

STANDARD RECOVERY DIODES

Stud Version

Features

- High current carrying capability
- High surge current capability
- Types up to 1200V V_{RRM}
- Stud cathode and stud anode version
- Standard JEDEC types
- Diffused junction

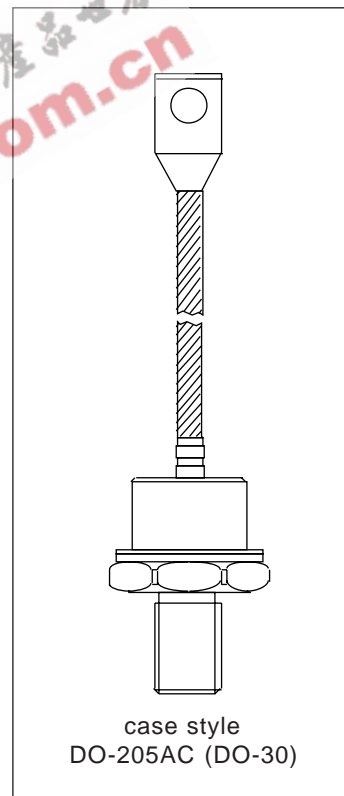
200 A

Typical Applications

- Battery chargers
- Converters
- Power supplies
- Machine tool controls

Major Ratings and Characteristics

| Parameters | 200HF(R) | Units |
|------------------|-------------|-------------------|
| $I_{F(AV)}$ | 200 | A |
| @ T_C | 125 | °C |
| $I_{F(RMS)}$ | 314 | A |
| I_{FSM} @ 50Hz | 4400 | A |
| @ 60Hz | 4610 | A |
| I^2t @ 50Hz | 97 | KA ² s |
| @ 60Hz | 88 | KA ² s |
| V_{RRM} range | 400 to 1200 | V |
| T_J | -40 to 180 | °C |



200HF(R) Series

Bulletin I2020 rev. A 07/94

International
 Rectifier

ELECTRICAL SPECIFICATIONS

Voltage Ratings

| Type number | Voltage Code | V_{RRM} , maximum repetitive peak reverse voltage V | V_{RSM} , maximum non-repetitive peak rev. voltage V | I_{RRM} max. @ 180°C mA |
|-------------|--------------|--|---|---------------------------------|
| 200HF(R) | 40 | 400 | 500 | 15 |
| | 80 | 800 | 900 | |
| | 120 | 1200 | 1300 | |

Forward Conduction

| Parameter | 200HF(R) | Units | Conditions |
|--|----------|--------------------|--|
| $I_{F(AV)}$ Max. average forward current @ Case temperature | 200 | A | 180° conduction, half sine wave |
| | 125 | °C | |
| $I_{F(RMS)}$ Max. RMS forward current | 314 | A | DC @ 120°C case temperature |
| I_{FSM} Max. peak, one-cycle forward, non-repetitive surge current | 4400 | A | t = 10ms No voltage |
| | 4610 | | t = 8.3ms reapplied |
| | 3700 | | t = 10ms 100% V_{RRM} |
| | 3870 | | t = 8.3ms reapplied |
| I^2t Maximum I^2t for fusing | 97 | KA ² s | t = 10ms No voltage |
| | 88 | | t = 8.3ms reapplied |
| | 63 | | t = 10ms 100% V_{RRM} |
| | 62 | | t = 8.3ms reapplied |
| $I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing | 968 | KA ² √s | t = 0.1 to 10ms, no voltage reapplied |
| $V_{F(TO)1}$ Low level value of threshold voltage | 0.85 | V | $(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, $T_J = T_J \text{ max.}$ |
| $V_{F(TO)2}$ High level value of threshold voltage | 1.04 | | $(I > \pi \times I_{F(AV)})$, $T_J = T_J \text{ max.}$ |
| r_{f1} Low level value of forward slope resistance | 0.85 | mΩ | $(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$, $T_J = T_J \text{ max.}$ |
| r_{f2} High level value of forward slope resistance | 0.59 | | $(I > \pi \times I_{F(AV)})$, $T_J = T_J \text{ max.}$ |
| V_{FM} Max. forward voltage drop | 1.45 | V | $I_{pk} = 6.28A$, $T_J = 25^\circ\text{C}$ |

Thermal and Mechanical Specification

| Parameter | 200HF(R) | Units | Conditions |
|---|-----------------|-------|--|
| T _J Max. operating temperature range | -40 to 180 | °C | |
| T _{stg} Max. storage temperature range | -55 to 180 | | |
| R _{thJC} Max. thermal resistance, junction to case | 0.17 | K/W | DC operation |
| R _{thCS} Max. thermal resistance, case to heatsink | 0.08 | | Mounting surface, smooth, flat and greased |
| T Max. allowed mounting torque +0 -20% | 11 | Nm | Not lubricated threads |
| | 10 | | Lubricated threads |
| wt Approximate weight | 120 | g | |
| Case style | DO-205AC(DO-30) | | See Outline Table |

ΔR_{thJC} Conduction

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

| Conduction angle | Sinusoidal conduction | Rectangular conduction | Units | Conditions |
|------------------|-----------------------|------------------------|-------|--------------------------------------|
| 180° | 0.045 | 0.037 | K/W | T _J = T _J max. |
| 120° | 0.056 | 0.061 | | |
| 90° | 0.073 | 0.079 | | |
| 60° | 0.102 | 0.105 | | |
| 30° | 0.154 | 0.156 | | |

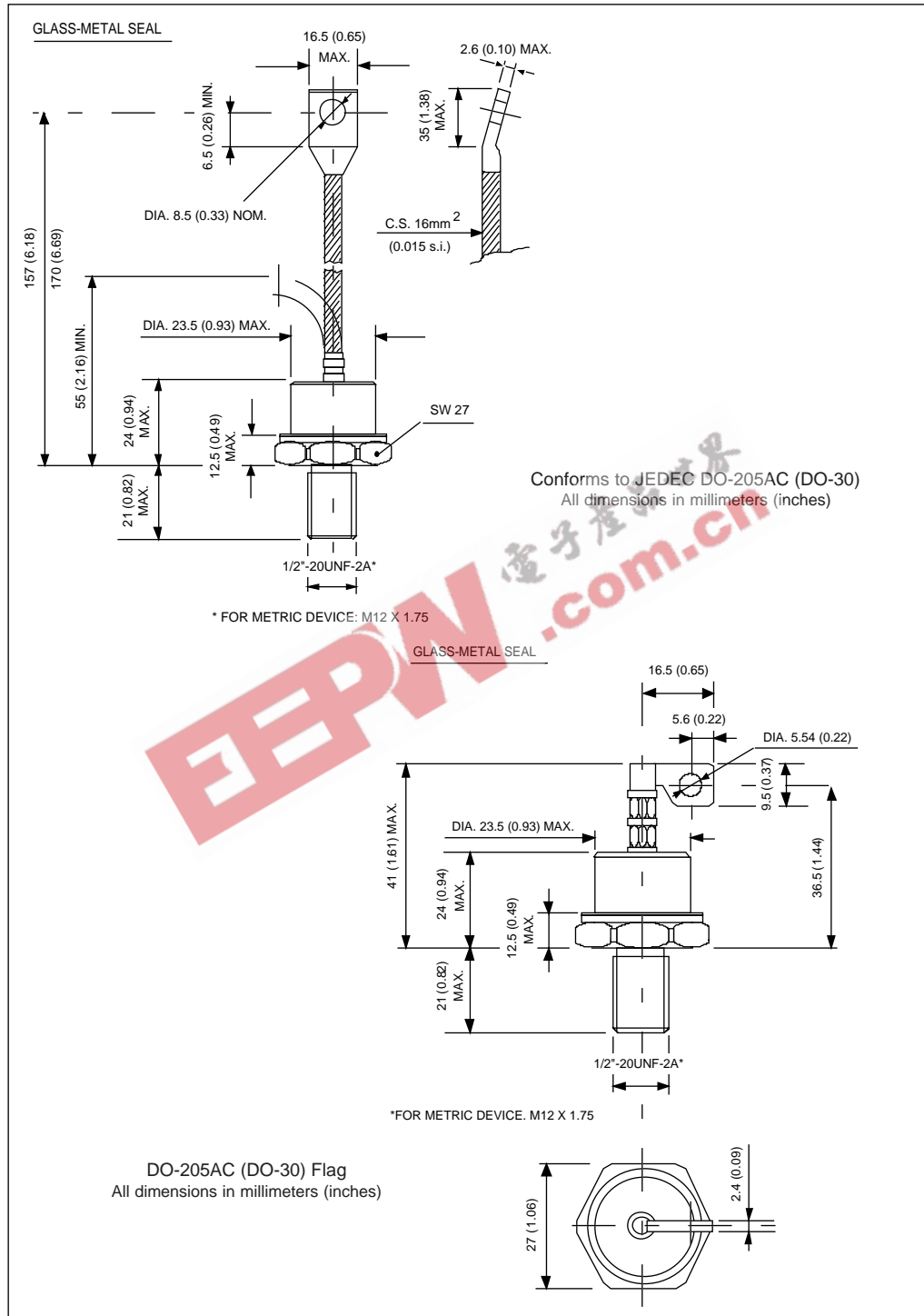
Ordering Information Table

| Device Code | 200 | HF | R | 120 | P | B | V |
|-------------|---|-----|-----|-----|-----|-----|-----|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| 1 | - Essential Part Number | | | | | | |
| 2 | - Diode | | | | | | |
| 3 | - None = Stud Normal Polarity (Cathode to Stud) R = Stud Reverse Polarity (Anode to Stud) | | | | | | |
| 4 | - Voltage code: Code x 10 = V _{RRM} (See Voltage Ratings table) | | | | | | |
| 5 | - P = Stud base DO-205AC(DO-30) 1/2" 20UNF-2A M = Stud base DO-205AC(DO-30) M12x1.75 | | | | | | |
| 6 | - B = Flag top terminals (for Cathode/ Anode Leads) S = Isolated lead with silicone sleeve (Red = Reverse Polarity; Blue = Normal Polarity) None = Not isolated lead | | | | | | |
| 7 | - V = Glass-metal seal | | | | | | |

200HF(R) Series

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Outline Table



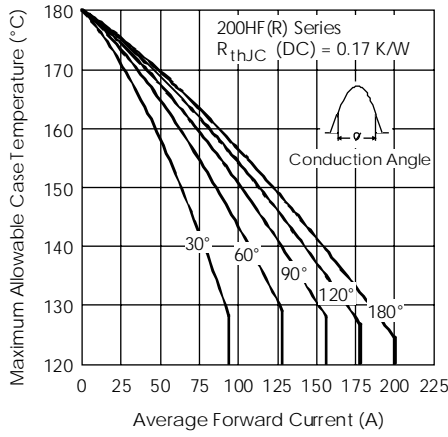


Fig. 1 - Current Ratings Characteristics

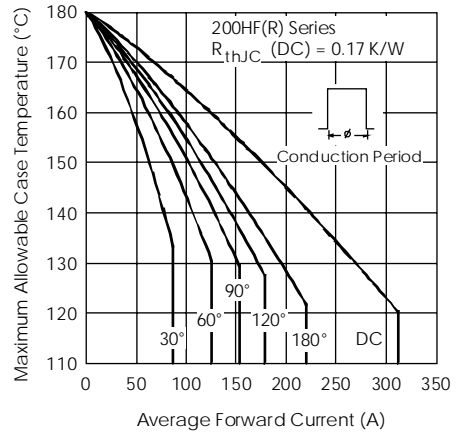


Fig. 2 - Current Ratings Characteristics

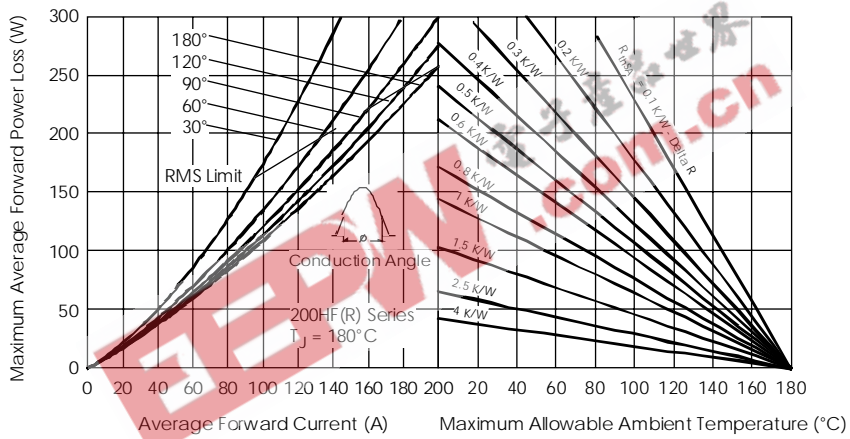


Fig. 3 - Forward Power Loss Characteristics

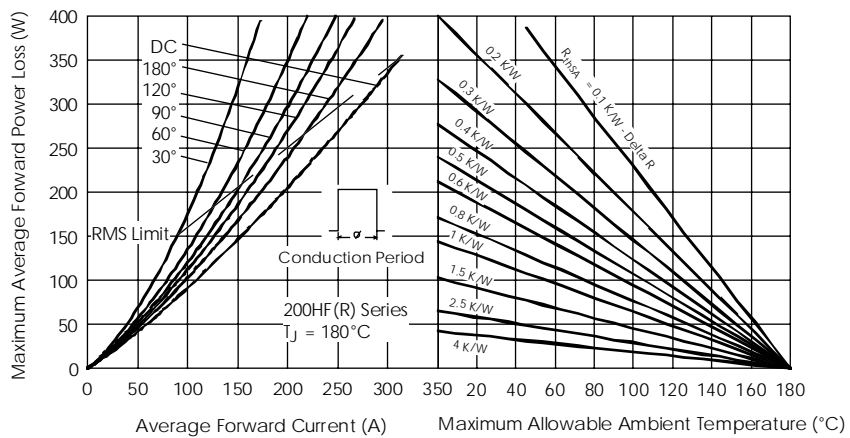


Fig. 4 - Forward Power Loss Characteristics

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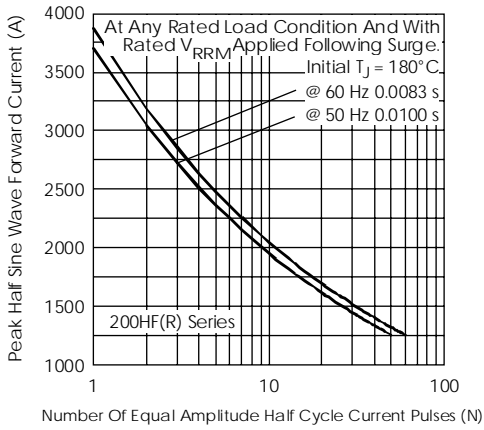


Fig. 5 - Maximum Non-Repetitive Surge Current

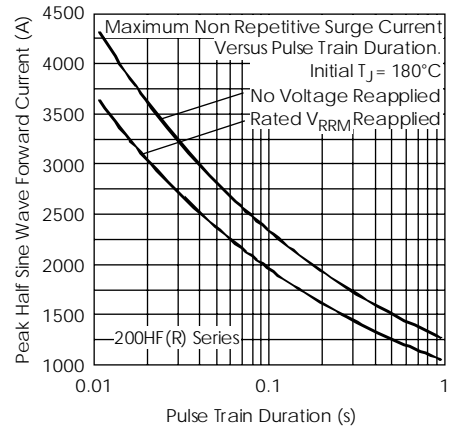


Fig. 6 - Maximum Non-Repetitive Surge Current

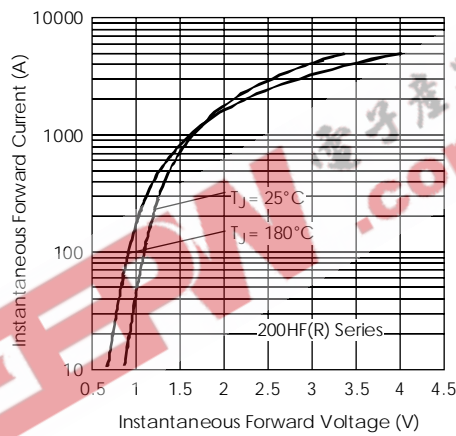


Fig. 7 - Forward Voltage Drop Characteristics

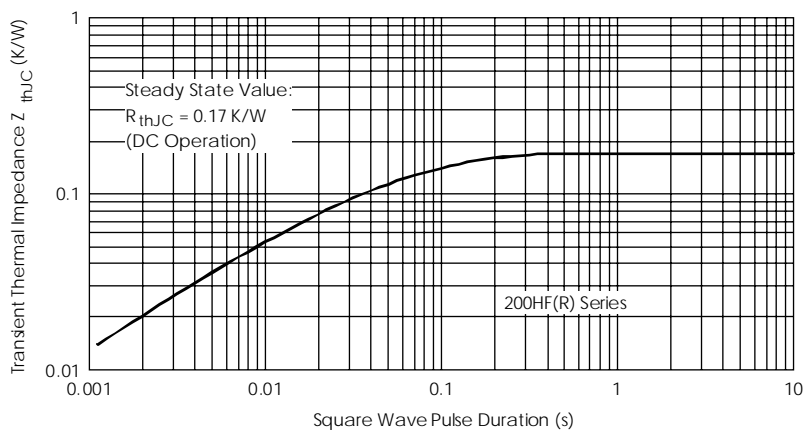


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics