

Features

- ✧ Plastic material used carriers Underwriters Laboratory Classification 94V-0
- ✧ Metal silicon junction, majority carrier conduction
- ✧ Low power loss, high efficiency
- ✧ High current capability, low forward voltage drop
- ✧ High surge capability
- ✧ For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- ✧ Guard-ring for overvoltage protection
- ✧ High temperature soldering guaranteed: 260°C/10 seconds, 0.25"(6.35mm) from case
- ✧ Green compound with suffix "G" on packing code & prefix "G" on datecode



Mechanical Data

- ✧ Case: JEDEC TO-220AC molded plastic body
- ✧ Terminals: Pure tin plated, lead free, solderable per MIL-STD-750, Method 2026
- ✧ Polarity: As marked
- ✧ Mounting position: Any
- ✧ Mounting torque: 5 in. - lbs, max
- ✧ Weight: 1.85 grams

Ordering Information(example)

| Part No. | Package | Packing | Packing code | Green Compound Packing code |
|----------|----------|-----------|--------------|-----------------------------|
| MBR735 | TO-220AC | 50 / TUBE | D0 | D0G |

Maximum Ratings and Electrical Characteristics

Rating at 25 °C ambient temperature unless otherwise specified.

Single phase, half wave, 60 Hz, resistive or inductive load.

For capacitive load, derate current by 20%

| Type Number | Symbol | MBR 735 | MBR 745 | MBR 750 | MBR 760 | MBR 790 | MBR 7100 | MBR 7150 | Units |
|---|------------------------------------|---------------------------|----------------|-------------------|----------------|-------------------|-------------------|----------|--------------|
| Maximum Recurrent Peak Reverse Voltage | V_{RRM} | 35 | 45 | 50 | 60 | 90 | 100 | 150 | V |
| Maximum RMS Voltage | V_{RMS} | 24 | 31 | 35 | 42 | 63 | 70 | 105 | V |
| Maximum DC Blocking Voltage | V_{DC} | 35 | 45 | 50 | 60 | 90 | 100 | 150 | V |
| Maximum Average Forward Rectified Current | $I_{F(AV)}$ | 7.5 | | | | | | | A |
| Peak Repetitive Forward Current (Rated V_R , Square Wave, 20KHz) | I_{FRM} | 15 | | | | | | | A |
| Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method) | I_{FSM} | 150 | | | | | | | A |
| Peak Repetitive Reverse Surge Current (Note 1) | I_{RRM} | 1.0 | 0.5 | | | | | A | |
| Maximum Instantaneous Forward Voltage at (Note 2) IF=7.5A, $T_A=25^\circ C$ IF=7.5A, $T_A=125^\circ C$ IF=15A, $T_A=25^\circ C$ IF=15A, $T_A=125^\circ C$ | V_F | - 0.57 0.84 0.72 | - 0.65 - | 0.75 0.65 - | - 0.82 - | 0.92 0.82 - | 0.95 0.92 - | V | |
| Maximum Instantaneous Reverse Current @ $T_A=25^\circ C$ at Rated DC Blocking Voltage @ $T_A=125^\circ C$ | I_R | 15 | 10 | 0.1 | | | | 5 | mA |
| Voltage Rate of Change (Rated V_R) | dV/dt | 10000 | | | | | | | V/us |
| Typical Junction Capacitance | C_j | 360 | 280 | 200 | 160 | | | | pF |
| Typical Thermal Resistance | $R_{\theta JC}$ $R_{\theta JA}$ | 5 15 | | | | | | | $^\circ C/W$ |
| Operating Junction Temperature Range | T_J | - 65 to + 150 | | | | | | | $^\circ C$ |
| Storage Temperature Range | T_{STG} | - 65 to + 175 | | | | | | | $^\circ C$ |

Note 1: 2.0uS Pulse Width, f=1.0KHz

Note 2: Pulse Test : 300uS Pulse Width, 1% Duty Cycle

RATINGS AND CHARACTERISTIC CURVES (MBR735 THRU MBR7150)

FIG. 1- FORWARD CURRENT DERATING CURVE

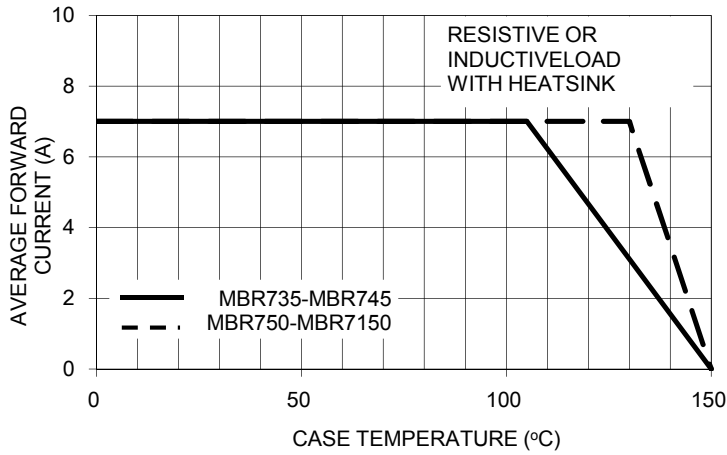


FIG. 2- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

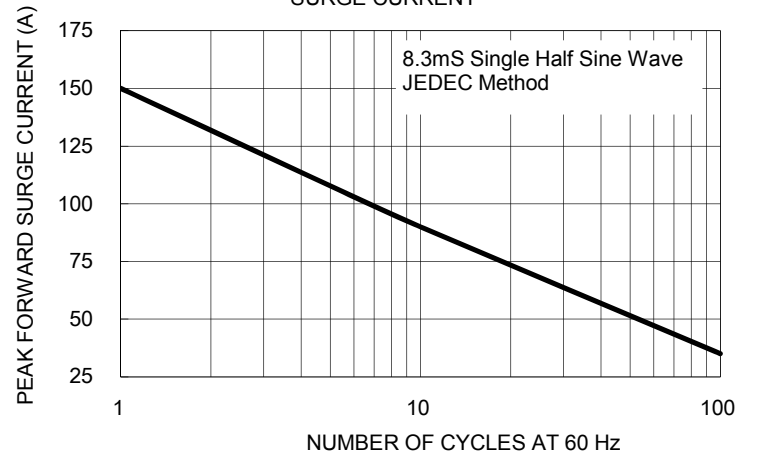


FIG. 3- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

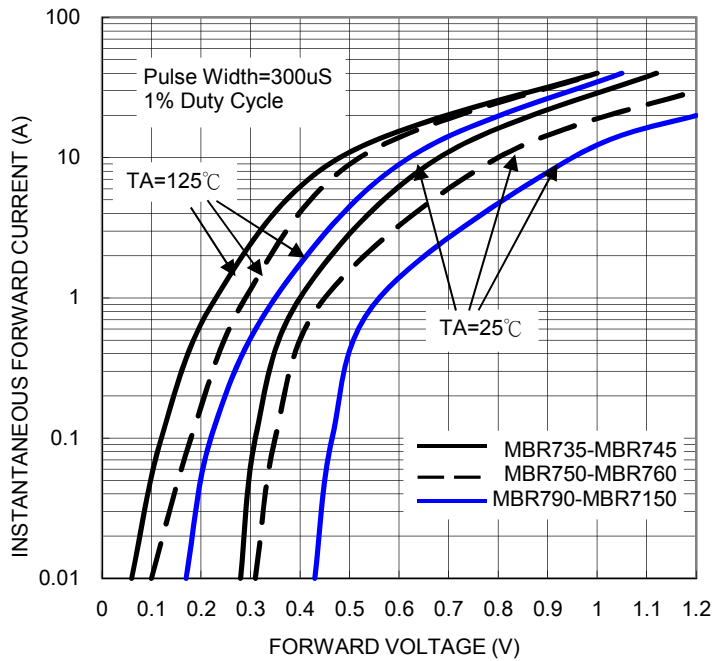


FIG. 4- TYPICAL REVERSE CHARACTERISTICS

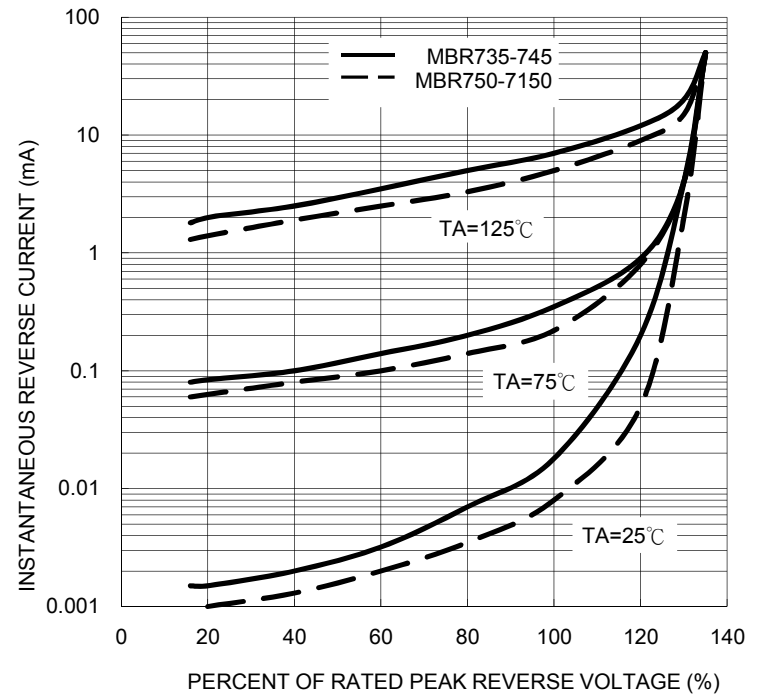


FIG. 5- TYPICAL JUNCTION CAPACITANCE

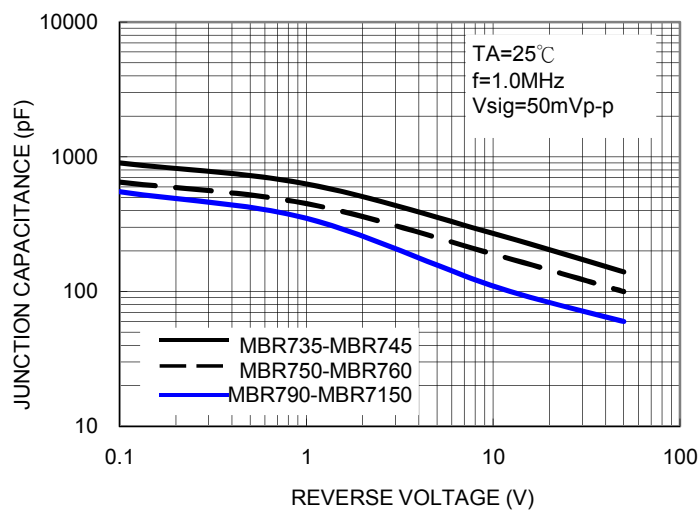
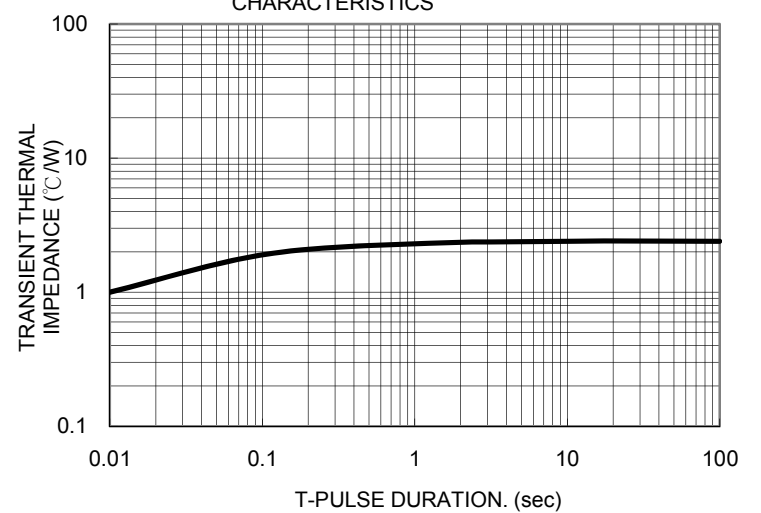


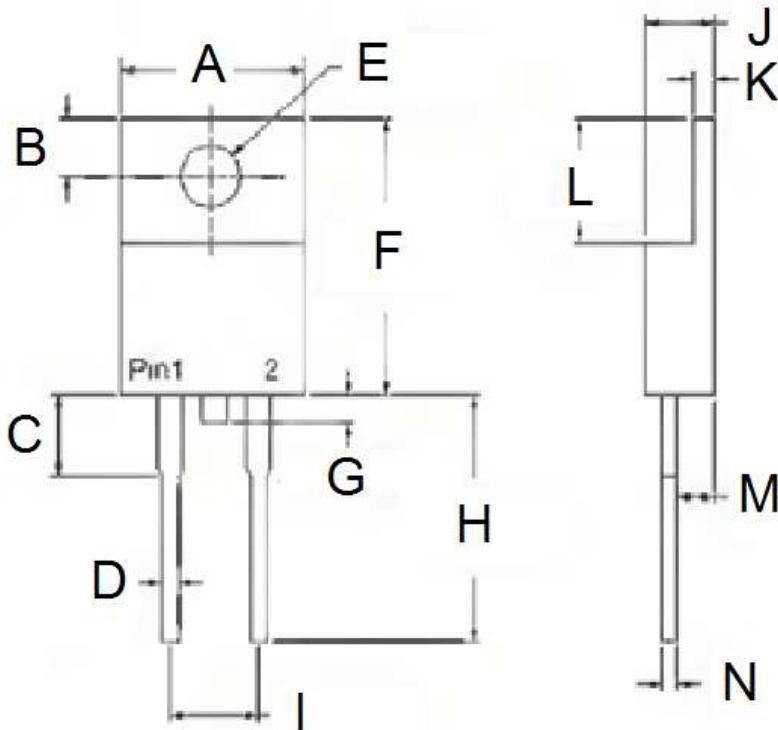
FIG. 6- TYPICAL TRANSIENT THERMAL CHARACTERISTICS



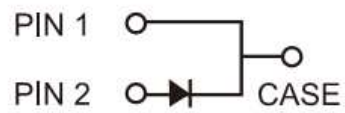
Ordering information

| Part No. | Package | BULK Packing | Packing code | Green Compound Packing code |
|----------|----------|--------------|--------------|-----------------------------|
| MBR7xx | TO-220AC | 50 / TUBE | C0 | C0G |
| | TO-220AC | 50 / TUBE | D0 | D0G |

Note: "xx" is Device Code from "35" thru "150".

Dimensions


| DIM. | Unit(mm) | | Unit(inch) | |
|------|----------|-------|------------|-------|
| | Min | Max | Min | Max |
| A | - | 10.50 | - | 0.413 |
| B | 2.62 | 3.44 | 0.103 | 0.135 |
| C | 2.80 | 4.20 | 0.110 | 0.165 |
| D | 0.68 | 0.94 | 0.027 | 0.037 |
| E | 3.54 | 4.00 | 0.139 | 0.157 |
| F | 14.60 | 16.00 | 0.575 | 0.630 |
| G | - | 1.60 | - | 0.063 |
| H | 13.19 | 14.79 | 0.519 | 0.582 |
| I | 4.95 | 5.20 | 0.195 | 0.205 |
| J | 4.42 | 4.76 | 0.174 | 0.187 |
| K | 1.14 | 1.40 | 0.045 | 0.055 |
| L | 5.84 | 6.86 | 0.230 | 0.270 |
| M | 2.20 | 2.80 | 0.087 | 0.110 |
| N | 0.35 | 0.64 | 0.014 | 0.025 |


Marking Diagram


P/N = Specific Device Code
 G = Green Compound
 YWW = Date Code