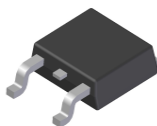


## FEATURES

- \* Low forward voltage drop
- \* High current capability
- \* High reliability
- \* High surge current capability
- \* Epitaxial construction



## VOLTAGE RANGE

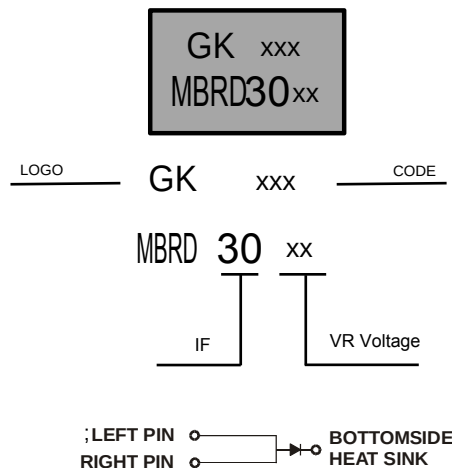
45 to 200 Volts

## CURRENT

30.0 Ampere

## MECHANICAL DATA

- \* Case: Molded plastic
- \* Epoxy: UL 94V-0 rate flame retardant
- \* Lead: Lead solderable per MIL-STD-202, method 208 guaranteed
- \* Polarity: As Marked
- \* Mounting position: Any



## 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                                                                                           | MBRD<br>3045 | MBRD<br>3060 | MBRD<br>30100 | MBRD<br>30150 | MBRD<br>30200 | UNITS |
|-------------------------------------------------------------------------------------------------------|--------------|--------------|---------------|---------------|---------------|-------|
| Maximum Recurrent Peak Reverse Voltage                                                                | 45           | 60           | 100           | 150           | 200           | V     |
| Maximum RMS Voltage                                                                                   | 32           | 42           | 70            | 105           | 140           | V     |
| Maximum DC Blocking Voltage                                                                           | 45           | 60           | 100           | 150           | 200           | V     |
| Maximum Average Forward Rectified Current                                                             | 30           |              |               |               |               | A     |
| Peak Forward Surge Current, 8.3 ms single half sine-wave<br>superimposed on rated load (JEDEC method) | 250          |              |               |               |               | A     |
| Maximum Instantaneous Forward Voltage at 30A                                                          | 0.65         | 0.75         | 0.85          | 0.92          |               | V     |
| Maximum DC Reverse Current Ta=25°C                                                                    | 0.1          |              | 0.02          |               |               | mA    |
| at Rated DC Blocking Voltage Ta=125°C                                                                 | 5            |              | 2             |               |               | mA    |
| Typical Junction Capacitance (Note1)                                                                  | 570          |              |               |               |               | pF    |
| Typical Thermal Resistance R JA (Note 2)                                                              | 2.5          |              |               |               |               | °C/W  |
| Operating Temperature Range Tj                                                                        | -55 — +150   |              |               |               |               | °C    |
| Storage Temperature Range Tstg                                                                        | -55 — +150   |              |               |               |               | °C    |

### NOTES:

1. Measured at 1MHz and applied reverse voltage of 4.0V D.C.
2. Thermal Resistance Junction to Ambient Vertical PC Board Mounting 0.5"(12.7mm) Lead Length.

## RATING AND CHARACTERISTIC CURVES

FIG.1-TYPICAL FORWARD CURRENT DERATING CURVE

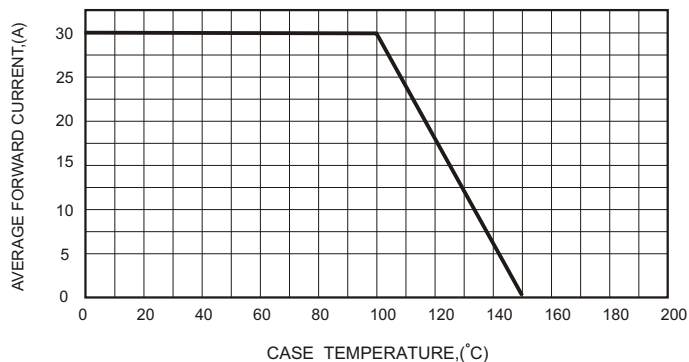


FIG.2-TYPICAL FORWARD CHARACTERISTICS

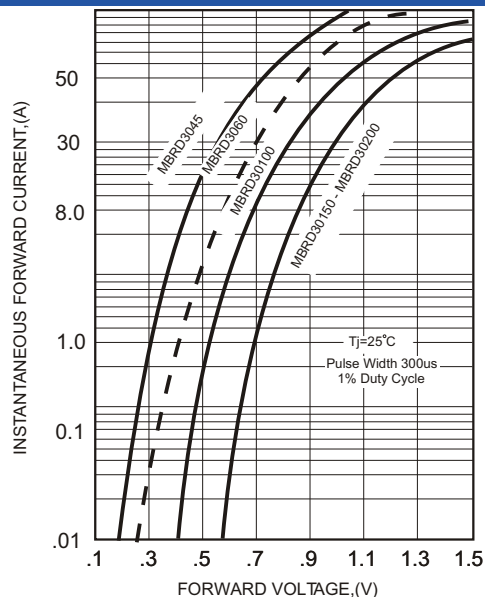


FIG.3 - TYPICAL REVERSE CHARACTERISTICS

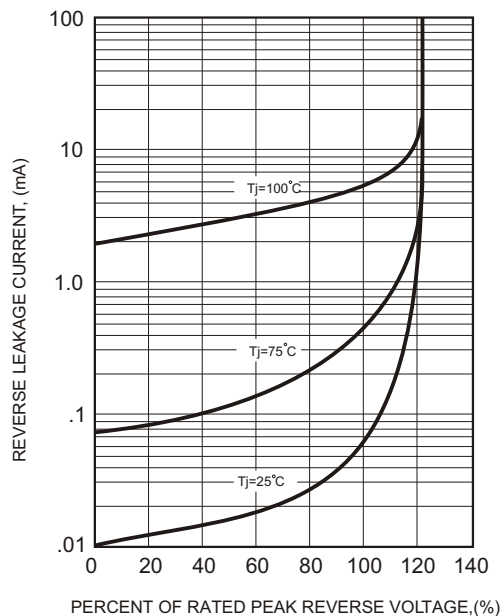


FIG.4-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

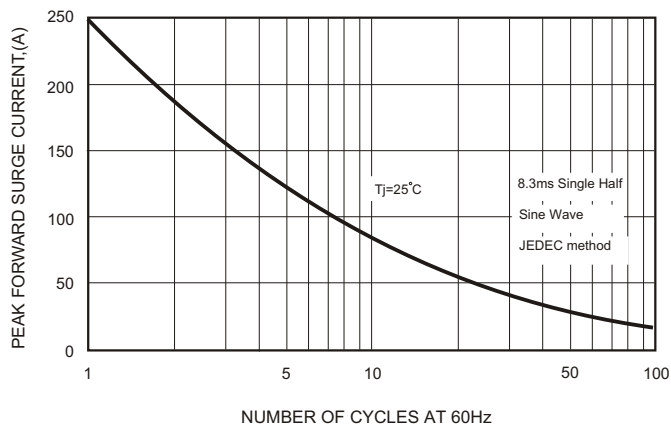
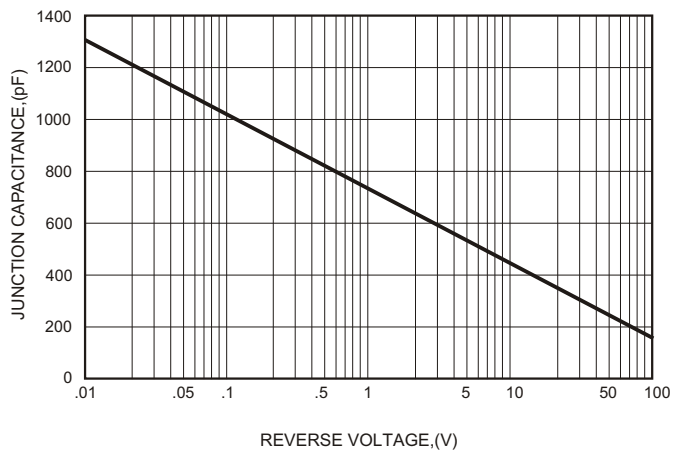
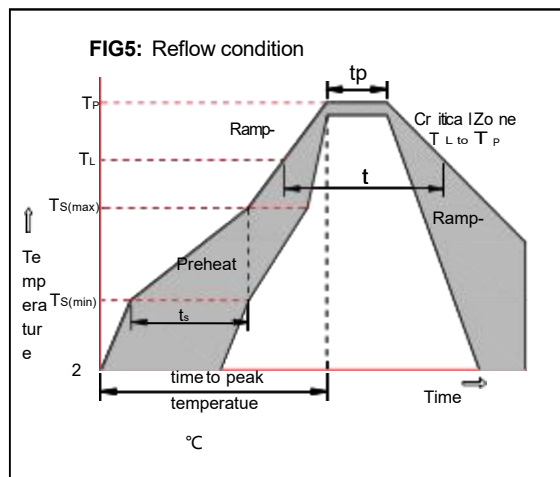


FIG.5-TYPICAL JUNCTION CAPACITANCE



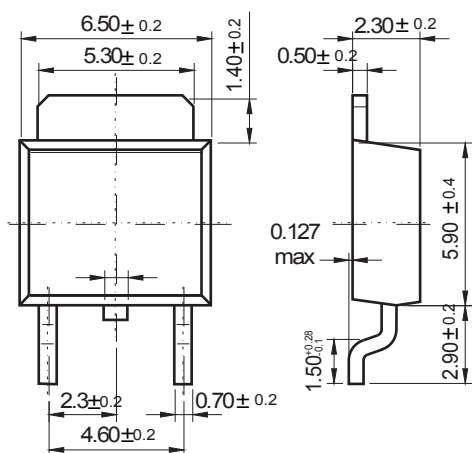
## Soldering parameters

| 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                            |

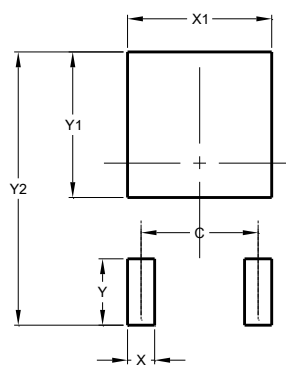


## Package Dimensions & Suggested Pad Layout

### TO-252

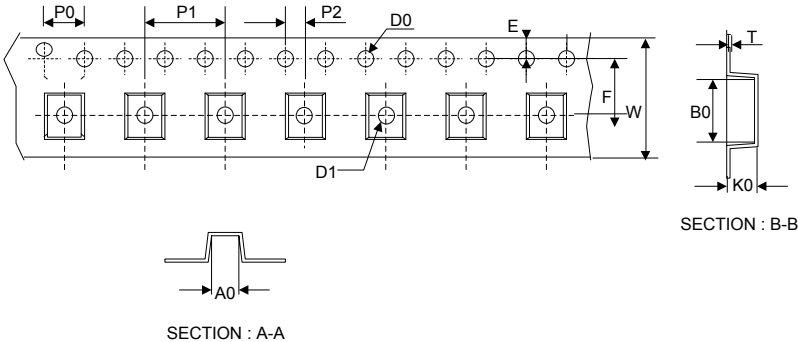
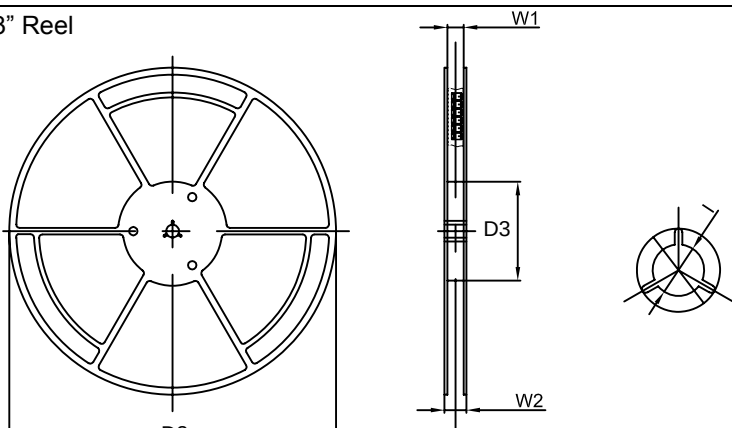


Dimensions in inches and (millimeters)



| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 4.55          |
| X          | 1.50          |
| X1         | 5.80          |
| Y          | 2.70          |
| Y1         | 6.00          |
| Y2         | 10.90         |

## 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                | 1.55±0.15      |
|                                                                                                                             |  | D1                | 1.55±0.20      |
|                                                                                                                             |  | E                 | 1.75±0.20      |
|                                                                                                                             |  | F                 | 7.50±0.20      |
|                                                                                                                             |  | W                 | 16.00±0.20     |
|                                                                                                                             |  | A0                | 7.10±0.20      |
|                                                                                                                             |  | B0                | 10.50±0.20     |
|                                                                                                                             |  | K0                | 2.70±0.20      |
|                                                                                                                             |  | T                 | 0.30±0.10      |
|                                                                                                                             |  | D2                | 330.0±5.0      |
|                                                                                                                             |  | D3                | 100.0±4.0      |
|                                                                                                                             |  | W1                | 20.0±5.0       |
|                                                                                                                             |  | W2                | 25.0±5.0       |
| 13" Reel                                                                                                                    |  | I                 | 13.0±2.0       |
|                                           |  | Quantity: 2500PCS |                |