

## 0.5A Surface Mount Schottky Barrier Rectifiers - 20V- 40V

### Features

- Batch process design, excellent power dissipation offers better reverse leakage current and thermal resistance.
- Low profile surface mounted application in order to optimize board space.
- Tiny plastic SMD package.
- Low power loss, high efficiency.
- High current capability, low forward voltage drop.
- High surge capability.
- Guardring for overvoltage protection.
- Ultra high-speed switching.
- Silicon epitaxial planar chip, metal silicon junction.
- Lead-free parts meet environmental standards of MIL-STD-19500/228
- Suffix "-H" indicates Halogen free parts, ex. MBR0520G-H.

### Mechanical data

- Epoxy: UL94-V0 rated flame retardant
- Case: Molded plastic, SOD-123
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Indicated by cathode band
- Mounting Position: Any
- Weight: Approximated 0.011 gram

### Maximum ratings (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

| PARAMETER                  | CONDITIONS  | Symbol    | MIN. | TYP. | MAX. | UNIT                      |
|----------------------------|---|-----------|------|------|------|---------------------------|
| Forward rectified current  | See Fig.2   | $I_o$     |      |      | 0.5  | A                         |
| Forward surge current      | 8.3ms single half sine-wave superimposed on rate load (JEDEC methode) | $I_{FSM}$ |      |      | 15   | A                         |
| Reverse current            | $V_R = V_{RRM}$ $T_J = 25^\circ\text{C}$                              | $I_R$     |      |      | 1.0  | mA                        |
| Thermal resistance         | Junction to ambient   | $R_{BJA}$ |      | 42   |      | $^\circ\text{C}/\text{W}$ |
| Diode junction capacitance | f=1MHz and applied 4V DC reverse voltage                              | $C_J$     |      | 130  |      | pF                        |
| Storage temperature        |   | $T_{STG}$ | -65  |      | +175 | $^\circ\text{C}$          |

| SYMBOLS  | $V_{RRM}^{*1}$<br>(V) | $V_{RMS}^{*2}$<br>(V) | $V_R^{*3}$<br>(V) | $V_F^{*4}$<br>(V) | Operating temperature<br>$T_J$ , ( $^\circ\text{C}$ ) |
|----------|-----------------------|-----------------------|-------------------|-------------------|---|
| MBR0520G | 20                    | 14                    | 20                | 0.38              | -55 to +100   |
| MBR0530G | 30                    | 21                    | 30                | 0.40              |   |
| MBR0540G | 40                    | 28                    | 40                | 0.40              |   |

\*1 Repetitive peak reverse voltage

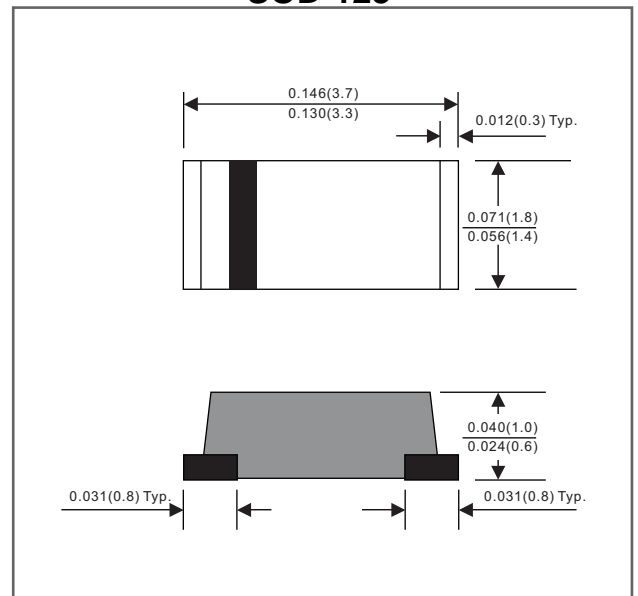
\*2 RMS voltage

\*3 Continuous reverse voltage

\*4 Maximum forward voltage@ $I_F=0.5\text{A}$

### Package outline

#### SOD-123



Dimensions in inches and (millimeters)

## Rating and characteristic curves

FIG.1-TYPICAL FORWARD CHARACTERISTICS

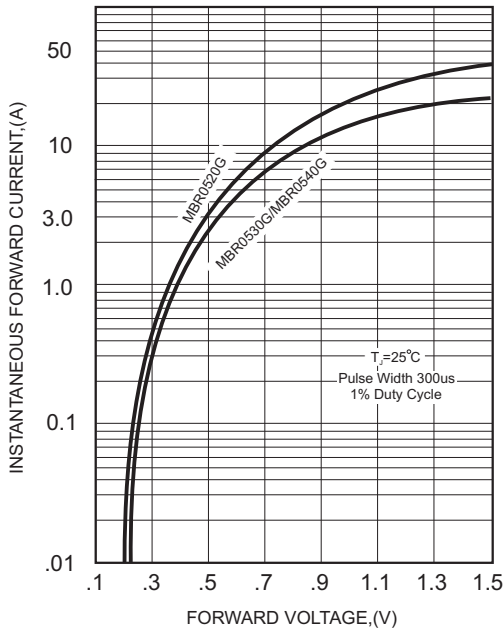


FIG.2-TYPICAL FORWARD CURRENT DERATING CURVE

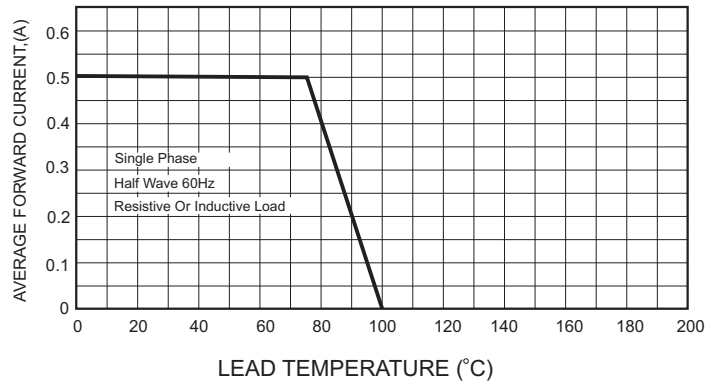


FIG.4-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

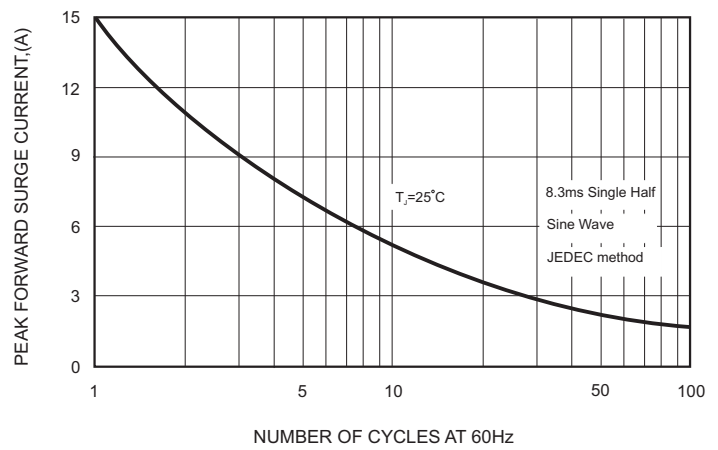


FIG.3 - TYPICAL REVERSE CHARACTERISTICS

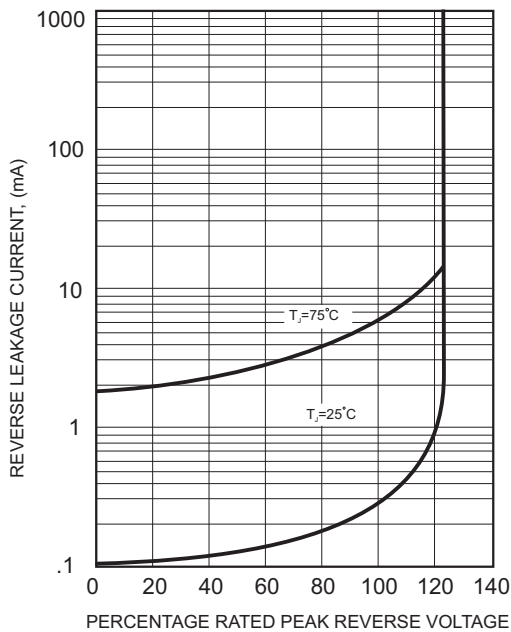


FIG.5-TYPICAL JUNCTION CAPACITANCE

