

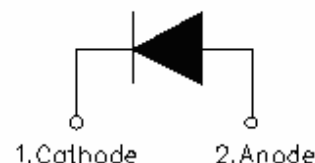
MBRF2045 SCHOTTKY RECTIFIER

Applications:

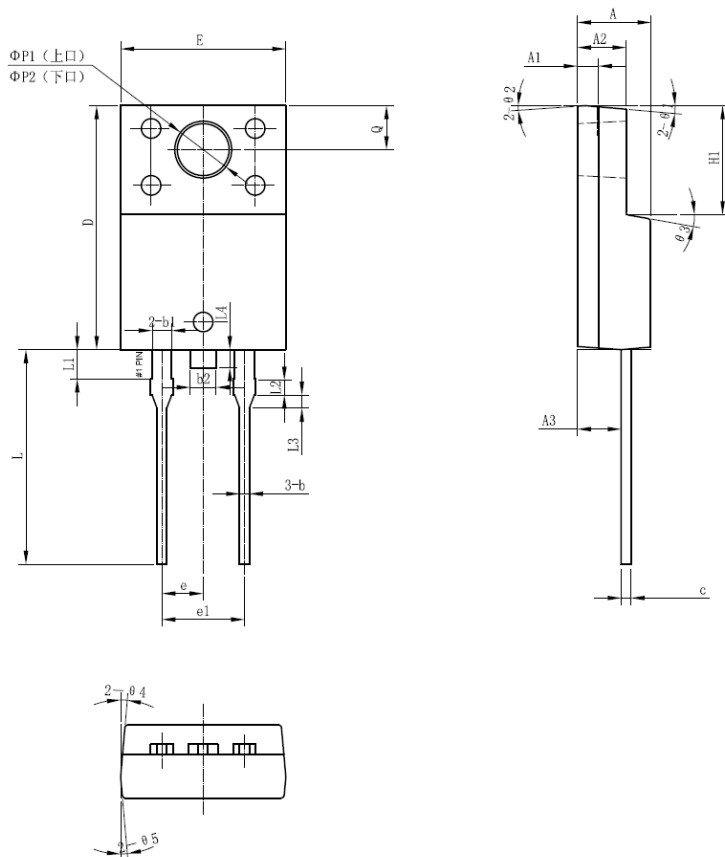
- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection
- Center tap configuration

Features:

- 150 °C T_J operation
- Center tap configuration
- Low forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- This is a Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request



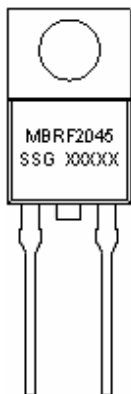
Mechanical Dimensions: In mm



| SYMBOL | MIN. | TYP. | MAX. |
|---------|-------|-------|-------|
| A | 4.30 | 4.50 | 4.70 |
| A1 | 1.10 | 1.30 | 1.50 |
| A2 | 2.80 | 3.00 | 3.20 |
| A3 | 2.50 | 2.70 | 2.90 |
| b | 0.50 | 0.60 | 0.75 |
| b1 | 1.10 | 1.20 | 1.35 |
| b2 | 1.50 | 1.60 | 1.75 |
| c | 0.55 | 0.60 | 0.75 |
| D | 14.80 | 15.00 | 15.20 |
| E | 9.96 | 10.16 | 10.36 |
| e | - | 2.55 | - |
| e1 | - | 5.10 | - |
| H1 | 6.50 | 6.70 | 6.90 |
| L | 12.70 | 13.20 | 13.70 |
| L1 | 1.60 | 1.80 | 2.00 |
| L2 | 0.80 | 1.00 | 1.20 |
| L3 | 0.60 | 0.80 | 1.00 |
| L4 | - | 1.10 | 1.50 |
| ΦP1(上口) | 3.30 | 3.50 | 3.70 |
| ΦP2(下口) | 2.99 | 3.19 | 3.39 |
| Q | 2.50 | 2.70 | 2.90 |
| Θ1 | | 5° | |
| Θ2 | | 4° | |
| Θ3 | | 10° | |
| Θ4 | | 5° | |
| Θ5 | | 5° | |

ITO-220AC(HD)

Marking Diagram:



Where XXXXX is YYWWL

| | |
|-----|-------------------------|
| MBR | = Device Type |
| F | = Package type |
| 20 | = Forward Current (20A) |
| 45 | = Reverse Voltage (45V) |
| SSG | = SSG |
| YY | = Year |
| WW | = Week |
| L | = Lot Number |

Cautions: Molding resin
Epoxy resin UL:94V-0

Ordering Information:

| Device | Package | Shipping |
|----------|------------------------|--------------|
| MBRF2045 | ITO-220AC (Pb-Free) | 50pcs / tube |

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification.

Maximum Ratings:

| Characteristics | Symbol | Condition | Max. | Units |
|--|-------------|---|------|-------|
| Peak Inverse Voltage | V_{RWM} | - | 45 | V |
| Max. Average Forward Current | $I_{F(AV)}$ | @ $T_C = 105^\circ\text{C}$, Rated V_R | 20 | A |
| Max. Peak One Cycle Non-Repetitive Surge Current | I_{FSM} | 8.3 ms, half Sine pulse | 252 | A |

Electrical Characteristics:

| Characteristics | Symbol | Condition | Max. | Units |
|-----------------------------|----------|--|--------|------------------|
| Max. Forward Voltage Drop* | V_{F1} | @ 20A, Pulse, $T_J = 25\text{ }^{\circ}\text{C}$ | 0.60 | V |
| | V_{F2} | @ 20A, Pulse, $T_J = 125\text{ }^{\circ}\text{C}$ | 0.58 | V |
| Max. Reverse Current | I_{R1} | @ $V_R = \text{rated } V_R$ $T_J = 25\text{ }^{\circ}\text{C}$ | 1 | mA |
| | I_{R2} | @ $V_R = \text{rated } V_R$ $T_J = 100\text{ }^{\circ}\text{C}$ | 50 | mA |
| Max. Junction Capacitance | C_T | @ $V_R = 5\text{V}$, $T_C = 25\text{ }^{\circ}\text{C}$ $f_{\text{SIG}} = 1\text{MHz}$ | 900 | pF |
| Typical Series Inductance | L_S | Measured lead to lead 5 mm from package body | 8.0 | nH |
| Max. Voltage Rate of Change | dv/dt | - | 10,000 | V/ μs |

* Pulse Width < 300 μs , Duty Cycle <2%

Thermal-Mechanical Specifications:

| Characteristics | Symbol | Condition | Specification | Units |
|---|-----------------------|--------------------------------------|---------------|----------------------|
| Junction Temperature Range | T_J | - | -55 to +150 | $^{\circ}\text{C}$ |
| Storage Temperature Range | T_{stg} | - | -55 to +150 | $^{\circ}\text{C}$ |
| Maximum Thermal Resistance Junction to Case | $R_{\theta\text{JC}}$ | DC operation | 1.5 | $^{\circ}\text{C/W}$ |
| Maximum Thermal Resistance, Junction to Case(Per package) | $R_{\theta\text{JC}}$ | DC operation | 50 | $^{\circ}\text{C/W}$ |
| Maximum Thermal Resistance, Case to Heat Sink | $R_{\theta\text{CS}}$ | Mounting surface, smooth and greased | 0.50 | $^{\circ}\text{C/W}$ |
| Approximate Weight | wt | - | 1.6 | g |
| Case Style | ITO-220AC | | | |

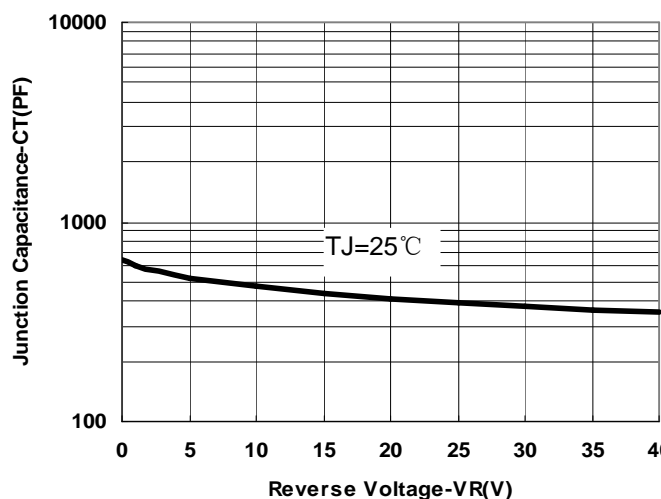


Fig.1-Typical Junction Capacitance

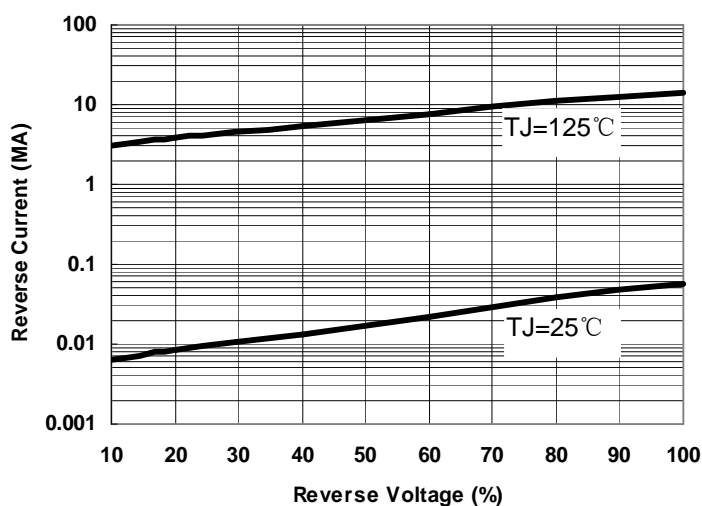


Fig.2-Typical Reverse Characteristics

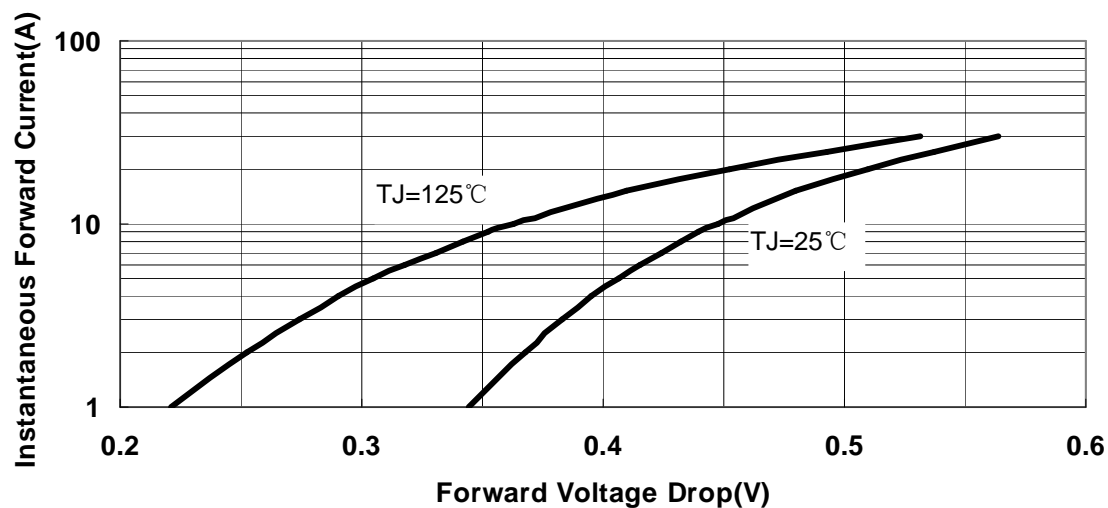


Fig.3-Typical Instantaneous Forward Voltage Characteristics

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