

**Small Signal Diode**

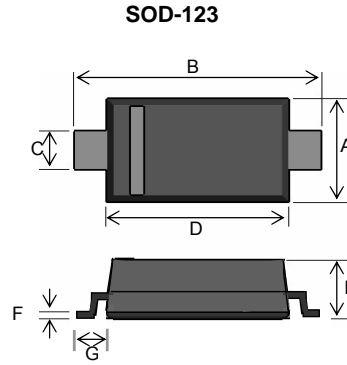


**Features**

- ✧ Low power loss, high current capability, low  $V_F$
- ✧ Surface device type mounting
- ✧ Moisture sensitivity level 1
- ✧ Matte Tin(Sn) lead finish with Nickel(Ni) underplate
- ✧ Pb free version and RoHS compliant
- ✧ Green compound (Halogen free) with suffix "G" on packing code and prefix "G" on date code

**Mechanical Data**

- ✧ Case : SOD-123 small outline plastic package
- ✧ Terminal: Matte tin plated, lead free., solderable per MIL-STD-202, Method 208 guaranteed
- ✧ High temperature soldering guaranteed: 260°C/10s
- ✧ Polarity : Indicated by cathode band
- ✧ Weight : 0.01 gram (approximately)



| Dimensions | Unit (mm) |      | Unit (inch) |       |
|------------|-----------|------|-------------|-------|
|            | Min       | Max  | Min         | Max   |
| A          | 1.50      | 1.70 | 0.059       | 0.067 |
| B          | 3.55      | 3.85 | 0.140       | 0.152 |
| C          | 0.45      | 0.65 | 0.018       | 0.026 |
| D          | 2.60      | 2.80 | 0.102       | 0.11  |
| E          | 1.05      | 1.25 | 0.041       | 0.049 |
| F          | 0.08      | 0.15 | 0.003       | 0.006 |
| G          | 0.02 REF  |      | 0.50 REF    |       |

**Ordering Information**

| Part No.  | Package | Packing          |
|-----------|---------|------------------|
| B05xxW RH | SOD-123 | 3 Kpcs / 7" Reel |

**Maximum Ratings and Electrical Characteristics**

Rating at 25°C ambient temperature unless otherwise specified.

**Maximum Ratings**

| Type Number  | Symbol          | B0520LW      | B0530W | B0540W | Units |
|--|-----------------|--------------|--------|--------|-------|
| Power Dissipation                                  | $P_D$           | 410          |        |        | mW    |
| Repetitive Peak Reverse Voltage                    | $V_{RRM}$       | 20           | 30     | 40     | V     |
| Reverse Voltage                                    | $V_R$           | 14           | 21     | 28     | V     |
| Repetitive Peak Forward Current                    | $I_{FRM}$       | 500          |        |        | mA    |
| Mean Forward Current                               | $I_o$           | 500          |        |        | mA    |
| Non-Repetitive Peak Forward Surge Current (Note 1) | $I_{FSM}$       | 5.5          |        |        | A     |
| Thermal Resistance (Junction to Ambient) (Note 2)  | $R_{\theta JA}$ | 244          |        |        | °C/W  |
| Junction and Storage Temperature Range             | $T_J, T_{STG}$  | -65 to + 125 |        |        | °C    |

**Electrical Characteristics**

| Type Number               | Symbol     | B0520LW                           | B0530W | B0540W | Units |         |
|---------------------------|------------|-----------------------------------|--------|--------|-------|---------|
| Reverse Breakdown Voltage | $V_{(BR)}$ | $I_R = 250\mu A$                  | 20     | -      | V     |         |
|                           |            | $I_R = 130\mu A$                  | -      | 30     |       |         |
|                           |            | $I_R = 20\mu A$                   | -      | -      |       | 40      |
| Forward Voltage           | $V_F$      | $I_F = 100mA, T_J = 25^\circ C$   | 0.300  | 0.375  | -     | V       |
|                           |            | $I_F = 500mA, T_J = 25^\circ C$   | 0.385  | 0.430  | 0.510 |         |
|                           |            | $I_F = 1000mA, T_J = 25^\circ C$  | -      | -      | 0.620 |         |
|                           |            | $I_F = 100mA, T_J = 100^\circ C$  | 0.220  | -      | -     |         |
|                           |            | $I_F = 500mA, T_J = 100^\circ C$  | 0.330  | -      | 0.460 |         |
|                           |            | $I_F = 1000mA, T_J = 100^\circ C$ | -      | -      | 0.610 |         |
| Reverse Leakage Current   | $I_R$      | $V_R = 10V, T_J = 25^\circ C$     | 75     | -      | -     | $\mu A$ |
|                           |            | $V_R = 15V, T_J = 25^\circ C$     | -      | 20     | -     |         |
|                           |            | $V_R = 20V, T_J = 25^\circ C$     | 250    | -      | 10    |         |
|                           |            | $V_R = 30V, T_J = 25^\circ C$     | -      | 130    | -     |         |
|                           |            | $V_R = 40V, T_J = 25^\circ C$     | -      | -      | 20    |         |
|                           |            | $V_R = 10V, T_J = 100^\circ C$    | 5.0    | -      | -     | mA      |
|                           |            | $V_R = 20V, T_J = 100^\circ C$    | 8.0    | -      | 5.0   |         |
|                           |            | $V_R = 40V, T_J = 100^\circ C$    | -      | -      | 13    |         |
| Junction Capacitance      | $C_J$      | $V_R = 0V, f = 1.0MHz$            |        |        | 170   | pF      |

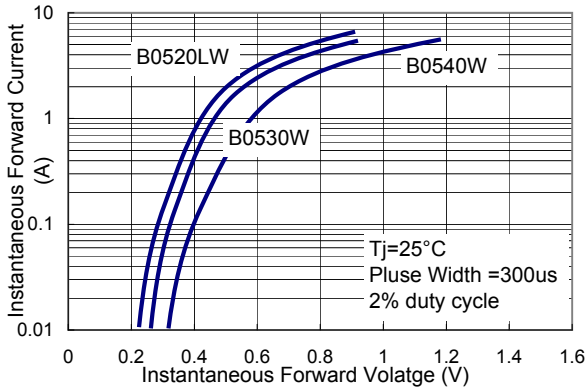
Notes:1. Test Condition : 8.3ms Single half Sine-Wave Superimposed on Rated Load (JEDEC Method)

Notes:2. Valid provided that electrodes are kept at ambient temperature

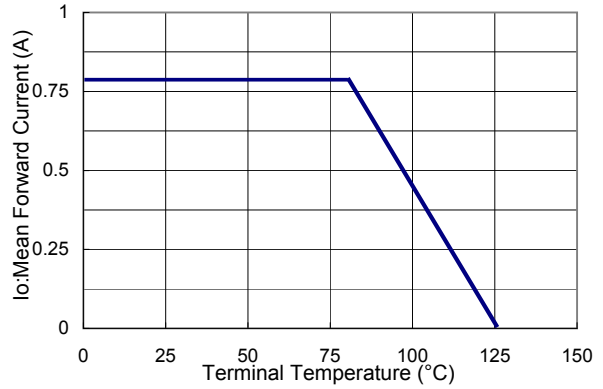
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**Rating and Sharacteristic Curves**

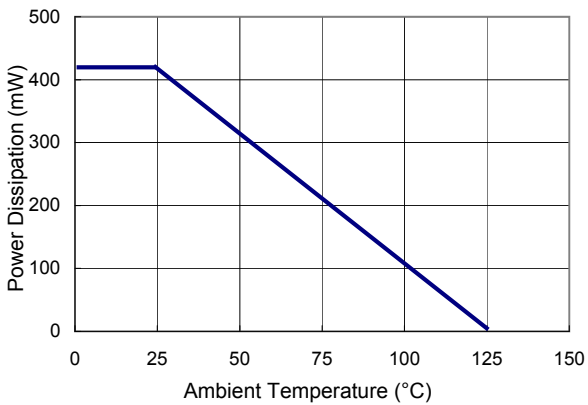
**FIG 1 Typical Forward Characteristics**



**FIG 2 Forward Current Derating Curve**



**FIG 3 Admissible Power Dissipation Curve**



**FIG 4 Typical Junction Capacitance**

