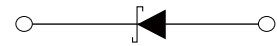


## FEATURES

- High Current Capability
- Low Forward Voltage Drop
- Meet AEC-Q101 Requirements



SOD-323



Schematic Symbol

## MECHANICAL DATA

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

## APPROVALS

|      |                                    |
|------|------------------------------------|
| RoHS | Compliance with 2011/65/EU         |
| HF   | Compliance with IEC61249-2-21:2003 |

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

| Parameter                                      | Symbol          | B5817WSQ | B5818WSQ | B5819WSQ | Unit                        |
|------------------------------------------------|-----------------|----------|----------|----------|-----------------------------|
| Marking                                        |                 | QSJ      | QSK      | QSL      |                             |
| Peak Repetitive Reverse Voltage                | $V_{RRM}$       | 20       | 30       | 40       | V                           |
| Working Peak Reverse Voltage                   | $V_{RWM}$       | 20       | 30       | 40       | V                           |
| DC Reverse Voltage                             | $V_R$           | 20       | 30       | 40       | V                           |
| RMS Reverse Voltage                            | $V_{R(RMS)}$    | 14       | 21       | 28       | V                           |
| Average Rectified Forward Current              | $I_F$           | 1        |          |          | A                           |
| Non-Repetitive Peak Forward Surge Current      | $I_{FSM}$       | 25       |          |          | A                           |
| Power Dissipation                              | $P_D$           | 200      |          |          | mW                          |
| Typical Thermal Resistance Junction to Ambient | $R_{\theta JA}$ | 500      |          |          | $^{\circ}\text{C}/\text{W}$ |
| Junction and Storage Temperature Range         | $T_J, T_{STG}$  | -65+125  |          |          | $^{\circ}\text{C}$          |

## ELECTRICAL CHARACTERISTICS( $T_A=25^{\circ}\text{C}$ )

| Parameter                     | Symbol     | Test Conditions                         | B5817WSQ | B5818WSQ | B5819WSQ | Unit |
|-------------------------------|------------|-----------------------------------------|----------|----------|----------|------|
| Peak Forward Voltage          | $V_{FM}$   | $I_F=0.1\text{A}$                       | 0.32     | 0.35     | 0.4      | V    |
|                               |            | $I_F=1\text{A}$                         | 0.45     | 0.55     | 0.60     | V    |
|                               |            | $I_F=3\text{A}$<br>( $t<5\mu\text{s}$ ) | 0.75     | 0.875    | 0.90     | V    |
| Reverse breakdown voltage     | $V_{(BR)}$ | $I_R=1\text{mA}$                        | 20       | 30       | 40       | V    |
| Instantaneous Reverse Current | $I_{RM}$   | $V_R=V_{RWM}$                           | 1        |          |          | mA   |
| Junction Capacitance          | $C_j$      | $V_R=4\text{V}$ , $f=1.0\text{MHz}$     | 120      |          |          | pF   |

## CHARACTERISTIC CURVES

Fig.1 Forward Current Derating Curve

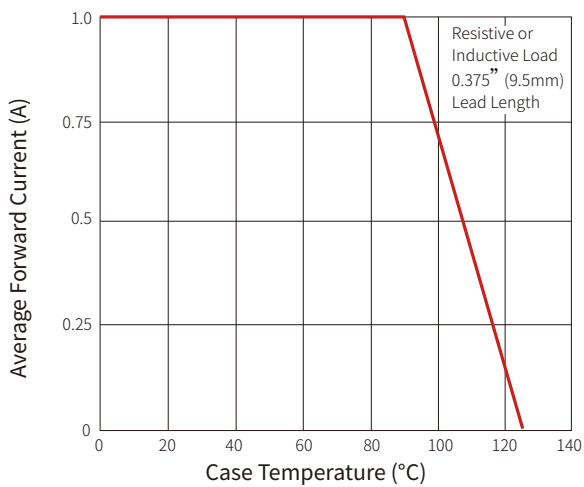
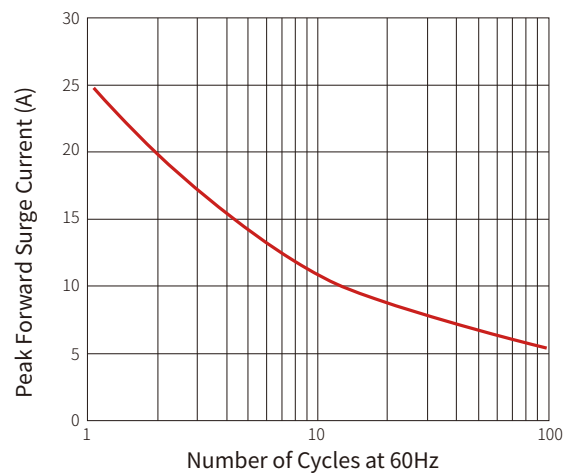
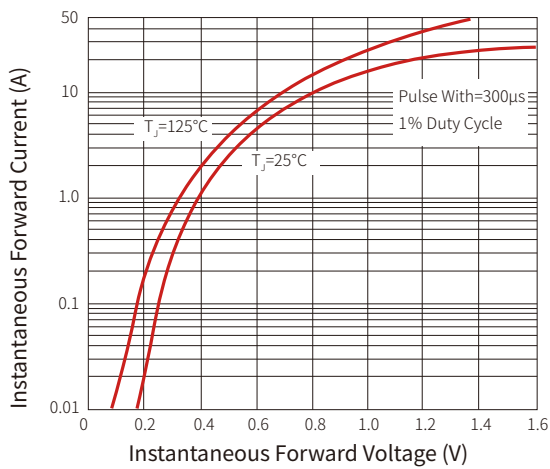
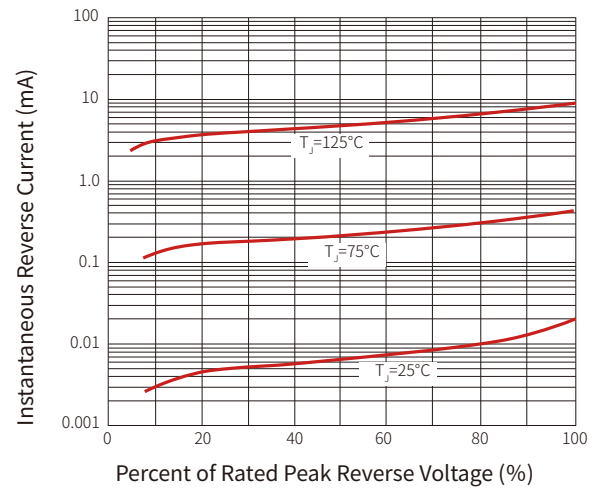
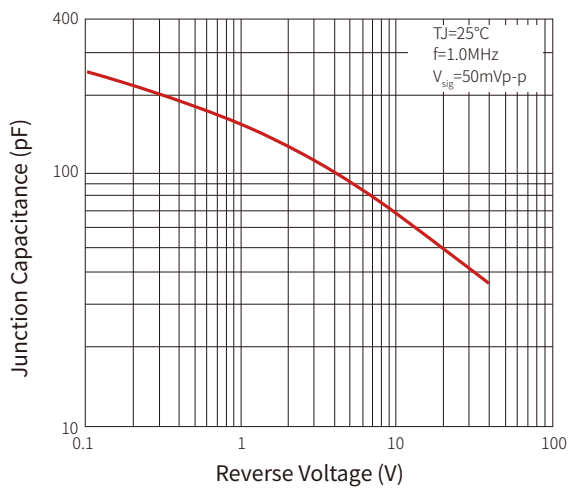
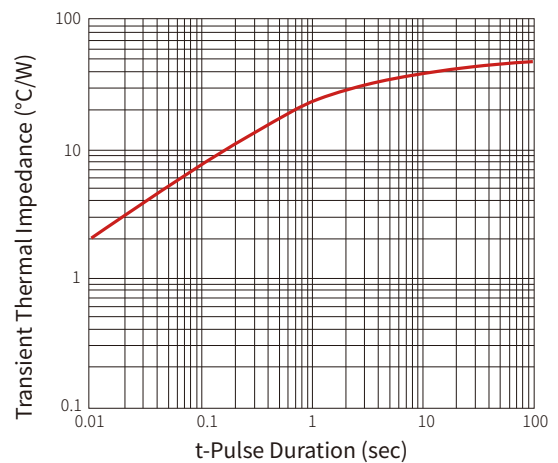


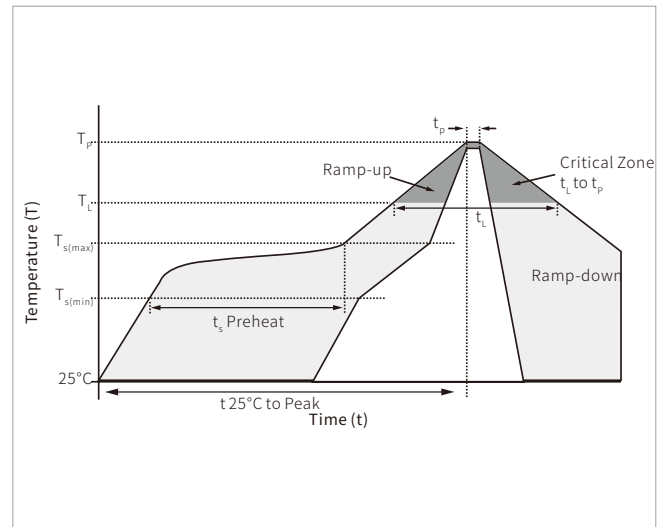
Fig.2 Maximum Non-Repetitive Peak Forward Surge Current



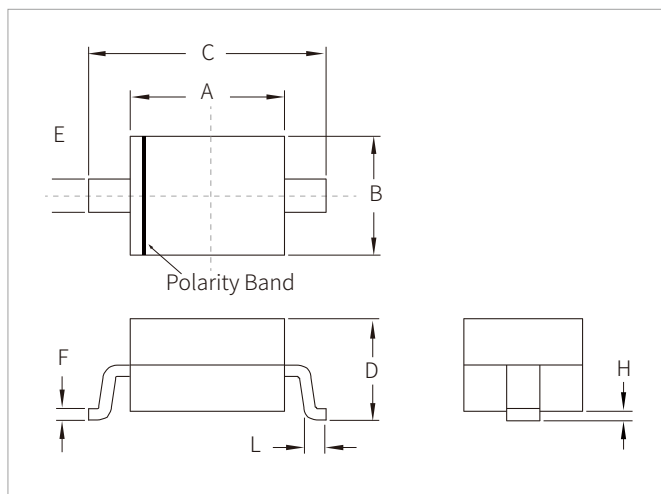
**Fig.3 Typical Instantaneous Forward Characteristics**

**Fig.4 Typical Reverse Characteristics**

**Fig.5 Typical Junction Capacitance**

**Fig.6 Typical Transient Thermal Impedance**


## 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              |

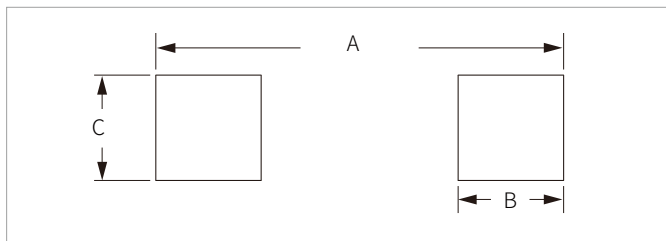


## SOD-323 PACKAGE INFORMATION



| 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 |
|-------------------|-------------------|----------|-----------|
| B5817WSQ-B5819WSQ | SOD-323           | 3000PCS  | 7"        |

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