

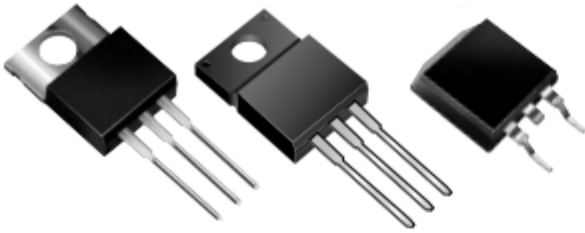


MBR20100CT, MBRF20100CT & MBRB20100CT Series

New Product

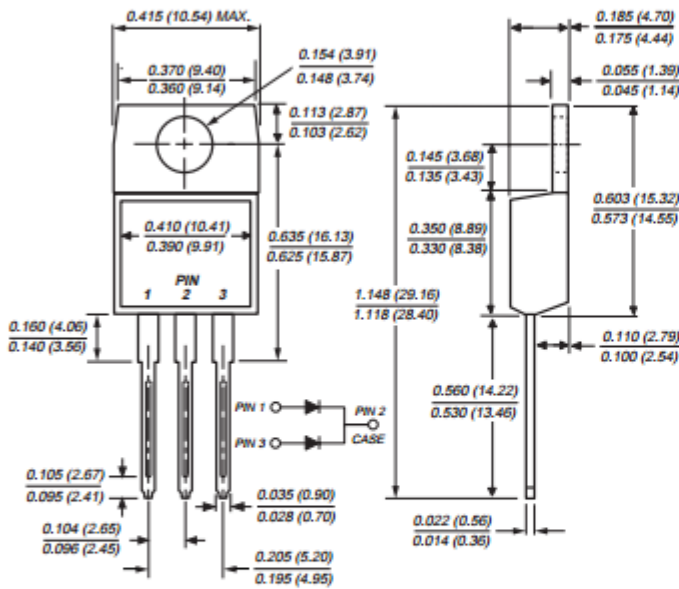
Vishay Semiconductors
formerly General Semiconductor

Dual High-Voltage Schottky Rectifiers

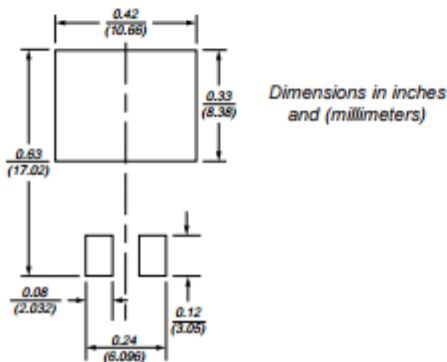


Reverse Voltage 90 to 100V
Forward Current 20A

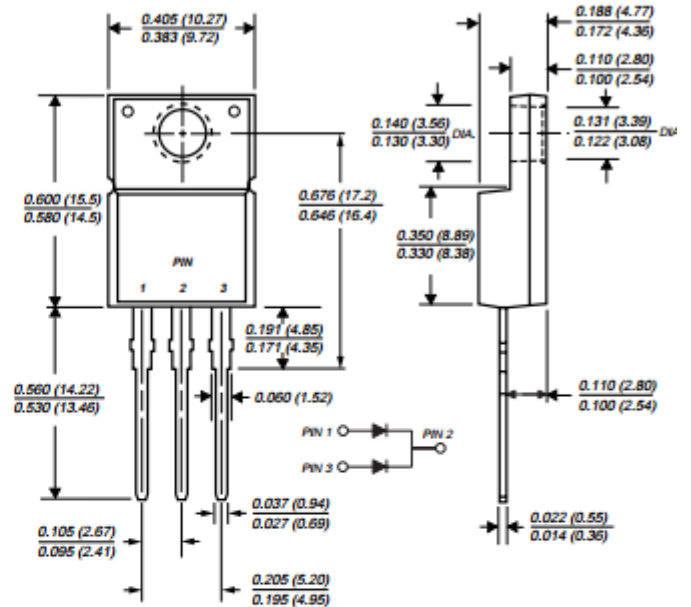
TO-220AB (MBR2090CT, MBR20100CT)



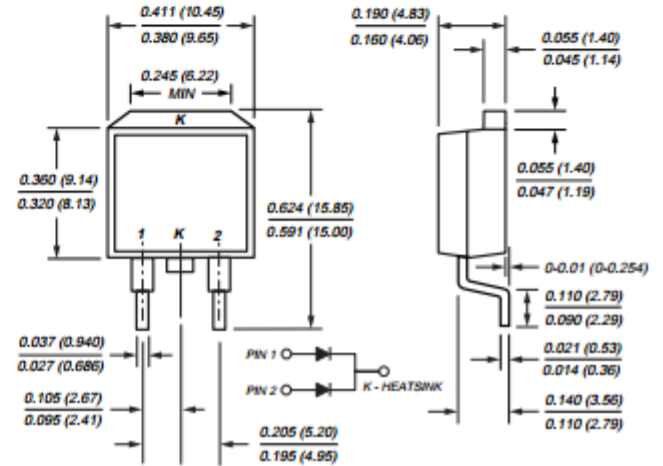
Mounting Pad Layout TO-263AB



ITO-220AB (MBRF2090CT, MBRF20100CT)



TO-263AB (MBRB2090CT, MBRB20100CT)



Features

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Dual rectifier construction, positive center tap
- Metal silicon junction, majority carrier conduction
- Low power loss, high efficiency
- Guardring for overvoltage protection
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds, 0.25" (6.35mm) from case

Mechanical Data

Case: JEDEC TO-220AB, ITO-220AB & TO-263AB molded plastic body

Terminals: Plated leads, solderable per MIL-STD-750, Method 2026

Polarity: As marked

Mounting Position: Any

Mounting Torque: 10 in-lbs maximum

Weight: 0.08 oz., 2.24 g

Maximum Ratings (T_C = 25°C unless otherwise noted)

| Parameter | Symbol | MBR2090CT | MBR20100CT | Unit |
|--|-----------------------------------|---|------------|------|
| Maximum repetitive peak reverse voltage | V _{RRM} | 90 | 100 | V |
| Working peak reverse voltage | V _{RWM} | 90 | 100 | V |
| Maximum DC blocking voltage | V _{DC} | 90 | 100 | V |
| Maximum average forward rectified current at T _C = 133°C | I _{F(AV)} | Total device Per leg 20 10 | | A |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) per leg | I _{FSM} | 150 | | A |
| Peak repetitive reverse current per leg at t _p = 2μs, 1KHz | I _{RRM} | 0.5 | | A |
| Voltage rate of change (rated V _R) | dv/dt | 10,000 | | V/μs |
| Operating junction and storage temperature range | T _J , T _{STG} | -65 to +150 | | °C |
| RMS Isolation voltage (MBRF type only) from terminals to heatsink with t = 1 second, RH ≤ 30% | V _{ISOL} | 4500 ⁽¹⁾ 3500 ⁽²⁾ 1500 ⁽³⁾ | | V |

Electrical Characteristics (T_C = 25°C unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|----------------|---|------|
| Maximum instantaneous forward voltage per leg at ⁽⁴⁾ : | V _F | I _F = 10A, T _C = 25°C 0.80 | V |
| I _F = 10A, T _C = 125°C 0.65 | | | |
| I _F = 20A, T _C = 25°C 0.95 | | | |
| I _F = 20A, T _C = 125°C 0.75 | | | |
| Maximum reverse current per leg at working peak reverse voltage ⁽⁴⁾ | I _R | T _J = 25°C 100 | μA |
| T _J = 100°C 6.0 | | mA | |

Thermal Characteristics (T_C = 25°C unless otherwise noted)

| Parameter | Symbol | MBR | MBRF | MBRB | Unit |
|------------------------------------|------------------|-----|------|------|------|
| Typical thermal resistance per leg | R _{θJA} | 60 | — | 60 | °C/W |
| | R _{θJC} | 2 | 3.5 | 2 | |

Notes:

- (1) Clip mounting (on case), where lead does not overlap heatsink with 0.110" offset
 (2) Clip mounting (on case), where leads do overlap heatsink
 (3) Screw mounting with 4-40 screw, where washer diameter is ≤ 4.9 mm (0.19")
 (4) Pulse test: 300μs pulse width, 1% duty cycle

Ordering Information

| Product | Case | Package Code | Package Option |
|-------------------------|-----------|--------------|---|
| MBR2090CT, MBR20100CT | TO-220AB | 45 | Anti-Static tube, 50/tube, 2K/carton |
| MBRF2090CT, MBRF20100CT | ITO-220AB | 45 | Anti-Static tube, 50/tube, 2K/carton |
| MBRB2090CT, MBRB20100CT | TO-263AB | 31 | 13" reel, 800/reel, 4.8K/carton |
| | | 45 | Anti-Static tube, 50/tube, 2K/carton |
| | | 81 | Anti-Static 13" reel, 800/reel, 4.8K/carton |

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

Fig. 1 - Forward Current Derating Curve

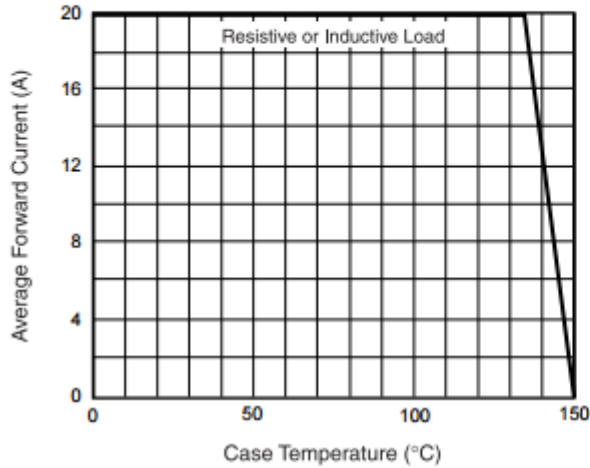


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

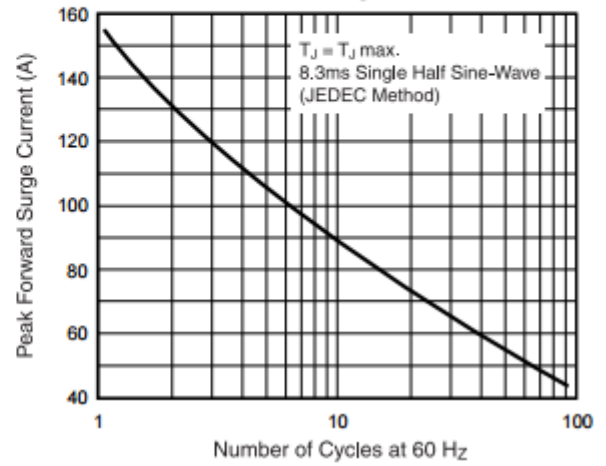


Fig. 3 - Typical Instantaneous Forward Characteristics

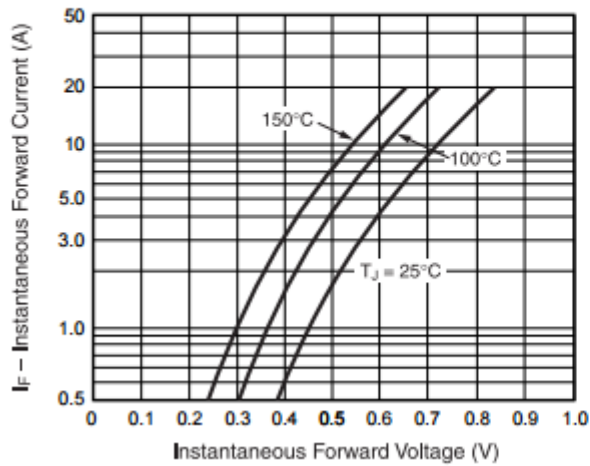


Fig. 4 - Typical Reverse Characteristics

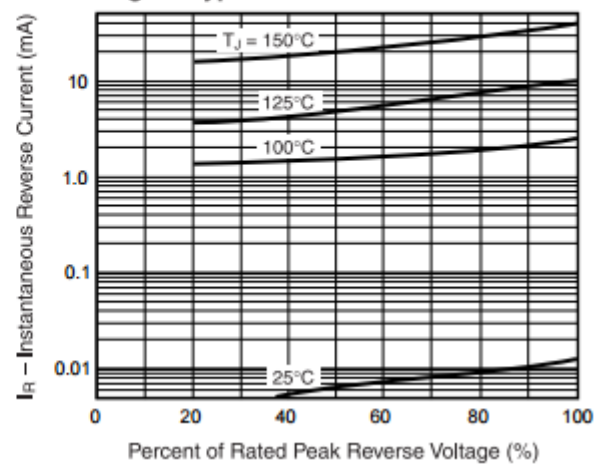


Fig. 5 - Typical Transient Thermal Impedance

