

Pressfit Rectifier Diodes, 50 A



B-47

FEATURES

- Convenient pressfit package
- Available with and without leads
- High surge capabilities
- Fully characterized bulletin
- RoHS compliant
- Designed and qualified for industrial level


RoHS
COMPLIANT

PRODUCT SUMMARY

| | |
|-------------|------|
| $I_{F(AV)}$ | 50 A |
|-------------|------|

MAJOR RATINGS AND CHARACTERISTICS

| PARAMETER | TEST CONDITIONS | VALUES | UNITS |
|---------------|-----------------|-------------|-------------------|
| $I_{F(AV)}$ | | 50 | A |
| | T_C | 150 | °C |
| $I_{F(RMS)}$ | | 79 | A |
| I_{FSM} | 50 Hz | 714 | A |
| | 60 Hz | 747 | |
| I^2t | 50 Hz | 2546 | A ² s |
| | 60 Hz | 2324 | |
| $I^2\sqrt{t}$ | | 25 455 | A ² √s |
| V_{RRM} | Range | 50 to 400 | V |
| T_J | | - 65 to 195 | °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 $T_J = T_J$ MAXIMUM mA |
|-------------|--------------|--|--|--|
| 8AF | 05 | 50 | 75 | 7 |
| | 1 | 100 | 150 | 7 |
| | 2 | 200 | 300 | 5 |
| | 4 | 400 | 500 | 5 |

| FORWARD CONDUCTION | | | | | |
|---|---------------|--|----------------------------|---|-------------------|
| PARAMETER | SYMBOL | TEST CONDITIONS | | VALUES | UNITS |
| Maximum average forward current at case temperature | $I_{F(AV)}$ | 180° conduction, half sine wave | | 50 | A |
| | | | | 150 | °C |
| Maximum RMS forward current | $I_{F(RMS)}$ | | | 79 | A |
| Maximum peak, one cycle forward, non-repetitive surge current | I_{FSM} | t = 10 ms | No voltage reappplied | Sinusoidal half wave, initial $T_J = T_J$ maximum | A |
| | | t = 8.3 ms | | | |
| | | t = 10 ms | 100 % V_{RRM} reappplied | | |
| | | t = 8.3 ms | | | |
| Maximum I^2t for fusing | I^2t | t = 10 ms | No voltage reappplied | | A ² s |
| | | t = 8.3 ms | | | |
| | | t = 10 ms | 100 % V_{RRM} reappplied | | |
| | | t = 8.3 ms | | | |
| Maximum $I^2\sqrt{t}$ for fusing | $I^2\sqrt{t}$ | t = 0.1 to 10 ms, no voltage reappplied | | 25 455 | A ² /s |
| Low level value of threshold voltage | $V_{F(TO)1}$ | $(16.7 \% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, $T_J = T_J$ maximum | | 0.60 | V |
| High level value of threshold voltage | $V_{F(TO)2}$ | $(\pi \times I_{F(AV)} < I < 20 \times \pi \times I_{F(AV)})$, $T_J = T_J$ maximum | | 0.68 | |
| Low level value of forward slope resistance | r_{f1} | $(16.7 \% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, $T_J = T_J$ maximum | | 6.66 | mΩ |
| High level value of forward slope resistance | r_{f2} | $(\pi \times I_{F(AV)} < I < 20 \times \pi \times I_{F(AV)})$, $T_J = T_J$ maximum | | 6.25 | |
| Maximum forward voltage drop | V_{FM} | $T_J = 25\text{ °C}$, $I_{FM} = \pi \times \text{rated } I_{F(AV)}$ | | 1.45 | V |

| THERMAL AND MECHANICAL SPECIFICATIONS | | | | |
|--|----------------|--|-------------|-------|
| PARAMETER | SYMBOL | TEST CONDITIONS | VALUES | UNITS |
| Maximum junction operating and storage temperature range | T_J, T_{Stg} | | - 65 to 195 | °C |
| Maximum thermal resistance, junction to case | R_{thJC} | DC operation | 0.60 | K/W |
| Typical thermal resistance, case to heatsink | R_{thCS} | As per mounting details, see note ⁽¹⁾ | 0.50 | |
| Approximate weight | | | 10 | g |
| | | | 0.36 | oz. |
| Case style | | See dimensions - link at the end of datasheet | B-47 | |

Note

⁽¹⁾ Mounting: A 12.6 ± 0.02 mm (0.496 to 0.497") diameter hole should be drilled in heatsink, the leading edge chamfered to 0.038 mm (0.015") x 45°. The autodiode should then be press fitted, ensuring that the sides of the autodiode are kept parallel to the sides of the hole.

| ΔR_{thJC} CONDUCTION | | | | |
|------------------------------|-----------------------|------------------------|-------------------------------|-------|
| CONDUCTION ANGLE | SINUSOIDAL CONDUCTION | RECTANGULAR CONDUCTION | TEST CONDITIONS | UNITS |
| 180° | 0.042 | 0.026 | $T_J = T_{J \text{ maximum}}$ | K/W |
| 120° | 0.045 | 0.043 | | |
| 90° | 0.06 | 0.06 | | |
| 60° | 0.10 | 0.10 | | |
| 30° | 0.15 | 0.15 | | |

Note

- The table above shows the increment of thermal resistance R_{thJC} when devices operate at different conduction angles than DC

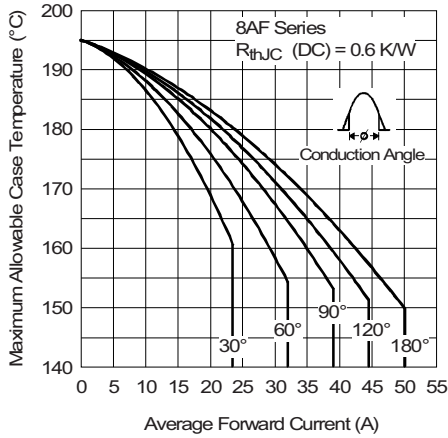


Fig. 1 - Current Ratings Characteristics

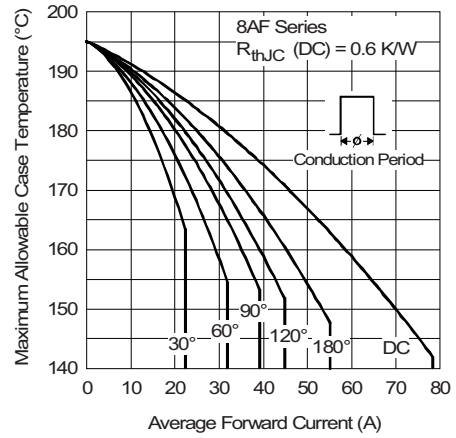


Fig. 2 - Current Ratings Characteristics

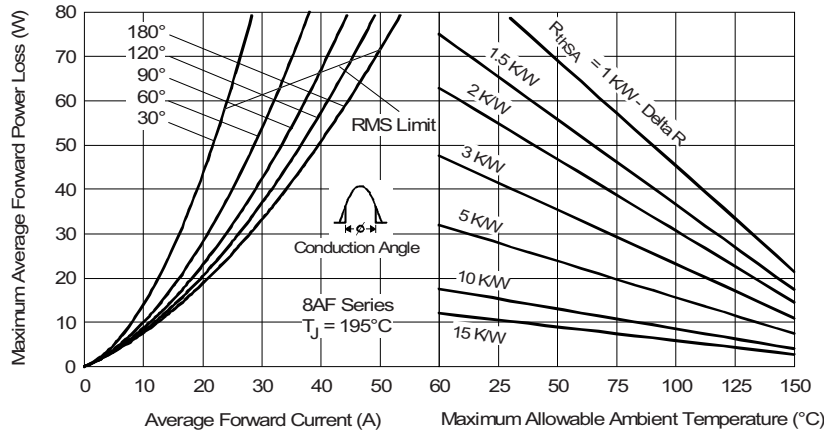


Fig. 3 - Forward Power Loss Characteristics

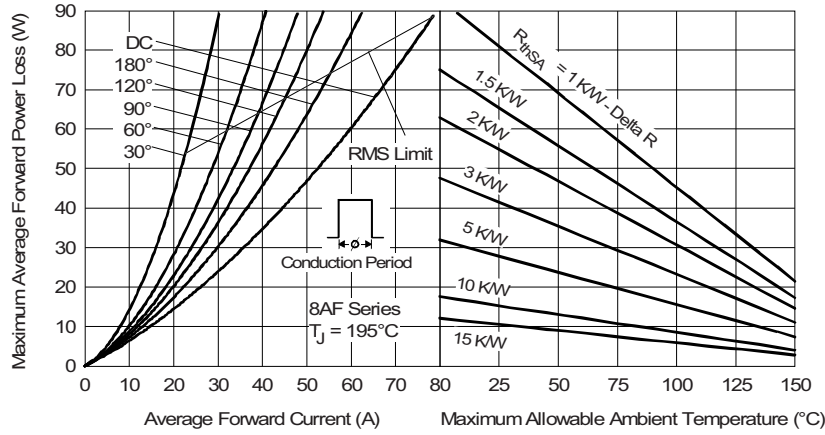


Fig. 4 - Forward Power Loss Characteristics

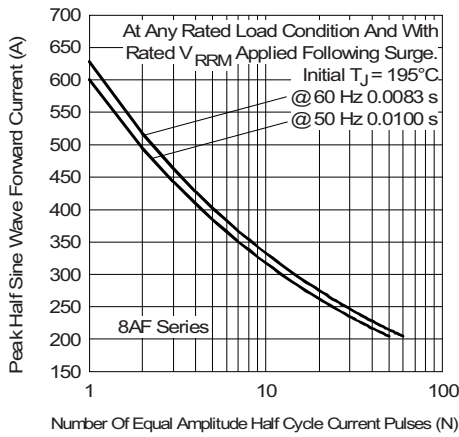


Fig. 5 - Maximum Non-Repetitive Surge Current

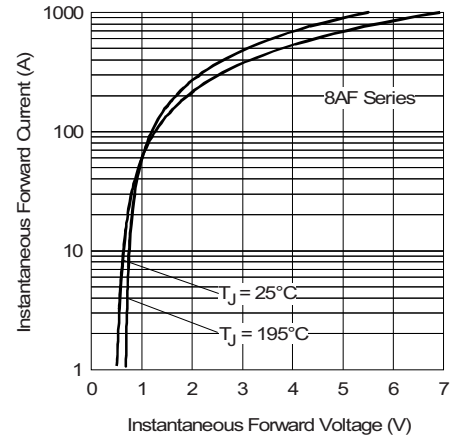


Fig. 7 - Forward Voltage Drop Characteristics

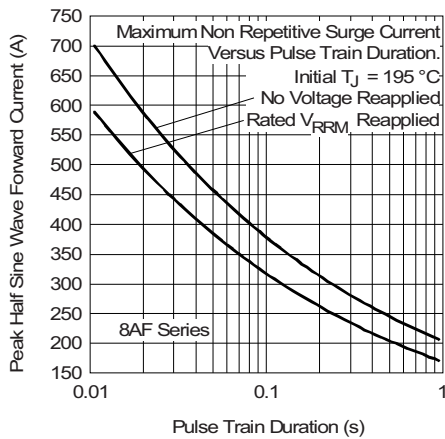


Fig. 6 - Maximum Non-Repetitive Surge Current

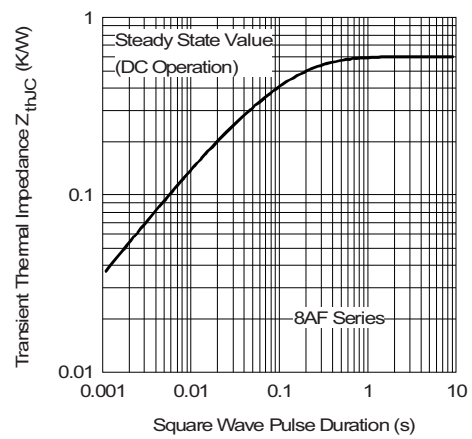
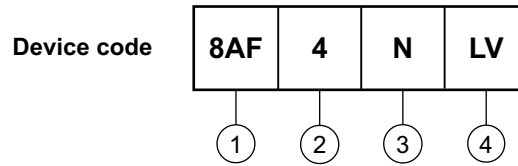


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics



ORDERING INFORMATION TABLE

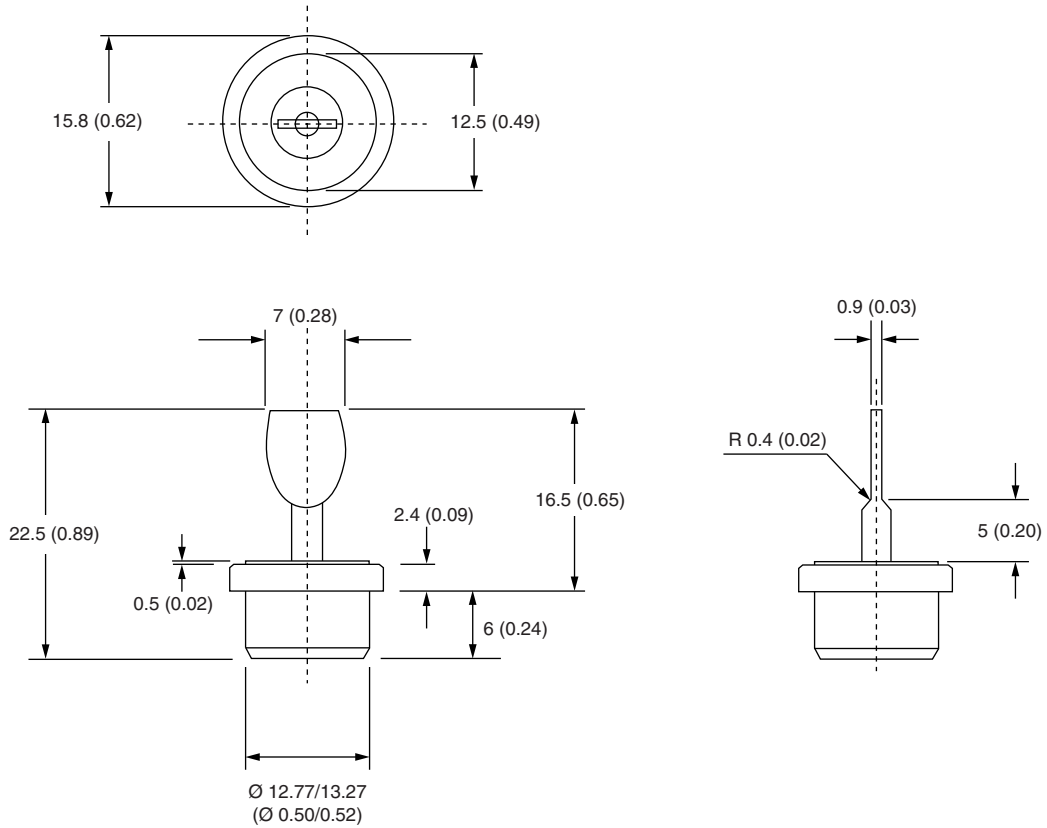


- 1** - Essential part number
- 2** - Voltage code x 100 = V_{RRM} (see Voltage Ratings table)
- 3** -
 - N = Normal polarity (cathode to case)
 - R = Reverse polarity (anode to case)
- 4** -
 - PP = Without lead
 - LH = Horizontal lead
 - LV = Vertical lead

| LINKS TO RELATED DOCUMENTS | |
|----------------------------|---|
| Dimensions | http://www.vishay.com/doc?95330 |

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DIMENSIONS in millimeters (inches)





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