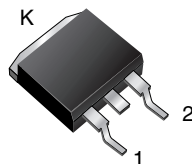
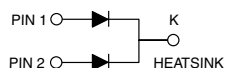


Dual Common Cathode Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance

D²PAK (TO-263AB)

MBRB30HxxCT


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
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C
- AEC-Q101 qualified available
- Automotive ordering code: base P/NHM3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE

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: D²PAK (TO-263AB)

Molding compound meets UL 94 V-0 flammability rating
Base P/N-M3 - RoHS-compliant, halogen-free, commercial grade

Base P/NHM3 - RoHS-compliant, halogen-free, AEC-Q101 qualified

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test, HM3 suffix meets JESD 201 class 2 whisker test

Polarity: as marked

| PRIMARY CHARACTERISTICS | |
|-------------------------|-------------------------------|
| $I_{F(AV)}$ | 2 x 15 A |
| V_{RRM} | 45 V, 60 V |
| I_{FSM} | 150 A |
| V_F | 0.56 V, 0.59 V |
| I_R | 80 μ A, 60 μ A |
| T_J max. | 175 °C |
| Package | D ² PAK (TO-263AB) |
| Circuit configuration | Common cathode |

| MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted) | | | | |
|---|-----------------------------------|-------------|-------------|------|
| PARAMETER | SYMBOL | MBRB30H45CT | MBRB30H60CT | UNIT |
| Maximum repetitive peak reverse voltage | V _{RRM} | 45 | 60 | V |
| Working peak reverse voltage | V _{RWM} | 45 | 60 | V |
| Maximum DC blocking voltage | V _{DC} | 45 | 60 | V |
| Maximum average forward rectified current (fig. 1) <div>total device</div> <div>per diode</div> | I _{F(AV)} | 30 | | A |
| | | 15 | | |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | I _{FSM} | 150 | | A |
| Peak repetitive reverse surge current per diode at t _p = 2 μs, 1 kHz | I _{RRM} | 1.0 | 0.5 | A |
| Peak non-repetitive reverse energy (8/20 μs waveform) | E _{RSM} | 25 | 20 | mJ |
| Non-repetitive avalanche energy per diode at 25 °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 kΩ | 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 |

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

| PARAMETER | TEST CONDITIONS | | SYMBOL | MBRB30H45CT | | MBRB30H60CT | | UNIT |
|---|-----------------------|-------------------------|-------------------------------|-------------|------|-------------|------|------|
| | | | | TYP. | MAX. | TYP. | MAX. | |
| Maximum instantaneous forward voltage per diode | I _F = 15 A | T _C = 25 °C | V _F ⁽¹⁾ | - | 0.62 | - | 0.68 | V |
| | I _F = 15 A | T _C = 125 °C | | 0.49 | 0.56 | 0.55 | 0.59 | |
| | I _F = 30 A | T _C = 25 °C | | - | 0.73 | - | 0.83 | |
| | I _F = 30 A | T _C = 125 °C | | 0.62 | 0.67 | 0.68 | 0.71 | |
| Maximum reverse current per diode at working peak reverse voltage | | T _J = 25 °C | I _R ⁽²⁾ | - | 80 | - | 60 | μA |
| | | T _J = 125 °C | | 5.0 | 15 | 4.0 | 15 | mA |

Notes(1) Pulse test: 300 μs pulse width, 1 % duty cycle(2) Pulse test: pulse width $\leq 40\text{ ms}$ **THERMAL CHARACTERISTICS** ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

| PARAMETER | SYMBOL | MBRB30H45CT | MBRB30H60CT | UNIT |
|---|-----------------|-------------|-------------|----------------------|
| Typical thermal resistance junction to case per diode | $R_{\theta JC}$ | 1.5 | | $^{\circ}\text{C/W}$ |

ORDERING INFORMATION (Example)

| PACKAGE | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|-------------------------------|---------------------------------|-----------------|--------------|---------------|---------------|
| D ² PAK (TO-263AB) | MBRB30H45CT-M3/I | 1.35 | I | 800/reel | Tape and reel |
| D ² PAK (TO-263AB) | MBRB30H45CTHM3/I ⁽¹⁾ | 1.35 | I | 800/reel | Tape and reel |

Notes

(1) AEC-Q101 qualified

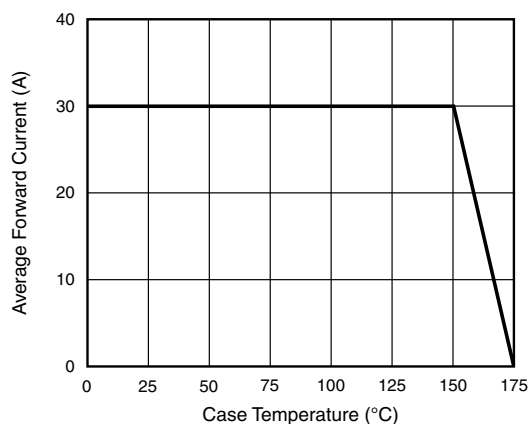
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)


Fig. 1 - Forward Derating Curve

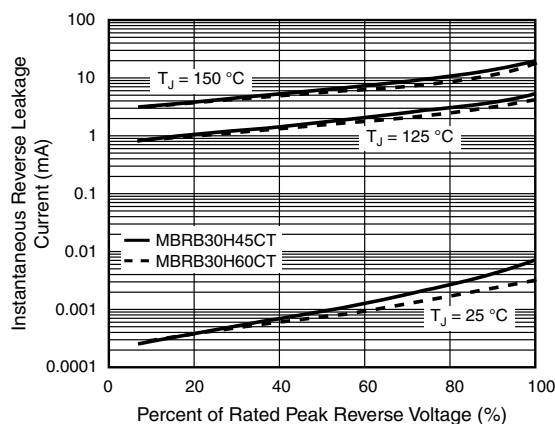


Fig. 4 - Typical Reverse Characteristics Per Diode

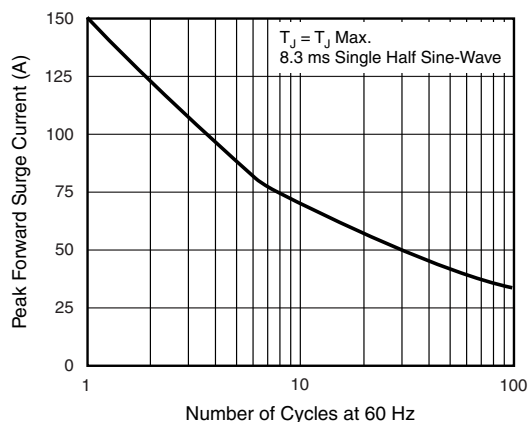


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

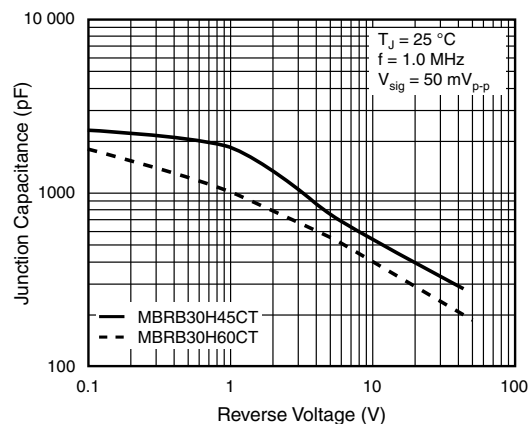


Fig. 5 - Typical Junction Capacitance Per Diode

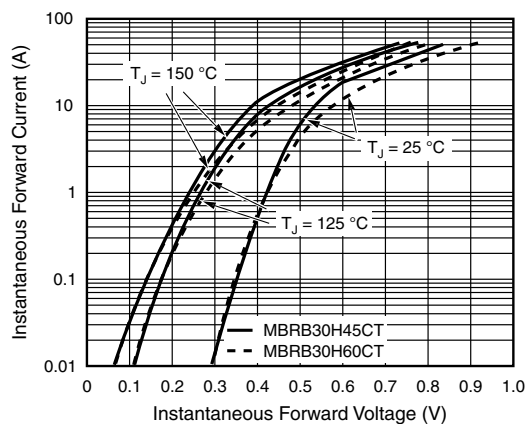


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

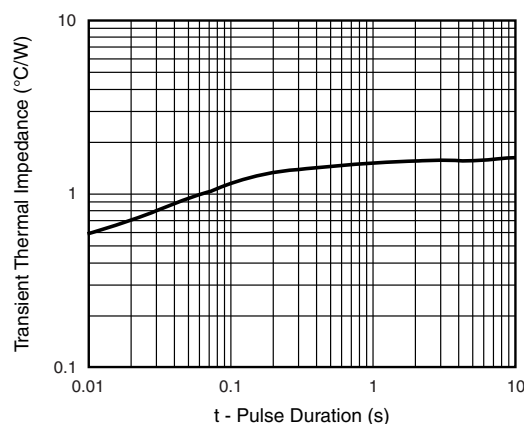
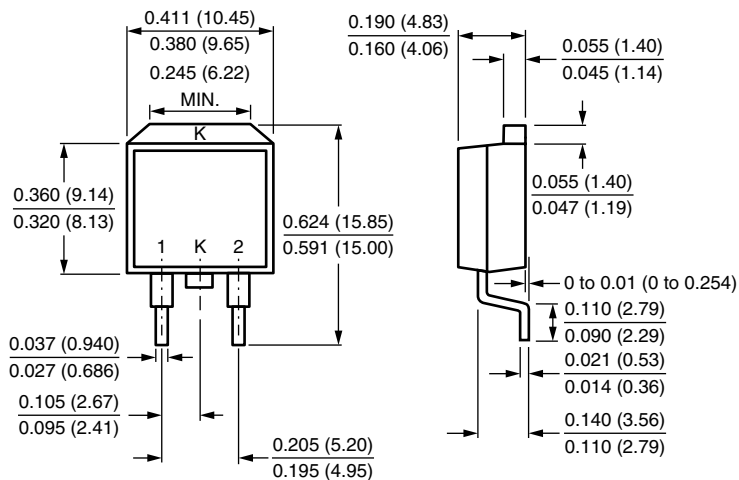


Fig. 6 - Typical Transient Thermal Impedance Per Diode

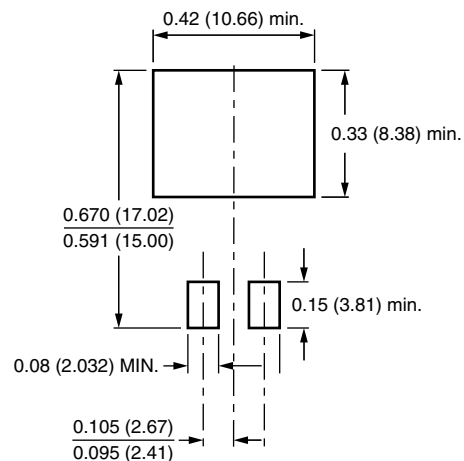


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

D²PAK (TO-263AB)



Mounting Pad Layout





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