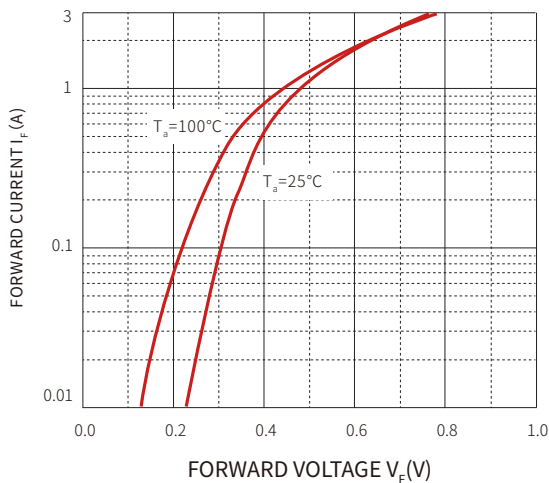


Fig.2 Reverse Characteristics

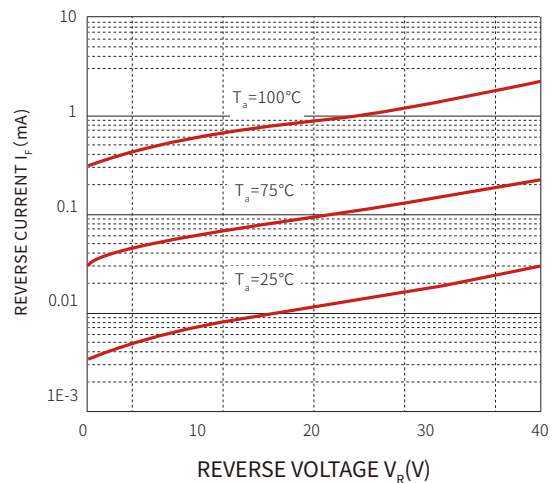


Fig.3 Capacitance Characteristics

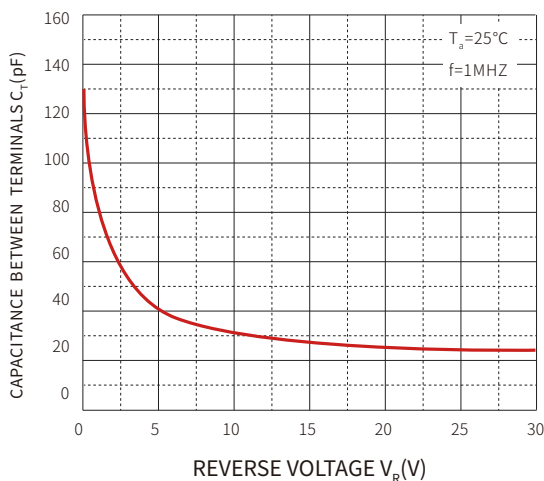
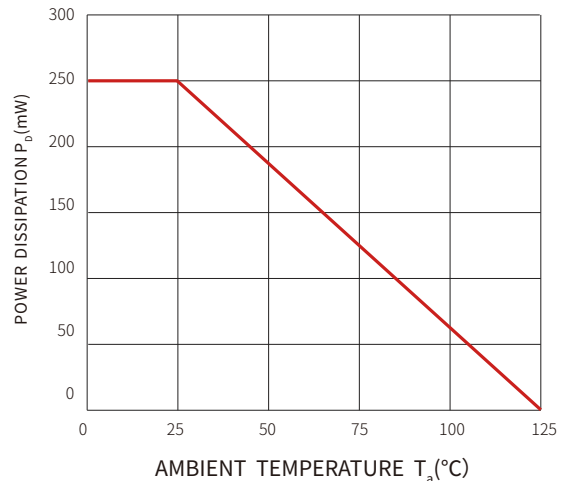
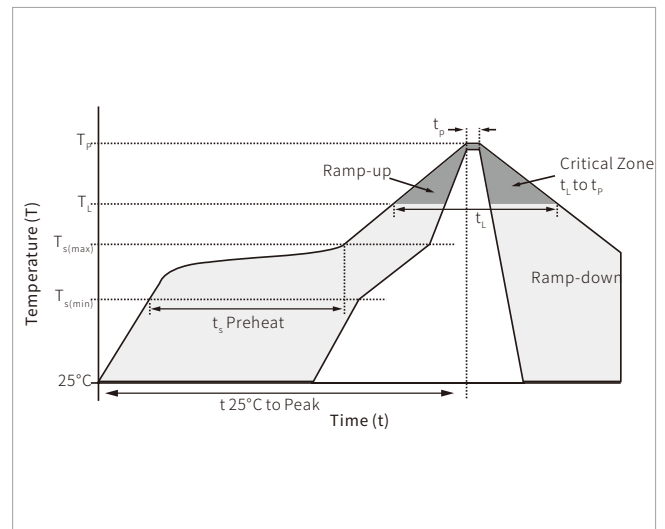


Fig.4 Power Derating Curve

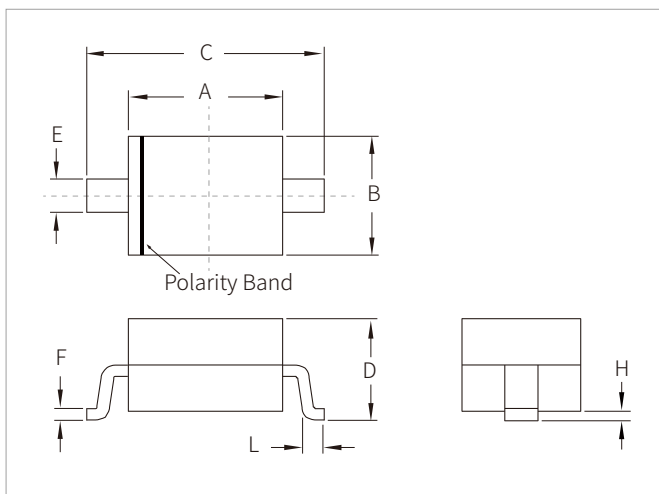


## SOLDERING PARAMETERS

| 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              |

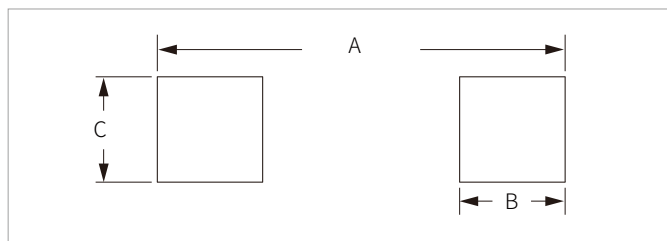


## SOD-323 PACKAGE INFORMATION



| 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 |
|-------------|-------------------|----------|-----------|
| B5817WS     | SOD-323           | 3000PCS  | 7"        |

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