# Standard Recovery Diodes, Generation 2 DO-5 (Stud Version), 95 A

95PF(R)...

DO-203AB (DO-5)

95PF(R)...W

DO-203AB (DO-5)

## FEATURES

- High surge current capability
- Designed for a wide range of applications
- Stud cathode and stud anode version
- Wire version available
- Low thermal resistance
- Designed and qualified for multiple level
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

## TYPICAL APPLICATIONS

- Battery charges
- Converters
- Power supplies
- Machine tool controls
- Welding

| PRODUCT SUMMARY | |
|---|---|
| $I_{F(AV)}$ | 95 A |
| Package | DO-203AB (DO-5) |
| Circuit configuration | Single diode |

| MAJOR RATINGS AND CHARACTERISTICS | | | |
|---|---|---|---|
| PARAMETER | TEST CONDITIONS | VALUES | UNITS |
| $I_{F(AV)}$ | | 95 | A |
| | $T_C$ | 140 | °C |
| $I_{F(RMS)}$ | | 149 | A |
| $I_{FSM}$ | 50 Hz | 2000 | A |
| | 60 Hz | 2090 | |
| $I^2t$ | 50 Hz | 20 000 | $A^2s$ |
| | 60 Hz | 18 180 | |
| $V_{RRM}$ | Range | 400 to 1200 | V |
| $T_J$ | | -55 to +180 | °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 $T_J$ = 150 °C mA |
| VS-95PF(R)...(W) | 40 | 400 | 500 | 9 |
| | 80 | 800 | 960 | |
| | 120 | 1200 | 1440 | |



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| FORWARD CONDUCTION | | | | | | |
|---|---|---|---|---|---|---|
| PARAMETER | SYMBOL | TEST CONDITIONS | | | VALUES | UNITS |
| Maximum average forward current at case temperature | $I_{F(AV)}$ | 180° conduction, half sine wave | | | 80 | A |
| | | | | | 140 | °C |
| Maximum RMS forward current | $I_{F(RMS)}$ | | | | 149 | A |
| Maximum peak, one-cycle forward, non-repetitive surge current | $I_{FSM}$ | t = 10 ms | No voltage reapplied | Sinusoidal half wave, initial $T_J$ = 150 °C | 2000 | A |
| | | t = 8.3 ms | | | 2090 | |
| | | t = 10 ms | 100 % $V_{RRM}$ reapplied | | 1680 | |
| | | t = 8.3 ms | | | 1760 | |
| Maximum $I^2t$ for fusing | $I^2t$ | t = 10 ms | No voltage reapplied | | 20 000 | $A^2s$ |
| | | t = 8.3 ms | | | 18 180 | |
| | | t = 10 ms | 100 % $V_{RRM}$ reapplied | | 14 100 | |
| | | t = 8.3 ms | | | 12 800 | |
| Maximum $I^2\sqrt{t}$ for fusing | $I^2\sqrt{t}$ | t = 0.1 ms to 10 ms, no voltage reapplied | | | 200 000 | $A^2\sqrt{s}$ |
| Low level value of threshold voltage | $V_{F(TO)}$ | (16.7 % x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), $T_J$ = $T_J$ maximum | | | 0.73 | V |
| Low level value of forward slope resistance | $r_f$ | (16.7 % x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), $T_J$ = $T_J$ maximum | | | 3.0 | mΩ |
| Maximum forward voltage drop | $V_{FM}$ | $I_{pk}$ = 267 A, $T_J$ = 25 °C, $t_p$ = 400 µs rectangular wave | | | 1.40 | V |

| THERMAL AND MECHANICAL SPECIFICATIONS | | | | |
|---|---|---|---|---|
| PARAMETER | SYMBOL | TEST CONDITIONS | VALUES | UNITS |
| Maximum junction operating and storage temperature range | $T_J$, $T_{Stg}$ | | -55 to +180 | °C |
| Maximum thermal resistance, junction to case | $R_{thJC}$ | DC operation | 0.27 | K/W |
| Maximum thermal resistance, case to heatsink | $R_{thCS}$ | Mounting surface, smooth, flat and greased | 0.25 | |
| Maximum allowable mounting torque (+0 %, -10 %) | | Not lubricated threads, tighting on nut (1) | 3.4 (30) | N · m (lbf · in) |
| | | Lubricated threads, tighting on nut (1) | 2.3 (20) | |
| | | Not lubricated threads, tighting on Hexagon (2) | 4.2 (37) | |
| | | Lubricated threads, tighting on Hexagon (2) | 3.2 (28) | |
| Approximate weight | | | 15.8 | g |
| | | | 0.56 | oz. |
| Case style | | See dimensions - link at the end of datasheet | DO-203AB (DO-5) | |

**Notes**

(1) Recommended for pass-through holes

(2) Torque must be applicable only to Hexagon and not to plastic structure, recommended for holed heatsink

| $\Delta R_{thJC}$ CONDUCTION | | | | |
|---|---|---|---|---|
| CONDUCTION ANGLE | SINUSOIDAL CONDUCTION | RECTANGULAR CONDUCTION | TEST CONDITIONS | UNITS |
| 180° | 0.14 | 0.10 | $T_J$ = $T_J$ maximum | K/W |
| 120° | 0.16 | 0.17 | | |
| 90° | 0.21 | 0.22 | | |
| 60° | 0.30 | 0.31 | | |
| 30° | 0.50 | 0.50 | | |

**Note**

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


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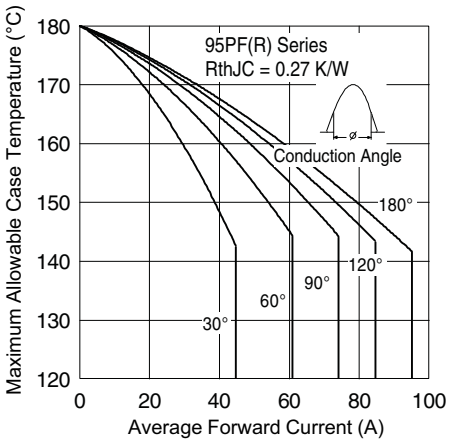


Fig. 1 - Current Ratings Characteristics

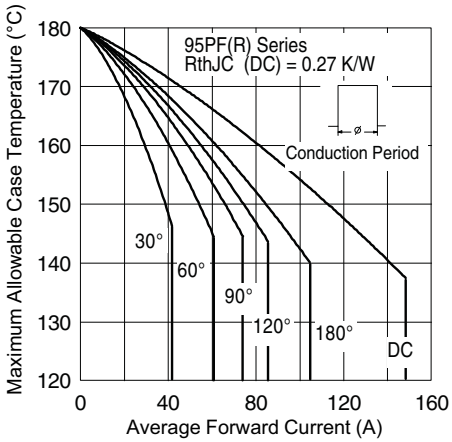


Fig. 2 - Current Ratings Characteristics

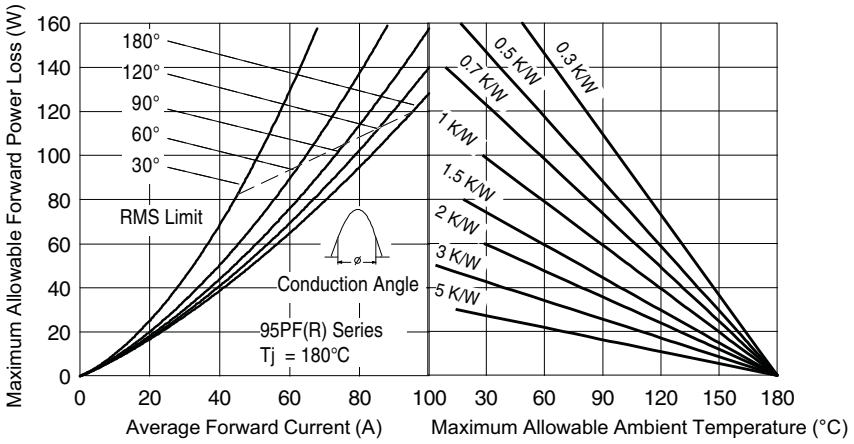


Fig. 3 - Forward Power Loss Characteristics

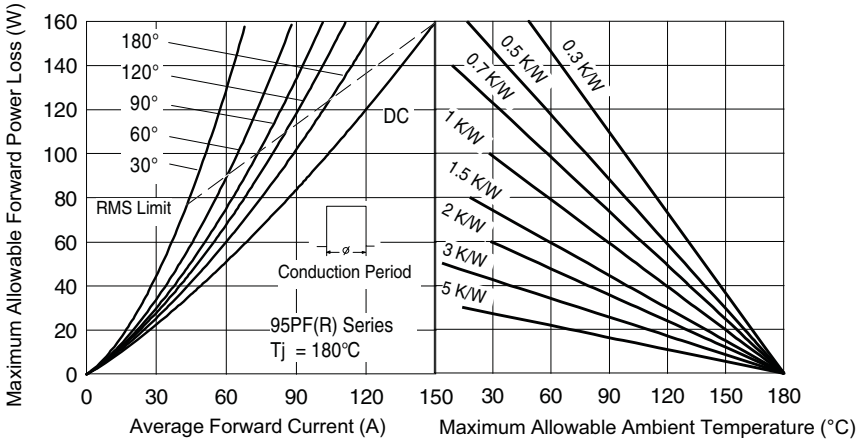


Fig. 4 - Forward Power Loss Characteristics


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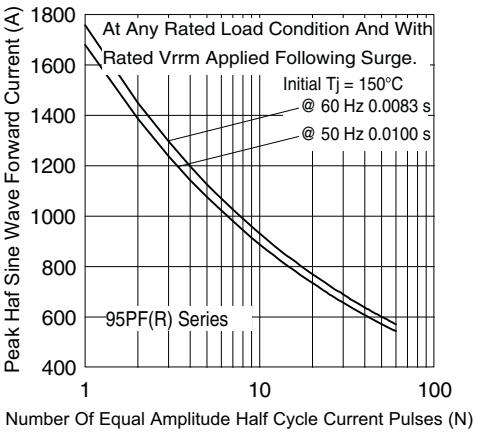


Fig. 5 - Maximum Non-Repetitive Surge Current

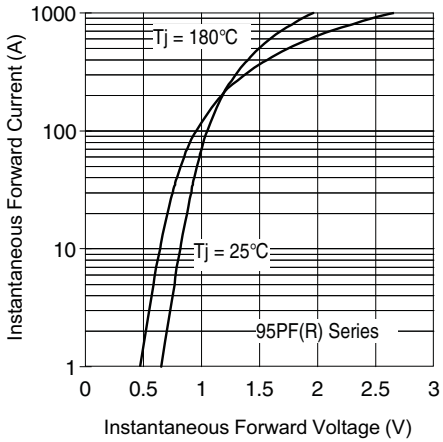


Fig. 7 - Forward Voltage Drop Characteristics

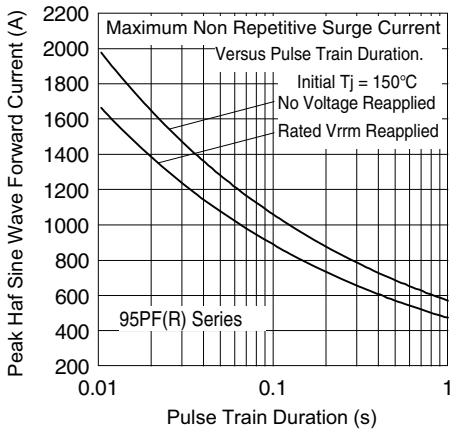


Fig. 6 - Maximum Non-Repetitive Surge Current

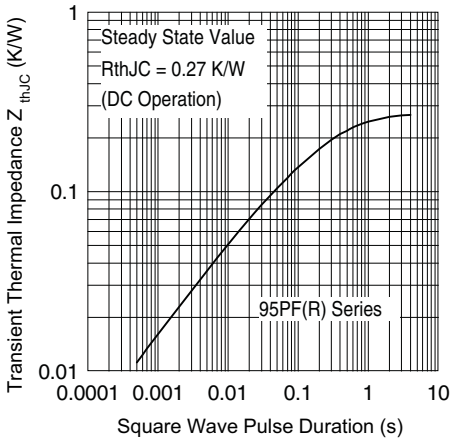


Fig. 8 - Thermal Impedance $Z_{thJC}$ Characteristics



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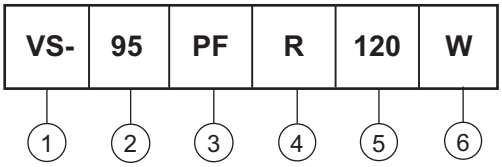
## ORDERING INFORMATION TABLE

**Device code**




1 - Vishay Semiconductors product

2 - • 95 = Standard device
• 97 = Isolated lead on standard terminal
with silicone sleeve available for 1200 V only
(red = Reverse polarity)
(blue = Normal polarity)

3 - PF = Plastic package

4 - • None = Stud normal polarity (cathode to stud)
• R = Stud reverse polarity (anode to stud)

5 - Voltage code x 10 = $V_{RRM}$ (see Voltage Ratings table)

6 - • None = Standard terminal
(see dimensions for 95PF(R)... - link at the end of datasheet)
• W = Wire terminal
(see dimensions for 95PF(R)...W - link at the end of datasheet)

| LINKS TO RELATED DOCUMENTS | |
|---|---|
| Dimensions | www.vishay.com/doc?95345 |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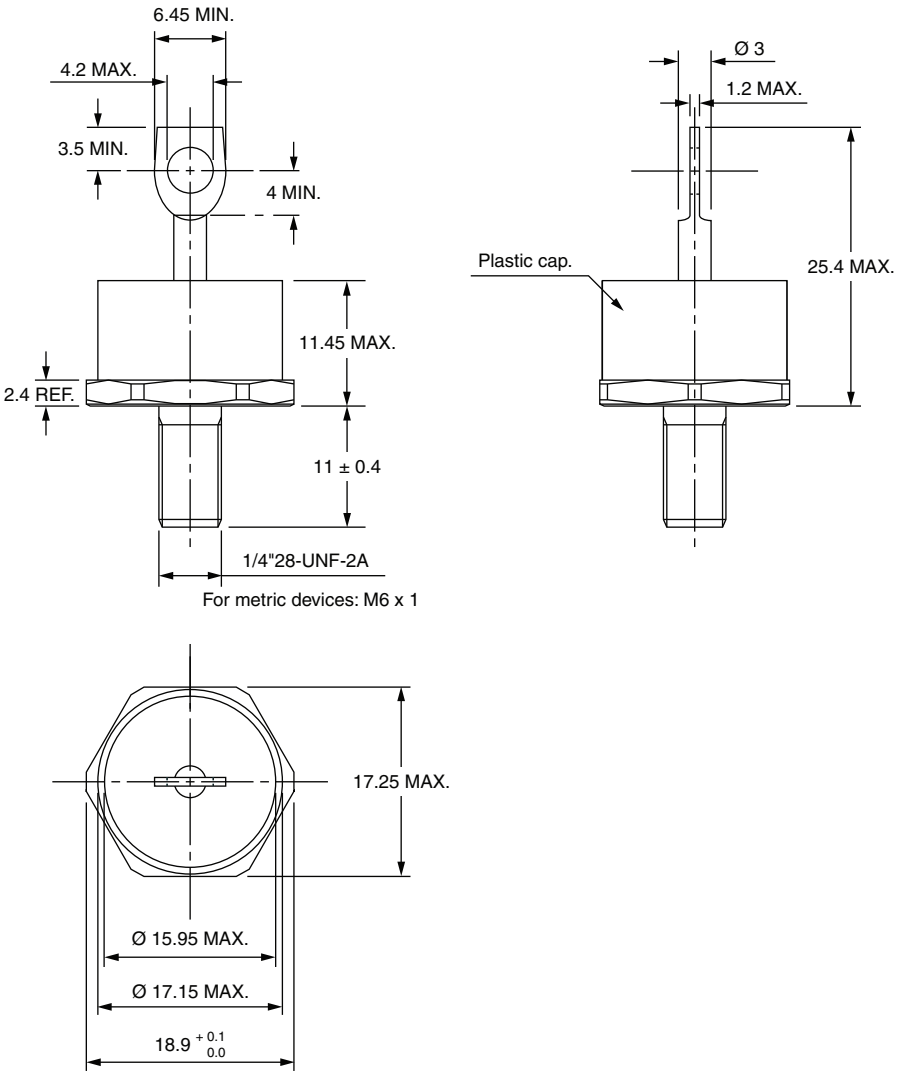
# DO-203AB (DO-5) for 50PF(R)...(W), 80PF(R)...(W), and 95PF(R)...(W) Series

**DIMENSIONS FOR 80PF(R), 50PF(R) AND 95PF(R) SERIES** in millimeters




**Note**

- For metric device please contact factory



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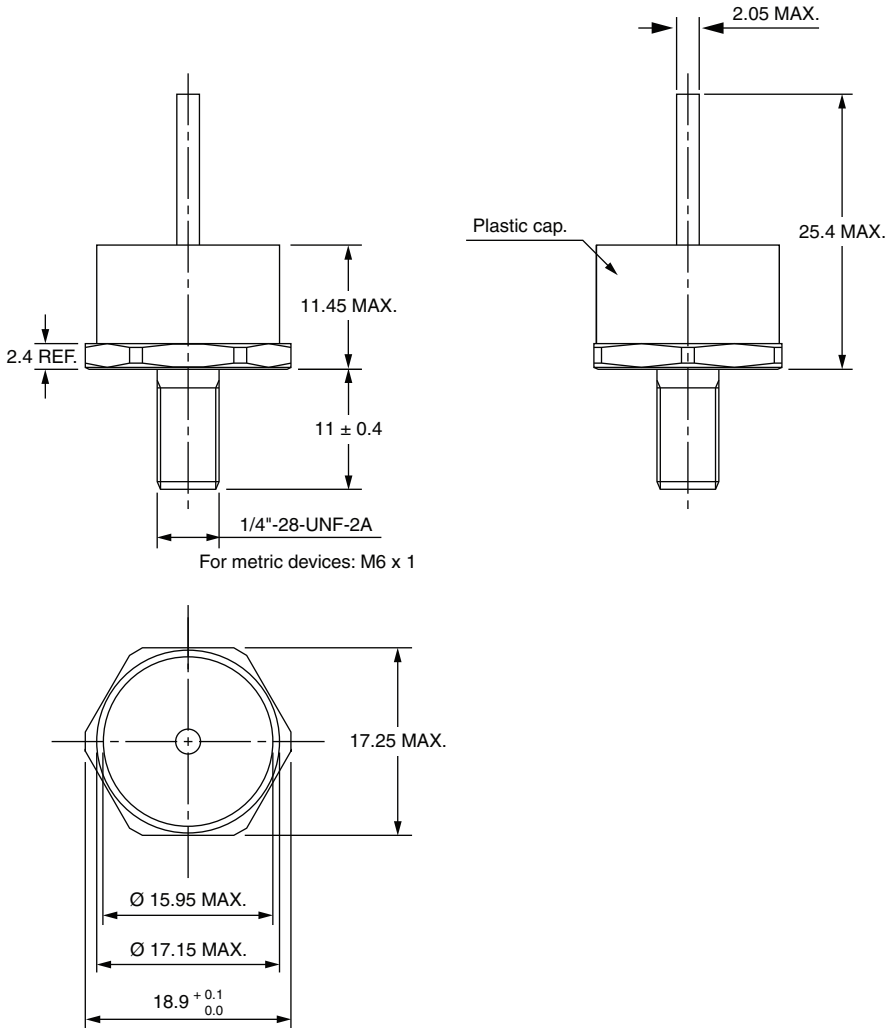
**DIMENSIONS FOR 80PF(R)...(W), 50PF(R)...(W) AND 95PF(R)...(W) SERIES** in millimeters

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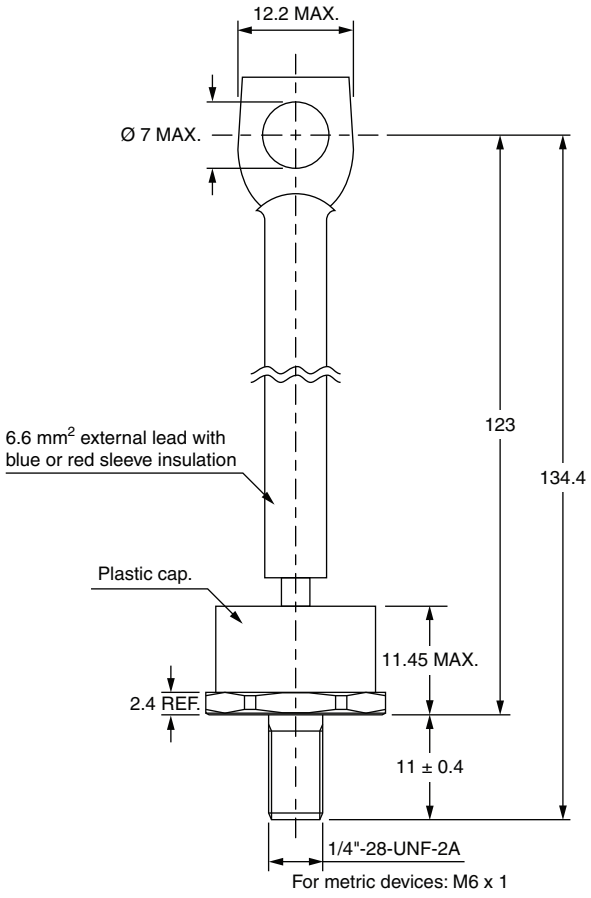
**DIMENSIONS FOR 52PF(R), 82PF(R) AND 97PF(R) SERIES** in millimeters

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Факс: 8 (812) 320-03-32
Электронная почта: ocean@oceanchips.ru
Web: http://oceanchips.ru/
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А