# 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
- UL E300359 approved
- Nickel plated terminals solderable using lead (Pb)-free solder; Solder Alloy Sn/Ag/Cu (SAC305); Solder temperature 260 °C to 275 °C
- Designed and qualified for industrial 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.

| PRODUCT SUMMARY | |
|---|---|
| $I_O$ | 25 A to 35 A |
| $V_{RRM}$ | 200 V to 1200 V |
| Package | D-34 |
| Circuit | Single Phase Bridge |

| MAJOR RATINGS AND CHARACTERISTICS | | | | |
|---|---|---|---|---|
| SYMBOL | CHARACTERISTICS | VALUES 26MB-A | VALUES 36MB-A | UNITS |
| $I_O$ | | 25 | 35 | A |
| | $T_C$ | 65 | 60 | °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 | 200 to 1200 | | 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 |
| 26MB..A<br>36MB..A | 20 | 200 | 275 | 2 |
| | 40 | 400 | 500 | |
| | 60 | 600 | 725 | |
| | 80 | 800 | 900 | |
| | 100 | 1000 | 1100 | |
| | 120 | 1200 | 1300 | |

| 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 $t_x = I_2\sqrt{\tau} \times \sqrt{\tau_x}$; $0.1 \le t_x \le 10$ ms, $V_{RRM}$ = 0 V | | | 5.6 | 11.3 | $kA^2\sqrt{s}$ |
| Low level value of threshold voltage | $V_{F(TO)1}$ | (16.7 % x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), $T_J$ maximum | | | 0.76 | 0.79 | V |
| High level value of threshold voltage | $V_{F(TO)2}$ | (I > π x $I_{F(AV)}$), $T_J$ maximum | | | 0.92 | 0.96 | |
| Low level forward slope resistance | $r_{t1}$ | (16.7 % x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), $T_J$ maximum | | | 6.8 | 5.8 | mΩ |
| High level forward slope resistance | $r_{t2}$ | (I > π x $I_{F(AV)}$), $T_J$ maximum | | | 5.0 | 4.5 | |
| Maximum forward voltage drop | $V_{FM}$ | $T_J$ = 25 °C, $I_{FM}$ = 40 $A_{pk}$ (26MB) | | $t_p$ = 400 µs | 1.11 | 1.14 | V |
| | | $T_J$ = 25 °C, $I_{FM}$ = 55 $A_{pk}$ (36MB) | | | | | |
| Maximum DC reverse current | $I_{RRM}$ | $T_J$ = 25 °C, per diode at $V_{RRM}$ | | | 10 | | µA |
| RMS isolation voltage base plate | $V_{INS}$ | f = 50 Hz, t = 1 s | | | 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 | 1.2 | K/W |
| Maximum thermal resistance, case to heatsink | $R_{thCS}$ | Mounting surface, smooth, flat and greased | 0.2 | | |
| Approximate weight | | | 20 | | g |
| Mounting torque ± 10 % | | Bridge to heatsink | 2.0 | | Nm |

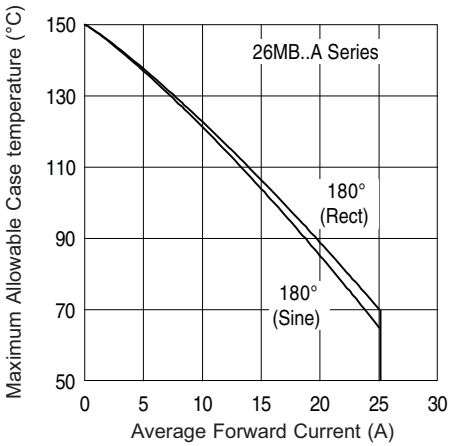



Fig. 1 - Current Ratings Characteristics

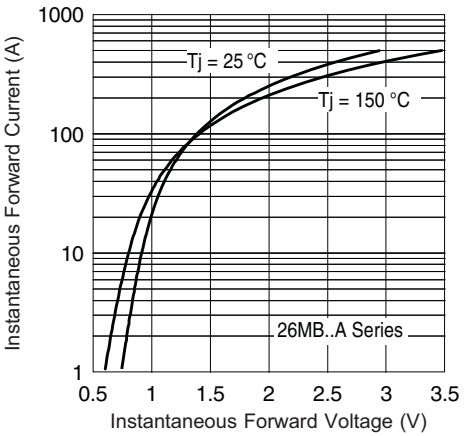



Fig. 2 - Forward Voltage Drop Characteristics
Maximum Allowable Ambient Temperature

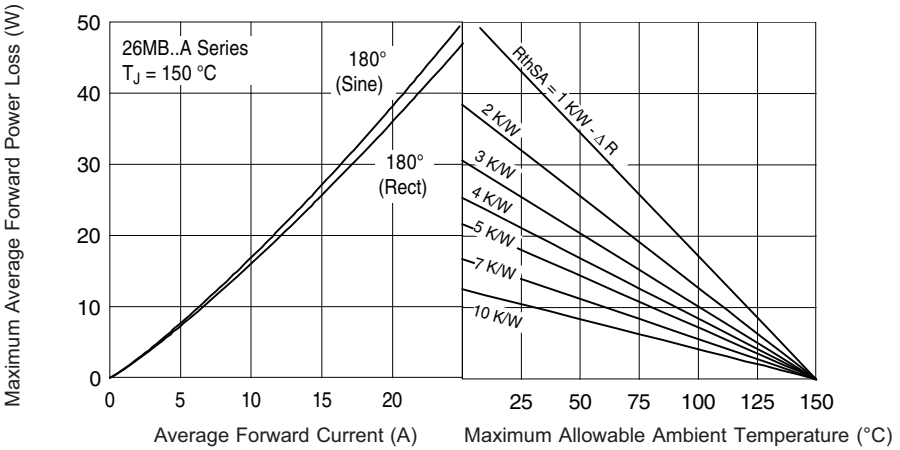



Fig. 3 - Total Power Loss Characteristics

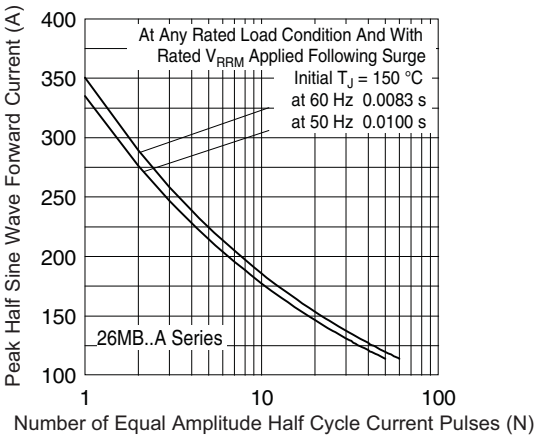



Fig. 4 - Maximum Non-Repetitive Surge Current

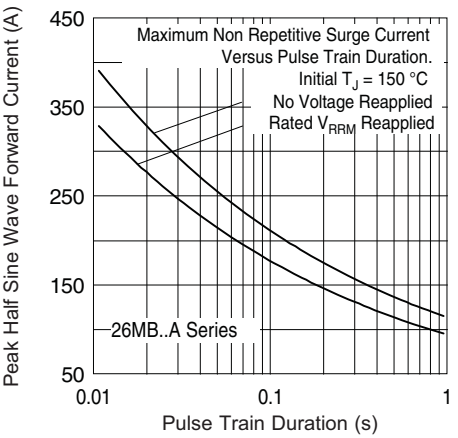



Fig. 5 - Maximum Non-Repetitive Surge Current

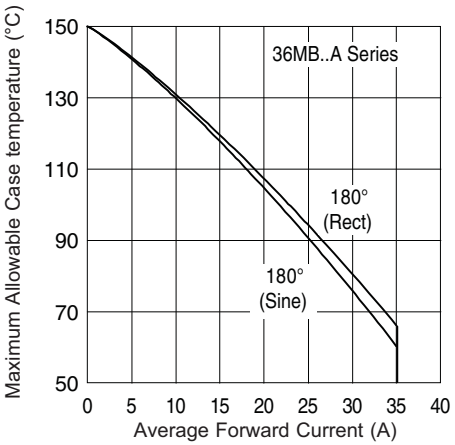



Fig. 6 - Current Ratings Characteristics

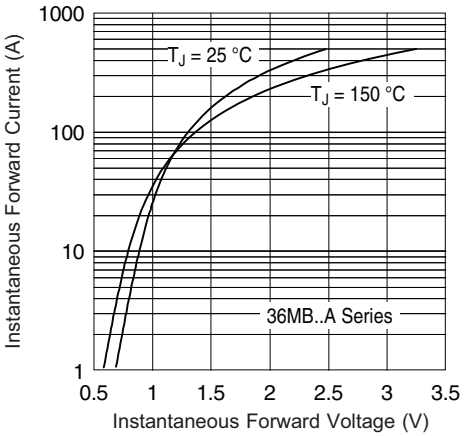



Fig. 7 - Forward Voltage Drop Characteristics

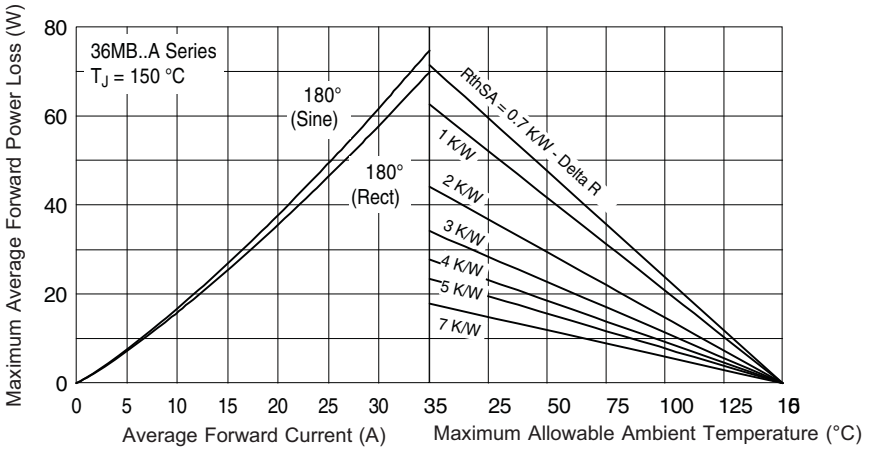



Fig. 8 - Total Power Loss Characteristics

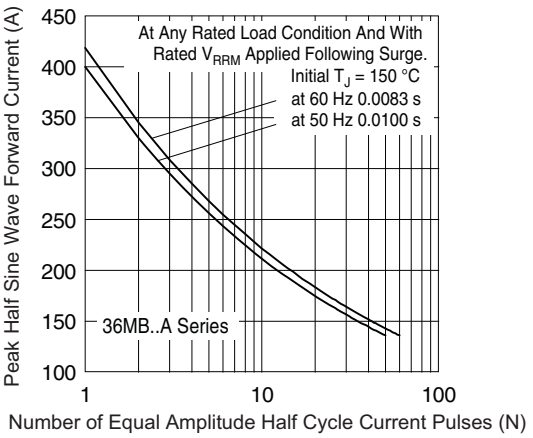



Fig. 9 - Maximum Non-Repetitive Surge Current

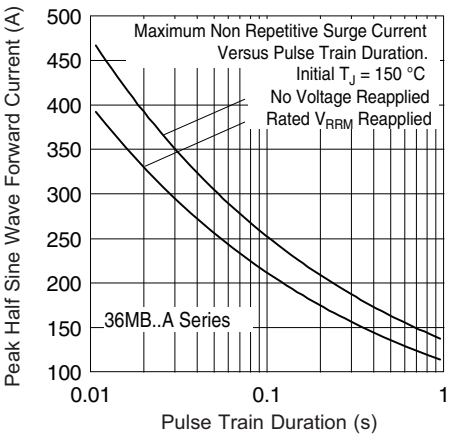



Fig. 10 - Maximum Non-Repetitive Surge Current

## ORDERING INFORMATION TABLE

Device code

| VS- | 36 | MB | 120 | 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:

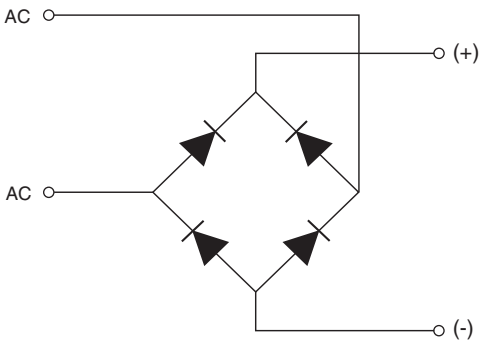
MB = Single phase european coding

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

5 - Diode bridge rectifier:

A = 26 MB, 36 MB series

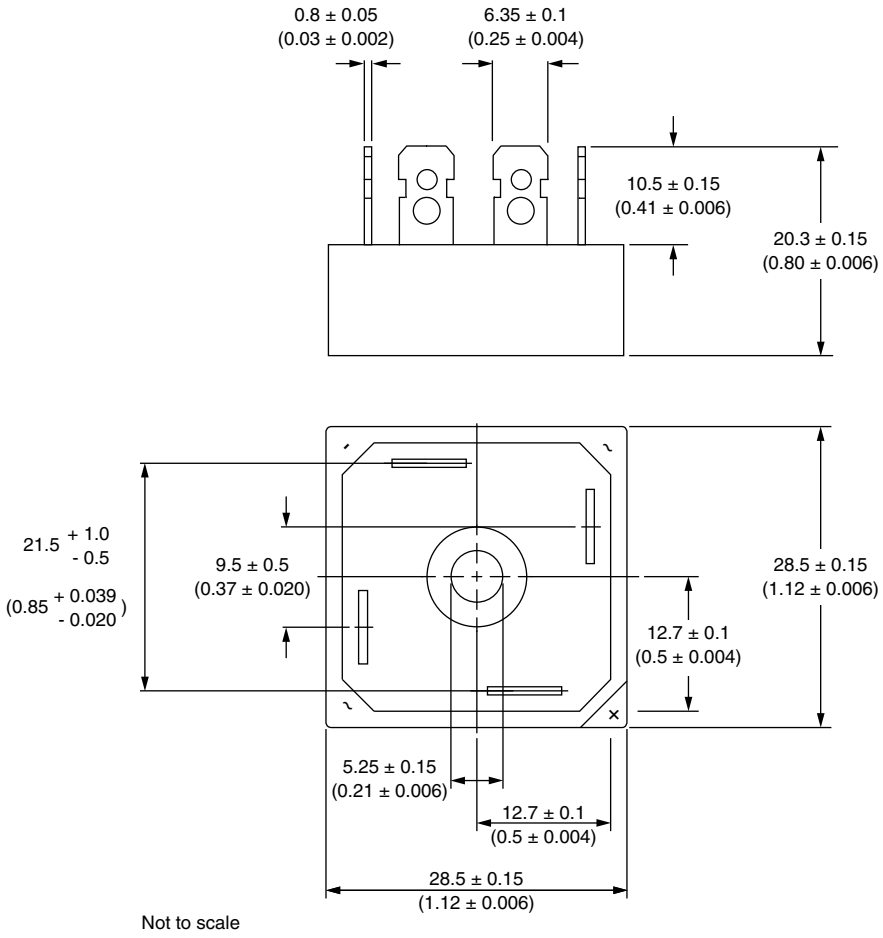
## CIRCUIT CONFIGURATION




| 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

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