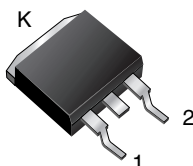
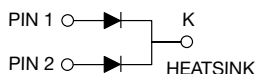


# Dual Common Cathode Schottky Rectifier

**D<sup>2</sup>PAK (TO-263AB)**

**MBRB2545CT**


**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

## FEATURES

- Power pack
- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- 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](http://www.vishay.com/doc?99912)

## 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:** D<sup>2</sup>PAK (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 JESD22-B102

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

**Polarity:** as marked

## LINKS TO ADDITIONAL RESOURCES



| PRIMARY CHARACTERISTICS |                               |
|-------------------------|-------------------------------|
| $I_{F(AV)}$             | 2 x 12.5 A                    |
| $V_{RRM}$               | 45 V                          |
| $I_{FSM}$               | 150 A                         |
| $V_F$                   | 0.73 V at 30 A                |
| $T_J \text{ max.}$      | 150 °C                        |
| Package                 | D <sup>2</sup> PAK (TO-263AB) |
| Circuit configuration   | Common cathode                |

| MAXIMUM RATINGS ( $T_C = 25\text{ °C}$ unless otherwise noted)   |             |                    |                  |
|--|-------------|--------------------|------------------|
| PARAMETER  | SYMBOL      | MBRB2545CT         | UNIT             |
| Maximum repetitive peak reverse voltage  | $V_{RRM}$   | 45                 | V                |
| Working peak reverse voltage   | $V_{RWM}$   | 45                 |                  |
| Maximum DC blocking voltage  | $V_{DC}$    | 45                 |                  |
| Maximum average forward rectified current at $T_C = 130\text{ °C}$   | $I_{F(AV)}$ | total device<br>25 | A                |
|  |             | per diode<br>12.5  |                  |
| 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 $t_p = 2\text{ }\mu\text{s}$ , 1 kHz                    | $I_{RRM}$   | 1.0                |                  |
| Peak non-repetitive reverse energy (8/20 $\mu\text{s}$ waveform) per diode                                 | $E_{RSM}$   | 25                 | mJ               |
| Electrostatic discharge capacitor voltage human body model: $C = 100\text{ pF}$ , $R = 1.5\text{ k}\Omega$ | $V_C$       | 25                 | kV               |
| Voltage rate of change (rated $V_R$ )  | $dV/dt$     | 10 000             | V/ $\mu\text{s}$ |
| Operating junction temperature range   | $T_J$       | -65 to +150        | °C               |
| Storage temperature range  | $T_{STG}$   | -65 to +175        |                  |

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

| PARAMETER   | TEST CONDITIONS     | SYMBOL                              | MBRB2545CT | UNIT |
|---|---------------------|-------------------------------------|------------|------|
| Maximum instantaneous forward voltage per diode                     | $I_F = 30\text{ A}$ | $T_C = 25\text{ }^{\circ}\text{C}$  | 0.82       | V    |
|   |                     | $T_C = 125\text{ }^{\circ}\text{C}$ | 0.73       |      |
| Maximum instantaneous reverse current at blocking voltage per diode |                     | $T_C = 25\text{ }^{\circ}\text{C}$  | 0.2        | mA   |
|   |                     | $T_C = 125\text{ }^{\circ}\text{C}$ | 40         |      |

**Notes**

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

(2) Pulse test: pulse width  $\leq 40\text{ ms}$

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

| PARAMETER  | SYMBOL          | MBRB2545CT | UNIT                 |
|--|-----------------|------------|----------------------|
| Typical thermal resistance from 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 <sup>2</sup> PAK (TO-263AB) | MBRB2545CT-M3/I                | 1.35            | I            | 800/reel      | Tape and reel |
| D <sup>2</sup> PAK (TO-263AB) | MBRB2545CTHM3/I <sup>(1)</sup> | 1.35            | I            | 800/reel      | Tape and reel |

**Note**

(1) AEC-Q101 qualified

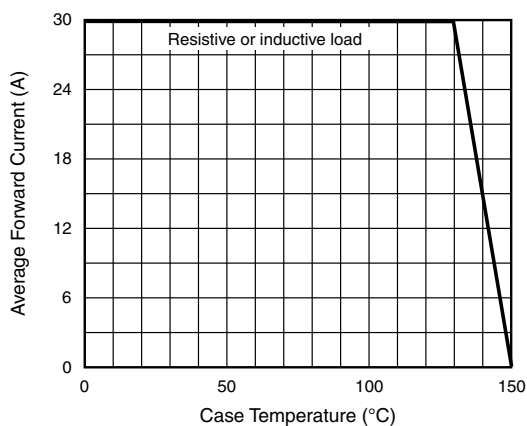
**RATINGS AND CHARACTERISTICS CURVES** ( $T_C = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

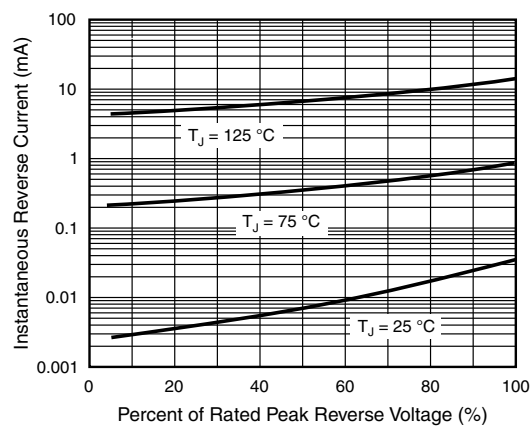


Fig. 4 - Typical Reverse Characteristics Per Diode

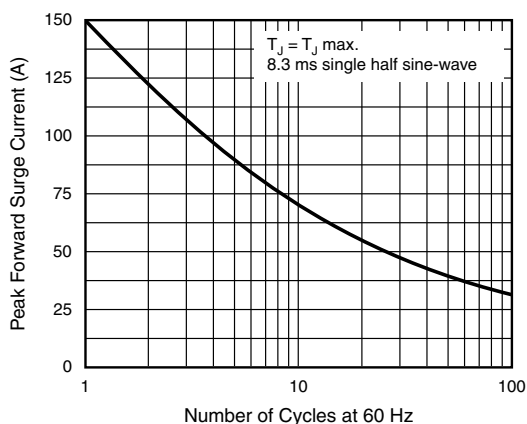


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

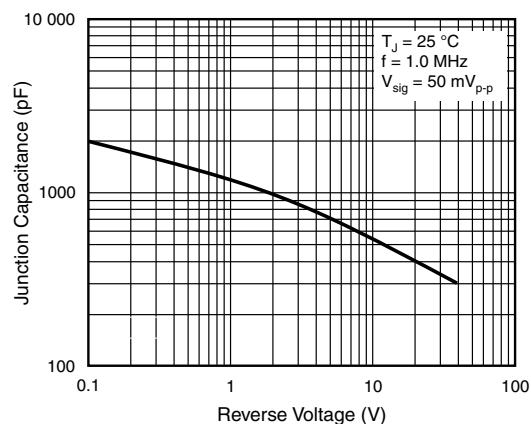


Fig. 5 - Typical Junction Capacitance Per Diode

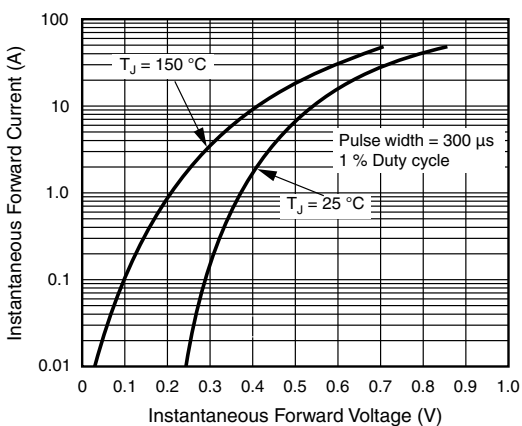


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

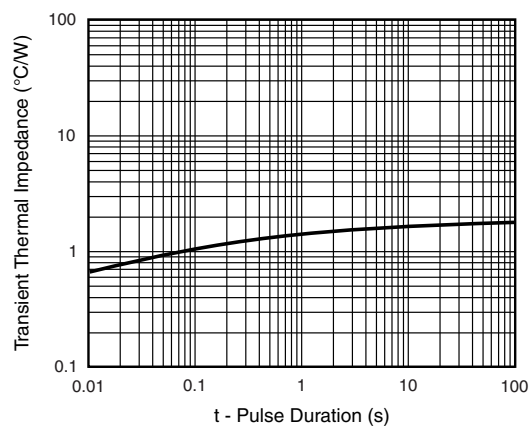
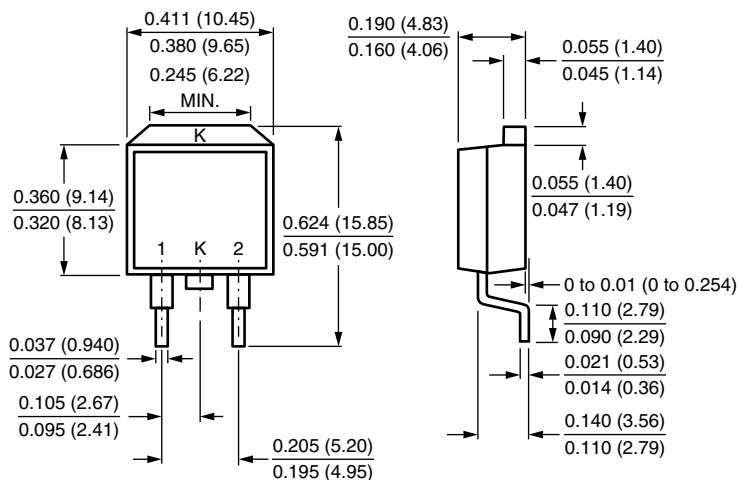


Fig. 6 - Typical Transient Thermal Impedance Per Diode

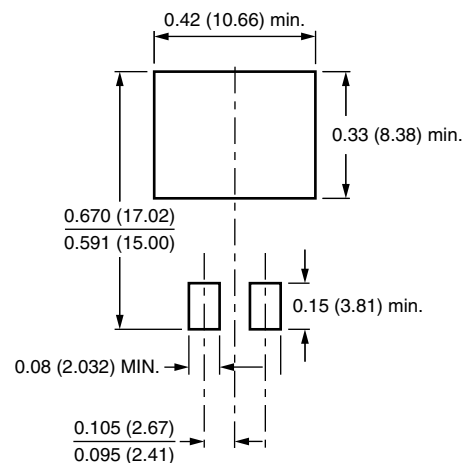


**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**D<sup>2</sup>PAK (TO-263AB)**



**Mounting Pad Layout**





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