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Vishay General Semiconductor

Dual Common Cathode Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance

TO-220AB





| PRIMARY CHARACTERISTICS | | | |
|-------------------------|----------------|--|--|
| I _{F(AV)} | 2 x 15 A | | |
| V _{RRM} | 60 V | | |
| I _{FSM} | 150 A | | |
| V _F | 0.59 V | | |
| I _R | 60 μΑ | | |
| T _J max. | 175 °C | | |
| Package | TO-220AB | | |
| Circuit configuration | Common cathode | | |

FEATURES

- Power pack
- · Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- Low leakage current
- · High forward surge capability
- High frequency operation
- Solder bath temperature 275 °C maximum, 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see <u>www.vishav.com/doc?99912</u>

TYPICAL APPLICATIONS

For use in low voltage, high frequency rectifier of switching mode power supplies, freewheeling diodes, DC/DC converters, or polarity protection application.

MECHANICAL DATA

Case: TO-220AB

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade

Terminals: matte tin plated leads, solderable per

J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test

Polarity: as marked

Mounting Torque: 10 in-lbs maximum

| PARAMETER | SYMBOL | MBR30H60CT | UNIT |
|--|-----------------------------------|-------------|------|
| Maximum repetitive peak reverse voltage | V _{RRM} | 60 | V |
| Working peak reverse voltage | V _{RWM} | 60 | V |
| Maximum DC blocking voltage | V _{DC} | 60 | V |
| Maximum average forward restified averant (fig. 1) | | 30 | ^ |
| Maximum average forward rectified current (fig. 1) per diode | I _{F(AV)} | 15 | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | I _{FSM} | 150 | А |
| Peak repetitive reverse surge current per diode at t_p = 2 μ s, 1 kHz | I _{RRM} | 0.5 | А |
| Peak non-repetitive reverse energy (8/20 µs waveform) | E _{RSM} | 20 | mJ |
| Non-repetitive avalanche energy per diode at 25 $^{\circ}$ C, I_{AS} = 4 A, L = 10 mH | E _{AS} | 80 | mJ |
| Electrostatic discharge capacitor voltage human body model: C = 100 pF, R = 1.5 k Ω | V _C | 25 | kV |
| 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 +175 | °C |



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| ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | |
|---|-----------------------|-------------------------|-------------------------------|------------|------|------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | MBR30H60CT | | UNIT |
| Maximum instantaneous forward voltage per diode | I _F = 15 A | T _C = 25 °C | V _F ⁽¹⁾ | - | 0.68 | V |
| | I _F = 15 A | T _C = 125 °C | | 0.55 | 0.59 | |
| | I _F = 30 A | T _C = 25 °C | | - | 0.83 | |
| | I _F = 30 A | T _C = 125 °C | | 0.68 | 0.71 | |
| Maximum reverse current per diode at working peak reverse voltage | | T _J = 25 °C | I _R ⁽²⁾ | - | 60 | μΑ |
| | | T _J = 125 °C | | 4.0 | 15 | mA |

Notes

 $^{(1)}\,$ Pulse test: 300 μs pulse width, 1 % duty cycle

(2) Pulse test: pulse width \leq 40 ms

| THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | |
|---|----------------|-----|------|--|
| PARAMETER | SYMBOL | MBR | UNIT | |
| Typical thermal resistance junction to case per diode | $R_{	heta JC}$ | 1.5 | °C/W | |

| ORDERING INFORMATION (Example) | | | | | | |
|--------------------------------|------------------|-----------------|--------------|---------------|---------------|--|
| PACKAGE | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE | |
| TO-220AB | MBR30H60CT-E3/45 | 1.85 | 45 | 50/tube | Tube | |

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

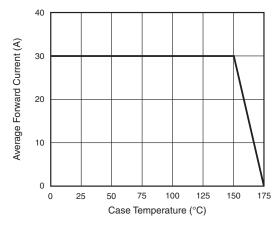


Fig. 1 - Forward Derating Curve

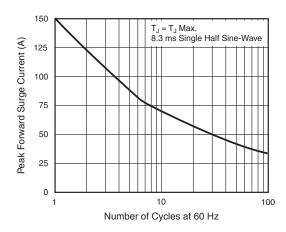


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode



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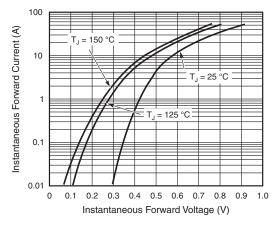


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

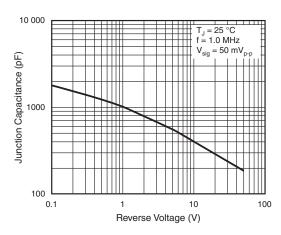


Fig. 5 - Typical Junction Capacitance Per Diode

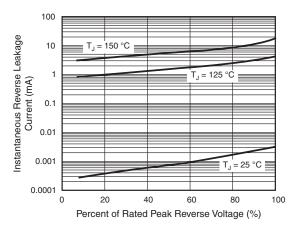


Fig. 4 - Typical Reverse Characteristics Per Diode

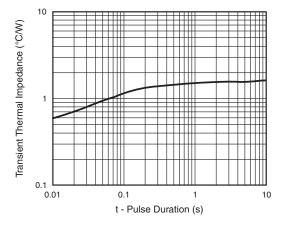
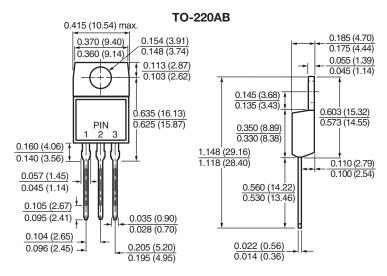


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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