

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

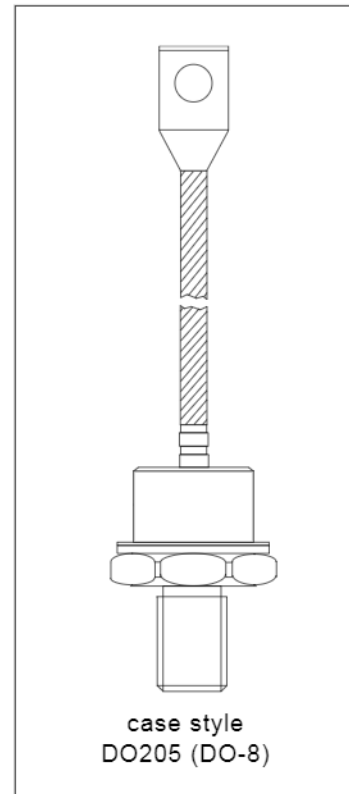
150A

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. C 10/02

International
IRF 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
	3140		t = 8.3ms reapplied
I^2t Maximum I^2t for fusing	45	KA ² s	t = 10ms No voltage
	41		t = 8.3ms reapplied
$I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing	-	KA ² √s	t = 0.1 to 10ms, no voltage reapplied
r_f Slope resistance	0.97	mΩ	@ $T_J = T_J$ max.
$V_{F(TD)}$ Threshold voltage	0.80	V	
V_{FM} Max. forward voltage drop	1.47	V	$I_{pk} = 600A$, $T_J = 25^\circ C$, $t_p = 10ms$ 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

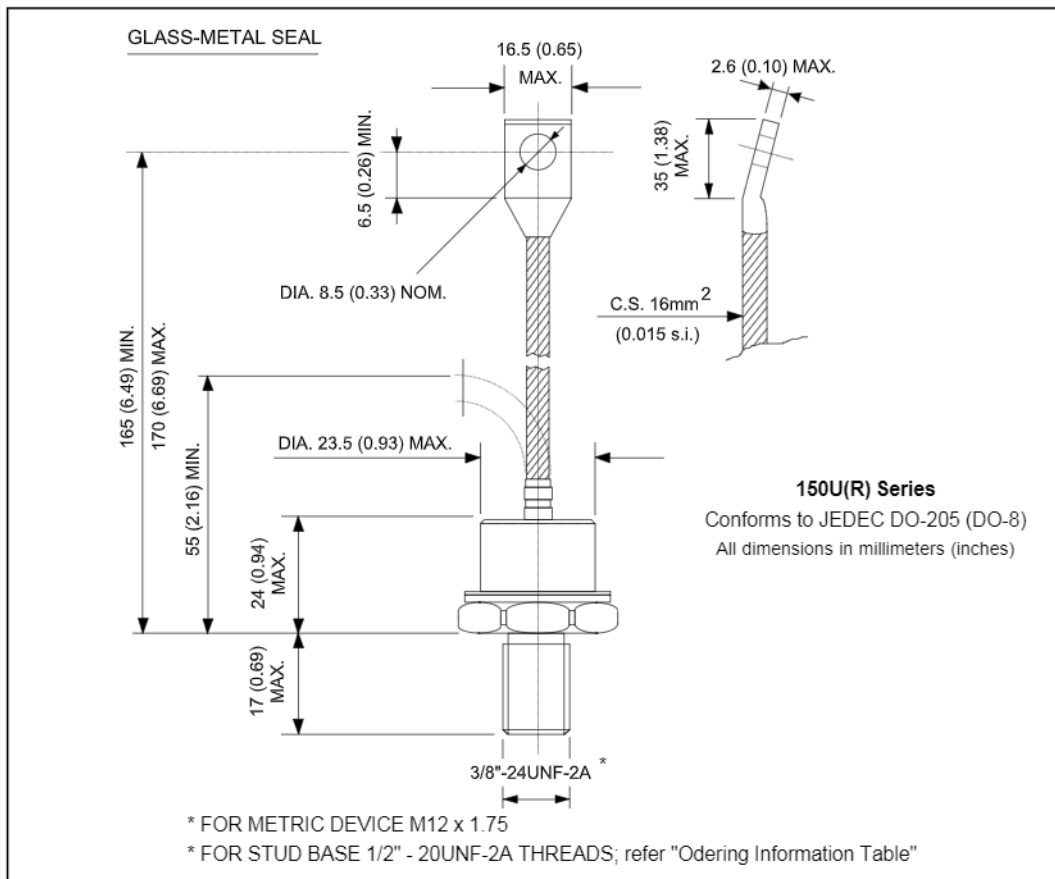
(The following table shows the increment of thermal resistance R_{thJC} when devices operate at different conduction angles than DC)

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					
150	U	R	120	D	L
①	②	③	④	⑤	⑥
1	- 150	= Standard xx0U device			
2	- U	= Essential Part Number			
3	- R	= Stud Reverse Polarity (Anode to Stud)			
		None = Stud Normal Polarity (Cathode to Stud)			
4	-	Voltage code: Code x 10 = V_{RRM} (See Voltage Ratings table)			
5	- D	= Diffused diode			
6	- L	= Stud base 1/2" - 20UNF-2A threads			
		M = Metric base M12 x 1.75			
		None = Stud base 3/8" - 24UNF-2A threads			

Outline Table



150U(R).. Series

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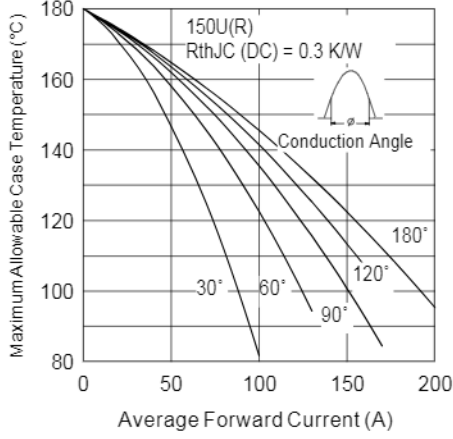


Fig. 1 - Current Ratings Characteristics

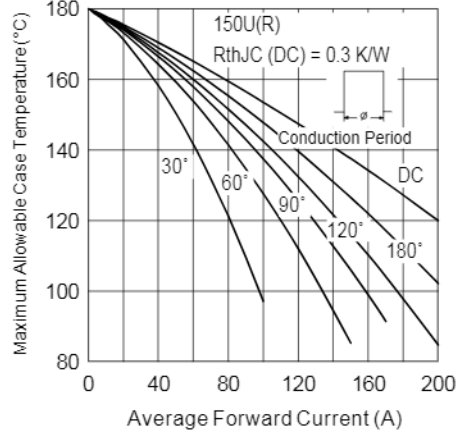


Fig. 2 - Current Ratings Characteristics

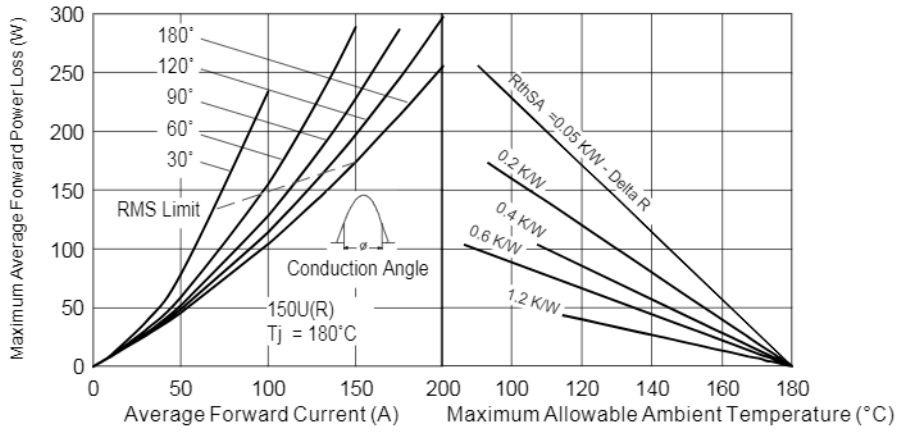


Fig. 3 - Forward Power Loss Characteristics

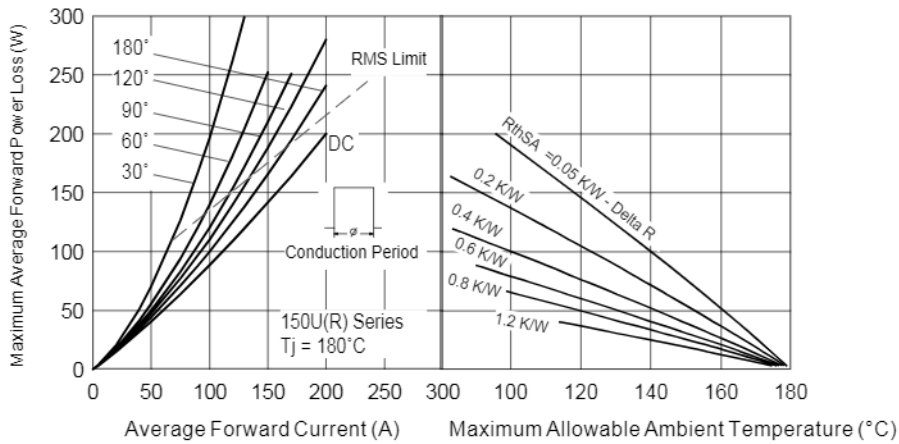


Fig. 4 - Forward Power Loss Characteristics

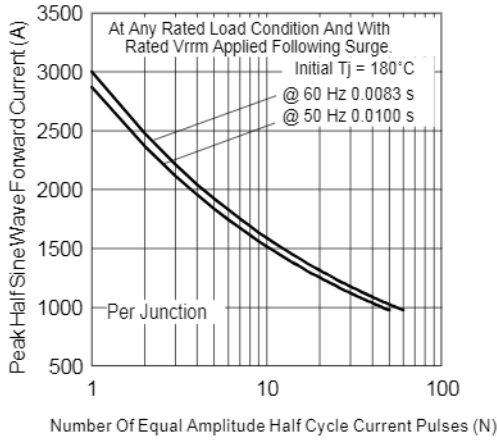


Fig. 5 - Maximum Non-Repetitive Surge Current

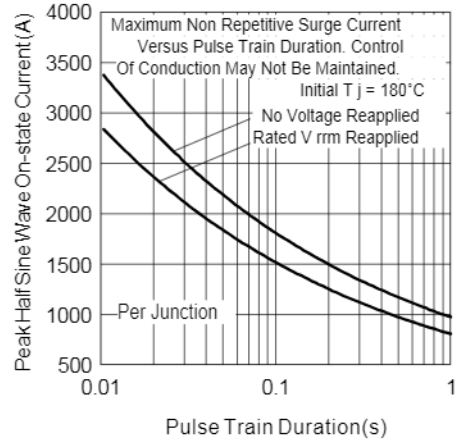


Fig. 6 - Maximum Non-Repetitive Surge Current

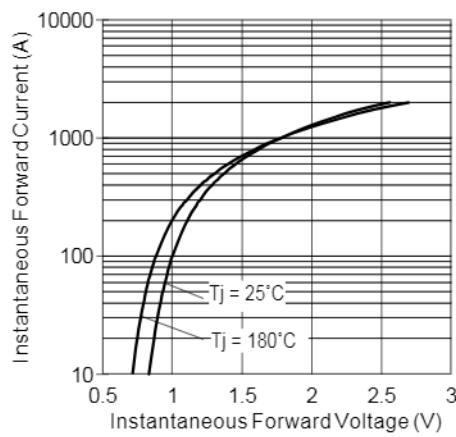


Fig. 7 - Forward Voltage Drop Characteristics

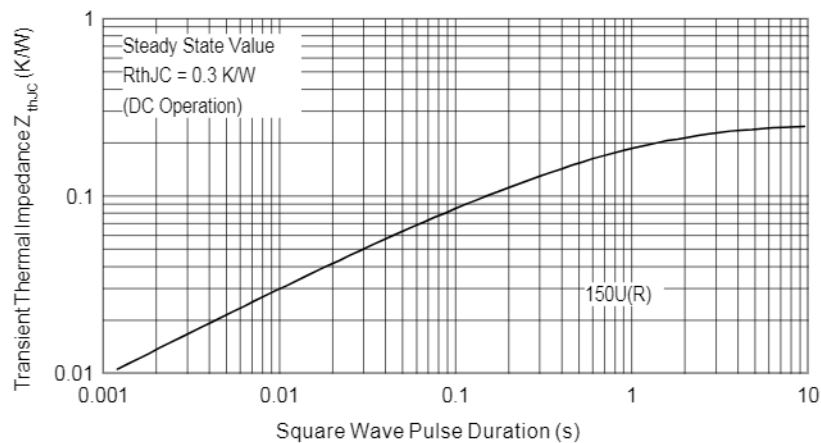


Fig. 8 - Thermal Impedance Z_{thJC} Characteristic

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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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