# Single Phase Bridge (Power Modules), 25 A/35 A

D-34

## FEATURES

- Universal, 3 way terminals: push-on, wrap around or solder
- High thermal conductivity package, electrically insulated case
- Center hole fixing
- Excellent power/volume ratio
- Nickel plated terminals solderable using lead (Pb)-free solder; solder alloy Sn/Ag/Cu (SAC305); solder temperature 260 °C to 275 °C
- UL E300359 approved
- Designed and qualified for industrial and consumer level
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

## DESCRIPTION

A range of extremely compact, encapsulated single phase bridge rectifiers offering efficient and reliable operation. They are intended for use in general purpose and instrumentation applications.

| PRIMARY CHARACTERISTICS | |
|---|---|
| $I_O$ | 25 A to 35 A |
| $V_{RRM}$ | 1400 V to 1600 V |
| Package | D-34 |
| Circuit configuration | Single phase bridge |

| MAJOR RATINGS AND CHARACTERISTICS | | | | |
|---|---|---|---|---|
| SYMBOL | CHARACTERISTICS | VALUES 26MB..A | VALUES 36MB..A | UNITS |
| $I_O$ | | 25 | 35 | A |
| | $T_C$ | 70 | 55 | °C |
| $I_{FSM}$ | 50 Hz | 400 | 475 | A |
| | 60 Hz | 420 | 500 | |
| $I^2t$ | 50 Hz | 790 | 1130 | $A^2s$ |
| | 60 Hz | 725 | 1030 | |
| $V_{RRM}$ | Range | 1400 to 1600 | | V |
| $T_J$ | | -55 to 150 | | °C |

## ELECTRICAL SPECIFICATIONS

| VOLTAGE RATINGS | | | | |
|---|---|---|---|---|
| TYPE NUMBER | VOLTAGE CODE | $V_{RRM}$, MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V | $V_{RSM}$, MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V | $I_{RRM}$ MAXIMUM AT $T_J$ MAXIMUM mA |
| 26MB..A<br>36MB..A | 140 | 1400 | 1500 | 2 |
| | 160 | 1600 | 1700 | |

## FORWARD CONDUCTION

| PARAMETER | SYMBOL | TEST CONDITIONS | | | VALUES 26MB..A | VALUES 36MB..A | UNITS |
|---|---|---|---|---|---|---|---|
| Maximum DC output current at case temperature | $I_O$ | Resistive or inductive load | | | 25 | 35 | A |
| | | Capacitive load | | | 20 | 28 | |
| | | | | | 65 | 60 | °C |
| Maximum peak, one cycle non-repetitive forward current | $I_{FSM}$ | t = 10 ms | No voltage reapplied | Initial $T_J = T_J$ maximum | 400 | 475 | A |
| | | t = 8.3 ms | | | 420 | 500 | |
| | | t = 10 ms | 100 % $V_{RRM}$ reapplied | | 335 | 400 | |
| | | t = 8.3 ms | | | 350 | 420 | |
| Maximum $I^2t$ for fusing | $I^2t$ | t = 10 ms | No voltage reapplied | | 790 | 1130 | $A^2s$ |
| | | t = 8.3 ms | | | 725 | 1030 | |
| | | t = 10 ms | 100 % $V_{RRM}$ reapplied | | 560 | 800 | |
| | | t = 8.3 ms | | | 512 | 730 | |
| Maximum $I^2\sqrt{t}$ for fusing | $I^2\sqrt{t}$ | $I^2t$ for time $t_x = I^2\sqrt{t} \times \sqrt{t_x}$; $0.1 \le t_x \le 10$ ms, $V_{RRM}$ = 0 V | | | 5.6 | 11.3 | $kA^2\sqrt{s}$ |
| Low level of threshold voltage | $V_{F(TO)1}$ | (16.7 % x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), $T_J$ maximum | | | 0.70 | 0.74 | V |
| High level of threshold voltage | $V_{F(TO)2}$ | (I > π x $I_{F(AV)}$), $T_J$ maximum | | | 0.75 | 0.79 | |
| Low level forward slope resistance | $r_{t1}$ | (16.7 % x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), $T_J$ maximum | | | 7.0 | 5.5 | mΩ |
| High level forward slope resistance | $r_{t2}$ | (I > π x $I_{F(AV)}$), $T_J$ maximum | | | 6.4 | 5.2 | |
| Maximum forward voltage drop | $V_{FM}$ | $T_J$ = 25 °C, $t_p$ = 400 µs, $I_{FM}$ = 40 $A_{pk}$ (26MB), $I_{FM}$ = 55 $A_{pk}$ (36MB) | | | 1.25 | 1.3 | V |
| Maximum DC reverse current per diode | $I_{RRM}$ | $T_J$ = 25 °C, at $V_{RRM}$ | | | 10 | 10 | µA |
| RMS isolation voltage base plate | $V_{ISOL}$ | f = 50 Hz, t = 1 s | | | 2700 | 2700 | V |

## THERMAL AND MECHANICAL SPECIFICATIONS

| PARAMETER | SYMBOL | TEST CONDITIONS | VALUES 26MB-A | VALUES 36MB-A | UNITS |
|---|---|---|---|---|---|
| Junction and storage temperature range | $T_J$, $T_{Stg}$ | | -55 to 150 | | °C |
| Maximum thermal resistance, junction to case per bridge | $R_{thJC}$ | | 1.7 | 1.35 | K/W |
| Maximum thermal resistance, case to heatsink | $R_{thCS}$ | Mounting surface, smooth, flat and greased | 0.2 | | |
| Mounting torque ± 10 % | | Bridge to heatsink | 2.0 | | Nm |
| Approximate weight | | | 20 | | g |

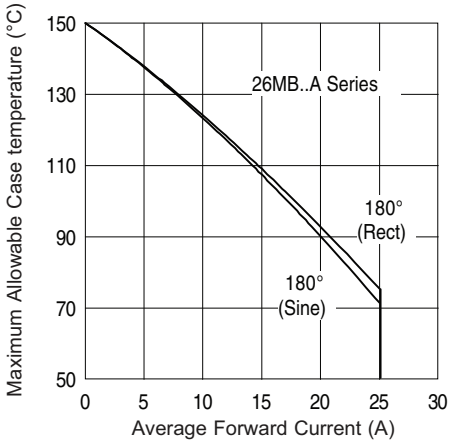



Fig. 1 - Current Ratings Characteristics

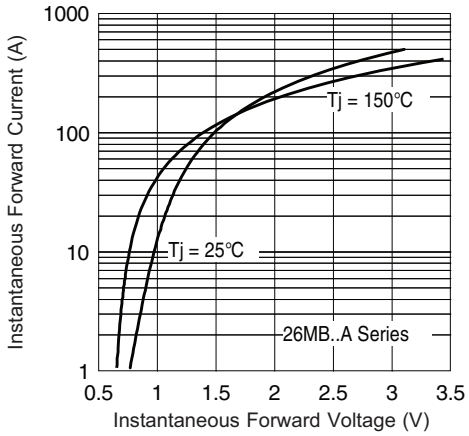



Fig. 2 - Forward Voltage Drop Characteristics

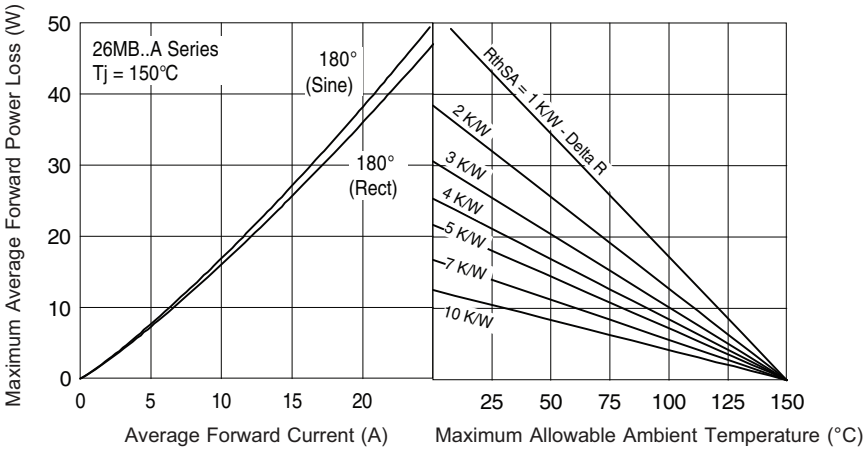



Fig. 3 - Total Power Loss Characteristics

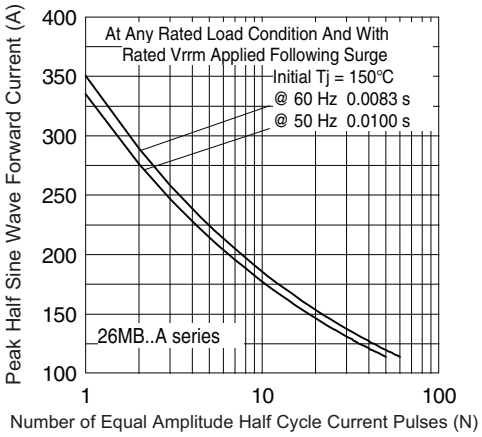



Fig. 4 - Maximum Non-Repetitive Surge Current

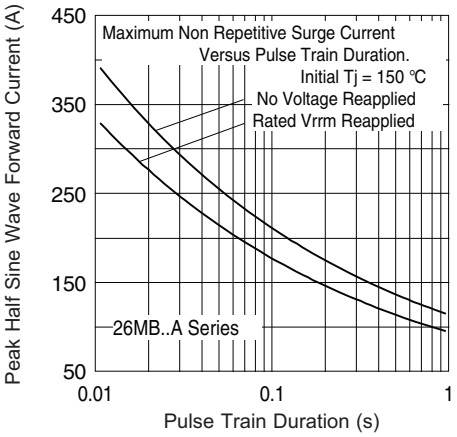



Fig. 5 - Maximum Non-Repetitive Surge Current

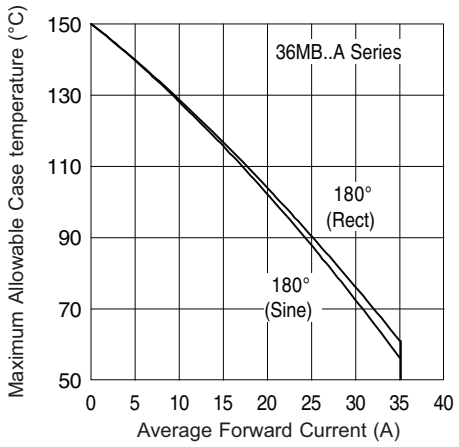



Fig. 6 - Current Ratings Characteristics

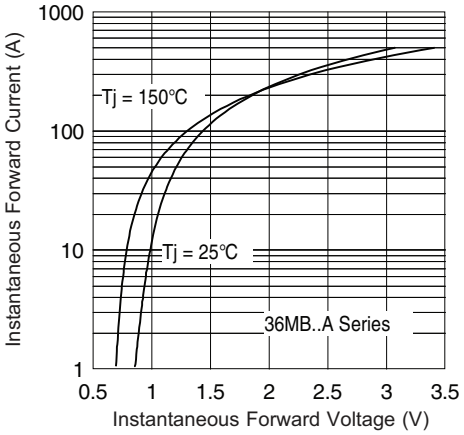



Fig. 7 - Forward Voltage Drop Characteristics

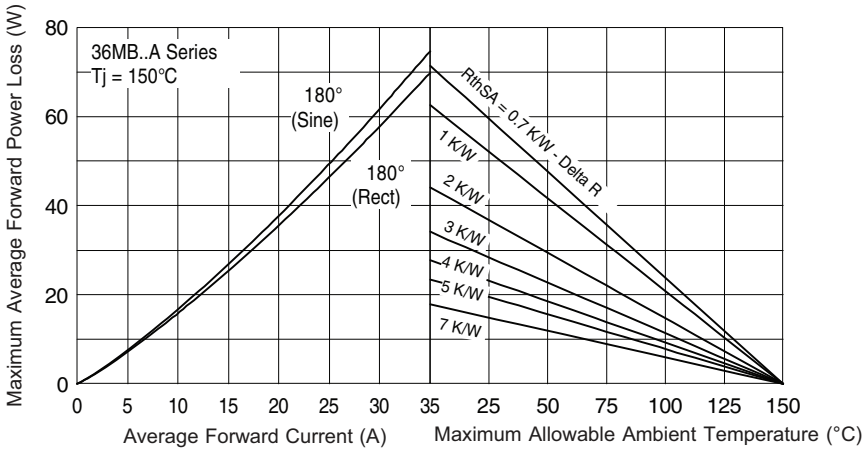



Fig. 8 - Total Power Loss Characteristics

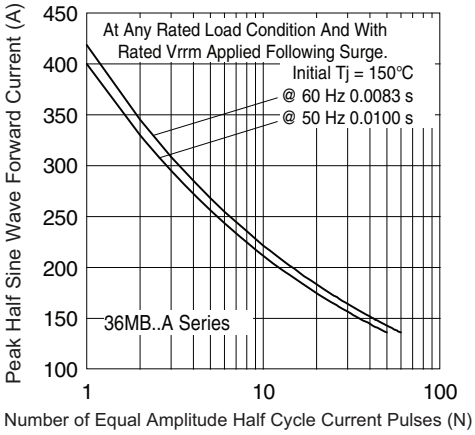



Fig. 9 - Maximum Non-Repetitive Surge Current

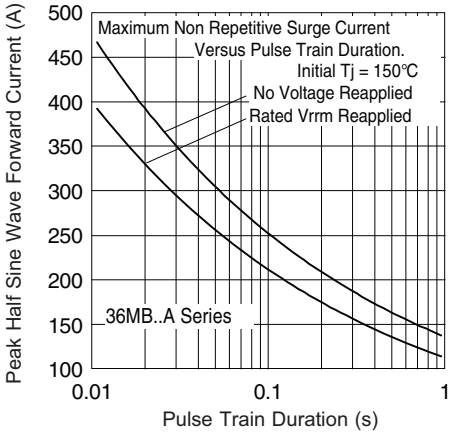



Fig. 10 - Maximum Non-Repetitive Surge Current

## ORDERING INFORMATION TABLE

Device code

| VS- | 36 | MB | 160 | A |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

1 - Vishay Semiconductors product

2 - Current rating code — 26 = 25 A (average), 36 = 35 A (average)

3 - Circuit configuration:

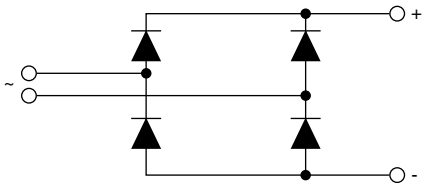
MB = Single phase european coding

4 - Voltage code x 10 = $V_{RRM}$

5 - Diode bridge rectifier:

A = 26 MB, 36 MB series

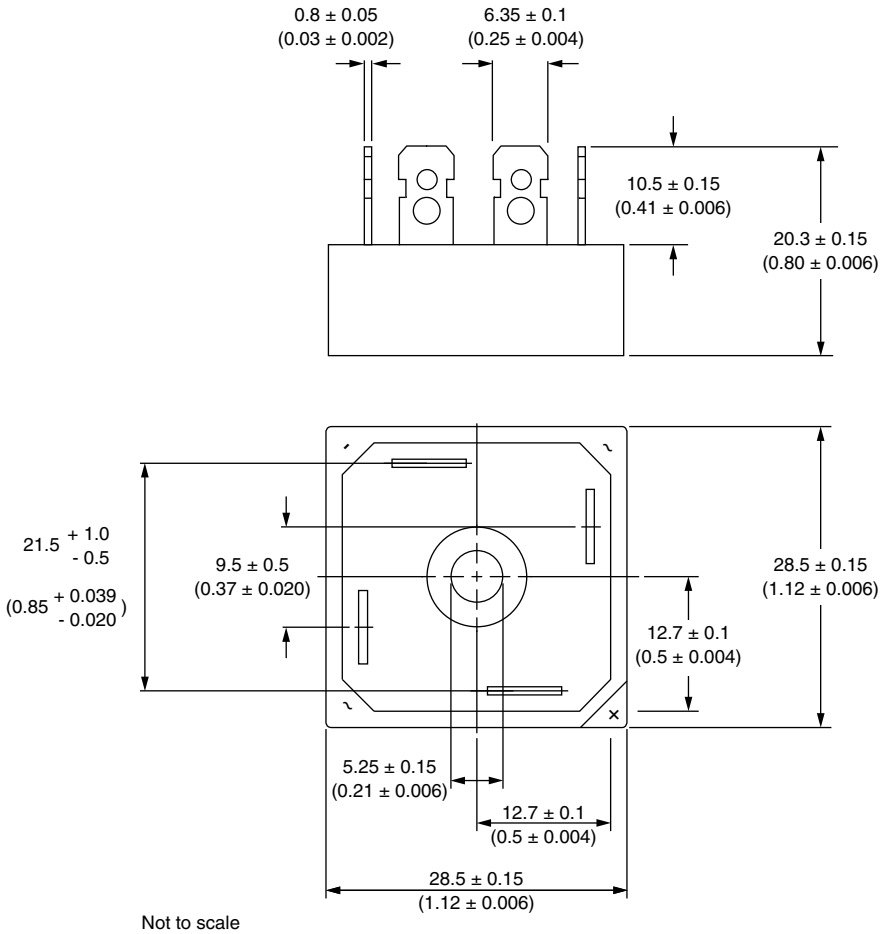
## CIRCUIT CONFIGURATION




| LINKS TO RELATED DOCUMENTS | |
|---|---|
| Dimensions | www.vishay.com/doc?95326 |

# D-34

**DIMENSIONS** in millimeters (inches)




Suggested plugging force:
200 N max; axially applied to fast-on terminals

# 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.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Vishay:
VS-26MB05A VS-26MB100A VS-26MB10A VS-26MB120A VS-26MB140A VS-26MB160A VS-26MB20A VS-26MB40A VS-26MB60A VS-26MB80A VS-36MB05A VS-36MB100A VS-36MB10A VS-36MB120A VS-36MB140A VS-36MB160A VS-36MB20A VS-36MB40A VS-36MB60A VS-36MB80A VS-26MB06