

## 10A,45V Schottky Barrier Rectifier

### Features

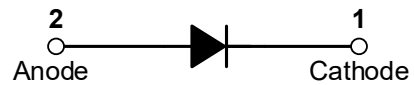
- Low forward voltage, low power loss
- Low leakage current
- High surge current
- Plastic package has underwriters Laboratory Flammability Classification 94V-0
- Halogen-free according to IEC 61249-2-21



**ITO-220AC**

### Applications

- SMPS
- Adapter
- Server Power



### Mechanical Data

- Case: Epoxy, Molded
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 sec
- Shipped 50 units per plastic tube

### Maximum Ratings & Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)

| Parameter   | Symbol             | MBRF1045    | Unit |
|---|--------------------|-------------|------|
| Maximum repetitive peak reverse voltage   | V <sub>RRM</sub>   | 45          | V    |
| Maximum RMS voltage   | V <sub>RMS</sub>   | 32          | V    |
| Maximum DC blocking voltage   | V <sub>DC</sub>    | 45          | V    |
| Maximum average forward   | I <sub>F(AV)</sub> | 10          | A    |
| Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load per diodes | I <sub>FSM</sub>   | 150         | A    |
| Operating junction temperature range  | T <sub>J</sub>     | -55 to +150 | °C   |
| Storage temperature range   | T <sub>STG</sub>   | -55 to +150 | °C   |

| <b>Electrical Specifications</b> (T <sub>A</sub> =25°C unless otherwise noted) |                |  |      |      |      |
|--|----------------|--|------|------|------|
| Parameter  | Symbol         | Test Conditions                            | Typ  | Max  | Unit |
| Forward drop voltage <sup>(Note1)</sup>  | V <sub>F</sub> | I <sub>F</sub> =10A, T <sub>J</sub> =25°C  | 0.53 | 0.57 | V    |
|  |                | I <sub>F</sub> =10A, T <sub>J</sub> =125°C | -    | 0.51 |      |
| Reverse leakage current @V <sub>R</sub> <sup>(Note2)</sup>                     | I <sub>R</sub> | T <sub>J</sub> =25°C                       | -    | 200  | uA   |
|  |                | T <sub>J</sub> =100°C                      | -    | 15   | mA   |

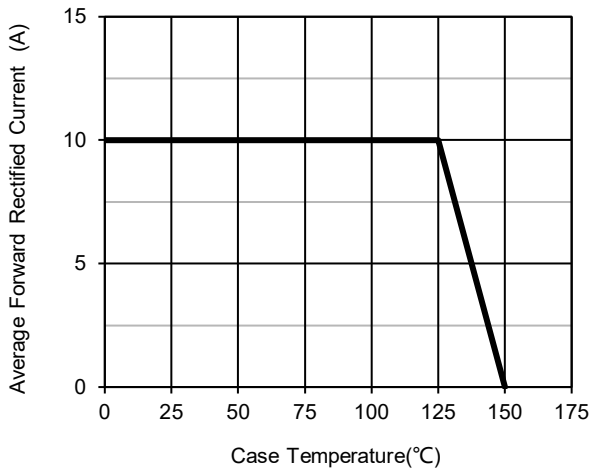
| <b>Thermal-Mechanical Specifications</b> (T <sub>A</sub> =25°C unless otherwise noted) |                  |      |       |
|--|------------------|------|-------|
| Parameter  | Symbol           | Typ  | Unit  |
| Thermal Resistance, Junction to Case   | R <sub>θJC</sub> | 4.0  | °C /W |
| Thermal Resistance, Junction to Ambient  | R <sub>θJA</sub> | 62.5 | °C /W |

Note:

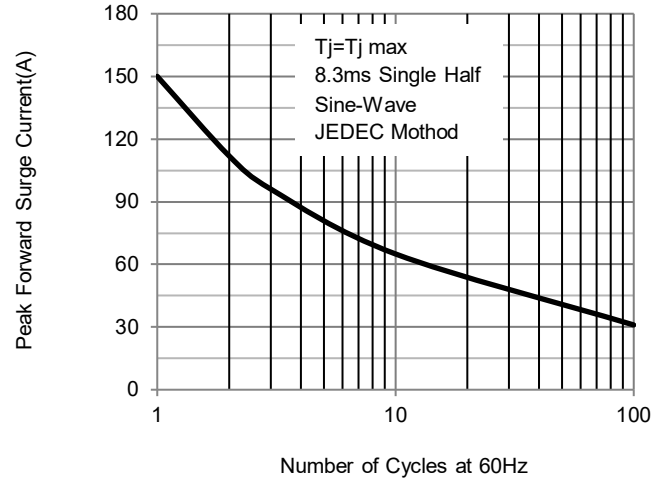
1. Pulse test with PW=0.3ms, duty cycle=2%
2. Pulse test with PW=30ms

## Ratings and Characteristics Curves

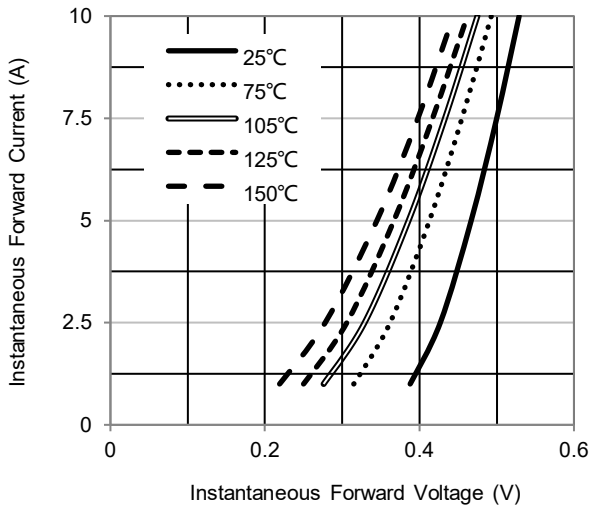
( $T_A = 25^\circ\text{C}$  unless otherwise noted)



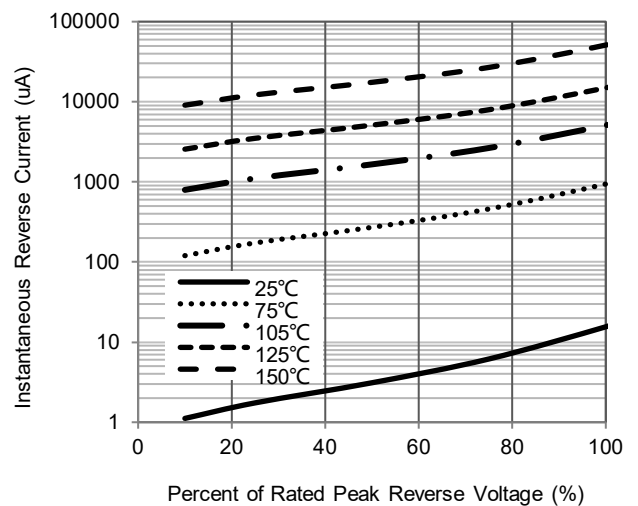
**Fig.1 – Forward Current Derating Curve**



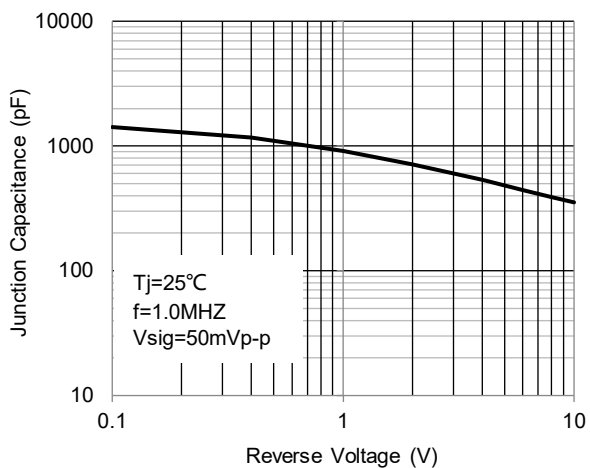
**Fig.2 – Maximum Non-Repetitive Surge Current**



**Fig.3 – Typical Forward Voltage Characteristics**



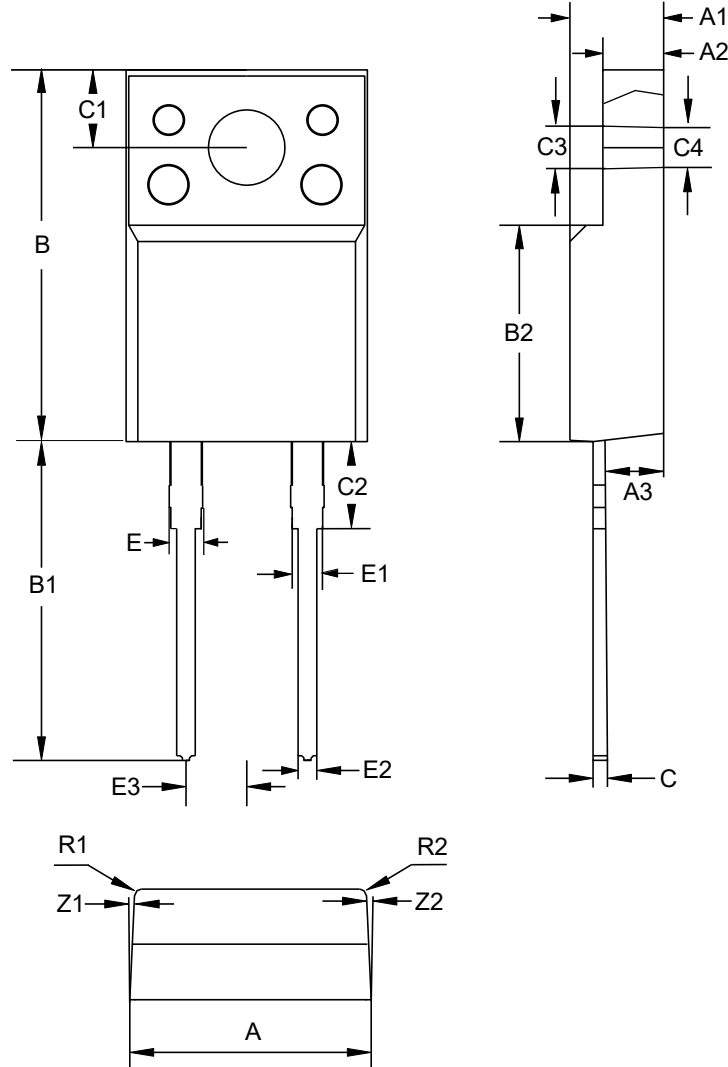
**Fig.4 – Typical Reverse Current Characteristics**



**Fig.5 – Typical Junction Capacitance**

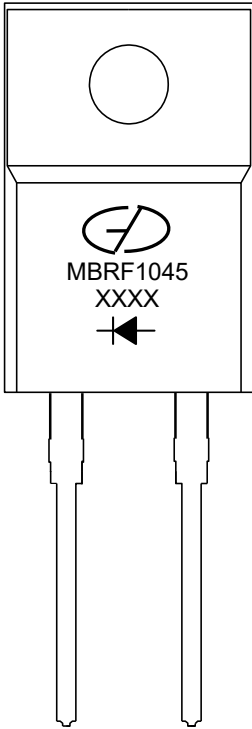
**Package Outline Dimensions** (Unit: millimeters)



**ITO-220AC**



| ITO-220AC |       |       |       |    |      |      |      |
|-----------|-------|-------|-------|----|------|------|------|
|           | Min.  | Nom.  | Max.  |    | Min. | Nom. | Max. |
| A         | 9.9   | 10.1  | 10.3  | C3 | 3.0  | 3.2  | 3.4  |
| A1        | 4.6   | 4.7   | 4.8   | C4 | 3.0  |      |      |
| A2        | 2.44  | 2.54  | 2.64  | E  | 1.15 | 1.35 | 1.55 |
| A3        | 2.25  | 2.45  | 2.65  | E1 | 1.17 | 1.27 | 1.37 |
| B         | 15.5  | 15.8  | 16.1  | E2 | 0.7  | 0.8  | 0.9  |
| B1        | 13.25 | 13.55 | 13.85 | E3 | 2.44 | 2.54 | 2.64 |
| B2        | 9.0   | 9.2   | 9.4   | R1 |      | 0.3  |      |
| C         | 0.5   | 0.6   | 0.7   | R2 |      | 0.3  |      |
| C1        | 3.1   | 3.3   | 3.5   | Z1 |      | 3°   |      |
| C2        | 3.0   | 3.3   | 3.6   | Z2 |      | 3°   |      |

## Marking Outline



1. Logo Mark: 
2. Part Name: MBRF1045
3. Date Code: XXXX
4. Polarity : 

## Revision History

| Document Version | Date of release | Description of changes                    |
|------------------|-----------------|---|
| Rev.A            | 2015.12.15      | Released Datasheet                        |
| Rev.B            | 2021.01.22      | Modify document format                    |
| Rev.C            | 2022.04.29      | Modify ratings and characteristics curves |

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