

STANDARD RECOVERY DIODES

Stud Version

Features

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

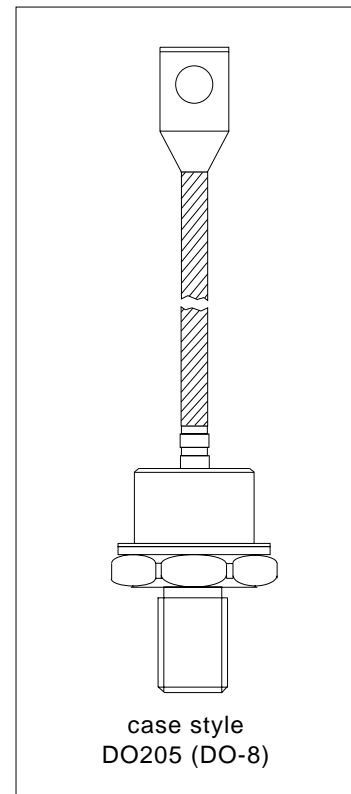
150A

Typical Applications

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

Major Ratings and Characteristics

| Parameters | 150U(R).. | Units |
|------------------|--------------|-------------------|
| $I_{F(AV)}$ | 150 | A |
| @ T_C | 125 | °C |
| $I_{F(RMS)}$ | 235 | A |
| I_{FSM} @ 50Hz | 3000 | A |
| @ 60Hz | 3140 | A |
| I^2t @ 50Hz | 45 | KA ² s |
| @ 60Hz | 41 | KA ² s |
| V_{RRM} range | 600 and 1200 | V |
| T_J | - 40 to 180 | °C |



150U(R).. Series

Bulletin I2025 rev. D 03/03

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 |
|-------------|--------------|----------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------|
| 150U(R).. | 60 | 600 | 700 | 15 |
| | 80 | 800 | 900 | |
| | 100 | 1000 | 1100 | |
| | 120 | 1200 | 1300 | |

Forward Conduction

| Parameter | 150U(R).. | Units | Conditions | | |
|-------------------------------------------------------------------------|-----------|-------------------|---------------------------------------------------------------|-------------------------|---------------------------------------------------|
| $I_{F(AV)}$ Max. average forward current @ Case temperature | 150 | A | 180° conduction, half sine wave | | |
| | 125 | °C | | | |
| $I_{F(RMS)}$ Max. RMS forward current | 235 | A | Dc @ 110°C | | |
| I_{FSM} Max. peak, one-cycle forward, non-repetitive surge current | 3000 | A | t = 10ms | No voltage reapplied | Sinusoidal half wave, Initial $T_J = T_J$ max. |
| | 3140 | | t = 8.3ms | | |
| I^2t Maximum I^2t for fusing | 45 | KA ² s | t = 10ms | No voltage reapplied | |
| | 41 | | t = 8.3ms | | |
| r_f Slope resistance | 0.97 | mΩ | @ $T_J = T_J$ max. | | |
| $V_{F(T0)}$ Threshold voltage | 0.80 | V | | | |
| V_{FM} Max. forward voltage drop | 1.47 | V | $I_{pk} = 600A$, $T_J = 25°C$, $t_p = 10ms$ sinusoidal wave | | |

Thermal and Mechanical Specifications

| Parameter | 150U(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 | 0.3 | K/W | DC operation |
| R_{thCS} Max. thermal resistance, case to heatsink | 0.1 | | Mounting surface, smooth, flat and greased |
| T Max. allowed mounting torque +0 -20% | 17 | Nm | Not lubricated threads |
| | 14.5 | | Lubricated threads |
| wt Approximate weight | 130 | g | |
| Case style | DO-205 (DO-8) | | 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° | 0.031 | 0.023 | K/W | $T_J = T_J$ max. |
| 120° | 0.038 | 0.040 | | |
| 90° | 0.048 | 0.053 | | |
| 60° | 0.071 | 0.075 | | |
| 30° | 0.120 | 0.121 | | |

Ordering Information Table

| Device Code | | | | | | |
|-------------|---|---|---|-----|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 15 | 0 | U | R | 120 | D | L |

- 1** - 15 = 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
- 7** - L = Stud base 1/2" - 20UNF-2A threads
 None = Stud base 3/8" - 24UNF-2A threads

NOTE: For Metric Device M12 x 1.75 Contact Factory

Outline Table

GLASS-METAL SEAL

16.5 (0.65) MAX.

2.6 (0.10) MAX.

6.5 (0.26) MIN.

35 (1.38) MAX.

DIA. 8.5 (0.33) NOM.

C.S. 16mm² (0.015 s.i.)

165 (6.49) MIN.

170 (6.69) MAX.

55 (2.16) MIN.

DIA. 23.5 (0.93) MAX.

24 (0.94) MAX.

17 (0.69) MAX.

3/8"-24UNF-2A *

150U(R) Series
 Conforms to JEDEC DO-205 (DO-8)
 All dimensions in millimeters (inches)

* FOR METRIC DEVICE M12 x 1.75
 * FOR STUD BASE 1/2" - 20UNF-2A THREADS; refer "Ordering Information Table"

150U(R).. Series

Bulletin I2025 rev. D 03/03

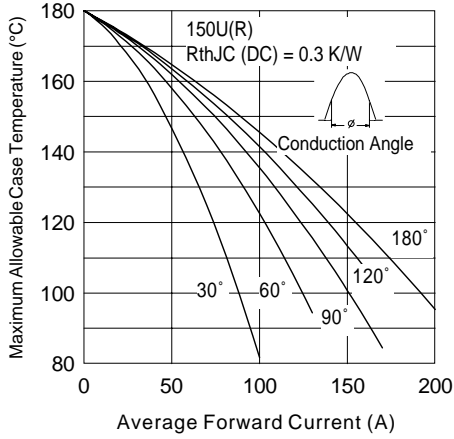


Fig. 1 - Current Ratings Characteristics

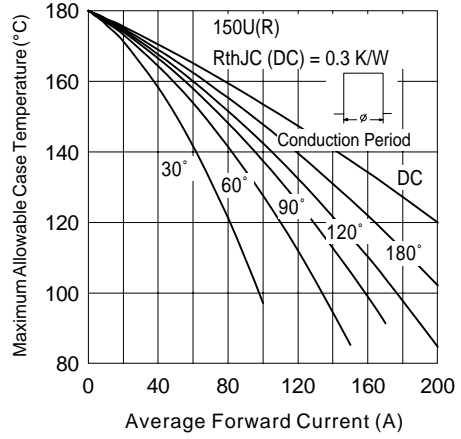


Fig. 2 - Current Ratings Characteristics

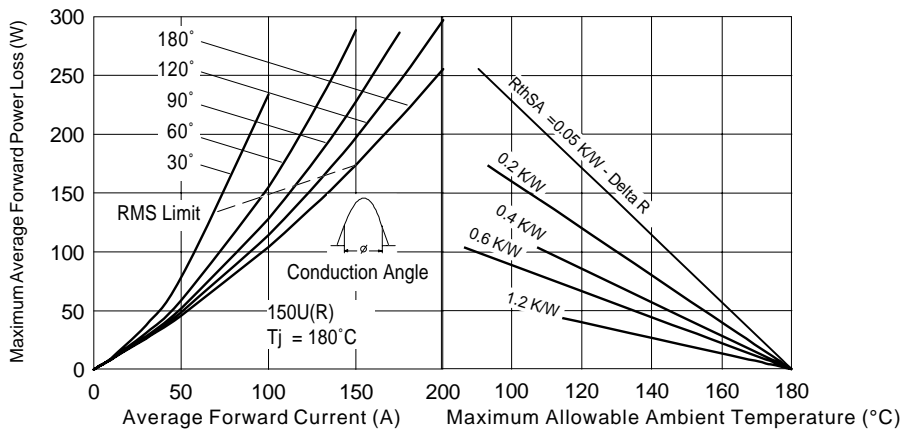


Fig. 3 - Forward Power Loss Characteristics

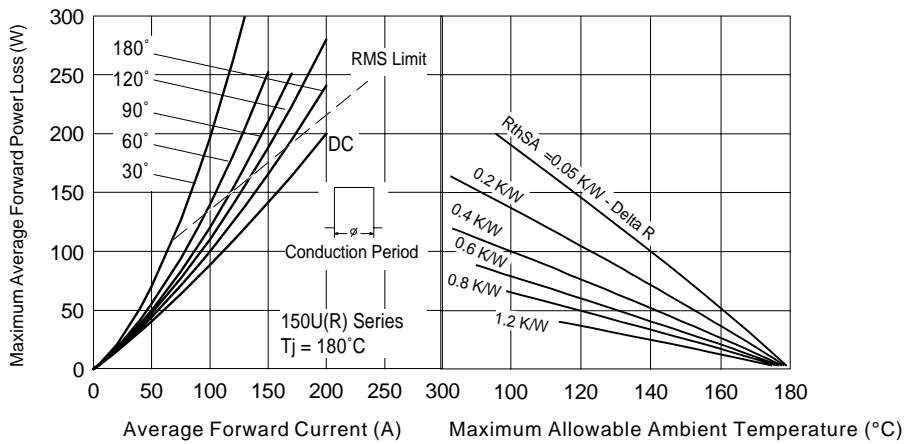
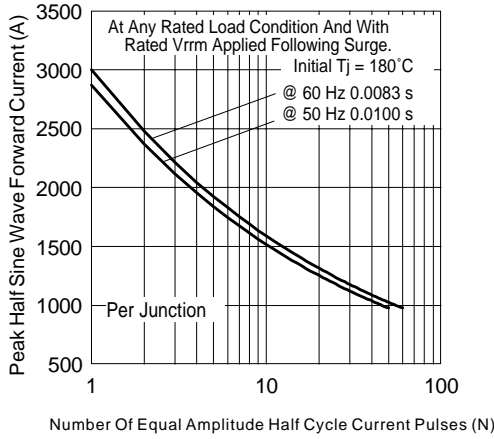
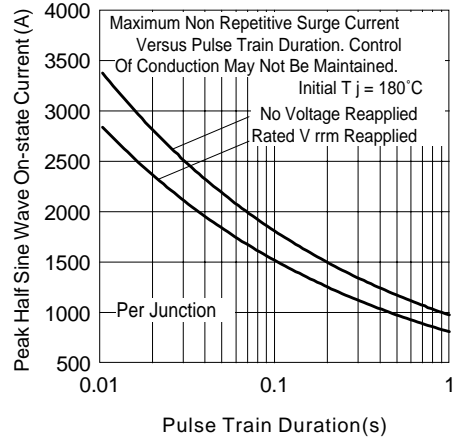


Fig. 4 - Forward Power Loss Characteristics



Number Of Equal Amplitude Half Cycle Current Pulses (N)

Fig. 5 - Maximum Non-Repetitive Surge Current



Pulse Train Duration(s)

Fig. 6 - Maximum Non-Repetitive Surge Current

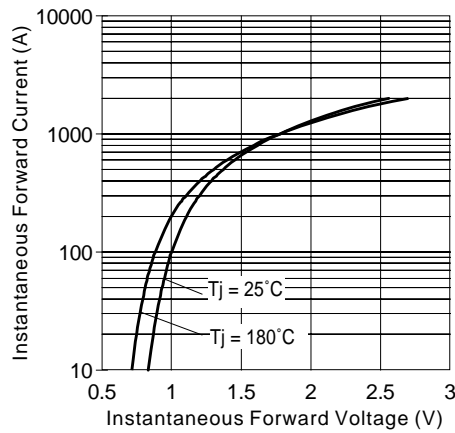


Fig. 7 - Forward Voltage Drop Characteristics

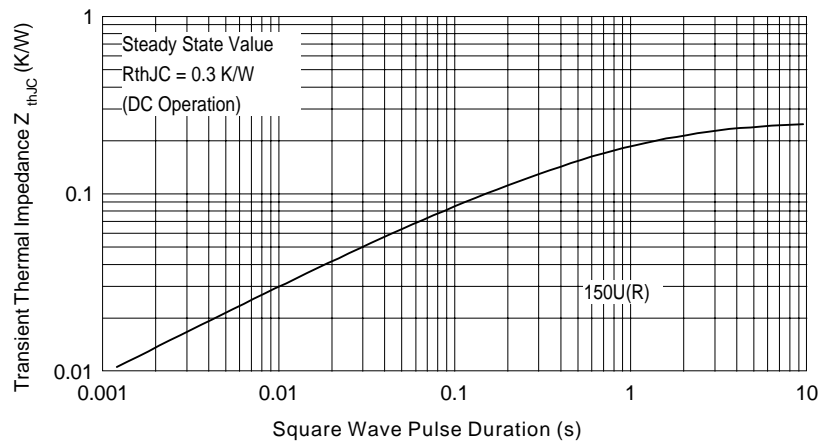


Fig. 8 - Thermal Impedance Z_{thJC} Characteristic

150U(R).. Series

Bulletin I2025 rev. D 03/03

International
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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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