# MOSPEC

# MBRF1030C Thru MBRF1060C

**Switchmode**
**Full Plastic Dual Schottky Barrier Power Rectifiers**

Using the Schottky Barrier principle with a Molybdenum barrier metal. These state-of-the-art geometry features epitaxial construction with oxide passivation and metal overlay contact. Ideally suited for low voltage, high frequency rectification, or as 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℃ Operating Junction Temperature
* Low Stored Charge Majority Carrier Conduction.
* Plastic Material used Carries Underwriters Laboratory

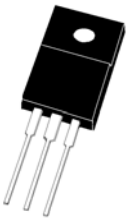
**Mecnanical Data**

* Case :JEDEC ITO-220AB molded plastic body
* Termals:Plated lead,solderable per MIL-STD-750, Method 2026
* Polarity:As marked
* Mounting Torqure: 5 in-lbs. max
* Weight:1.7 g approx.
* High temperature soldering guaranteed 260℃/10 seconds

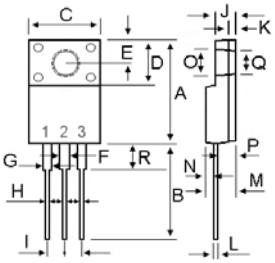
* *In compliance with EU RoHs 2002/95/EC directives*

**SCHOTTKY BARRIER RECTIFIERS**

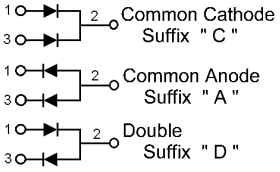
**10 AMPERES**
**30-60 VOLTS**



**ITO-220AB**




| 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 |




## MAXIMUM RATINGS

| Characteristic | Symbol | MBRF10 | | | | | | Unit |
|---|---|---|---|---|---|---|---|---|
| | | 30C | 35C | 40C | 45C | 50C | 60C | |
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 30 | 35 | 40 | 45 | 50 | 60 | V |
| RMS Reverse Voltage | $V_{R(RMS)}$ | 21 | 25 | 28 | 32 | 35 | 42 | V |
| Average Rectifier Forward Current<br>Total Device (Rated $V_R$),$T_C$=100℃ | $I_{F(AV)}$ | 5.0<br>10 | | | | | | A |
| Peak Repetitive Forward Current<br>(Rate $V_R$, Square Wave, 20kHz) | $I_{FM}$ | 10 | | | | | | A |
| Non-Repetitive Peak Surge Current<br>(Surge applied at rate load conditions halfware, single phase, 60Hz) | $I_{FSM}$ | 100 | | | | | | A |
| Operating and Storage Junction Temperature Range | $T_J$ , $T_{STG}$ | -65 to +175 | | | | | | ℃ |

## ELECTRIAL CHARACTERISTICS

| Characteristic | Symbol | MBRF10 | | | | | | Unit |
|---|---|---|---|---|---|---|---|---|
| | | 30C | 35C | 40C | 45C | 50C | 60C | |
| Maximum Instantaneous Forward Voltage<br>( $I_F$ =5 Amp $T_C$ = 25℃ )<br>( $I_F$ =5 Amp $T_C$ = 125℃ ) | $V_F$ | 0.65<br>0.56 | | | | 0.75<br>0.65 | | V |
| Maximum Instantaneous Reverse Current<br>( Rated DC Voltage, $T_C$ = 25℃ )<br>( Rated DC Voltage, $T_C$ = 125℃ ) | $I_R$ | 0.01<br>20 | | | | | | mA |
| Typical Thermal Resistance junction to case | $R_{\theta jc}$ | 2.8 | | | | | | ℃/w |

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FIG-1 FORWARD CURRENT DERATING CURVE

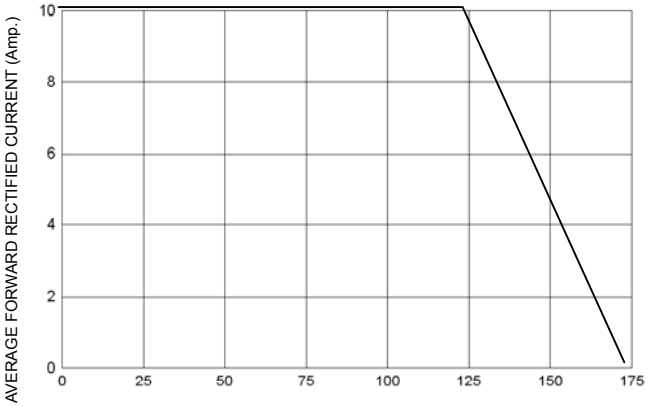



FIG-2 TYPICAL FORWARD CHARACTERISITICS

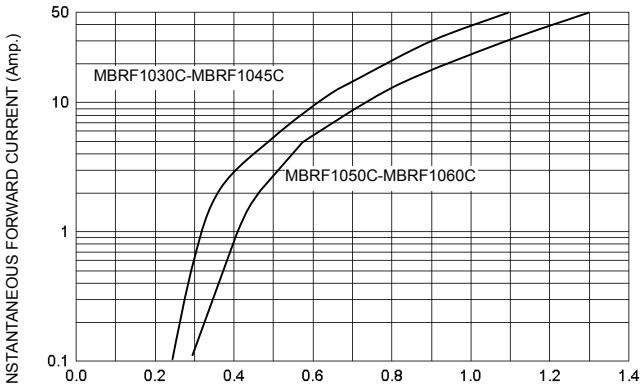



FIG-3 TYPICAL REVERSE CHARACTERISTICS

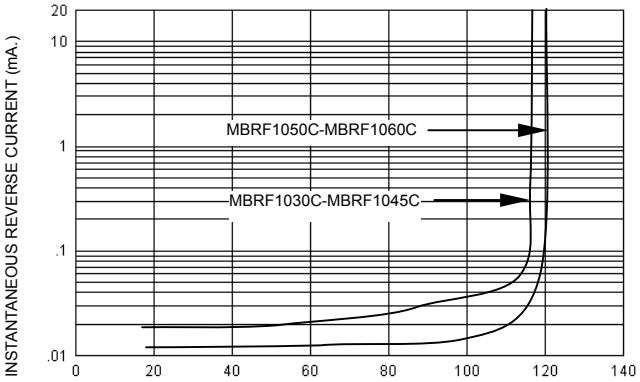



FIG-4 TYPICAL JUNCTION CAPACITANCE

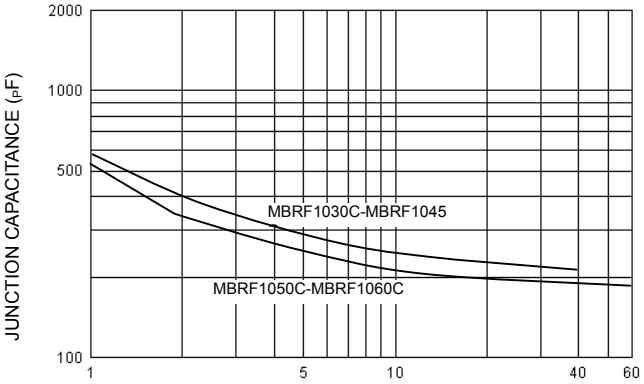



FIG-5 PEAK FORWARD SURGE CURRENT

