



Three Phase Bridge Rectifier, 25 A, 35 A



D-63

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 and consumer level
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS COMPLIANT

| PRIMARY CHARACTERISTICS | |
|-------------------------|--------------------|
| I_o | 25 A, 35 A |
| V_{RRM} | 50 V to 1600 V |
| Package | D-63 |
| Circuit configuration | Three phase bridge |

DESCRIPTION

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

| MAJOR RATINGS AND CHARACTERISTICS | | | | |
|-----------------------------------|-----------------|---------------|---------------|------------------|
| SYMBOL | CHARACTERISTICS | VALUES 26MT.. | VALUES 36MT.. | UNITS |
| I_o | | 25 | 35 | A |
| | T_C | 70 | 60 | °C |
| I_{FSM} | 50 Hz | 360 | 475 | A |
| | 60 Hz | 375 | 500 | |
| i^2t | 50 Hz | 635 | 1130 | A ² s |
| | 60 Hz | 580 | 1030 | |
| V_{RRM} | | 50 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 |
| VS-26MT.. VS-36MT.. | 05 | 50 | 75 | 2 |
| | 10 | 100 | 150 | |
| | 20 | 200 | 275 | |
| | 40 | 400 | 500 | |
| | 60 | 600 | 725 | |
| | 80 | 800 | 900 | |
| | 100 | 1000 | 1100 | |
| | 120 | 1200 | 1300 | |
| | 140 | 1400 | 1500 | |
| | 160 | 1600 | 1700 | |

| FORWARD CONDUCTION | | | | | | | |
|--|---------------|--|---------------------------|-----------------------------|---------------|-------------------|------------------|
| PARAMETER | SYMBOL | TEST CONDITIONS | | VALUES 26MT.. | VALUES 36MT.. | UNITS | |
| Maximum DC output current at T_C | I_O | 120° rect. conduction angle | | 25 | 35 | A | |
| | | | | 70 | 60 | °C | |
| Maximum peak, one-cycle non-repetitive forward current | I_{FSM} | t = 10 ms | No voltage reapplied | Initial $T_J = T_J$ maximum | 360 | 475 | A |
| | | t = 8.3 ms | | | 375 | 500 | |
| | | t = 10 ms | 100 % V_{RRM} reapplied | | 300 | 400 | |
| | | t = 8.3 ms | | | 314 | 420 | |
| Maximum I^2t for fusing | I^2t | t = 10 ms | No voltage reapplied | Initial $T_J = T_J$ maximum | 635 | 1130 | A ² s |
| | | t = 8.3 ms | | | 580 | 1030 | |
| | | t = 10 ms | 100 % V_{RRM} reapplied | | 450 | 800 | |
| | | t = 8.3 ms | | | 410 | 730 | |
| Maximum $I^2\sqrt{t}$ for fusing | $I^2\sqrt{t}$ | I^2t for time $t_x = I^2\sqrt{t} \times \sqrt{t_x}$; $0.1 \leq t_x \leq 10$ ms, $V_{RRM} = 0$ V | | 6360 | 11 300 | A ² √s | |
| Low level of threshold voltage | $V_{F(TO)1}$ | $(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, T_J maximum | | 0.88 | 0.86 | V | |
| High level of threshold voltage | $V_{F(TO)2}$ | $(I > \pi \times I_{F(AV)})$, T_J maximum | | 1.13 | 1.03 | | |
| Low level forward slope resistance | r_{t1} | $(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, T_J maximum | | 7.9 | 6.3 | mΩ | |
| High level forward slope resistance | r_{t2} | $(I > \pi \times I_{F(AV)})$, T_J maximum | | 5.2 | 5.0 | | |
| Maximum forward voltage drop | V_{FM} | $T_J = 25$ °C, $I_{FM} = 40$ A _{pk} - per single junction | | 1.26 | 1.19 | V | |
| Maximum DC reverse current | I_{RRM} | $T_J = 25$ °C, per junction at rated V_{RRM} | | 100 | | μA | |
| RMS isolation voltage | V_{INS} | $T_J = 25$ °C, all terminal shorted; f = 50 Hz, t = 1 s | | 2700 | | V | |

| THERMAL - MECHANICAL SPECIFICATIONS | | | | | | |
|--|----------------|---|--|-------------|-------------|-------|
| PARAMETER | SYMBOL | TEST CONDITIONS | | VALUES 26MT | VALUES 36MT | UNITS |
| Maximum junction and storage temperature range | T_J, T_{Stg} | | | -55 to +150 | | °C |
| Maximum thermal resistance, junction to case | R_{thJC} | DC operation per bridge (based on total power loss of bridge) | | 1.42 | 1.35 | K/W |
| Maximum thermal resistance, case to heatsink | R_{thCS} | Mounting surface, smooth, flat and greased | | 0.2 | 0.2 | |
| Approximate weight | | | | 20 | | g |
| Mounting torque ± 10 % | | Bridge to heatsink with screw M4 | | 2.0 | | Nm |

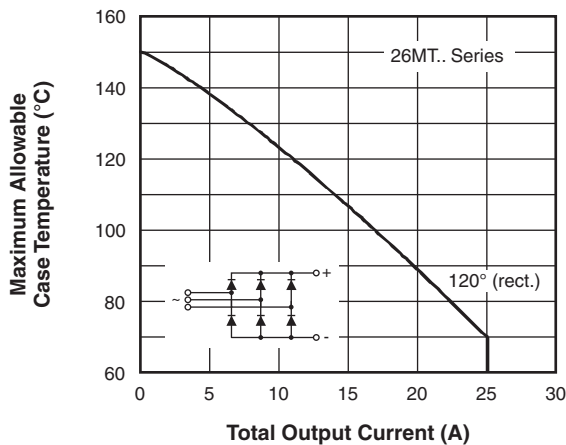


Fig. 1 - Current Ratings Characteristics

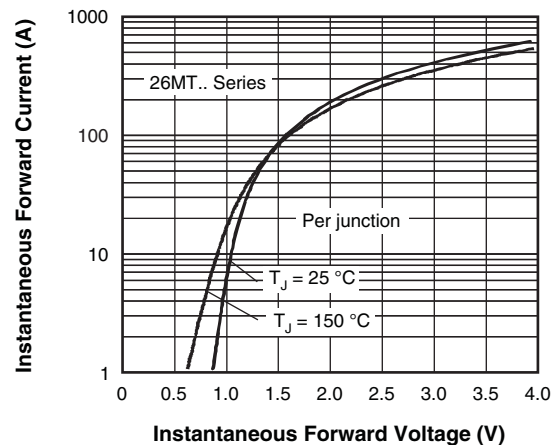


Fig. 2 - Forward Voltage Drop Characteristics

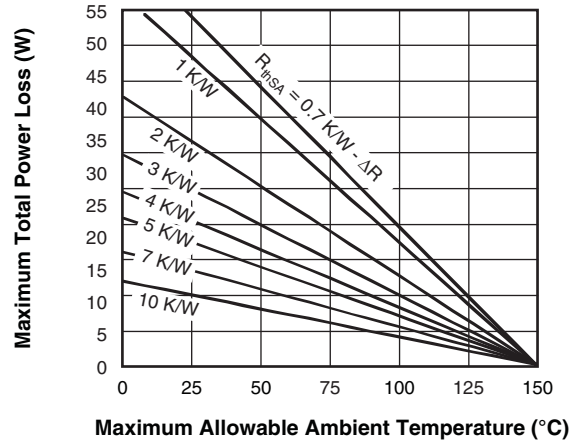
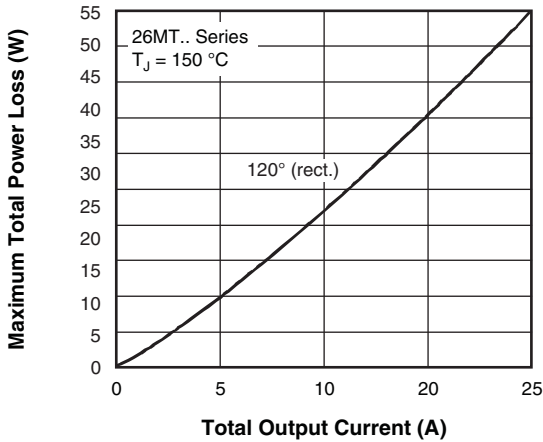


Fig. 3 - Total Power Loss Characteristics

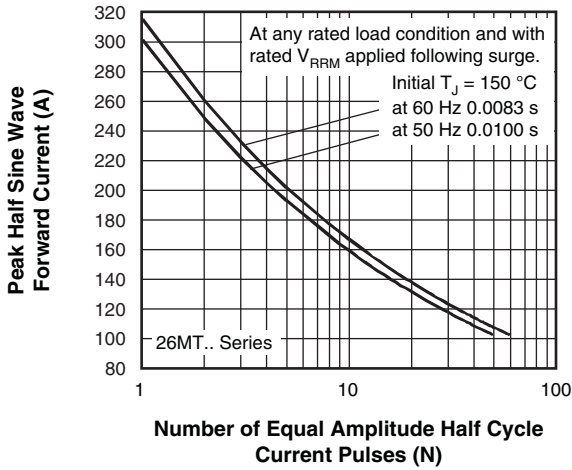


Fig. 4 - Maximum Non-Repetitive Surge Current

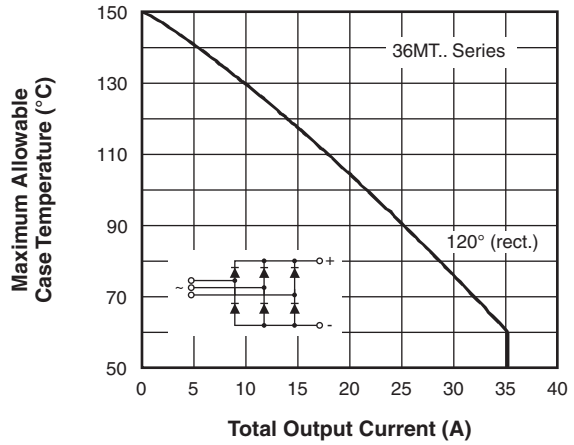


Fig. 6 - Current Ratings Characteristics

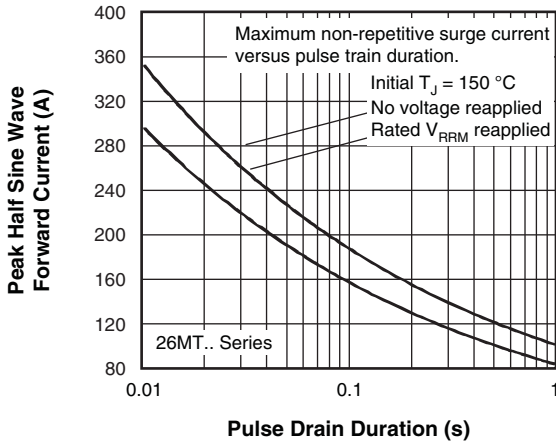


Fig. 5 - Maximum Non-Repetitive Surge Current

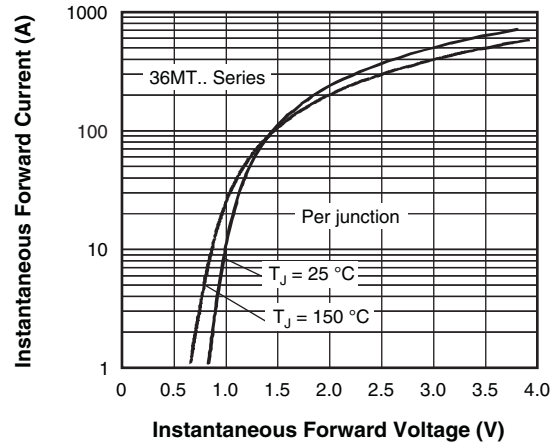


Fig. 7 - Forward Voltage Drop Characteristics

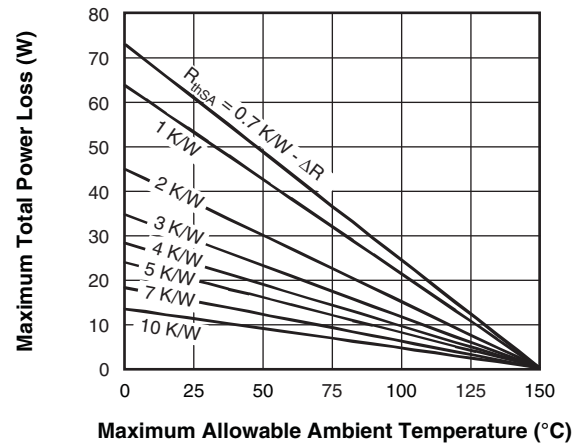
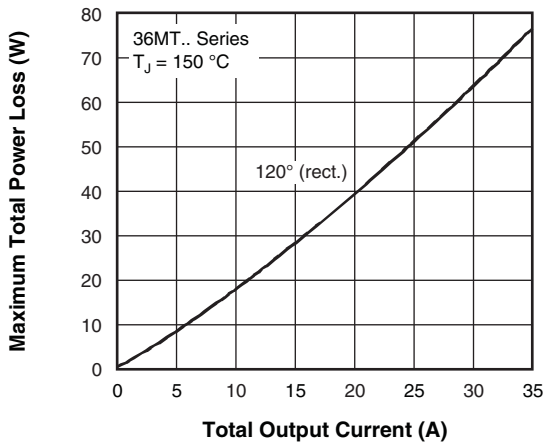


Fig. 8 - Total Power Loss Characteristics

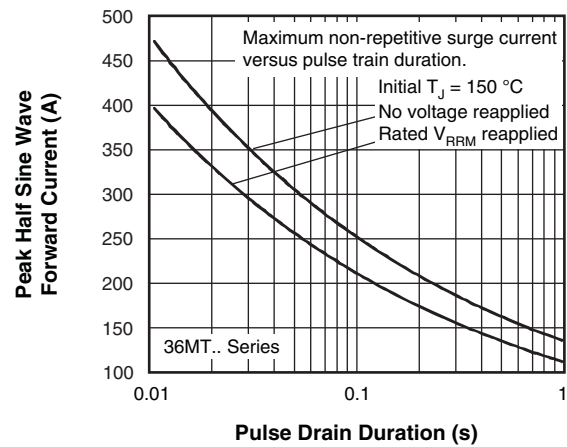
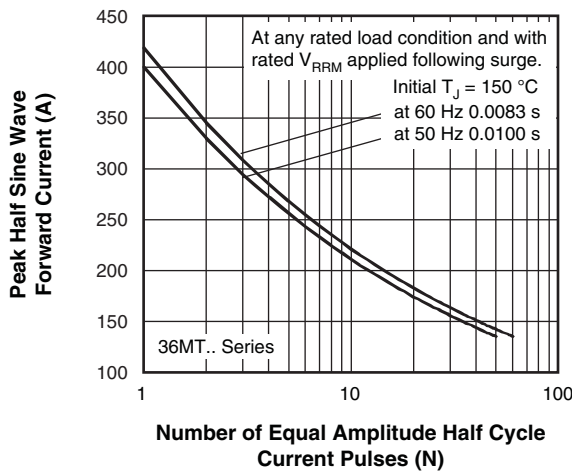


Fig. 9 - Maximum Non-Repetitive Surge Current

Fig. 10 - Maximum Non-Repetitive Surge Current

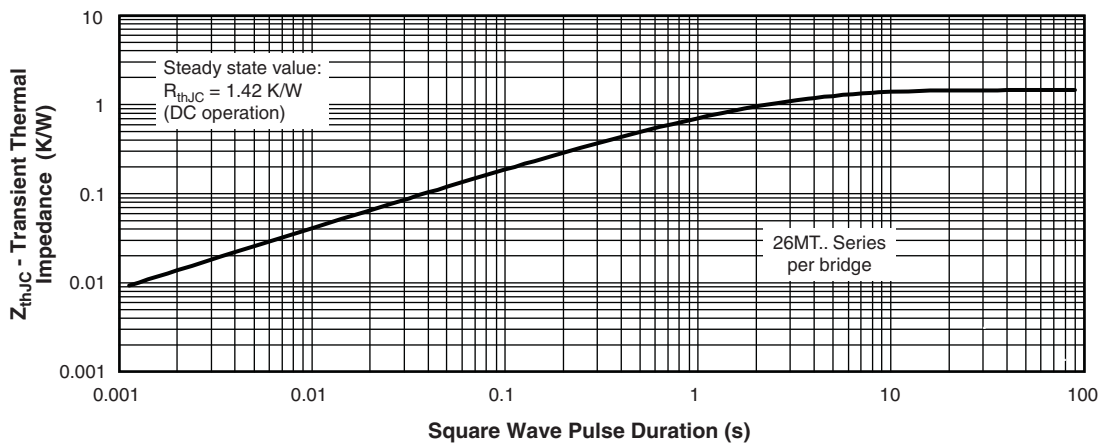


Fig. 11 - Thermal Impedance Z_{thJC} Characteristics

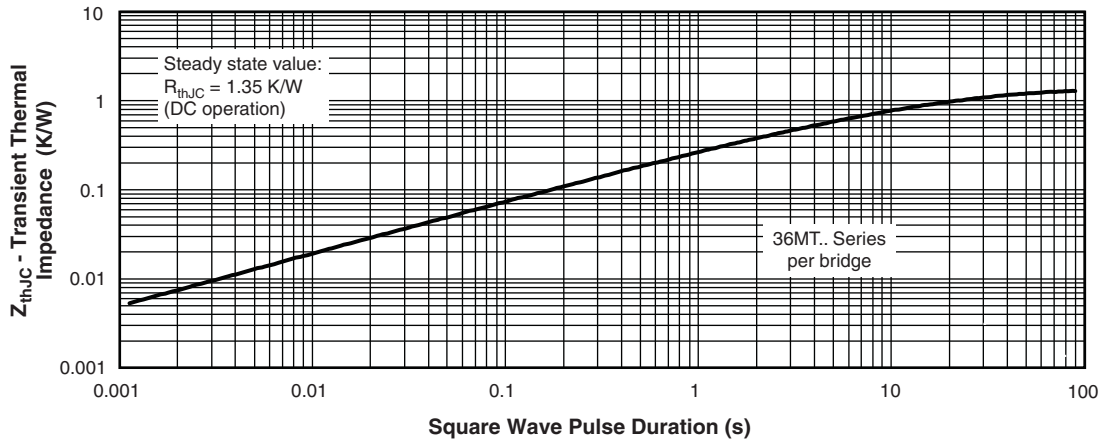
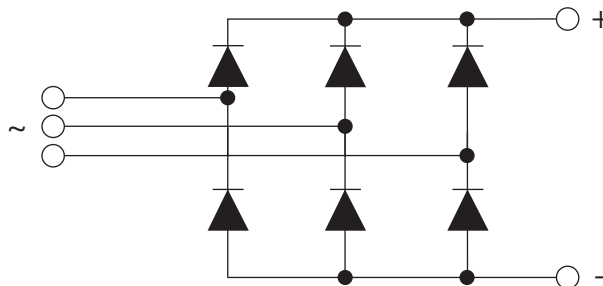


Fig. 12 - Thermal Impedance Z_{thJC} Characteristics

ORDERING INFORMATION TABLE

| | | | | |
|-------------|------------|---------------------------------|--|------------|
| Device code | VS- | 36 | MT | 160 |
| | ① | ② | ③ | ④ |
| | 1 | - Vishay Semiconductors product | | |
| | 2 | - Current rating code | 26 = 25 A (average) 36 = 35 A (average) | |
| | 3 | - Basic part number | | |
| | 4 | - Voltage code x 10 = V_{RRM} | | |

CIRCUIT CONFIGURATION

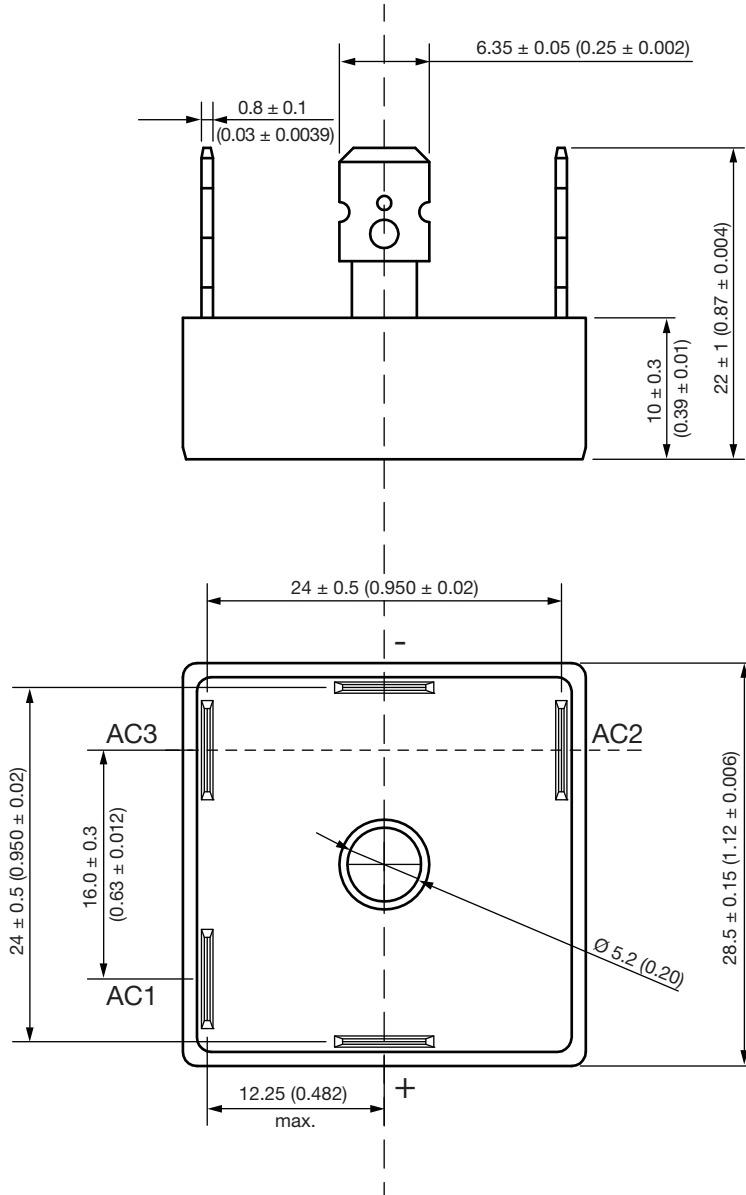


| LINKS TO RELATED DOCUMENTS | |
|----------------------------|--|
| Dimensions | www.vishay.com/doc?95251 |



D-63

DIMENSIONS in millimeters (inches)



Not to scale



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