

# MBRF2050CT AND MBRF2060CT

## SCHOTTKY RECTIFIER

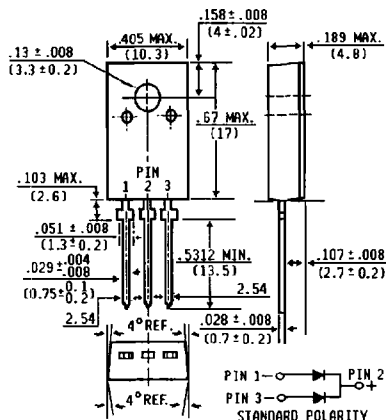
**VOLTAGE RANGE - 50 and 60 Volts    CURRENT - 20.0 Amperes**

### FEATURES

- ◆ Isolated Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- ◆ Metal to silicon rectifier, majority carrier conduction
- ◆ Low power loss, high efficiency
- ◆ High current capability, low  $V_F$
- ◆ High surge capacity
- ◆ Epitaxial construction
- ◆ For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- ◆ High temperature soldering guaranteed: 250°C/10 seconds/.25", (6.35mm) from case
- ◆ Guardring for transient protection
- ◆ Internal insulation: 1.5k  $V_{RMS}$



### ITO-220CT



Dimensions in inches and (millimeters)

### MECHANICAL DATA

**Case:** Isolated TO-220CT Fully Overmolded Plastic  
**Terminals:** Leads Solderable per MIL-STD-750, Method 2026

**Polarity:** As marked

**Mounting Position:** Any    **Mounting Torque:** 5 in. - lbs. max.

**Weight:** .08 ounces, 2.24 gram

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

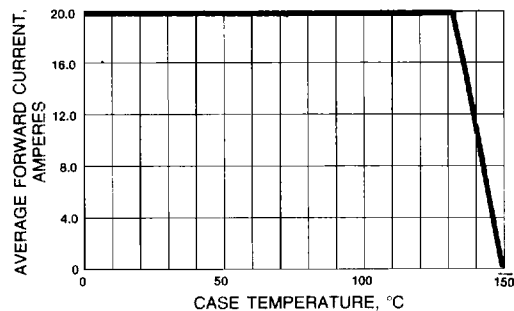
Ratings at 25°C ambient temperature unless otherwise specified. Resistive or inductive load. For capacitive load, derate current by 20%.

|                                                                                                                                                                                                                                                 | SYMBOLS         | MBRF2050CT                   | MBRF2060CT | UNITS              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------------|------------|--------------------|
| Maximum Recurrent Peak Reverse Voltage                                                                                                                                                                                                          | $V_{RRM}$       | 50                           | 60         | Volts              |
| Maximum Working Peak Reverse Voltage                                                                                                                                                                                                            | $V_{RWM}$       | 50                           | 60         | Volts              |
| Maximum DC Blocking Voltage                                                                                                                                                                                                                     | $V_{DC}$        | 50                           | 60         | Volts              |
| Maximum Average Forward Rectified Current at $T_C=133^\circ\text{C}$                                                                                                                                                                            | $I_{(AV)}$      | 20.0                         |            | Amps               |
| Peak Repetitive Forward Current per leg (Rated $V_R$ , Sq. wave, 2.0 KHz) at $T_C=133^\circ\text{C}$                                                                                                                                            | $I_{FRM}$       | 20.0                         |            | Amps               |
| Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)                                                                                                                                                | $I_{FSM}$       | 150.0                        |            | Amps               |
| Peak Repetitive Reverse Surge Current (NOTE 3)                                                                                                                                                                                                  | $I_{RRM}$       | 1.0                          |            | Amps               |
| Maximum Instantaneous Forward Voltage<br>$I_F=10\text{A}$ , $T_C=25^\circ\text{C}$<br>$I_F=10\text{A}$ , $T_C=125^\circ\text{C}$<br>per leg (NOTE 2)<br>$I_F=20\text{A}$ , $T_C=25^\circ\text{C}$<br>$I_F=20\text{A}$ , $T_C=125^\circ\text{C}$ | $V_F$           | 0.80<br>0.70<br>0.95<br>0.85 |            | Volts              |
| Maximum Instantaneous Reverse Current at rated DC Blocking Voltage per leg<br>$T_C=25^\circ\text{C}$<br>$T_C=125^\circ\text{C}$                                                                                                                 | $I_R$           | 0.15<br>150.0                |            | mA                 |
| Voltage Rate of Change (Rated $V_R$ )                                                                                                                                                                                                           | $dv/dt$         | 1000                         |            | V/ $\mu\text{s}$   |
| Typical Thermal Resistance per leg (NOTE 1)                                                                                                                                                                                                     | $R_{\theta JC}$ | 2.2                          |            | $^\circ\text{C/W}$ |
| Operating Junction Temperature Range                                                                                                                                                                                                            | $T_J$           | -65 to +150                  |            | $^\circ\text{C}$   |
| Storage Temperature Range                                                                                                                                                                                                                       | $T_{STG}$       | -65 to +175                  |            | $^\circ\text{C}$   |

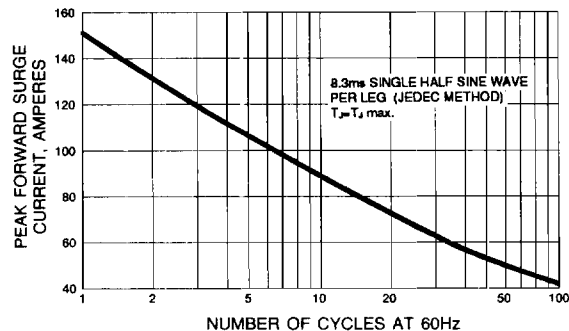
NOTES: 1. Thermal Resistance from Junction to Case per element.  
2. Pulse Test: 300 $\mu\text{s}$  Pulse Width 300 $\mu\text{s}$ , 2% Duty Factor.  
3. 2.0 $\mu\text{s}$  Pulse Width,  $f=1\text{ KHz}$ .

# **RATINGS AND CHARACTERISTIC CURVES MBRF2050CT AND MBRF2060CT**

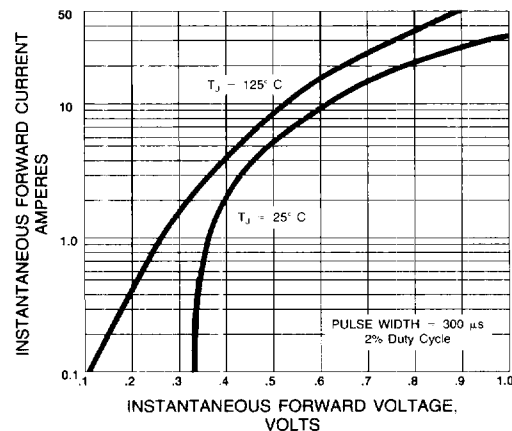
**FIG. 1 – FORWARD CURRENT DERATING CURVE**



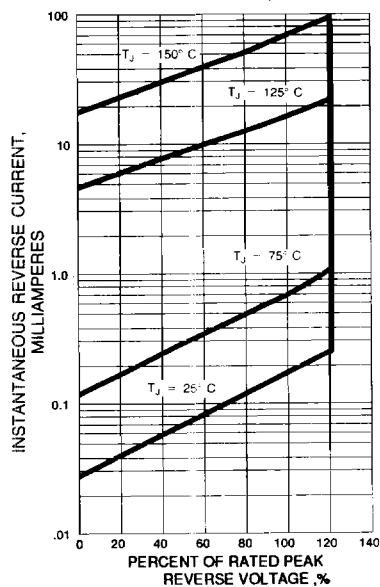
**FIG. 2 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT PER LEG**



**FIG. 4 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS PER LEG**



**FIG. 3- TYPICAL REVERSE CHARACTERISTICS, PER LEG**



**FIG.5-TYPICAL JUNCTION CAPACITANCE PER LEG**

