Bulletin I2025 rev. D 03/03

International
IOR Rectifier

150U(R).. SERIES

STANDARD RECOVERY DIODES **Stud Version**

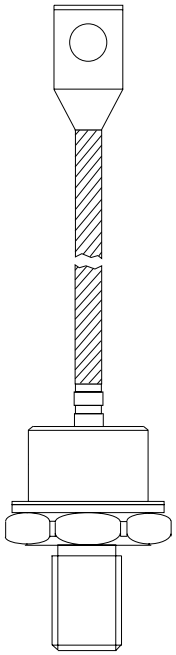
Features

- 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



case style
DO205 (DO-8)

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^2s
	@ 60Hz	41	KA^2s
V_{RRM} range		600 and 1200	V
T_J		- 40 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 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	150	A	180° conduction, half sine wave		
	@ Case temperature	125	°C			
$I_{F(RMS)}$	Max. RMS forward current	235	A	Dc @ 110°C		
I_{FSM}	Max. peak, one-cycle forward,	3000	A	t = 10ms	No voltage	Sinusoidal half wave, Initial T_J = T_J max.
	non-repetitive surge current	3140		t = 8.3ms	reapplied	
I^2t	Maximum I^2t for fusing	45	KA^2s	t = 10ms	No voltage	
		41		t = 8.3ms	reapplied	
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 resistence 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

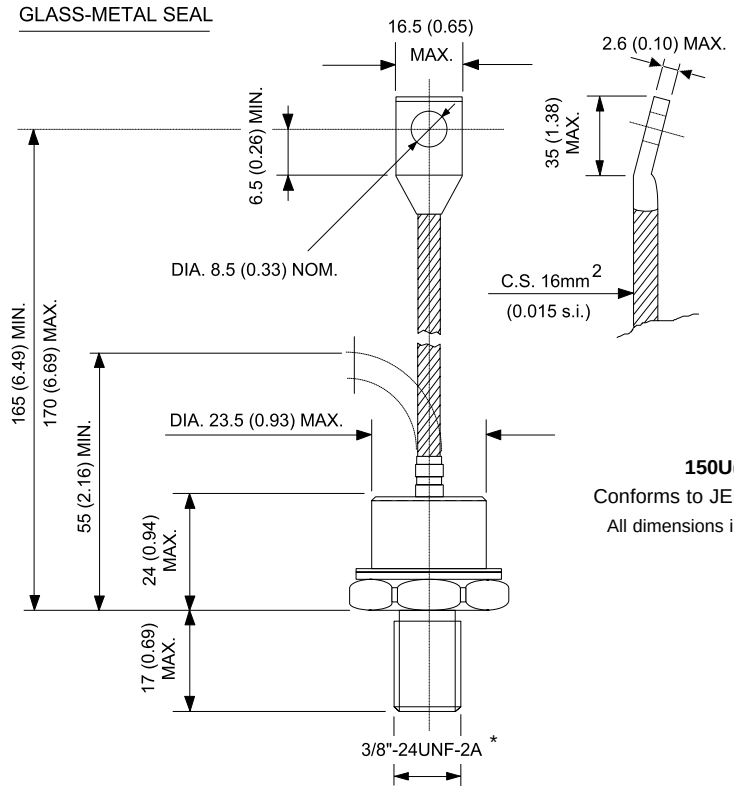
Device Code

15	0	U	R	120	D	L
1	2	3	4	5	6	7

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



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 "Odering Information Table"

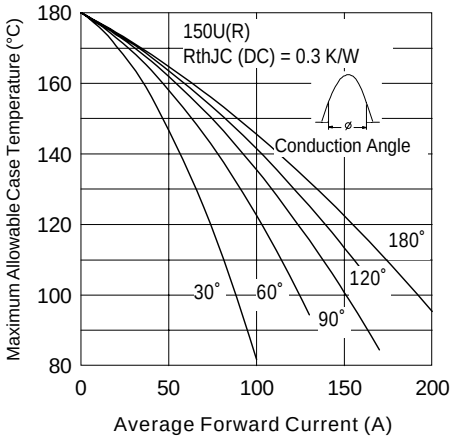


Fig. 1 - Current Ratings Characteristics

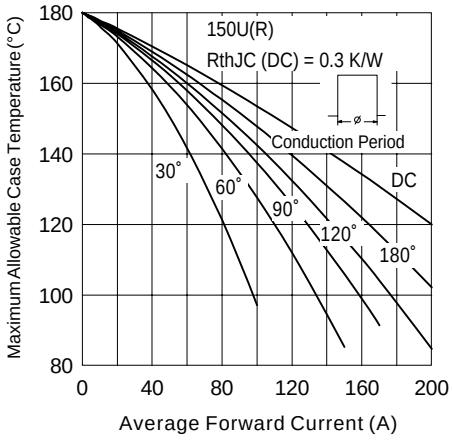


Fig. 2 - Current Ratings Characteristics

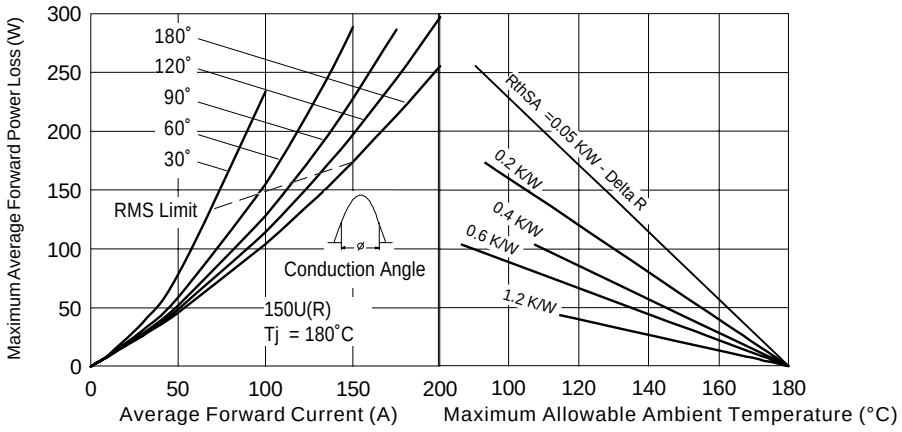


Fig. 3 - Forward Power Loss Characteristics

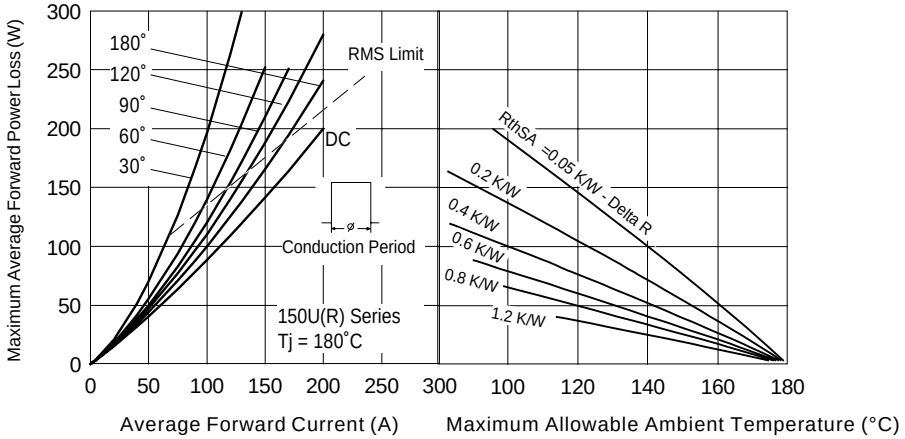


Fig. 4 - Forward Power Loss Characteristics

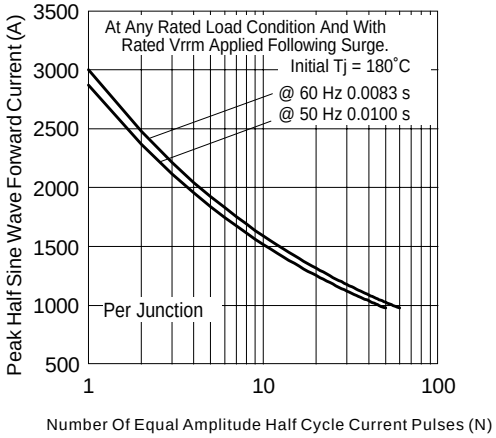


Fig. 5 - Maximum Non-Repetitive Surge Current

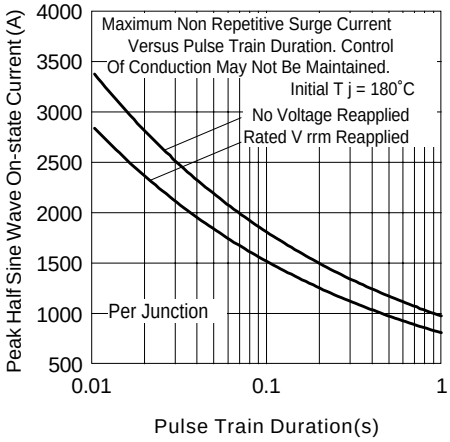


Fig. 6 - Maximum Non-Repetitive Surge Current

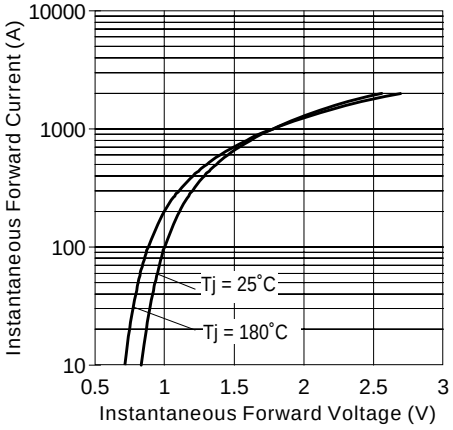


Fig. 7 - Forward Voltage Drop Characteristics

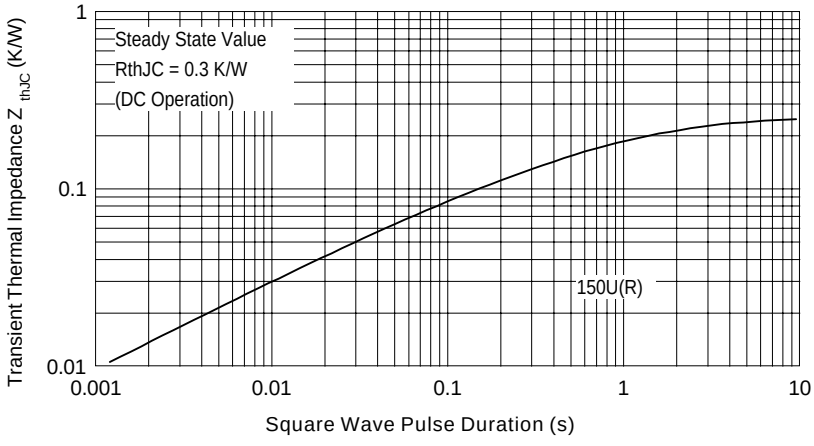


Fig. 8 - Thermal Impedance Z_{thJC} Characteristic

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.

International
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