

### ■ Features

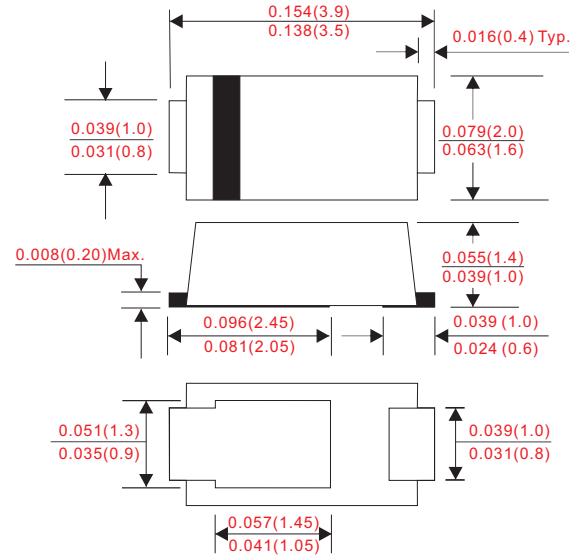
- Low profile surface mounted application in order to optimize board space.
- Low power loss, high efficiency.
- High current capability, low forward voltage drop.
- Ultra high-speed switching.
- Silicon epitaxial planar chip, metal silicon junction.
- Suffix "G" indicates Halogen-free part, ex. B0520WG-ST.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228

### ■ Mechanical data

- Epoxy: UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-123ST
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Weight : Approximated 0.0155 gram

### ■ Outline

SOD-123ST



### ■ 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  | $I_o$     |      |      | 0.5  | 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  | $R_{BJA}$ |      | 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 @0.5A, $T_A = 25^\circ\text{C}$ $V_F$ (V) | Operating temperature $T_J$ (°C) |
|------------|--------------|--|--------------------------------|------------------------------------|--|----------------------------------|
| B0520W-ST  | 02           | 20   | 14                             | 20                                 | 0.40   | -55 ~ +150                       |
| B0540W-ST  | 04           | 40   | 28                             | 40                                 | 0.45   |                                  |
| B0560W-ST  | 06           | 60   | 42                             | 60                                 | 0.55   |                                  |
| B05100W-ST | 01           | 100  | 70                             | 100                                | 0.71   |                                  |

### Rating and characteristic curves

FIG.1-TYPICAL FORWARD CURRENT DERATING CURVE

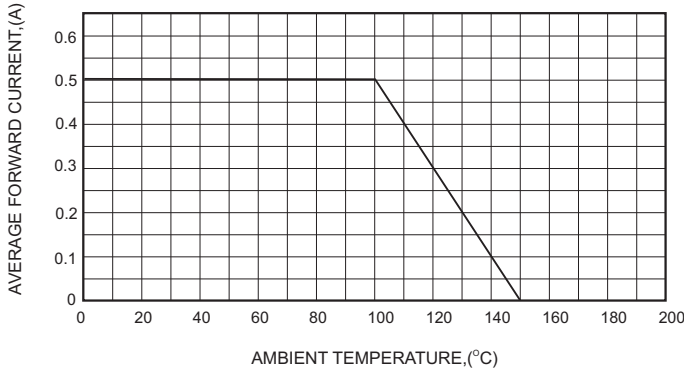


FIG.2-TYPICAL FORWARD CHARACTERISTICS

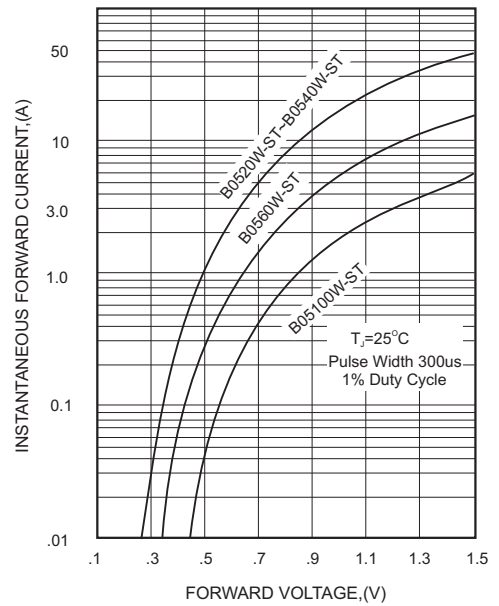


FIG.3-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

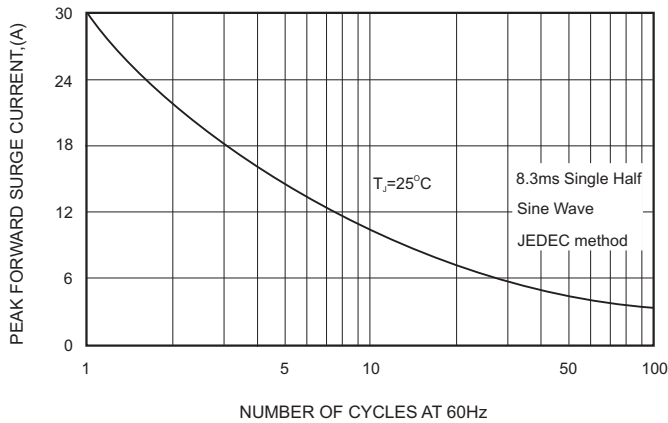


FIG.5 - TYPICAL REVERSE CHARACTERISTICS

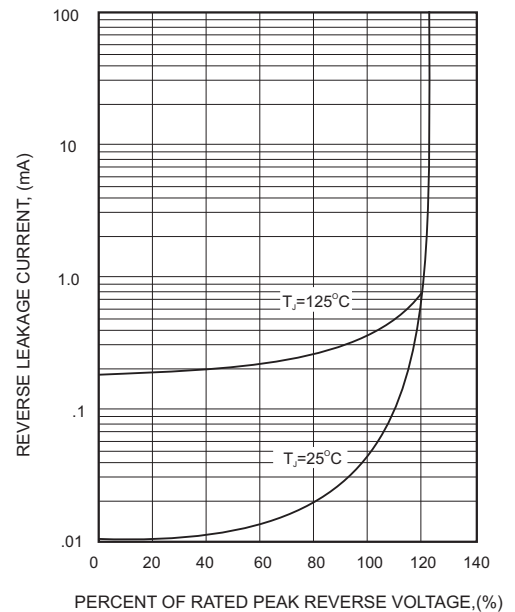
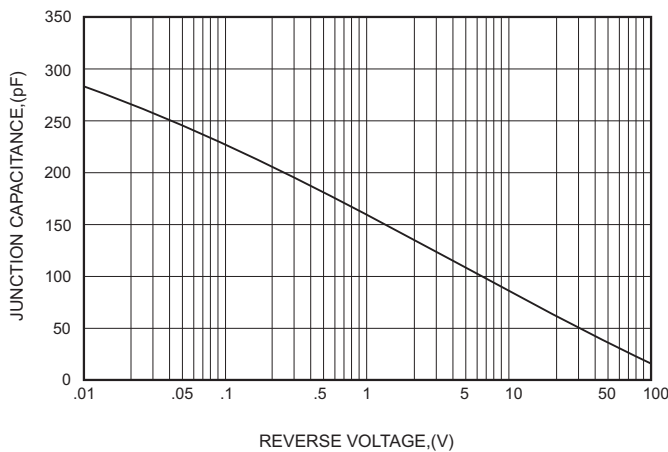
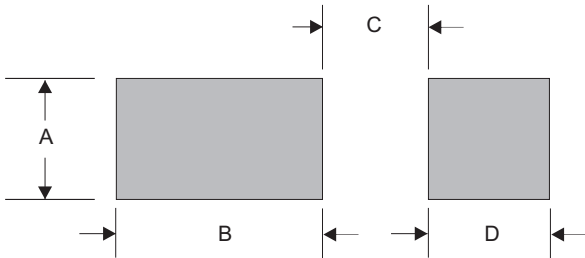


FIG.4-TYPICAL JUNCTION CAPACITANCE



■ SOD-123ST foot print



| A            | B            | C            | D            |
|--------------|--------------|--------------|--------------|
| 0.036 (0.90) | 0.084 (2.10) | 0.032 (0.80) | 0.032 (0.80) |

Dimensions in inches and (millimeters)

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