

## Excellent Integrated System Limited

Stocking Distributor

Click to view price, real time Inventory, Delivery & Lifecycle Information:

[Vishay Semiconductor/Diodes Division](#)  
[M3045S-M3/4W](#)

For any questions, you can email us directly:

[sales@integrated-circuit.com](mailto:sales@integrated-circuit.com)

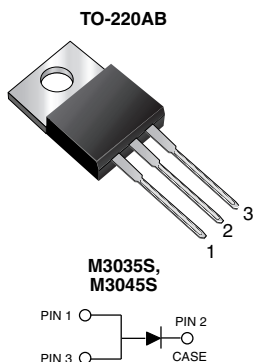


www.vishay.com

## M3035S, M3045S

Vishay General Semiconductor

### Schottky Barrier Rectifier



#### FEATURES

- Power pack
- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://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 applications.

#### MECHANICAL DATA

**Case:** TO-220AB

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

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

M3 suffix meets JESD 201 class 1A whisker test

**Polarity:** As marked

**Mounting Torque:** 10 in-lbs maximum

| PRIMARY CHARACTERISTICS |            |
|-------------------------|------------|
| $I_{F(AV)}$             | 30 A       |
| $V_{RRM}$               | 35 V, 45 V |
| $I_{FSM}$               | 200 A      |
| $V_F$ at $I_F = 30$ A   | 0.61 V     |
| $T_J$ max.              | 150 °C     |
| Package                 | TO-220AB   |
| Diode variations        | Single die |

| MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)                           |             |             |        |            |
|---|-------------|-------------|--------|------------|
| PARAMETER   | SYMBOL      | M3035S      | M3045S | UNIT       |
| Maximum repetitive peak reverse voltage   | $V_{RRM}$   | 35          | 45     | V          |
| Maximum average forward rectified current (fig. 1)                                | $I_{F(AV)}$ | 30          |        | A          |
| Peak forward surge current 10 ms single half sine-wave superimposed on rated load | $I_{FSM}$   | 200         |        | A          |
| Peak repetitive reverse current per leg at $t_p = 2$ $\mu$ s, 1 kHz               | $I_{RRM}$   | 2.0         |        | A          |
| Voltage rate of change (rated $V_R$ )   | dV/dt       | 10 000      |        | V/ $\mu$ s |
| Operating junction temperature range  | $T_J$       | -65 to +150 |        | °C         |
| Storage temperature range   | $T_{STG}$   | -65 to +175 |        | °C         |



www.vishay.com

## M3035S, M3045S

Vishay General Semiconductor

| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                       |                         |                               |      |      |    |
|--|-----------------------|-------------------------|-------------------------------|------|------|----|
| PARAMETER  | TEST CONDITIONS       | SYMBOL                  | TYP.                          | MAX. | UNIT |    |
| Maximum instantaneous forward voltage                                      | I <sub>F</sub> = 15 A | T <sub>J</sub> = 25 °C  | V <sub>F</sub> <sup>(1)</sup> | 0.54 | -    | V  |
|  | I <sub>F</sub> = 30 A |                         |                               | 0.65 | 0.70 |    |
|  | I <sub>F</sub> = 15 A | T <sub>J</sub> = 125 °C |                               | 0.46 | -    |    |
|  | I <sub>F</sub> = 30 A |                         |                               | 0.61 | 0.66 |    |
| Maximum instantaneous reverse current at rated V <sub>R</sub>              |                       | T <sub>J</sub> = 25 °C  | I <sub>R</sub> <sup>(2)</sup> | 40   | 200  | μA |
|  |                       | T <sub>J</sub> = 125 °C |                               | 26   | 55   | mA |
| Typical junction capacitance   | 4.0 V, 1 MHz          | C <sub>J</sub>          |                               | 980  | pF   |    |

### Notes

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 40 ms

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                  |        |        |      |
|---|------------------|--------|--------|------|
| PARAMETER   | SYMBOL           | M3035S | M3045S | UNIT |
| Typical thermal resistance  | R <sub>θJC</sub> |        | 2.0    | °C/W |

| ORDERING INFORMATION (Example) |               |                 |              |               |               |
|--------------------------------|---------------|-----------------|--------------|---------------|---------------|
| PACKAGE                        | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-220AB                       | M3045S-M3/4W  | 1.878           | 4W           | 50/tube       | Tube          |

### RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)

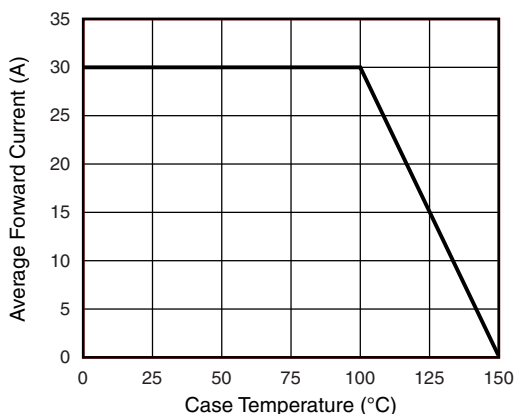


Fig. 1 - Forward Current Derating Curve

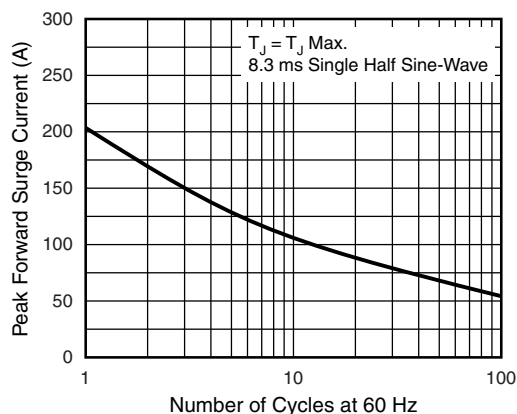


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current



www.vishay.com

**M3035S, M3045S**

Vishay General Semiconductor

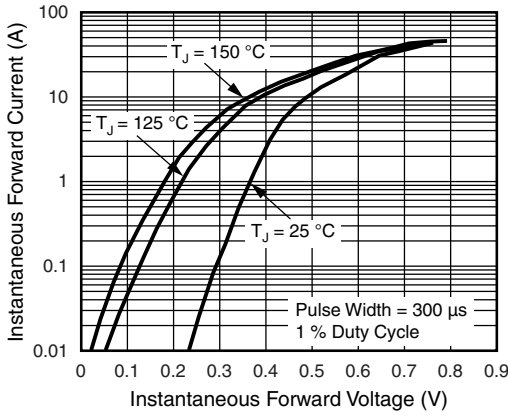


Fig. 3 - Typical Instantaneous Forward Characteristics

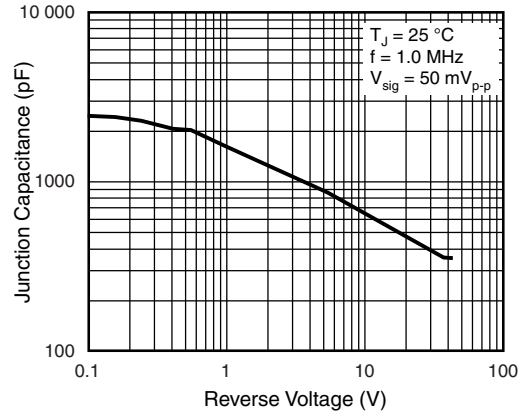


Fig. 5 - Typical Junction Capacitance

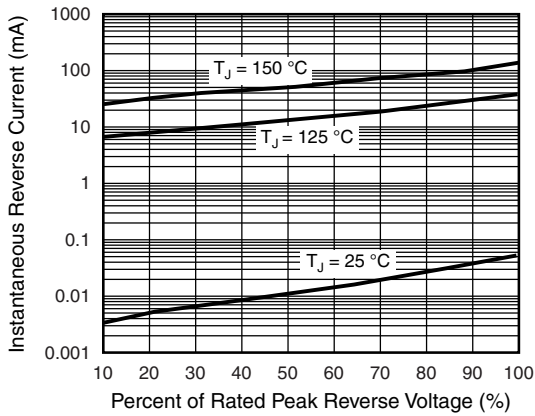


Fig. 4 - Typical Reverse Characteristics

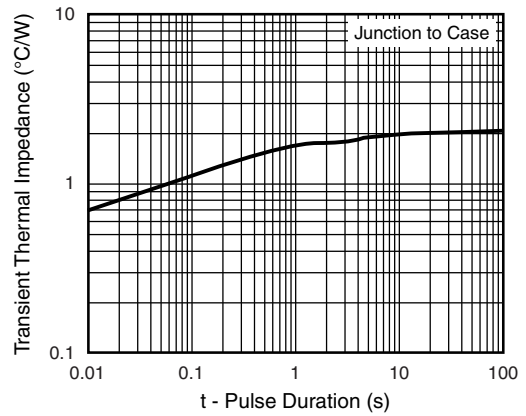
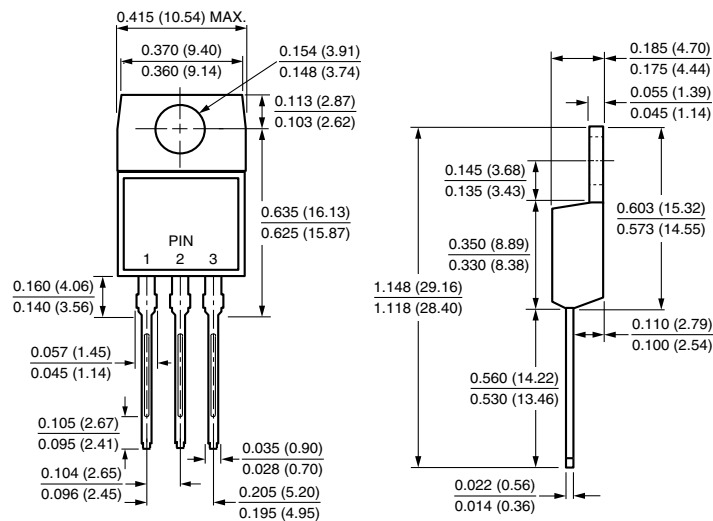


Fig. 6 - Typical Transient Thermal Impedance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)  
**TO-220AB**





## Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.