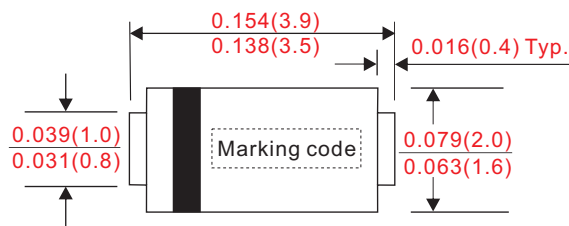


### ■ Features

- Low profile surface mounted application in order to optimize board space.
- Low power loss, high efficiency.
- High current capability, low forward voltage drop.
- Ultra high-speed switching.
- Silicon epitaxial planar chip, metal silicon junction.
- Suffix "G" indicates Halogen-free part, ex. B120WG-S.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228

### ■ Outline

SOD-123S



Dimensions in inches and (millimeters)

### ■ Mechanical data

- Epoxy: UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-123S
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Weight : Approximated 0.018 gram

### ■ Maximum ratings and electrical characteristics

Rating at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

| Parameter                  | Conditions                                                           | Symbol          | MIN. | TYP. | MAX. | UNIT |
|----------------------------|----------------------------------------------------------------------|-----------------|------|------|------|------|
| Forward rectified current  | See Fig.1                                                            | $I_O$           |      |      | 1.0  | A    |
| Forward surge current      | 8.3ms single half sine-wave superimposed on rate load (JEDEC method) | $I_{FSM}$       |      |      | 30   | A    |
| Reverse current            | $V_R = V_{RRM} \quad T_A = 25^\circ\text{C}$                         | $I_R$           |      |      | 0.1  | mA   |
|                            | $V_R = V_{RRM} \quad T_A = 100^\circ\text{C}$                        |                 |      |      | 20   |      |
| Diode junction capacitance | f=1MHz and applied 4V DC reverse voltage                             | $C_J$           |      | 120  |      | pF   |
| Thermal resistance         | Junction to ambient                                                  | $R_{\theta JA}$ |      | 88   |      | °C/W |
| Storage temperature        |                                                                      | $T_{STG}$       | -55  |      | +175 | °C   |

| Symbol   | Marking code | Max. repetitive peak reverse voltage $V_{RRM}$ (V) | Max. RMS voltage $V_{RMS}$ (V) | Max. DC blocking voltage $V_R$ (V) | Max. forward voltage @1A, $T_A = 25^\circ\text{C}$ $V_F$ (V) | Operating temperature $T_J$ (°C) |
|----------|--------------|----------------------------------------------------|--------------------------------|------------------------------------|--------------------------------------------------------------|----------------------------------|
| B120W-S  | 12           | 20                                                 | 14                             | 20                                 | 0.45                                                         | -55 ~ +150                       |
| B140W-S  | 14           | 40                                                 | 28                             | 40                                 | 0.50                                                         |                                  |
| B160W-S  | 16           | 60                                                 | 42                             | 60                                 | 0.70                                                         |                                  |
| B1100W-S | 10           | 100                                                | 70                             | 100                                | 0.81                                                         |                                  |
| B1150W-S | 115          | 150                                                | 105                            | 150                                | 0.87                                                         | -55 ~ +175                       |
| B1200W-S | 120          | 200                                                | 140                            | 200                                | 0.90                                                         |                                  |

### ■ Rating and characteristic curves

FIG.1-TYPICAL FORWARD CURRENT DERATING CURVE

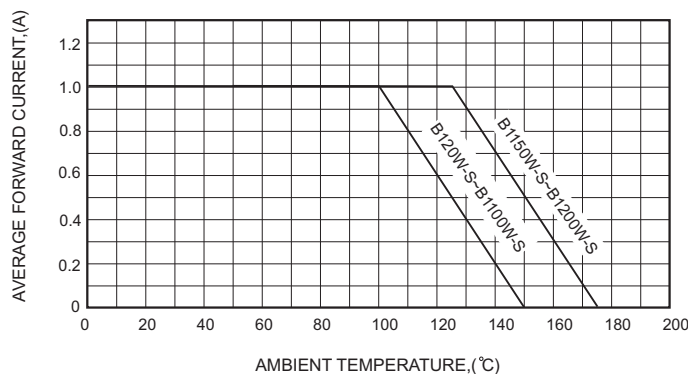


FIG.3-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

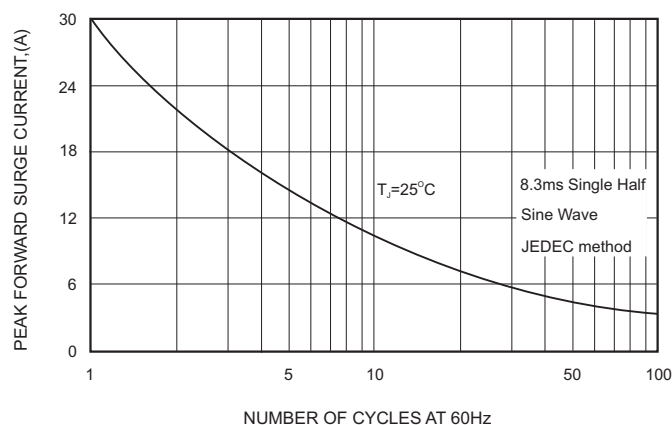


FIG.4-TYPICAL JUNCTION CAPACITANCE

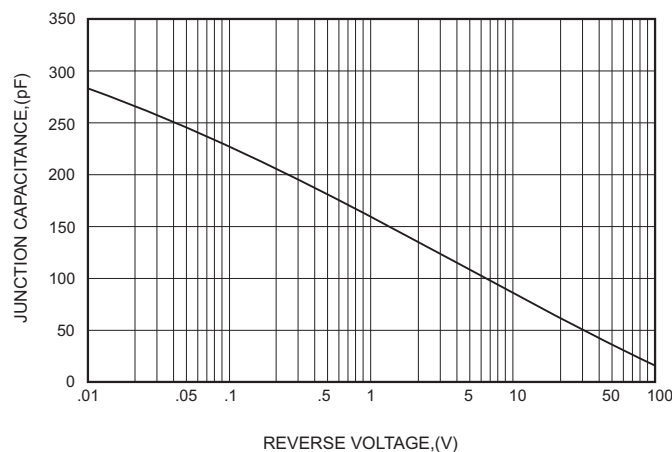


FIG.2-TYPICAL FORWARD CHARACTERISTICS

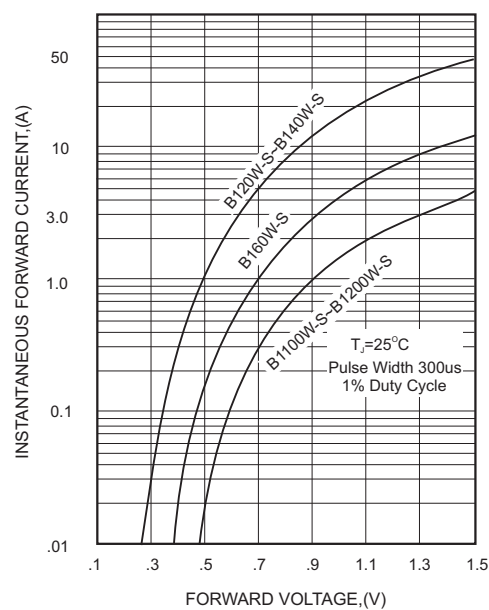
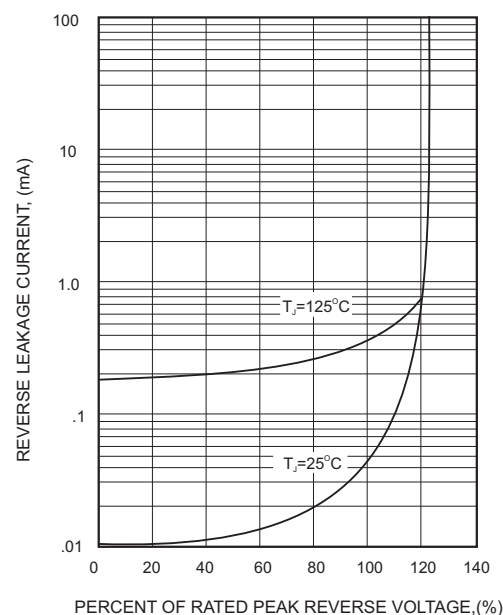
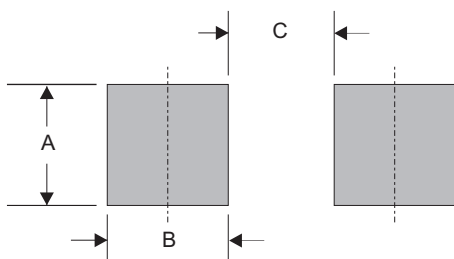


FIG.5 - TYPICAL REVERSE CHARACTERISTICS



### ■ SOD-123S foot print



| A            | B            | C            |
|--------------|--------------|--------------|
| 0.044 (1.10) | 0.039 (1.00) | 0.079 (2.00) |

Dimensions in inches and (millimeters)

- CITC reserves the right to make changes to this document and its products and specifications at any time without notice.
- Customers should obtain and confirm the latest product information and specifications before final design, purchase or use.
- CITC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does CITC assume any liability for application assistance or customer product design.
- CITC does not warrant or accept any liability with products which are purchased or used for any unintended or unauthorized application.
- No license is granted by implication or otherwise under any intellectual property rights of CITC.
- CITC products are not authorized for use as critical components in life support devices or systems without express written approval of CITC.