

Technical Data  
Data Sheet N0856, Rev. -

*Green Products*

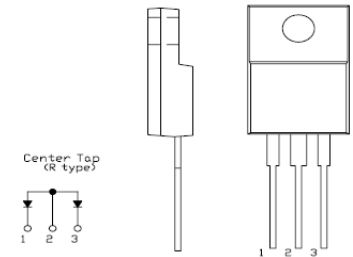
**MBRF40100CTR SCHOTTKY RECTIFIER**

**Applications:**

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

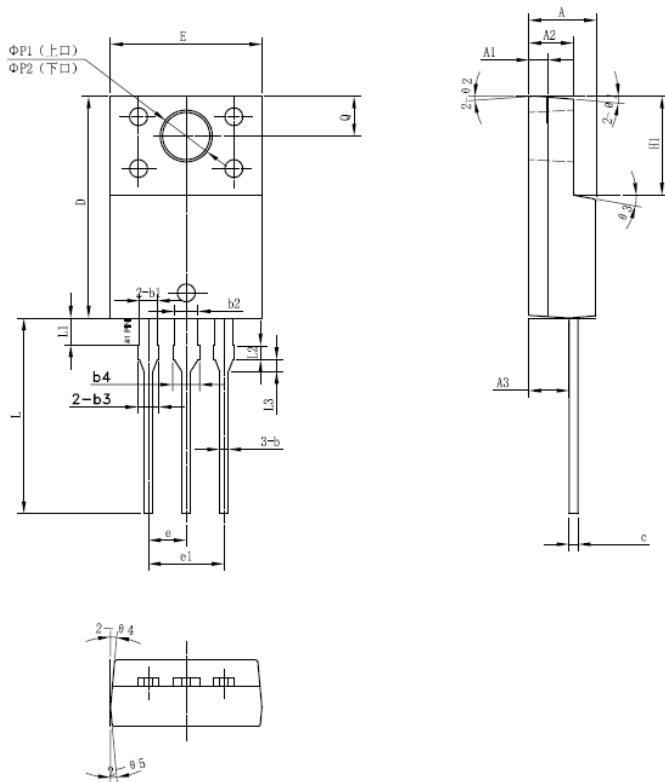
**Features:**

- 150°C T<sub>J</sub> 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



**OUTLINE DRAWING**

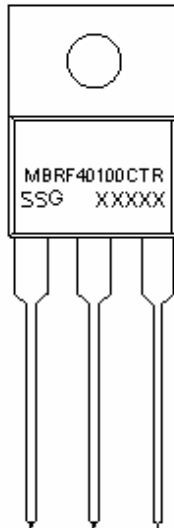
**Mechanical Dimensions: In mm**



| 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  |
| b3      | 1.20  | 1.30  | 1.45  |
| b4      | 1.60  | 1.70  | 1.85  |
| 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  |
| 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-220AB**

**Marking Diagram:**



Where XXXXX is YYWWL

MBR = Device Type  
F = Package type  
40 = Forward Current (40A)  
100 = Reverse Voltage (100V)  
CTR = Configuration  
SSG = SSG  
YY = Year  
WW = Week  
L = Lot Number

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

**Ordering Information:**

| Device       | Package                | Shipping     |
|--------------|------------------------|--------------|
| MBRF40100CTR | ITO-220AB<br>(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  | $V_{RWM}$   | -   | 100  | V     |
| Max. Average Forward  | $I_{F(AV)}$ | 50% duty cycle @ $T_C = 105^\circ\text{C}$ ,<br>rectangular wave form | 40   | A     |
| Max. Peak One Cycle Non-<br>Repetitive Surge Current<br>(per leg) | $I_{FSM}$   | 8.3 ms, half Sine pulse   | 280  | A     |



**Electrical Characteristics:**

| Characteristics   | Symbol    | Condition   | Max.   | Units            |
|---|-----------|---|--------|------------------|
| Max. Forward Voltage Drop (per leg)*  | $V_{F1}$  | @ 20A, Pulse, $T_J = 25\text{ }^\circ\text{C}$  | 0.88   | V                |
|   | $V_{F2}$  | @ 20A, Pulse, $T_J = 125\text{ }^\circ\text{C}$   | 0.74   | V                |
| Max. Reverse Current (per leg)*   | $I_{R1}$  | @ $V_R = \text{rated } V_R$<br>$T_J = 25\text{ }^\circ\text{C}$   | 1.0    | mA               |
|   | $I_{R2}$  | @ $V_R = \text{rated } V_R$<br>$T_J = 125\text{ }^\circ\text{C}$  | 6      | mA               |
| Max. Junction Capacitance (per leg)   | $C_T$     | @ $V_R = 5\text{V}$ , $T_C = 25\text{ }^\circ\text{C}$<br>$f_{SIG} = 1\text{MHz}$                       | 400    | pF               |
| Typical Series Inductance (per leg)   | $L_S$     | Measured lead to lead 5 mm from package body  | 8.0    | nH               |
| Max. Voltage Rate of Change   | dv/dt     | -   | 10,000 | V/ $\mu\text{s}$ |
| RSM Isolation Voltage (t = 1.0 second, R. H. < =30%, $T_A = 25\text{ }^\circ\text{C}$ ) | $V_{ISO}$ | Clip mounting, the epoxy body away from the heatsink edge by more than 0.110" along the lead direction. | 4500   | V                |
|   |           | Clip mounting, the epoxy body is inside the heatsink.   | 3500   |                  |
|   |           | Screw mounting, the epoxy body is inside the heatsink.  | 1500   |                  |

\* Pulse Width < 300 $\mu\text{s}$ , Duty Cycle <2%

**Thermal-Mechanical Specifications:**

| Characteristics                                       | Symbol          | Condition    | Specification | Units              |
|---|-----------------|--------------|---------------|--------------------|
| Max. Junction Temperature                             | $T_J$           | -            | -55 to +150   | $^\circ\text{C}$   |
| Max. Storage Temperature                              | $T_{stg}$       | -            | -55 to +150   | $^\circ\text{C}$   |
| Maximum Thermal Resistance Junction to Case (per leg) | $R_{\theta JC}$ | DC operation | 3.5           | $^\circ\text{C/W}$ |
| Approximate Weight                                    | wt              | -            | 2             | g                  |
| Case Style  | ITO-220AB       |              |               |                    |

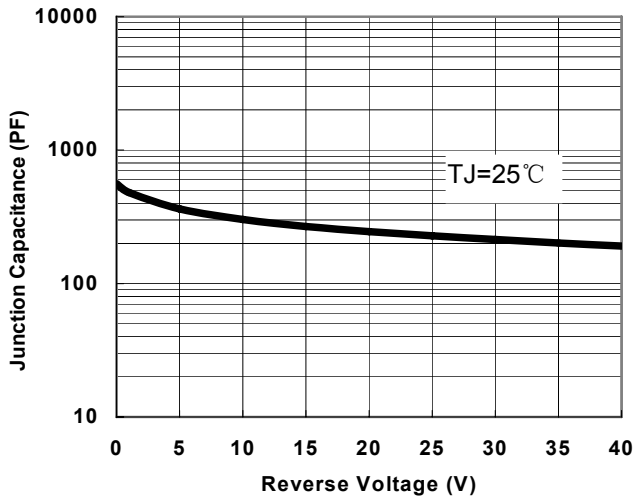


Fig.1-Typical Junction Capacitance

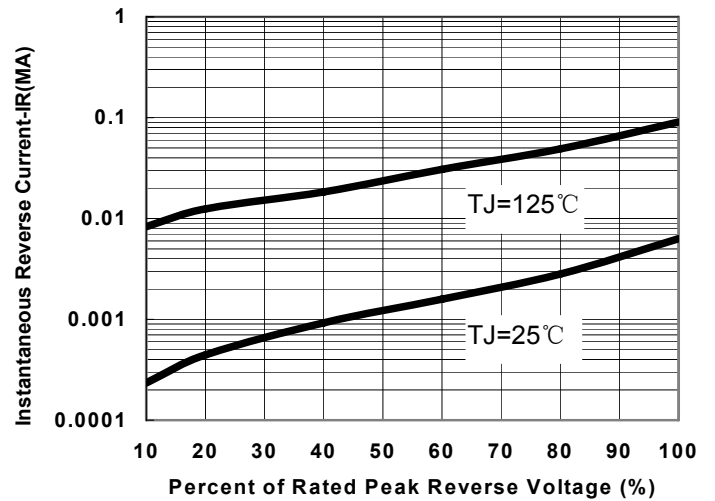


Fig.2-Typical Reverse Characteristics

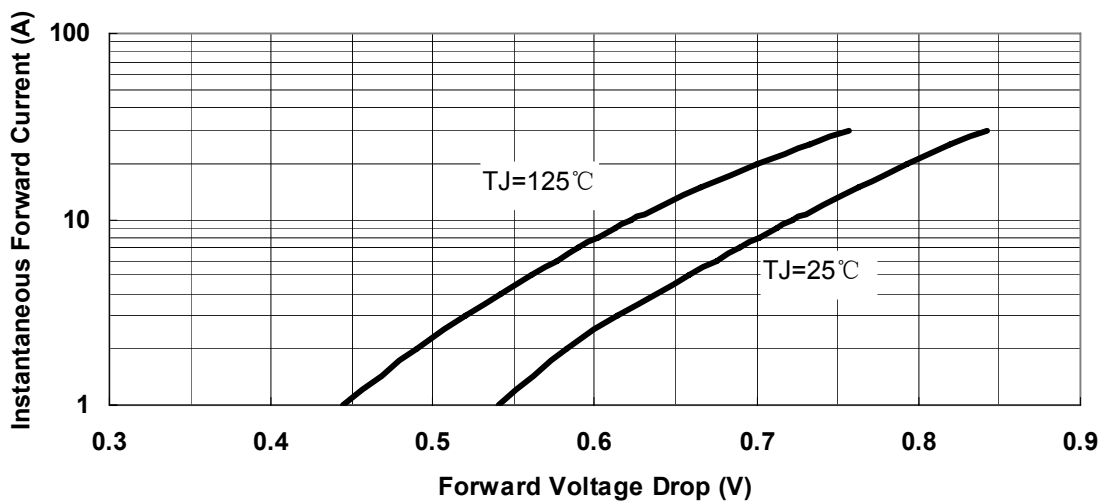


Fig.3-Typical Instantaneous Forward Voltage Characteristics

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