

### Switchmode Full Plastic Dual Schottky Barrier Power Rectifiers

Using the Schottky Barrier principle with a Refractory metal capable of high temperature operation metal. The proprietary barrier technology allows for reliable operation up to 175°C junction temperature. Typical application are in switching Mode Power Supplies such as adaptors, DC/DC converters, free-wheeling and polarity protection diodes.

#### Features

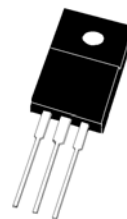
- \* Low Forward Voltage.
- \* Low Switching noise.
- \* High Current Capacity
- \* Guarantee Reverse Avalanche.
- \* Guard-Ring for Stress Protection.
- \* Low Power Loss & High efficiency.
- \* 175°C Operating Junction Temperature
- \* Low Stored Charge Majority Carrier Conduction.
- \* Plastic Material used Carries Underwriters Laboratory Flammability Classification 94V-O

\* In compliance with EU RoHs 2002/95/EC directives

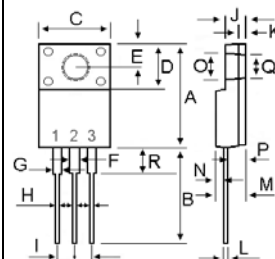


#### SCHOTTKY BARRIER RECTIFIERS

**30 AMPERES  
120 VOLTS**



ITO-220AB



#### MAXIMUM RATINGS

| Characteristic   | Symbol                          | MBRF30120C  | Unit             |
|--|---------------------------------|-------------|------------------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage                 | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 120         | V                |
| RMS Reverse Voltage  | $V_{R(RMS)}$                    | 84          | V                |
| Average Rectifier Forward Current (per diode)<br>Total Device (Rated $V_R$ , $T_C=100^\circ\text{C}$ ) | $I_{F(AV)}$                     | 15<br>30    | A                |
| Peak Repetitive Forward Current<br>(Rate $V_R$ , Square Wave, 20kHz)                                   | $I_{FM}$                        | 30          | A                |
| Non-Repetitive Peak Surge Current (Surge applied at rate load conditions halfwave, single phase, 60Hz) | $I_{FSM}$                       | 250         | A                |
| Operating and Storage Junction Temperature Range   | $T_J, T_{stg}$                  | -65 to +175 | $^\circ\text{C}$ |

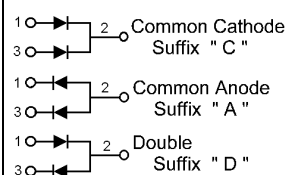
#### THERMAL RESISTANCES

|   |                 |     |                           |
|---|-----------------|-----|---------------------------|
| Typical Thermal Resistance junction to case | $R_{\theta jc}$ | 2.8 | $^\circ\text{C}/\text{W}$ |
|---|-----------------|-----|---------------------------|

#### ELECTRIAL CHARACTERISTICS

| Characteristic   | Symbol | MBRF30120C   | Unit |
|--|--------|--------------|------|
| Maximum Instantaneous Forward Voltage (per diode)<br>( $I_F=15\text{ Amp } T_C=25^\circ\text{C}$ )<br>( $I_F=15\text{ Amp } T_C=125^\circ\text{C}$ ) | $V_F$  | 0.90<br>0.81 | V    |
| Maximum Instantaneous Reverse Current<br>(Rated DC Voltage, $T_C=25^\circ\text{C}$ )<br>(Rated DC Voltage, $T_C=125^\circ\text{C}$ )                 | $I_R$  | 0.01<br>15   | mA   |

| DIM | MILLIMETERS |       |
|-----|-------------|-------|
|     | MIN         | MAX   |
| A   | 14.90       | 15.15 |
| B   | 13.35       | 13.55 |
| C   | 10.00       | 10.10 |
| D   | 6.55        | 6.65  |
| E   | 2.65        | 2.75  |
| F   | 1.55        | 1.65  |
| G   | 1.15        | 1.25  |
| H   | 0.55        | 0.65  |
| I   | 2.50        | 2.60  |
| J   | 3.00        | 3.20  |
| K   | 1.10        | 1.20  |
| L   | 0.55        | 0.65  |
| M   | 4.40        | 4.60  |
| N   | 1.15        | 1.25  |
| O   | 3.35        | 3.45  |
| P   | 2.65        | 2.75  |
| Q   | 3.15        | 3.25  |
| R   | 3.60        | 3.80  |



# MBRF30120C

FIG-1 FORWARD CURRENT DERATING CURVE

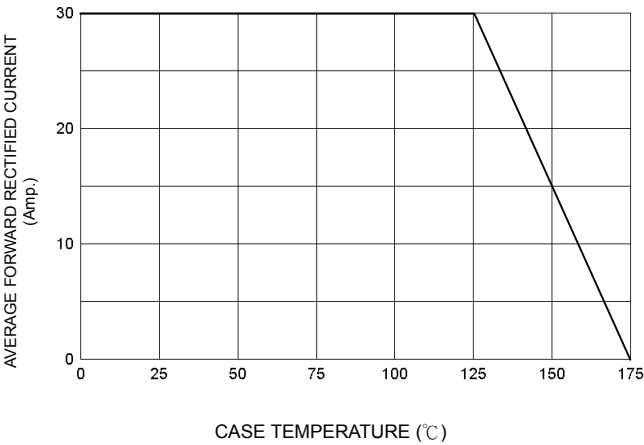


FIG-2 TYPICAL FORWARD CHARACTERISTICS

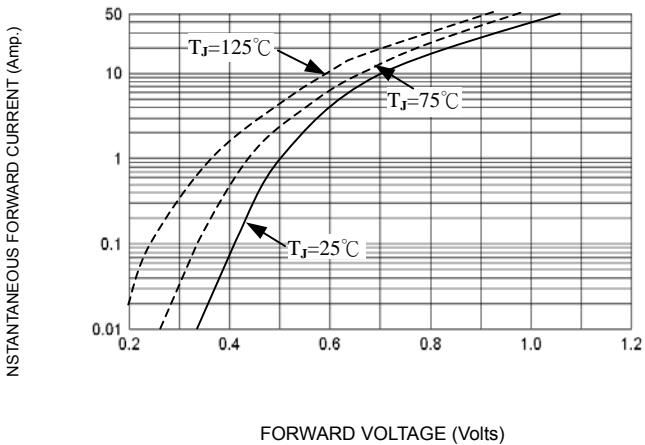


FIG-3 TYPICAL REVERSE CHARACTERISTICS

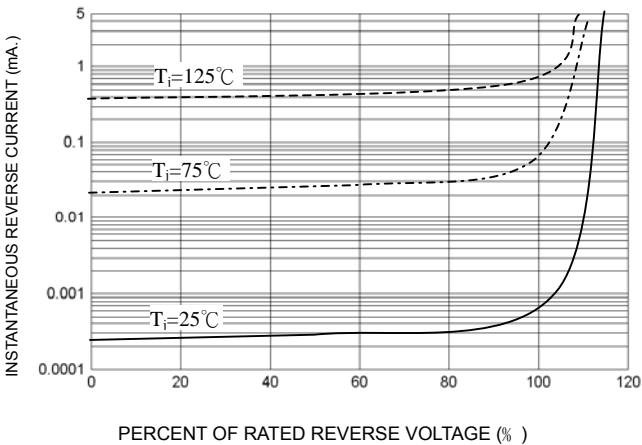


FIG-4 TYPICAL JUNCTION CAPACITANCE

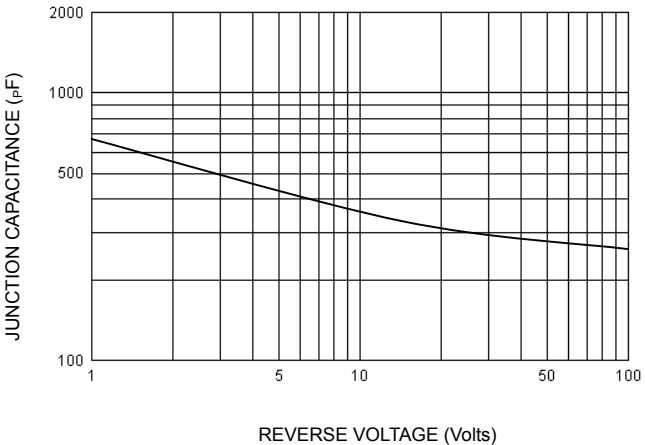
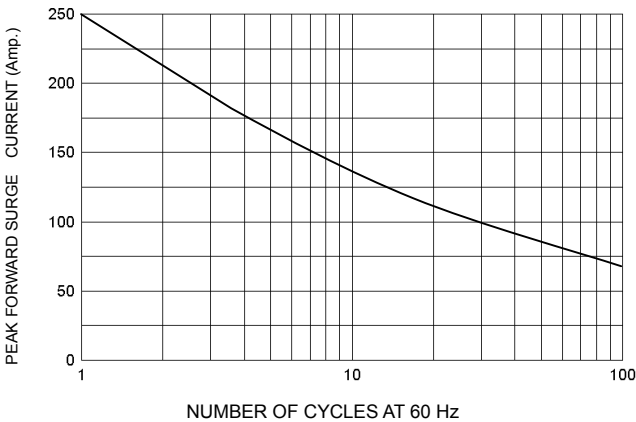


FIG-5 PEAK FORWARD SURGE CURRENT



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