

## DESCRIPTION and APPLICATIONS

Suitable for AC to DC bridge full wave rectification for SMPS, LED lighting, adapter, battery charger, home appliances, office equipment, and telecommunication applications.

## VOLTAGE RANGE

20 to 200 Volts

## CURRENT

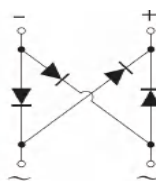
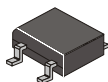
1.0 Ampere

## FEATURES

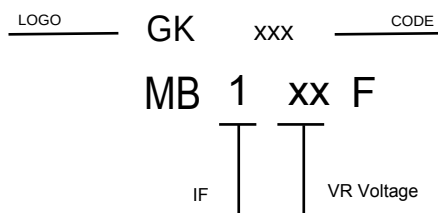
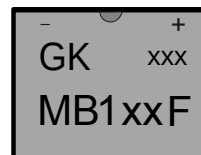
- \* Ideal for printed circuit board
- \* Reliable low cost construction utilizing molded plastic technique
- \* High surge current capability

## MECHANICAL DATA

- \* Polarity: Symbol molded on body
- \* Mounting position: Any



Internal Schematic



## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

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

| TYPE NUMBER                                                                                        | MB12F      | MB14F | MB16F | MB18F | MB110F | MB115F | MB120F | UNIT |
|----------------------------------------------------------------------------------------------------|------------|-------|-------|-------|--------|--------|--------|------|
| Maximum Recurrent Peak Reverse Voltage                                                             | 20         | 40    | 60    | 80    | 100    | 150    | 200    | V    |
| Maximum RMS Voltage                                                                                | 14         | 28    | 42    | 56    | 70     | 105    | 140    | V    |
| Maximum DC Blocking Voltage                                                                        | 20         | 40    | 60    | 80    | 100    | 150    | 200    | V    |
| Maximum Average Forward Rectified Current                                                          | 1.0        |       |       |       |        |        |        | A    |
| Peak Forward Surge Current, 8.3 ms single half sine-wave superimposed on rated load (JEDEC method) | 3.0        |       |       |       |        |        |        | A    |
| Maximum Forward Voltage Drop per Bridge Element at 1.0A D.C.                                       | 0.55       | 0.7   | 0.85  | 0.9   |        |        |        | V    |
| Maximum DC Reverse Current Ta=25°C                                                                 | 0.3        | 0.2   | 0.1   |       |        |        |        | mA   |
| at Rated DC Blocking Voltage Ta=125°C                                                              | 10         | 5     | 2     |       |        |        |        | mA   |
| Typical Thermal Resistance R JA (Note 1)                                                           | 100        |       |       |       |        |        |        | °C/W |
| Operating Temperature Range, Tj                                                                    | -55 — +150 |       |       |       |        |        |        | °C   |
| Storage Temperature Range, Tstg                                                                    | -55 — +150 |       |       |       |        |        |        | °C   |

NOTE 1: Thermal Resistance Junction to Ambient.

## RATING AND CHARACTERISTIC CURVES

FIG.1-TYPICAL FORWARD CURRENT DERATING CURVE

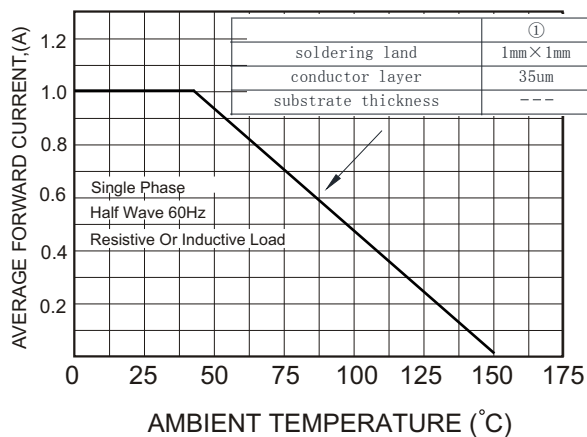


FIG.2-TYPICAL FORWARD CHARACTERISTICS

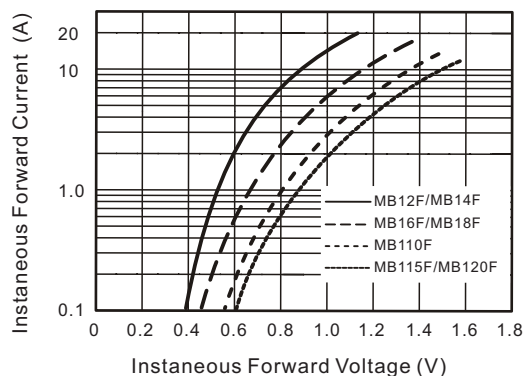


FIG.3 - TYPICAL REVERSE CHARACTERISTICS

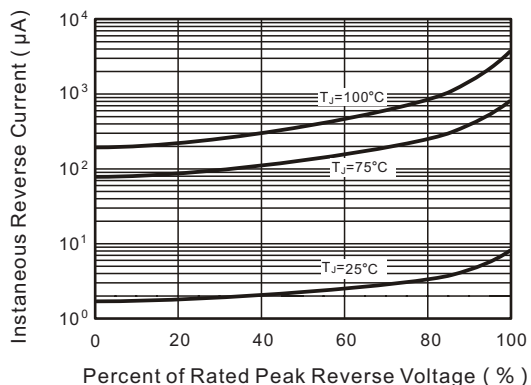


FIG.4-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

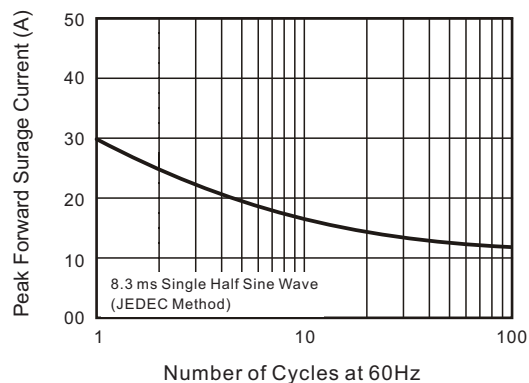


FIG.5-TYPICAL JUNCTION CAPACITANCE

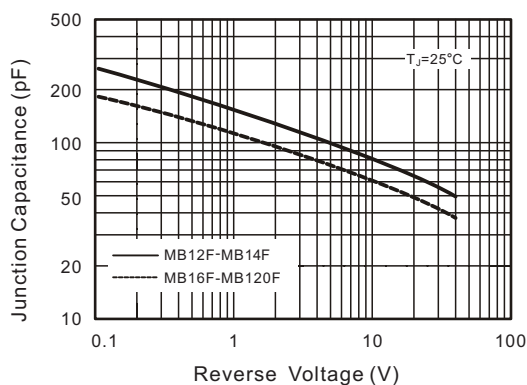
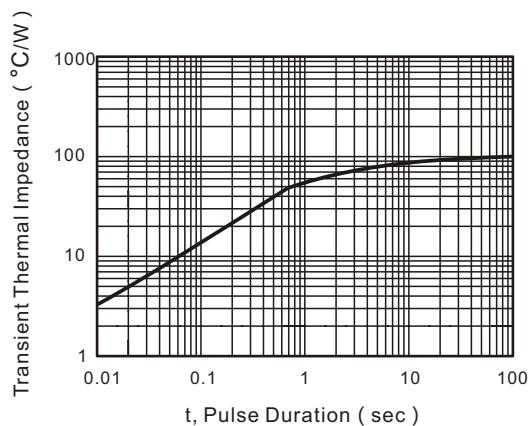
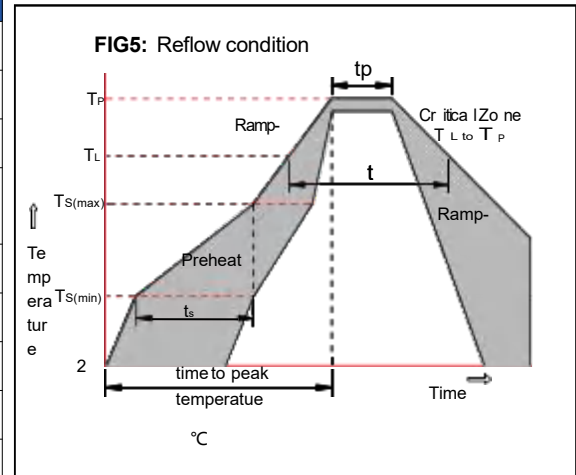


FIG.6 TYPICAL TRANSIENT THERMAL IMPEDANCE



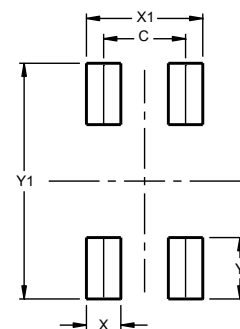
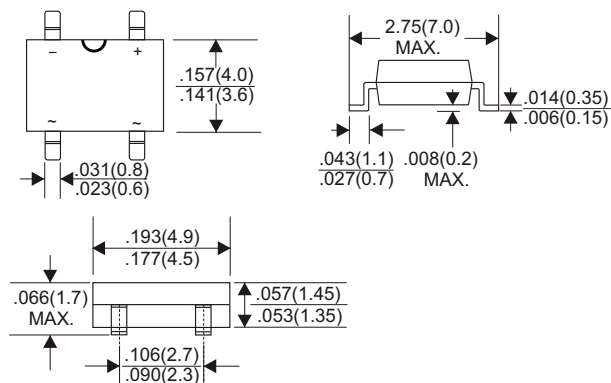
## Soldering parameters

| Reflow Condition                                        |                                   | Pb-Free assembly<br>(see as below) |
|---------------------------------------------------------|-----------------------------------|------------------------------------|
| Pre Heat                                                | -Temperature Min ( $T_{s(min)}$ ) | +150 °C                            |
|                                                         | -Temperature Max( $T_{s(max)}$ )  | +200 °C                            |
|                                                         | -Time (Min to Max) (ts)           | 60-180 secs.                       |
| Average ramp up rate (Liquid us Temp ( $T_L$ ) to peak) |                                   | 3 °C/sec. Max                      |
| $T_{s(max)}$ to $T_L$ - Ramp-up Rate                    |                                   | 3 °C/sec. Max                      |
| Reflow                                                  | -Temperature( $T_L$ )(Liquid us)  | +217 °C                            |
|                                                         | -Temperature( $t_L$ )             | 60-150 secs.                       |
| Peak Temp ( $T_P$ )                                     |                                   | +260(+0/-5) °C                     |
| Time within 5 °C of actual Peak Temp ( $t_P$ )          |                                   | 30 secs. Max                       |
| Ramp-down Rate                                          |                                   | 6 °C/sec. Max                      |
| Time 25 °C to Peak Temp ( $T_P$ )                       |                                   | 8 min. Max                         |
| Do not exceed                                           |                                   | +260 °C                            |



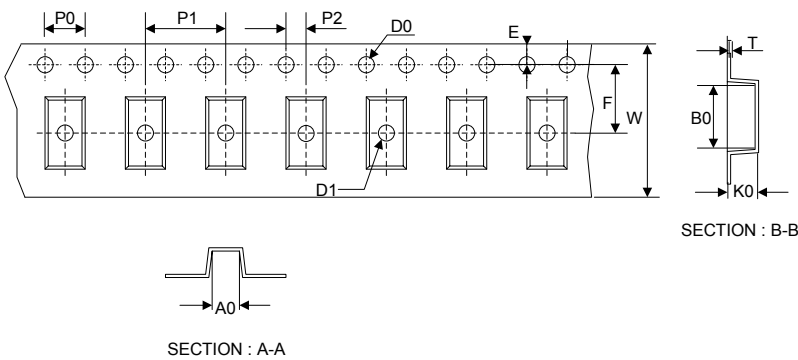
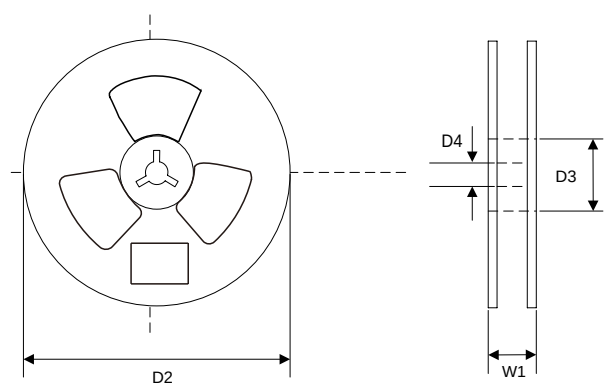
## Package Dimensions & Suggested Pad Layout

### MBF



| Dimensions | Value<br>(in mm) |
|------------|------------------|
| C          | 2.50             |
| X          | 1.10             |
| X1         | 3.60             |
| Y          | 2.10             |
| Y1         | 7.50             |

## Tape & reel specification

| Tape                                                                                                                        |  | Symbol            | Dimension (mm) |
|-----------------------------------------------------------------------------------------------------------------------------|--|-------------------|----------------|
|  <p>SECTION : A-A</p> <p>SECTION : B-B</p> |  | P0                | 4.00±0.20      |
|                                                                                                                             |  | P1                | 8.00±0.20      |
|                                                                                                                             |  | P2                | 2.00±0.20      |
|                                                                                                                             |  | D0                | 1.60±0.15      |
|                                                                                                                             |  | D1                | 1.60±0.15      |
|                                                                                                                             |  | E                 | 1.75±0.20      |
|                                                                                                                             |  | F                 | 5.50±0.15      |
|                                                                                                                             |  | W                 | 12.00±0.20     |
|                                                                                                                             |  | A0                | 5.30±0.20      |
|                                                                                                                             |  | B0                | 7.15±0.20      |
|                                                                                                                             |  | K0                | 1.65±0.15      |
|                                                                                                                             |  | T                 | 0.23±0.10      |
| 13" Reel                                                                                                                    |  |                   |                |
|                                           |  | D2                | 330.0±5.0      |
|                                                                                                                             |  | D3                | 73Min.         |
|                                                                                                                             |  | D4                | 16.0±2.5       |
|                                                                                                                             |  | W1                | 18.0±3.0       |
|                                                                                                                             |  | Quantity: 5000PCS |                |