## DESCRIPTION

The MBR120~ MBR1200 are available in SOD-123FL Package.

## ORDERING INFORMATION

| Package Type | Part Number |
|---|---|
| SOD-123FL | MBR120 |
| | MBR130 |
| | MBR140 |
| | MBR150 |
| | MBR160 |
| | MBR180 |
| | MBR1100 |
| | MBR1150 |
| | MBR1120 |
| Note | 3,000pcs/ Reel |
| AiT provides all RoHS Compliant Products | |

## PIN DESCRIPTION


## FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Low power loss, high efficiency
- For use in low voltage high frequency inverters, free wheeling and polarity protection applications
- Guard Ring for over voltage protection
- High temperature soldering guaranteed: 260°C/10 seconds at terminals
- RoHS Compliant
- Available in SOD-123FL Package

## MECHANICAL DATA

Case: SOD123-FL/MINI SMA
molded plastic over sky die
Terminals: Tin Plated, solderable per
MIL-STD-750, Method 2026
Polarity: Color band denotes cathode end
Mounting Position: Any
Weight: 0.0155 g
Handling precaution: None

## ABSOLUTE MAXIMUM RATINGS

at 25°C ambient temperature unless otherwise specified.

| Parameter | Symbol | MBR 120 | MBR 130 | MBR 140 | MBR 150 | MBR 160 | MBR 180 | MBR 1100 | MBR 1150 | MBR 1200 | Unit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Maximum & Thermal Characteristics Ratings** | | | | | | | | | | | |
| Maximum Repetitive Peak Reverse Voltage | $V_{RRM}$ | 20 | 30 | 40 | 50 | 60 | 80 | 100 | 150 | 200 | V |
| Maximum RMS Voltage | $V_{RMS}$ | 14 | 21 | 28 | 35 | 42 | 56 | 70 | 105 | 140 | V |
| Maximum DC Blocking Voltage | $V_{DC}$ | 20 | 30 | 40 | 50 | 60 | 80 | 100 | 150 | 200 | V |
| Maximum Average Forward Rectified Current at $T_A$ = 75°C | $I_{F(AV)}$ | 1.0 | | | | | | | | | A |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) | $I_{FSM}$ | 30 | | | | | | | | | A |
| Typical Thermal Resistance[NOTE1] | $R\theta J_A$<br>$R\theta J_C$ | 110<br>40 | | | | | | | | | °C/W |
| Operating Junction Temperature Range | $T_J$ | –55 ~ +150 | | | | | | | | | °C |
| Storage Temperature Range | $T_{STG}$ | –65 ~ +175 | | | | | | | | | °C |
| **Electrical Characteristics Ratings** | | | | | | | | | | | |
| Maximum instantaneous forward voltage at($I_F$ = 0.1A, $T_J$ = 25°C)<br>($I_F$ = 0.7A, $T_J$ = 25°C)<br>($I_F$ = 1.0A, $T_J$ = 25°C) | $V_F$ | -<br>-<br>0.5 | 0.35<br>0.45<br>0.50 | -<br>-<br>0.55 | -<br>-<br>0.7 | 0.85 | | 0.9 | 0.92 | | V |
| Maximum DC reverse current at rated DC blocking voltage<br>$T_A$ = 25°C<br>$T_J$ = 125°C | $I_R$ | 0.5<br>10 | | | | | | | | | mA |
| Typical Junction Capacitance at 4.0V, 1MHz | $C_J$ | 160 | | | | | | | | | PF |

NOTE1: 8.0mm² (.013mm thick) land area

## TYPICAL CHARACTERISTICS

$T_A$ = 25°C unless otherwise noted

Figure 1. Forward Current Derating Curve

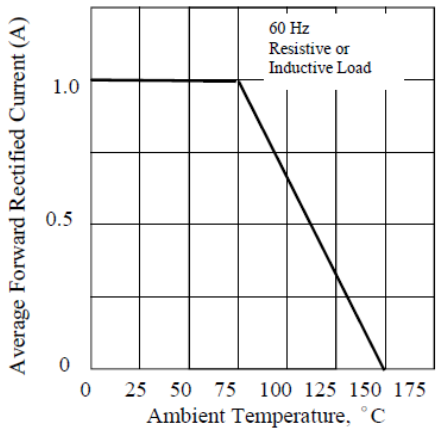



Figure 2. Maximum Non-repetitive Peak Forward Surge Current

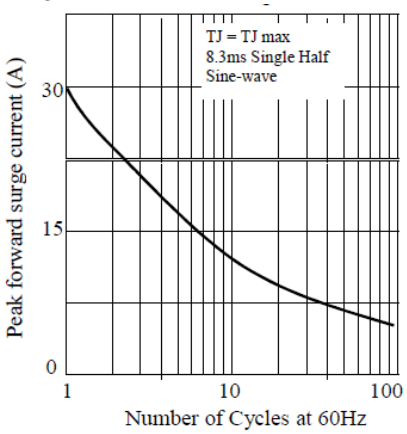



Figure 3. Typical Instantaneous Forward Characteristics

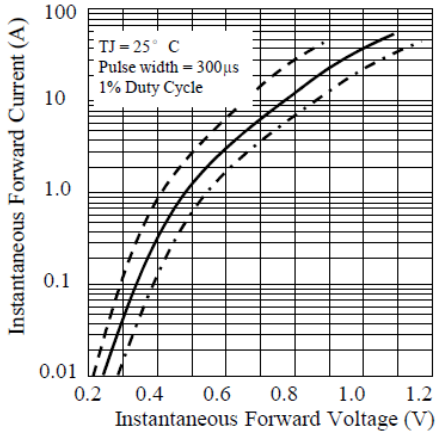



Figure 4. Typical Reverse Characteristics

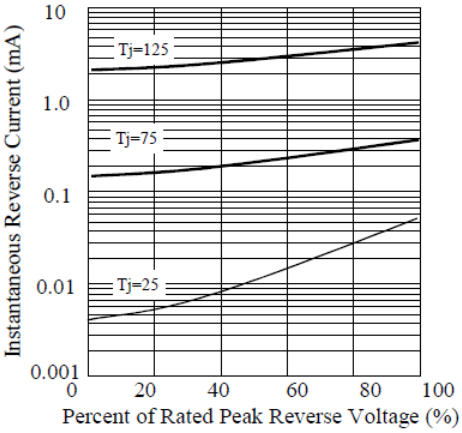



Figure 5. Typical Transient Thermal Impedance

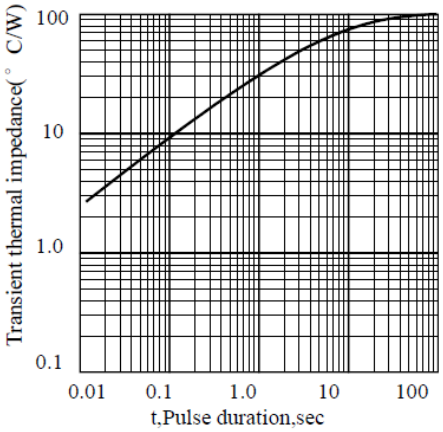
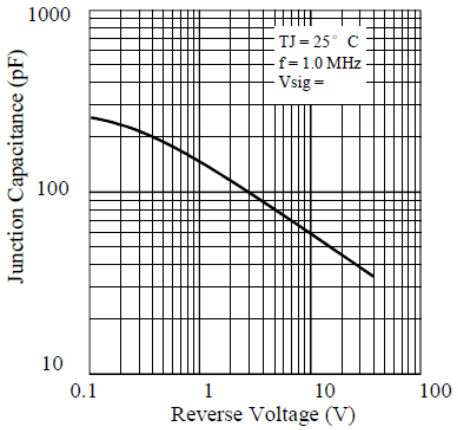
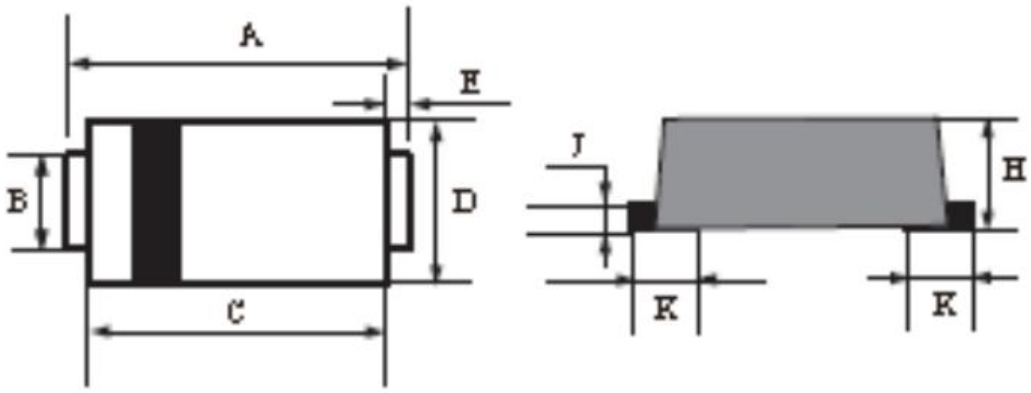



Figure 6. Typical Junction Capacitance



## PACKAGE INFORMATION

Dimension in SOD-123FL Package (Unit: mm)




| DIM | MILLIMETERS | | INCHES | |
|---|---|---|---|---|
| | MIN | MAX | MIN | MAX |
| A | 3.50 | 3.90 | 0.138 | 0.159 |
| B | 0.75 | 0.95 | 0.029 | 0.037 |
| C | 2.60 | 3.00 | 0.103 | 0.119 |
| D | 1.60 | 2.00 | 0.063 | 0.079 |
| E | 0.45Typ. | | 0.018Typ. | |
| H | 0.90 | 1.20 | 0.036 | 0.047 |
| J | 0.12 | 0.22 | 0.005 | 0.009 |
| K | 0.8Typ. | | 0.032Typ. | |

Suggested solder pad layout

Dimensions in inches and (millimeters)

| PACKAGE | A | B | C |
|---|---|---|---|
| SOD-123FL | 0.044(1.10) | 0.040(1.00) | 0.079(2.00) |

## IMPORTANT NOTICE

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