

# MBR10150CT – MBR10200CT(LS)

## SCHOTTKY BARRIER RECTIFIERS

**REVERSE VOLTAGE** – 150 to 200 Volts  
**FORWARD CURRENT** – 10 Amperes

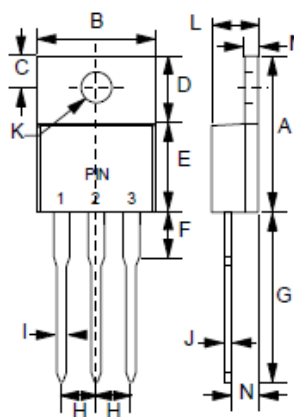
### FEATURES

- Metal of silicon rectifier, majority carrier conduction
- Guard ring for transient protection
- Low power loss, high efficiency
- High current capability, low  $V_F$
- High surge capacity
- Plastic package has UL flammability classification 94V-0
- IEC 61000-4-2, level 4 (ESD), >15KV (air)
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

### MECHANICAL DATA

- Package: TO-220AB molded plastic
- Polarity: AS marked on the body
- Weight: 0.08 ounces, 2.24 grams
- Mounting position: Any
- Max. mounting torque = 0.5N.m (5.1Kgf.cm)

### TO-220AB



| TO-220AB |                    |                    |
|----------|--------------------|--------------------|
| DIM.     | MIN.               | MAX.               |
| A        | 14.22              | 15.88              |
| B        | 9.65               | 10.67              |
| C        | 2.54               | 3.43               |
| D        | 5.84               | 6.86               |
| E        | 8.26               | 9.28               |
| F        | -                  | 6.35               |
| G        | 12.70              | 14.73              |
| H        | 2.29               | 2.79               |
| I        | 0.51               | 1.14               |
| J        | 0.30               | 0.64               |
| K        | 3.53 $\varnothing$ | 4.09 $\varnothing$ |
| L        | 3.56               | 4.83               |
| M        | 1.14               | 1.40               |
| N        | 2.03               | 2.92               |

All Dimensions in millimeter

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

| CHARACTERISTICS   | SYMBOL                    | MBR10150CT  | MBR10200CT | UNIT                      |                          |                           |                 |                           |      |                  |                          |      |                  |                           |      |   |
|---|---------------------------|---|------------|---------------------------|--------------------------|---------------------------|-----------------|---------------------------|------|------------------|--------------------------|------|------------------|---------------------------|------|---|
| Maximum Recurrent Peak Reverse Voltage  | $V_{RRM}$                 | 150   | 200        | V                         |                          |                           |                 |                           |      |                  |                          |      |                  |                           |      |   |
| Maximum RMS Voltage   | $V_{RMS}$                 | 105   | 140        | V                         |                          |                           |                 |                           |      |                  |                          |      |                  |                           |      |   |
| Maximum DC Blocking Voltage   | $V_{DC}$                  | 150   | 200        | V                         |                          |                           |                 |                           |      |                  |                          |      |                  |                           |      |   |
| Maximum Average Forward Rectified Current (See Fig.1) @ $T_C=105^\circ\text{C}$         | $I_{(AV)}$                | 10  |            | A                         |                          |                           |                 |                           |      |                  |                          |      |                  |                           |      |   |
| Peak Forward Surge Current<br>8.3ms Single Half Sine-Wave<br>Superimposed on Rated Load | $I_{FSM}$                 | 120   |            | A                         |                          |                           |                 |                           |      |                  |                          |      |                  |                           |      |   |
| Voltage Rate of Change (Rated $V_R$ )   | $dv/dt$                   | 10000   |            | V/us                      |                          |                           |                 |                           |      |                  |                          |      |                  |                           |      |   |
| Maximum Forward Voltage (Note 4)  | $V_F$                     | <table border="0"> <tr> <td><math>I_F=5\text{A}</math></td> <td>@ <math>T_J=25^\circ\text{C}</math></td> <td>0.92</td> </tr> <tr> <td><math>I_F=5\text{A}</math></td> <td>@ <math>T_J=125^\circ\text{C}</math></td> <td>0.75</td> </tr> <tr> <td><math>I_F=10\text{A}</math></td> <td>@ <math>T_J=25^\circ\text{C}</math></td> <td>1.00</td> </tr> <tr> <td><math>I_F=10\text{A}</math></td> <td>@ <math>T_J=125^\circ\text{C}</math></td> <td>0.85</td> </tr> </table> |            | $I_F=5\text{A}$           | @ $T_J=25^\circ\text{C}$ | 0.92                      | $I_F=5\text{A}$ | @ $T_J=125^\circ\text{C}$ | 0.75 | $I_F=10\text{A}$ | @ $T_J=25^\circ\text{C}$ | 1.00 | $I_F=10\text{A}$ | @ $T_J=125^\circ\text{C}$ | 0.85 | V |
| $I_F=5\text{A}$   | @ $T_J=25^\circ\text{C}$  | 0.92  |            |                           |                          |                           |                 |                           |      |                  |                          |      |                  |                           |      |   |
| $I_F=5\text{A}$   | @ $T_J=125^\circ\text{C}$ | 0.75  |            |                           |                          |                           |                 |                           |      |                  |                          |      |                  |                           |      |   |
| $I_F=10\text{A}$  | @ $T_J=25^\circ\text{C}$  | 1.00  |            |                           |                          |                           |                 |                           |      |                  |                          |      |                  |                           |      |   |
| $I_F=10\text{A}$  | @ $T_J=125^\circ\text{C}$ | 0.85  |            |                           |                          |                           |                 |                           |      |                  |                          |      |                  |                           |      |   |
| Maximum DC Reverse Current at Rated DC Blocking Voltage                                 | $I_R$                     | <table border="0"> <tr> <td>@ <math>T_J=25^\circ\text{C}</math></td> <td>8</td> </tr> <tr> <td>@ <math>T_J=125^\circ\text{C}</math></td> <td>2</td> </tr> </table>  |            | @ $T_J=25^\circ\text{C}$  | 8                        | @ $T_J=125^\circ\text{C}$ | 2               | $\mu\text{A}$<br>mA       |      |                  |                          |      |                  |                           |      |   |
| @ $T_J=25^\circ\text{C}$  | 8                         |   |            |                           |                          |                           |                 |                           |      |                  |                          |      |                  |                           |      |   |
| @ $T_J=125^\circ\text{C}$   | 2                         |   |            |                           |                          |                           |                 |                           |      |                  |                          |      |                  |                           |      |   |
| Typical Thermal Resistance (Note 5)   | $R_{\theta JC}$           | 3.0   |            | $^\circ\text{C}/\text{W}$ |                          |                           |                 |                           |      |                  |                          |      |                  |                           |      |   |
| Typical Junction Capacitance per Element (Note 6)                                       | $C_J$                     | 300   |            | pF                        |                          |                           |                 |                           |      |                  |                          |      |                  |                           |      |   |
| Operating Temperature Range   | $T_J$                     | -65 to +175   |            | $^\circ\text{C}$          |                          |                           |                 |                           |      |                  |                          |      |                  |                           |      |   |
| Storage Temperature Range   | $T_{STG}$                 | -65 to +175   |            | $^\circ\text{C}$          |                          |                           |                 |                           |      |                  |                          |      |                  |                           |      |   |

### Notes:

1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. 300us pulse width, 2% duty cycle.
5. Thermal Resistance Junction to Case.
6. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.

**RATING AND CHARACTERISTIC CURVES**  
**MBRF10150CT - MBRF10200CT**

FIG.1 - FORWARD CURRENT DERATING CURVE

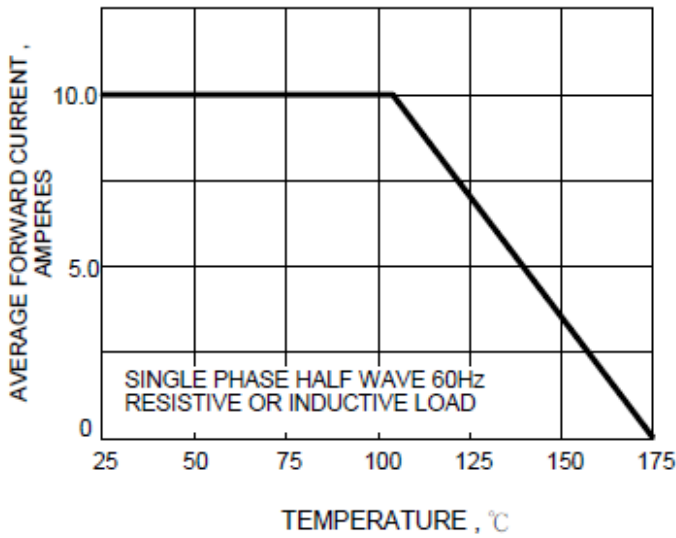


FIG.2 - MAXIMUM NONREPETITIVE SURGE CURRENT

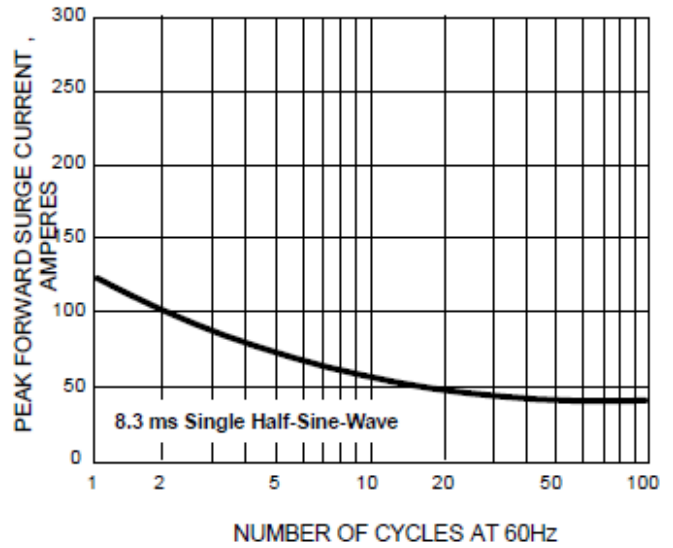


FIG.3 - TYPICAL REVERSE CHARACTERISTICS

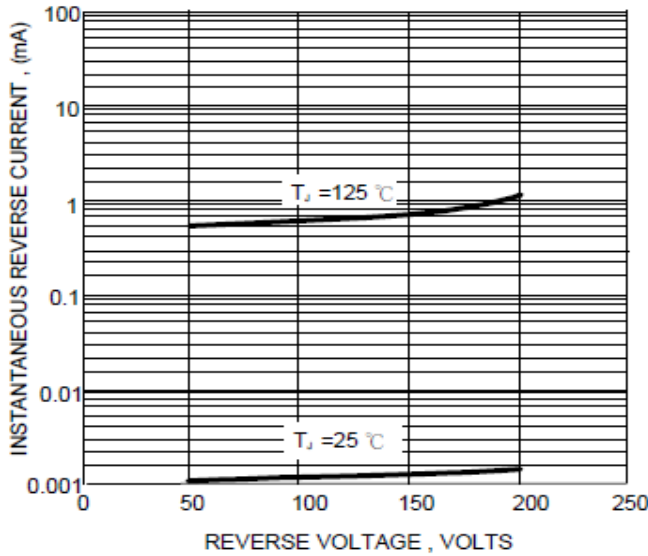


FIG.4 - TYPICAL FORWARD CHARACTERISTICS

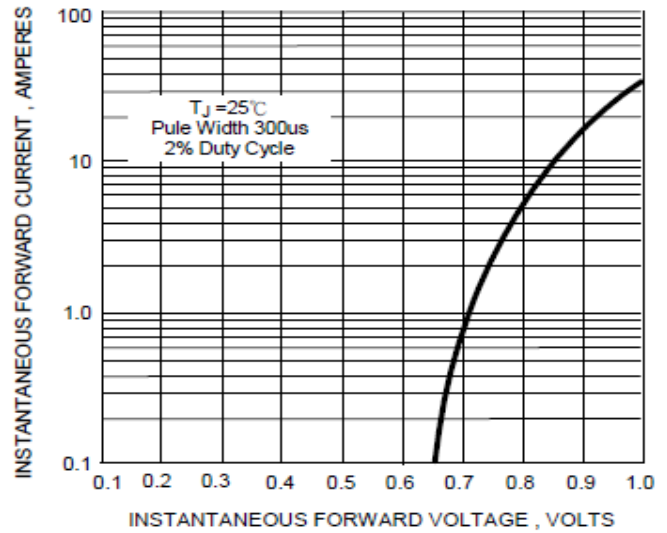
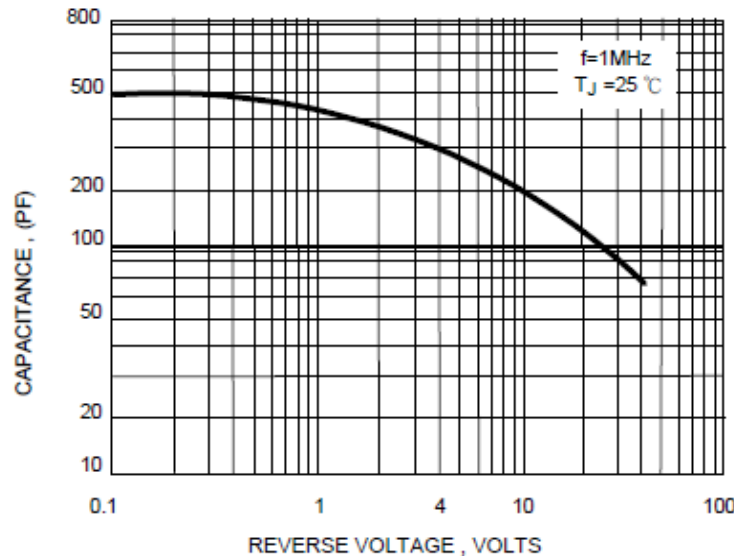


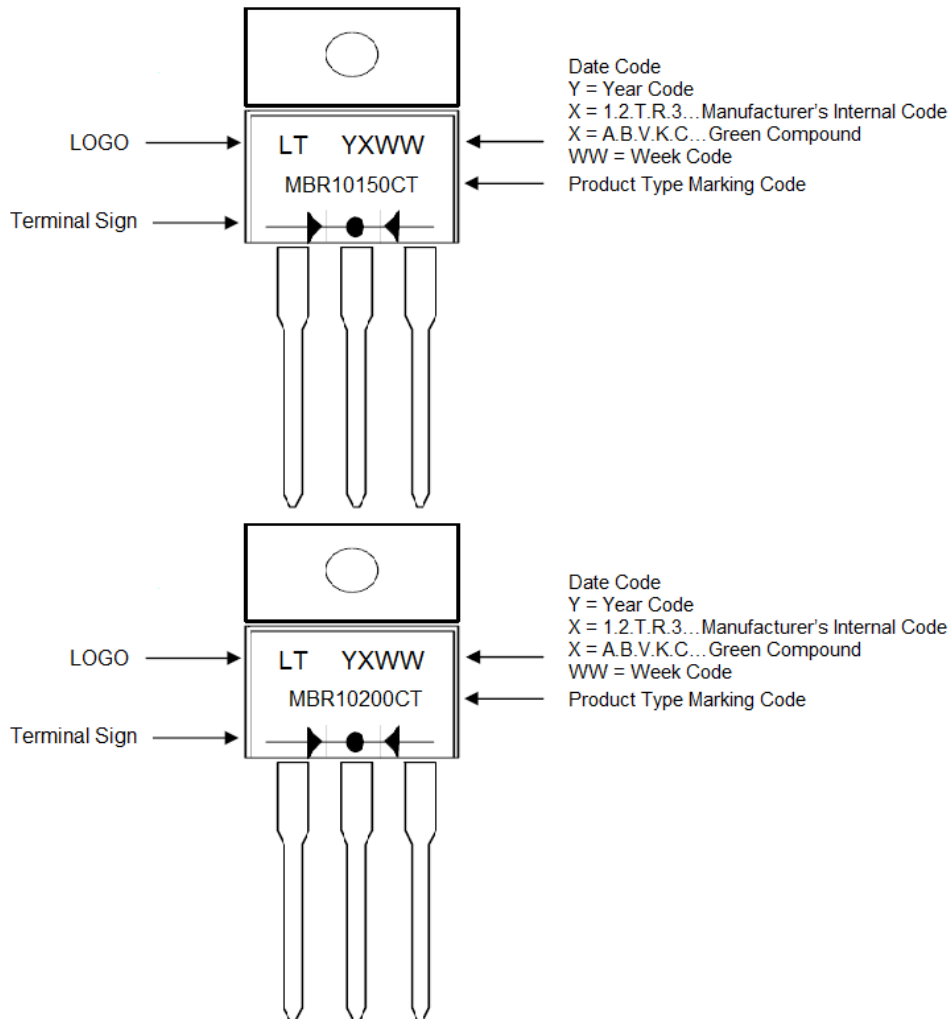
FIG.5 - TYPICAL JUNCTION CAPACITANCE



### Ordering Information:

| Part Number   | Package  | Packing |         |
|---------------|----------|---------|---------|
|               |          | Qty.    | Carrier |
| MBR10150CT-LS | TO-220AB | 50 pcs  | Tube    |
| MBR10200CT-LS | TO-220AB | 50 pcs  | Tube    |

### Marking Information:



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