

STANDARD RECOVERY DIODES

Stud Version

Features

- Diffused diode
- Wide current range
- High voltage ratings up to 1200V
- High surge current capabilities
- Stud cathode and stud anode version
- Hermetic metal case

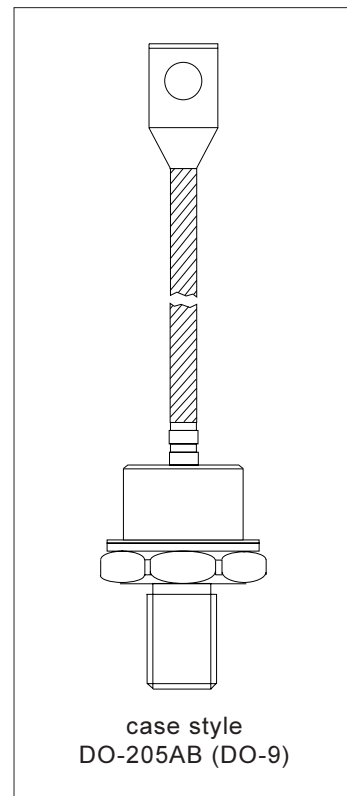
320A

Typical Applications

- Welders
- Power supplies
- Machine tool controls
- High power drives
- Medium traction applications
- Battery charges
- Free-wheeling diodes

Major Ratings and Characteristics

| Parameters | 240U(R).. | Units |
|------------------|-------------|-------------------|
| $I_{F(AV)}$ | 320 | A |
| @ T_C | 100 | °C |
| $I_{F(RMS)}$ | 500 | A |
| I_{FSM} @ 50Hz | 4500 | A |
| @ 60Hz | 4700 | A |
| I^2t @ 50Hz | 101 | KA ² s |
| @ 60Hz | 92 | KA ² s |
| V_{RRM} range | 600 to 1200 | V |
| T_J | - 40 to 180 | °C |



240U(R).. Series

Bulletin I2029 rev. D 09/03

International
IR 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. @ $T_J = T_J$ max. mA |
|-------------|--------------|--|---|--|
| 240U(R).. | 60 | 600 | 700 | 15 |
| | 80 | 800 | 900 | |
| | 100 | 1000 | 1100 | |
| | 120 | 1200 | 1300 | |

Forward Conduction

| Parameter | 240U(R).. | Units | Conditions |
|---|-----------|--------------------|---|
| $I_{F(AV)}$ Max. average forward current @ Case temperature | 320 | A | 180° conduction, half sine wave |
| | 100 | °C | |
| $I_{F(RMS)}$ Max. RMS forward current | 500 | A | DC @ 80°C case temperature |
| I_{FSM} Max. peak, one-cycle forward, non-repetitive surge current | 4500 | A | t = 10ms No voltage |
| | 4700 | | t = 8.3ms reapplied |
| | 3800 | | t = 10ms 100% V_{RRM} |
| | 4000 | | t = 8.3ms reapplied |
| I^2t Maximum I^2t for fusing | 101 | KA ² s | t = 10ms No voltage |
| | 92 | | t = 8.3ms reapplied |
| | 72 | | t = 10ms 100% V_{RRM} |
| | 66 | | t = 8.3ms reapplied |
| $I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing | 1010 | KA ² √s | t = 0.1 to 10ms, no voltage reapplied |
| r_f Slope resistance | 0.6 | mΩ | @ $T_J = T_J$ max. |
| $V_{F(T0)}$ Threshold voltage | 0.83 | V | |
| V_{FM} Max. forward voltage drop | 1.33 | V | $I_{pk} = 750A$, $T_J = 25^\circ C$, $t_p = 10ms$ sinusoidal wave |

Thermal and Mechanical Specifications

| Parameter | 240U(R).. | Units | Conditions |
|--|-----------------|---------------|--|
| T_J Max. junction operating temperature range | -40 to 180 | °C | |
| T_{stg} Max. storage temperature range | -40 to 180 | | |
| R_{thJC} Max. thermal resistance, junction to case | 0.18 | 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% | 37 (330) | Nm (lb.in) | Not lubricated threads |
| | 28 (250) | | Lubricated threads |
| wt Approximate weight | 250 | g | |
| Case style | DO-205AB (DO-9) | | 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° | 0.019 | 0.015 | K/W | $T_J = T_J$ max. |
| 120° | 0.023 | 0.025 | | |
| 90° | 0.030 | 0.034 | | |
| 60° | 0.045 | 0.047 | | |
| 30° | 0.076 | 0.076 | | |

Ordering Information Table

| | | | | | |
|--------------------|----------|----------|----------|------------|----------|
| Device Code | | | | | |
| 24 | 0 | U | R | 120 | D |
| 1 | 2 | 3 | 4 | 5 | 6 |

| | | | | |
|----------|---|---|---|--|
| 1 | - | 24 | = | Essential Part Number |
| 2 | - | 0 | = | Standard Device |
| 3 | - | U | = | Stud Normal Polarity (Cathode to Stud) |
| 4 | - | None | = | Stud Normal Polarity (Cathode to Stud) |
| | | R | = | Stud Reverse Polarity (Anode to Stud) |
| 5 | - | Voltage code: Code x 10 = V_{RRM} (See Voltage Ratings table) | | |
| 6 | - | Diffused diode | | |

Note = For Metric Device M16 x 1.5 Contact Factory

Outline Table

240U(R) Series
 Conforms to JEDEC DO-205AB (DO-9)
 All dimensions in millimeters (inches)

* FOR METRIC DEVICE: M16 X 1.5 CONTACT FACTORY
 FOR DIFFERENT LEAD CONTACT FACTORY

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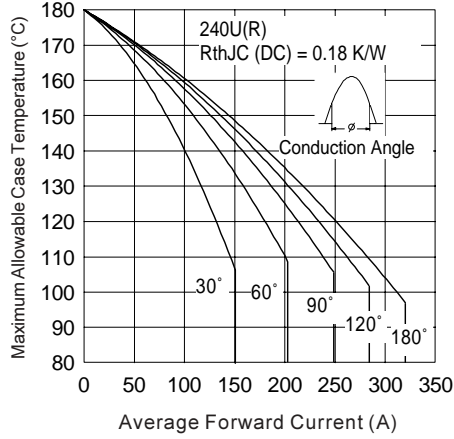


Fig. 1 - Current Ratings Characteristics

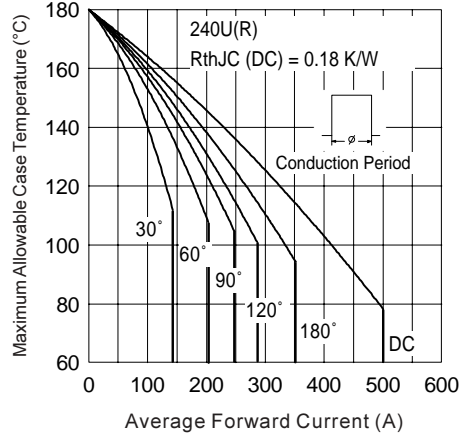


Fig. 2 - Current Ratings Characteristics

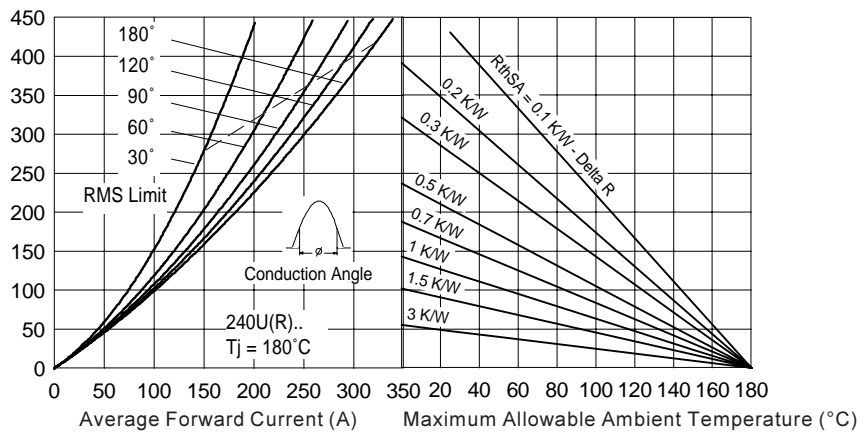


Fig. 3 - Forward Power Loss Characteristics

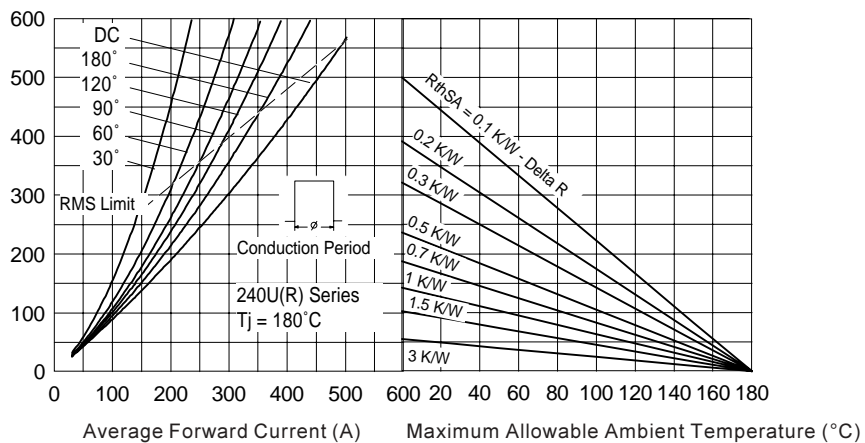


Fig. 4 - Forward Power Loss Characteristics

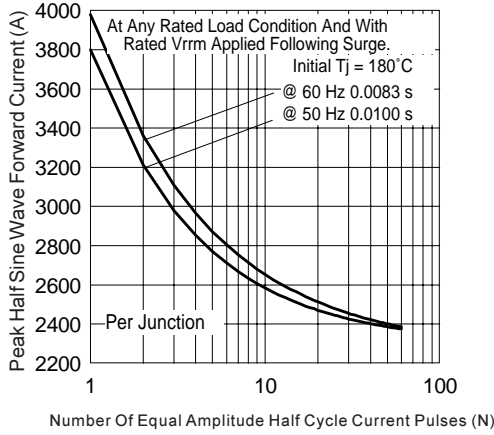


Fig. 5 - Maximum Non-Repetitive Surge Current

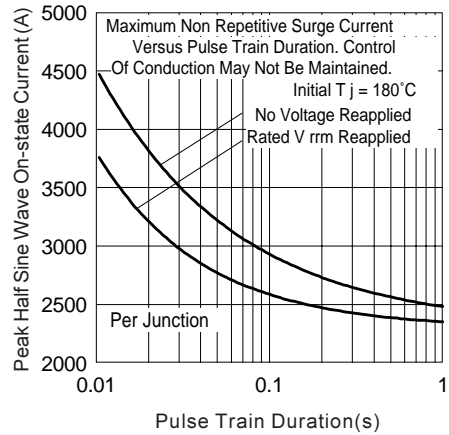


Fig. 6 - Maximum Non-Repetitive Surge Current

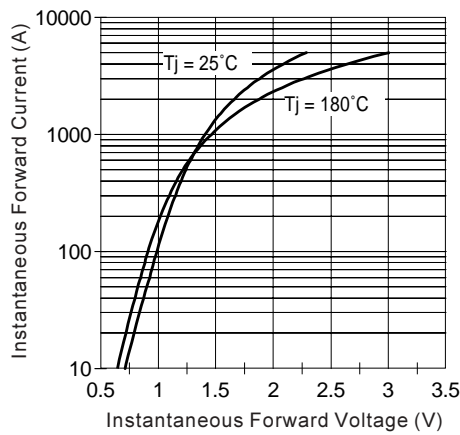


Fig. 7 - Forward Voltage Drop Characteristics

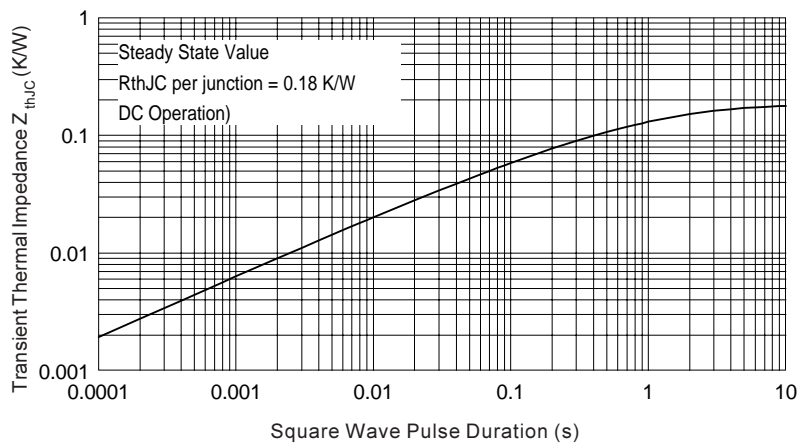


Fig. 8 - Thermal Impedance Z_{thJC} Characteristic

240U(R).. Series

Bulletin I2029 rev. D 09/03

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Data and specifications subject to change without notice.
This product has been designed and qualified for Industrial Level.
Qualification Standards can be found on IR's Web site.

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