

# ANTREX Electronics

## Electronic Components Sourcing Information

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### Product Reference Information

|                      |                                                |
|----------------------|------------------------------------------------|
| <b>Part Number:</b>  | MBRB745-M3/I                                   |
| <b>Manufacturer:</b> | Vishay General Semiconductor - Diodes Division |
| <b>Package:</b>      | TO-263-3, D2PAK (2 Leads + Tab), TO-263AB      |
| <b>Availability:</b> | Please confirm with sales                      |

#### Product Page:

<https://antrexco.com/product/details/vishay-general-semiconductor-diodes-division/mbrb745-m3-i.html>



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New & Original Components

Supplier verification and packaging condition review

CoC / RoHS / REACH documents available on request

Secure sourcing support for OEM / EMS projects

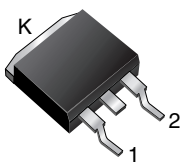
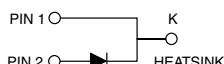
#### Note:

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.

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# Schottky Barrier Rectifier

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

**MBRB7xx**


## FEATURES

- Power pack
- Guardring for overvoltage protection
- Low power loss, 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)


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

## LINKS TO ADDITIONAL RESOURCES



| PRIMARY CHARACTERISTICS |                               |
|-------------------------|-------------------------------|
| $I_{F(AV)}$             | 7.5 A                         |
| $V_{RRM}$               | 45, 60 V                      |
| $I_{FSM}$               | 150 A                         |
| $V_F$                   | 0.57 V, 0.65 V                |
| $T_J$ max.              | 150 °C                        |
| Package                 | D <sup>2</sup> PAK (TO-263AB) |
| Circuit configuration   | Single                        |

## TYPICAL APPLICATIONS

For use in low voltage, high frequency rectifier of switching mode power supplies, freewheeling diodes, DC/DC converters, and 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 JESD 22-B102

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

**Polarity:** as marked

| MAXIMUM RATINGS (T <sub>C</sub> = 25 °C unless otherwise noted)                    |                    |             |         |      |
|------------------------------------------------------------------------------------|--------------------|-------------|---------|------|
| PARAMETER                                                                          | SYMBOL             | MBRB745     | MBRB760 | UNIT |
| Maximum repetitive peak reverse voltage                                            | V <sub>RRM</sub>   | 45          | 60      | V    |
| Working peak reverse voltage                                                       | V <sub>RWM</sub>   | 45          | 60      |      |
| Maximum DC blocking voltage                                                        | V <sub>DC</sub>    | 45          | 60      |      |
| Maximum average forward rectified current (fig. 1)                                 | I <sub>F(AV)</sub> | 7.5         |         | A    |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I <sub>FSM</sub>   | 150         |         |      |
| Peak repetitive reverse surge current at t <sub>p</sub> = 2.0 μs, 1 kHz            | I <sub>RRM</sub>   | 1.0         | 0.5     |      |
| Voltage rate of change (rated V <sub>R</sub> )                                     | dV/dt              | 10 000      |         | V/μs |
| Operating junction temperature range                                               | T <sub>J</sub>     | -65 to +150 |         | °C   |
| Operating storage temperature range                                                | T <sub>STG</sub>   | -65 to +175 |         |      |

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

| PARAMETER                                      | SYMBOL      | TEST CONDITIONS                                          | MBRB745                             | MBRB760 | UNIT |
|------------------------------------------------|-------------|----------------------------------------------------------|-------------------------------------|---------|------|
| Maximum instantaneous forward voltage          | $V_F^{(1)}$ | $I_F = 7.5\text{ A}$ $T_C = 25\text{ }^{\circ}\text{C}$  | -                                   | 0.75    | V    |
|                                                |             | $I_F = 7.5\text{ A}$ $T_C = 125\text{ }^{\circ}\text{C}$ | 0.57                                | 0.65    |      |
|                                                |             | $I_F = 15\text{ A}$ $T_C = 25\text{ }^{\circ}\text{C}$   | 0.84                                | -       |      |
|                                                |             | $I_F = 15\text{ A}$ $T_C = 125\text{ }^{\circ}\text{C}$  | 0.72                                | -       |      |
| Maximum reverse current at DC blocking voltage | $I_R^{(2)}$ | Rated $V_R$                                              | $T_C = 25\text{ }^{\circ}\text{C}$  | 0.1     | mA   |
|                                                |             |                                                          | $T_C = 125\text{ }^{\circ}\text{C}$ | 15      |      |

**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          | MBRB745 | MBRB760 | UNIT                 |
|--------------------------------------------------|-----------------|---------|---------|----------------------|
| Typical thermal resistance from junction to case | $R_{\theta JC}$ | 3.0     |         | $^{\circ}\text{C/W}$ |

**ORDERING INFORMATION** (Example)

| PACKAGE                       | PREFERRED P/N               | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|-------------------------------|-----------------------------|-----------------|--------------|---------------|---------------|
| D <sup>2</sup> PAK (TO-263AB) | MBRB745-M3/I                | 1.33            | I            | 800/reel      | Tape and reel |
| D <sup>2</sup> PAK (TO-263AB) | MBRB745HM3/I <sup>(1)</sup> | 1.33            | I            | 800/reel      | Tape and reel |

**Note**

- (1) AEC-Q101 qualified

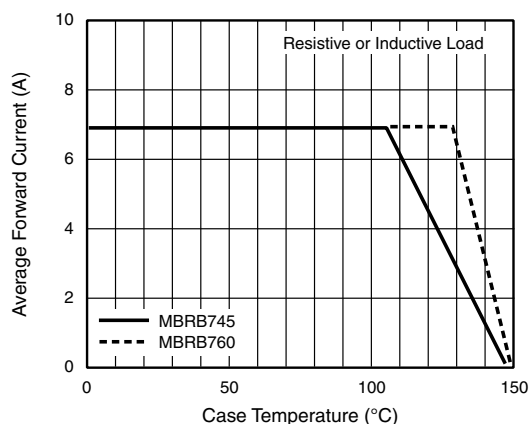
**RATINGS AND CHARACTERISTICS CURVES** ( $T_C = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

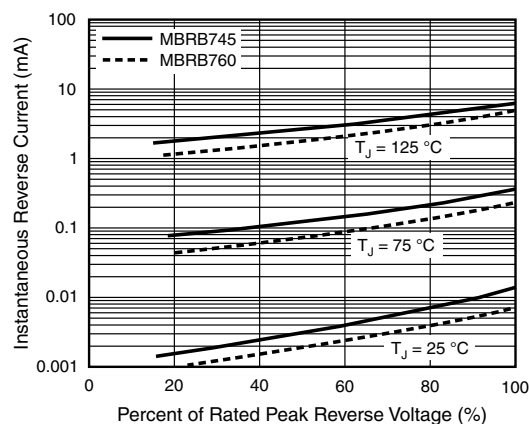


Fig. 4 - Typical Reverse Characteristics

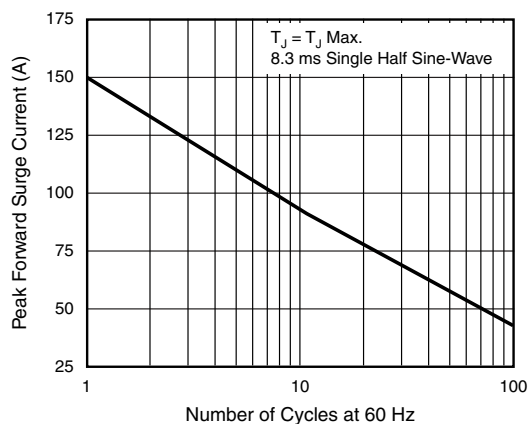


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

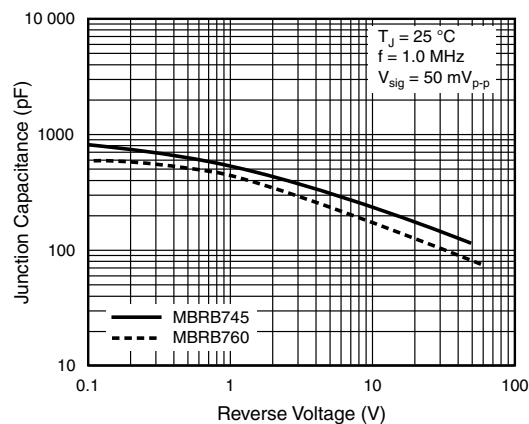


Fig. 5 - Typical Junction Capacitance

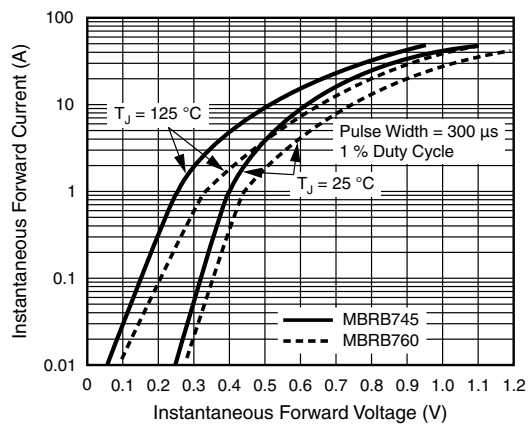


Fig. 3 - Typical Instantaneous Forward Characteristics

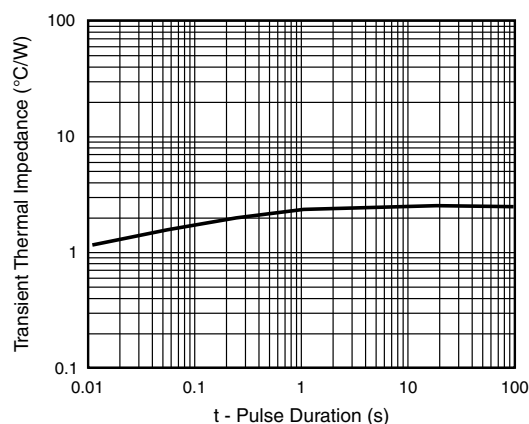
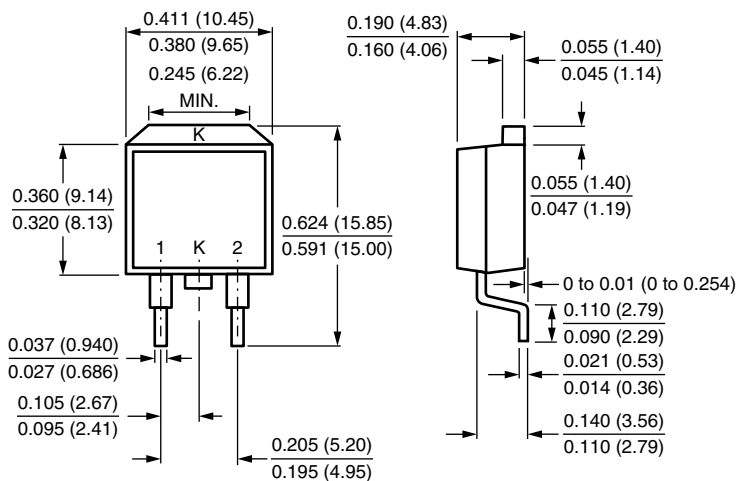


Fig. 6 - Typical Transient Thermal Impedance

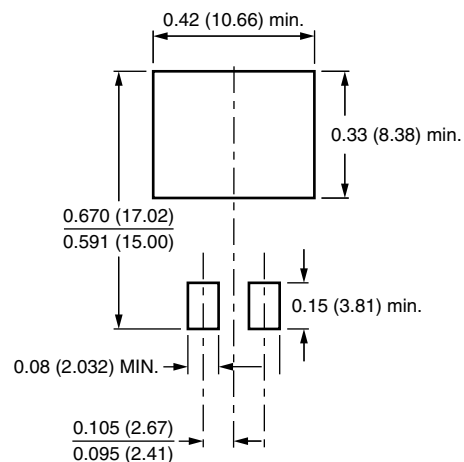


**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

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



**Mounting Pad Layout**





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