

### Features

- ◆ The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- ◆ Metal silicon junction, majority carrier conduction
- ◆ Low power loss, high efficiency
- ◆ High forward surge current capability
- ◆ High temperature soldering guaranteed:  
260°C/10 seconds
- ◆ Compliant to RoHS Directive 2011/65/EU
- ◆ Compliant to Halogen-free



PowerDI-123

### Mechanical data

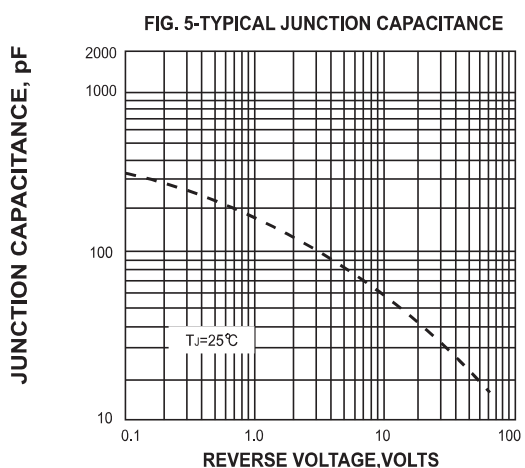
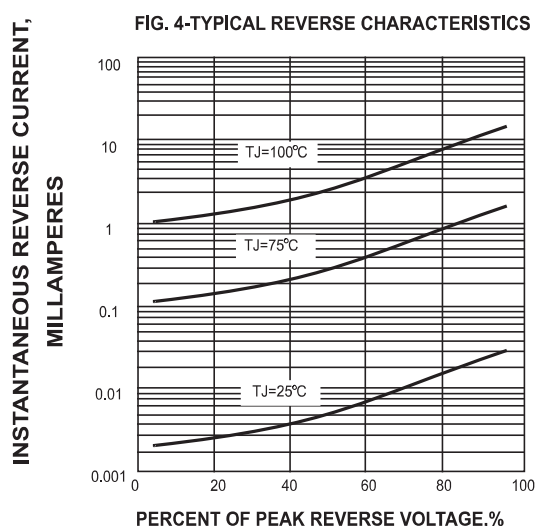
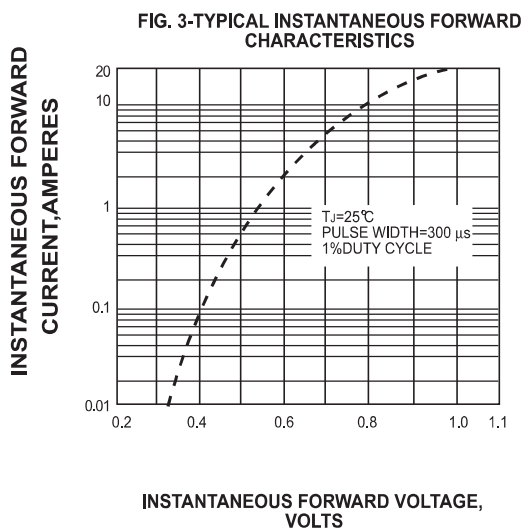
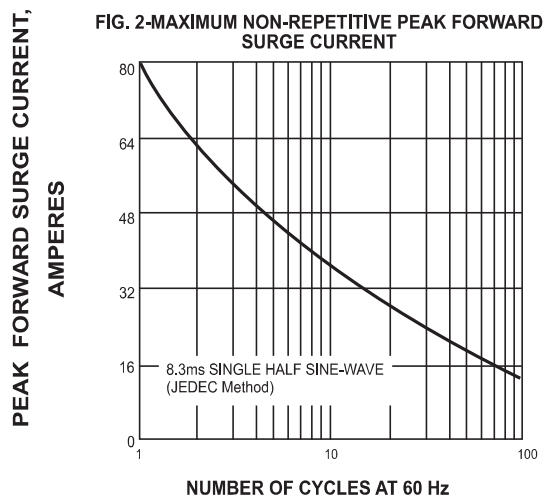
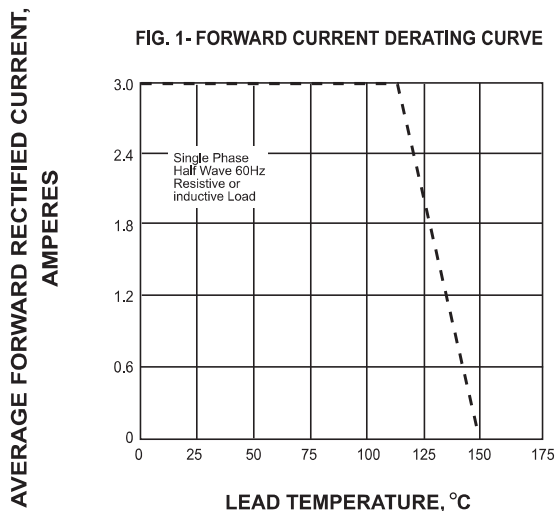
- ◆ **Case**: JEDEC PowerDI-123 molded plastic body
- ◆ **Terminals**: Plated axial leads, solderable per MIL-STD-750, Method 2026
- ◆ **Polarity**: Color band denotes cathode end
- ◆ **Mounting Position**: Any

### Maximum ratings and Electrical Characteristics

| PARAMETER                                                                                       | SYMBOLS         | SBR3U60P1Q-FS | UNITS         |
|-------------------------------------------------------------------------------------------------|-----------------|---------------|---------------|
| Maximum repetitive peak reverse voltage                                                         | $V_{RRM}$       | 60            | V             |
| Maximum RMS voltage                                                                             | $V_{RMS}$       | 42            | V             |
| Maximum DC blocking voltage                                                                     | $V_{DC}$        | 60            | V             |
| Maximum average forward rectified current at $T_J$ (see fig.1)                                  | $I_{(AV)}$      | 3.0           | A             |
| Peak forward surge current<br>8.3ms single half sine-wave superimposed on rated load            | $I_{FSM}$       | 80            | A             |
| Maximum instantaneous forward voltage at 3.0A $T_J=25^{\circ}C$                                 | $V_F$           | 0.62          | V             |
| Maximum instantaneous forward voltage at 3.0A $T_J=125^{\circ}C$                                | $V_F$           | 0.61          |               |
| Maximum DC reverse current $T_J=25^{\circ}C$<br>at rated DC blocking voltage $T_J=125^{\circ}C$ | $I_R$           | 0.1           | mA            |
|                                                                                                 |                 | 12.0          |               |
| Typical junction capacitance (NOTE 1)                                                           | $C_J$           | 100           | pF            |
| Typical thermal resistance (NOTE 2)                                                             | $R_{\theta JA}$ | 130           | $^{\circ}C/W$ |
| Operating junction temperature range                                                            | $T_J$           | -55 to +150   | $^{\circ}C$   |
| Storage temperature range                                                                       | $T_{STG}$       | -55 to +150   | $^{\circ}C$   |

**Note:** 1. Measured at 1MHz and applied reverse voltage of 4.0V D.C.  
 2. P.C.B. mounted with 2.0x2.0" (5.0x5.0cm) copper pad areas

### Rating and characteristic curves



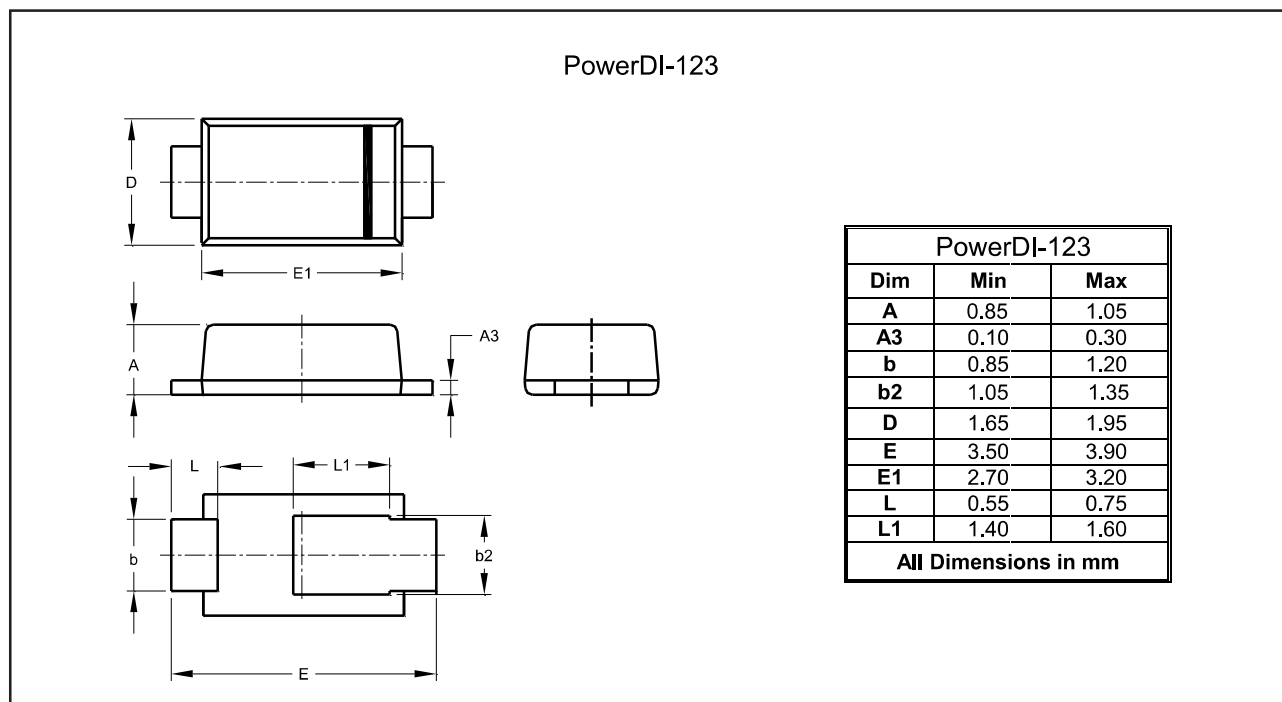
## Pinning information

| Pin                        | Simplified outline                                                                | Symbol                                                                              |
|----------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Pin1 cathode<br>Pin2 anode |  |  |

## Marking

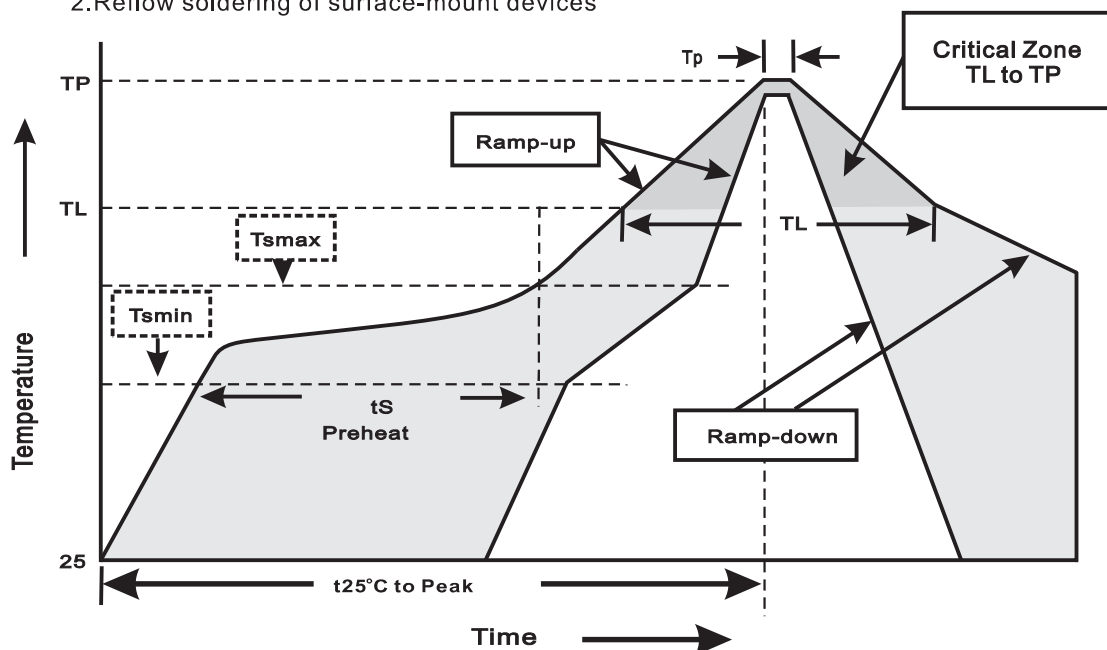
| Type number   | Marking code |
|---------------|--------------|
| SBR3U60P1Q-FS | 3U6          |

## Package outline



### Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



### 3.Reflow soldering

| Profile Feature                                                                        | Soldering Condition         |
|----------------------------------------------------------------------------------------|-----------------------------|
| Average ramp-up rate(TL to TP)                                                         | <3°C/sec                    |
| Preheat<br>-Temperature Min(Tsmin)<br>-Temperature Max(Tsmax)<br>-Time(min to max)(ts) | 150°C<br>200°C<br>60~120sec |
| Tsmax to TL<br>-Ramp-upRate                                                            | <3°C/sec                    |
| Time maintained above:<br>-Temperature(TL)<br>-Time(tL)                                | 217°C<br>60~260sec          |
| Peak Temperature(TP)                                                                   | 255°C-0/+5°C                |
| Time within 5°C of actual Peak Temperature(tp)                                         | 10~30sec                    |
| Ramp-down Rate                                                                         | <6°C/sec                    |
| Time 25°C to Peak Temperature                                                          | <6minutes                   |