

MBR3035CT - MBR30150CT

30.0 AMPS. Schottky Barrier Rectifiers

TO-220AB

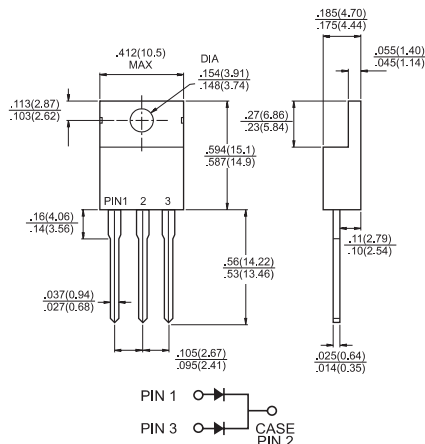


Features

- ✦ Plastic material used carries Underwriters Laboratory Classifications 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
- ✦ Guardring for overvoltage protection
- ✦ High temperature soldering guaranteed: 260°C/10 seconds, 0.25" (6.35mm) from case

Mechanical Data

- ✦ Cases: JEDEC TO-220AB molded plastic
- ✦ 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: 0.08 ounce, 2.24 grams



Dimensions in inches and (millimeters)

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 3035 CT | MBR 3045 CT | MBR 3050 CT | MBR 3060 CT | MBR 3090 CT | MBR 30100 CT | MBR 30150 CT | 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 at $T_c=130^\circ\text{C}$ | $I_{(AV)}$ | | | | 30 | | | | A |
| Peak Repetitive Forward Current (Rated V_R , Square Wave, 20KHz) at $T_c=130^\circ\text{C}$ | I_{FRM} | | | | 30 | | | | A |
| Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method) | I_{FSM} | | | | 200 | | | | A |
| Peak Repetitive Reverse Surge Current (Note 1) | I_{RRM} | 1.0 | | | 0.5 | | | | A |
| Maximum Instantaneous Forward Voltage at (Note 2) $I_F=15\text{A}, T_c=25^\circ\text{C}$ $I_F=15\text{A}, T_c=125^\circ\text{C}$ $I_F=30\text{A}, T_c=25^\circ\text{C}$ $I_F=30\text{A}, T_c=125^\circ\text{C}$ | V_F | 0.7 | | 0.77 | | 0.84 | | 0.95 | V |
| | | 0.6 | | 0.67 | | 0.70 | | 0.92 | |
| | | 0.82 | | — | | 0.94 | | 1.02 | |
| | | 0.73 | | — | | 0.82 | | 0.98 | |
| Maximum Instantaneous Reverse Current @ $T_c=25^\circ\text{C}$ at Rated DC Blocking Voltage Per Leg @ $T_c=125^\circ\text{C}$ (Note 2) | I_R | 0.2 | | 0.2 | | 0.2 | | 0.1 | mA |
| | | 15 | | 10 | | 7.5 | | 5.0 | mA |
| Voltage Rate of Change, (Rated V_R) | dV/dt | | | | 1,000 | | | | V/ μS |
| Typical Junction Capacitance | C_j | 600 | | 460 | | 320 | | | pF |
| Maximum Thermal Resistance Per Leg (Note 3) | $R_{\theta JC}$ | 1.0 | | | 1.5 | | | | $^\circ\text{C}/\text{W}$ |
| Operating Junction Temperature Range | T_J | | | | -65 to +150 | | | | $^\circ\text{C}$ |
| Storage Temperature Range | T_{STG} | | | | -65 to +175 | | | | $^\circ\text{C}$ |

- Notes:
1. 2.0us Pulse Width, $f=1.0\text{ KHz}$
 2. Pulse Test: 300us Pulse Width, 1% Duty Cycle
 3. Thermal Resistance from Junction to Case Per Leg, with Heatsink size (4"x6"x0.25") Al-Plate

RATINGS AND CHARACTERISTIC CURVES (MBR3035CT THRU MBR30150CT)

FIG.1- FORWARD CURRENT DERATING CURVE

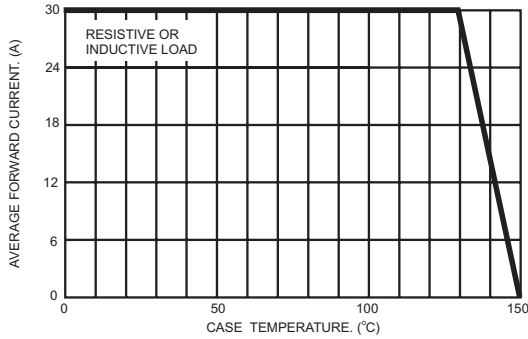


FIG.2- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT PER LEG

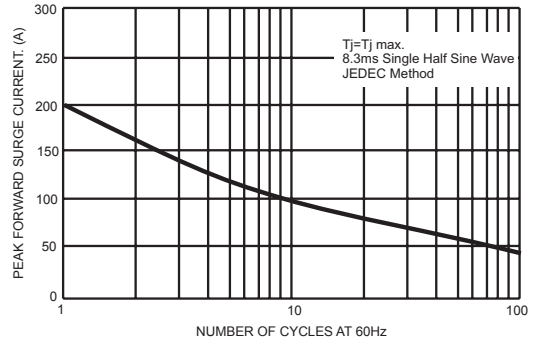


FIG.3- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER LEG

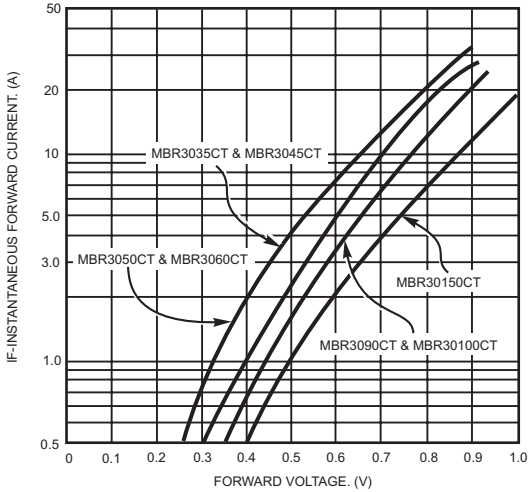


FIG.4- TYPICAL REVERSE CHARACTERISTICS PER LEG

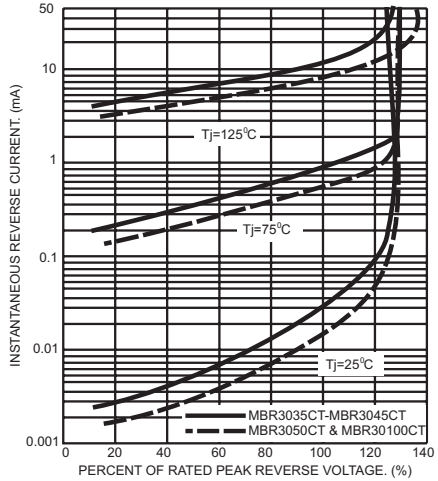


FIG.5- TYPICAL JUNCTION CAPACITANCE PER LEG

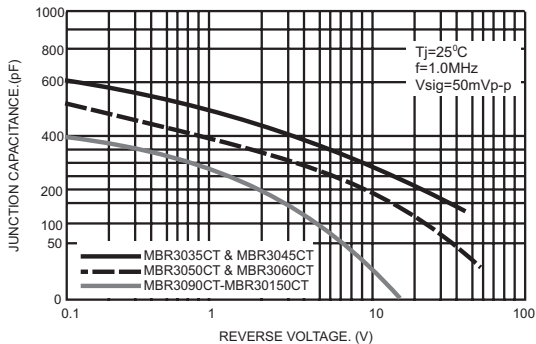


FIG.6- TYPICAL TRANSIENT THERMAL IMPEDANCE PER LEG

