

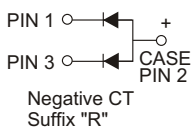
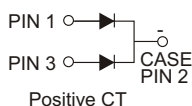


## FEATURES

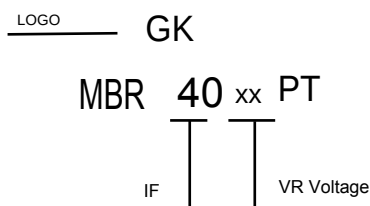
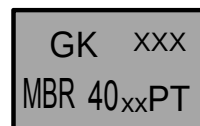
- \* Low forward voltage drop
- \* High current capability
- \* High reliability
- \* High surge current capability
- \* Good for switching mode application

## MECHANICAL DATA

- \* Case: Molded plastic
- \* Epoxy: UL 94V-0 rate flame retardant
- \* Lead: Axial leads, solderable per MIL-STD-202, method 208 guaranteed
- \* Polarity: Color band denotes cathode end
- \* Mounting position: Any



**VOLTAGE RANGE**  
20 to 200 Volts  
**CURRENT**  
40.0 Ampere



## 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                                                                                        | MBR4020PT  | MBR4045PT | MBR4060PT | MBR4080PT | MBR40100PT | MBR40150PT | MBR40200PT | UNITS |
|----------------------------------------------------------------------------------------------------|------------|-----------|-----------|-----------|------------|------------|------------|-------|
| Maximum Recurrent Peak Reverse Voltage                                                             | 20         | 45        | 60        | 80        | 100        | 150        | 200        | V     |
| Maximum RMS Voltage                                                                                | 14         | 32        | 42        | 56        | 70         | 105        | 140        | V     |
| Maximum DC Blocking Voltage                                                                        | 20         | 45        | 60        | 80        | 100        | 150        | 200        | V     |
| Maximum Average Forward Rectified Current                                                          | 40         |           |           |           |            |            |            | A     |
| Peak Forward Surge Current, 8.3 ms single half sine-wave superimposed on rated load (JEDEC method) | 300        |           |           |           |            |            |            | A     |
| Maximum Instantaneous Forward Voltage at 40.0A                                                     | 0.55       | 0.7       | 0.85      |           | 0.92       |            | V          |       |
| Maximum DC Reverse Current Ta=25℃                                                                  | 0.1        |           |           | 0.02      |            |            |            | mA    |
| at Rated DC Blocking Voltage Ta=100℃                                                               | 5          |           |           | 2         |            |            |            | mA    |
| Typical Junction Capacitance (Note1)                                                               | 580        |           |           |           |            |            |            | pF    |
| Typical Thermal Resistance RθJC (Note 2)                                                           | 2.5        |           |           |           |            |            |            | ℃/W   |
| Operating Temperature Range Tj                                                                     | -65 — +150 |           |           |           |            |            |            | ℃     |
| Storage Temperature Range Tstg                                                                     | -65 — +150 |           |           |           |            |            |            | ℃     |

### NOTES:

1. Measured at 1MHz and applied reverse voltage of 4.0V D.C.
2. Thermal Resistance Junction to Case.

## RATING AND CHARACTERISTIC CURVES

FIG.1-TYPICAL FORWARD CURRENT DERATING CURVE

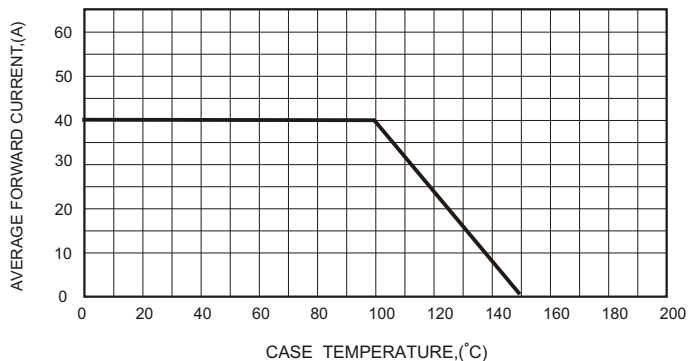


FIG.2-TYPICAL FORWARD CHARACTERISTICS

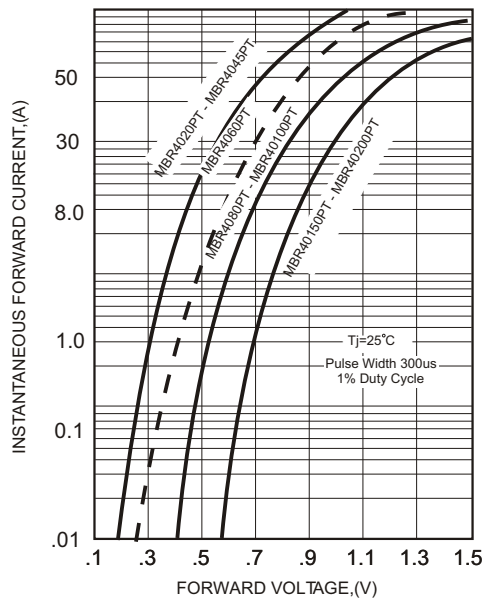


FIG.3 - TYPICAL REVERSE CHARACTERISTICS

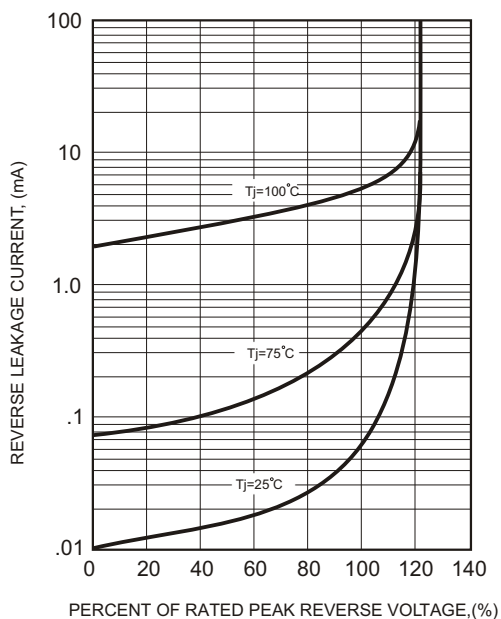


FIG.4-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

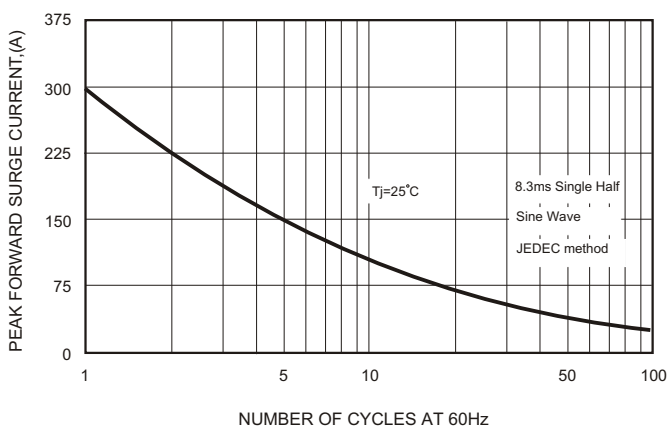
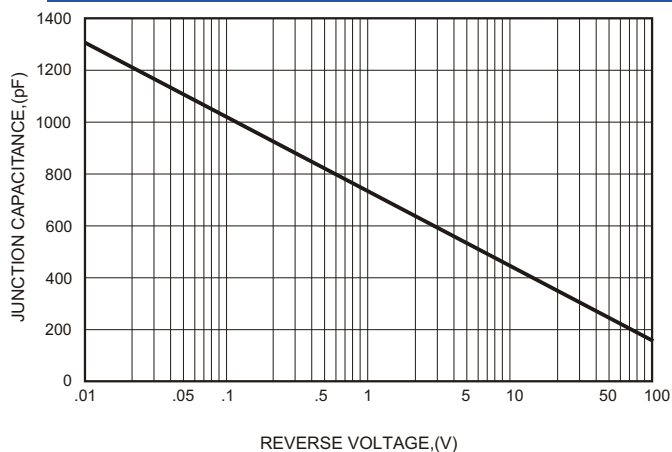
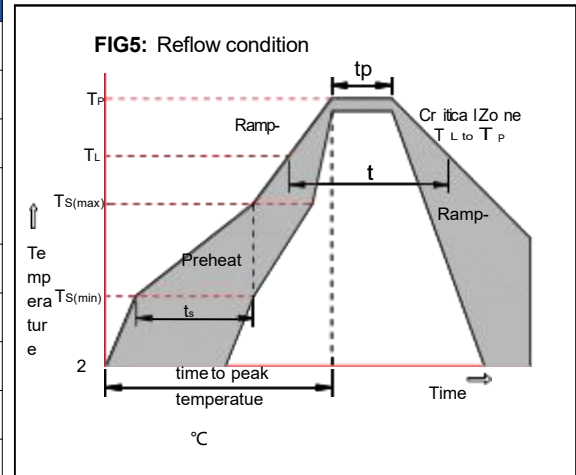


FIG.5-TYPICAL JUNCTION CAPACITANCE



## 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

