

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
- RoHS Compliant

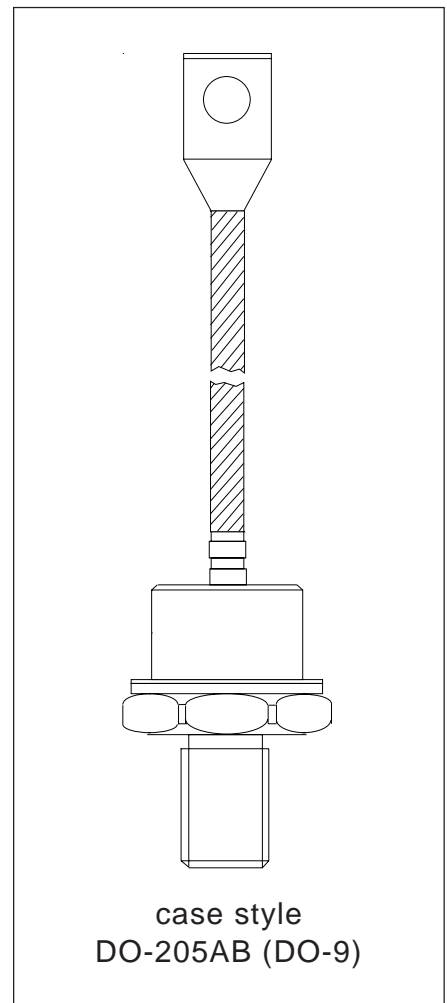
320A

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



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 reappplied
	4700		t = 8.3ms
	3800		t = 10ms 100% V_{RRM} reappplied
	4000		t = 8.3ms
I^2t Maximum I^2t for fusing	101	KA ² s	t = 10ms No voltage reappplied
	92		t = 8.3ms
	72		t = 10ms 100% V_{RRM} reappplied
	66		t = 8.3ms
$I^2\sqrt{t}$ Maximum $I^2\sqrt{t}$ for fusing	1010	KA ² √s	t = 0.1 to 10ms, no voltage reappplied
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	$I_{pk} = 750A, T_J = 25°C, t_p = 10ms$ 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

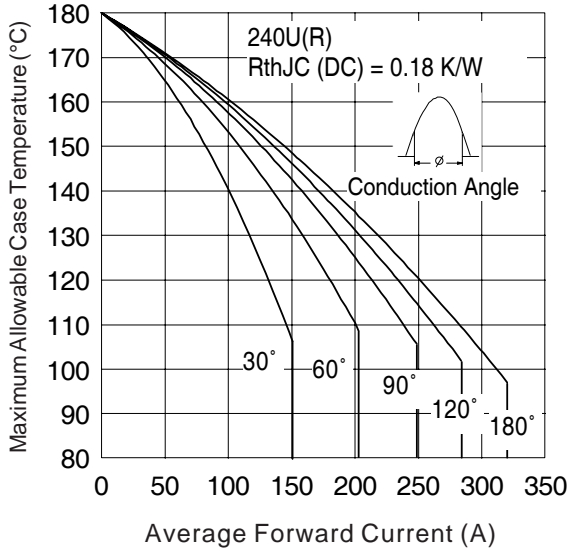


Fig. 1 - Current Ratings Characteristics

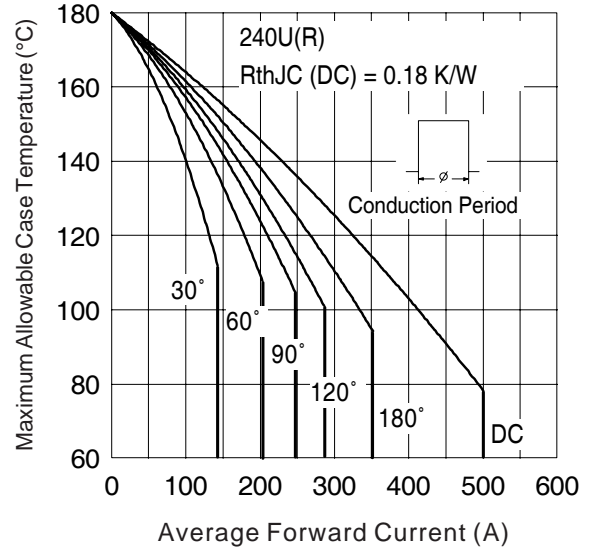


Fig. 2 - Current Ratings Characteristics

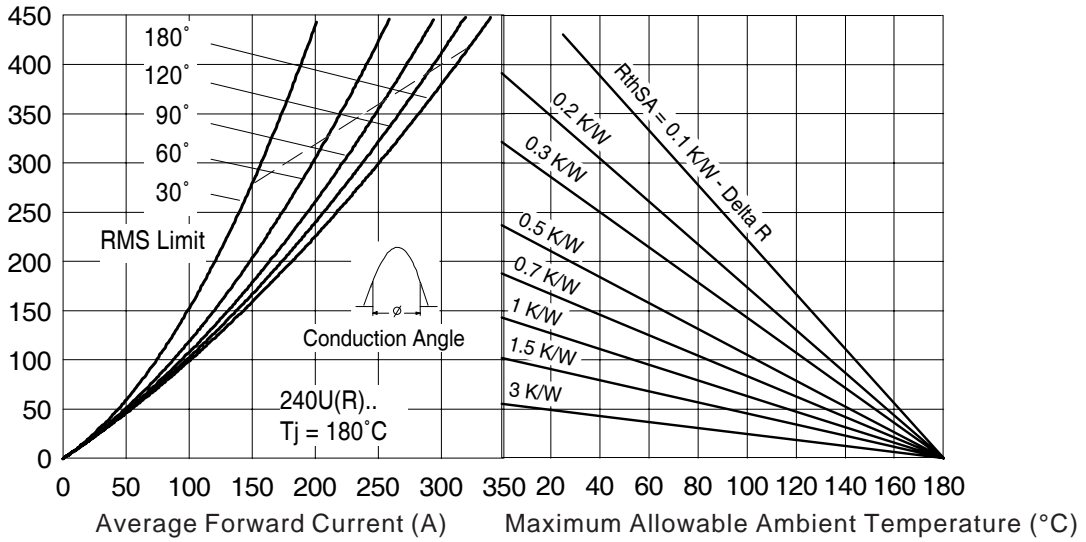


Fig. 3 - Forward Power Loss Characteristics

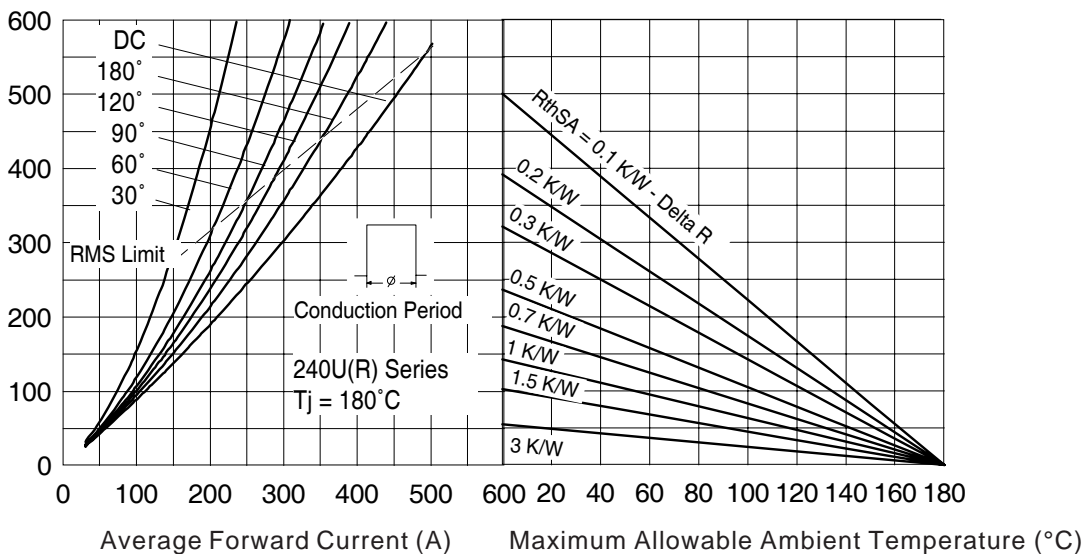
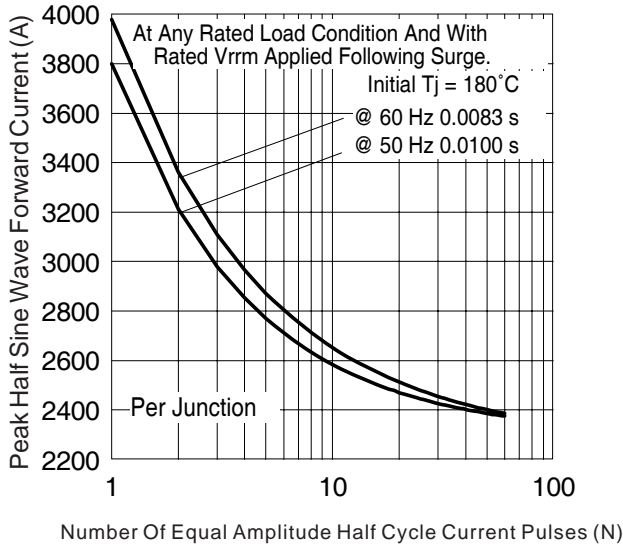


Fig. 4 - Forward Power Loss Characteristics



Number Of Equal Amplitude Half Cycle Current Pulses (N)

Fig. 5 - Maximum Non-Repetitive Surge Current

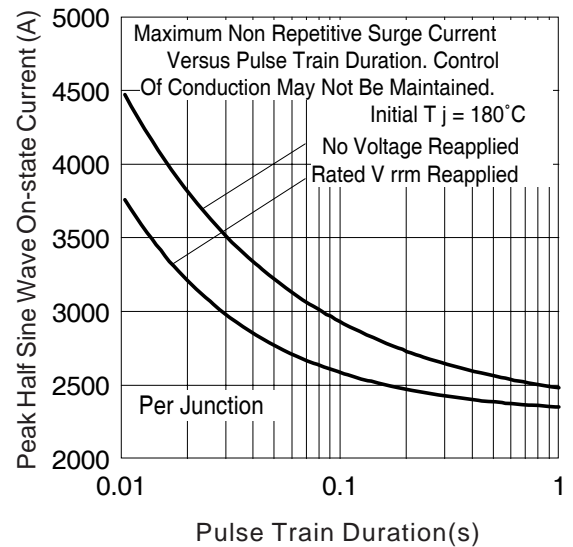


Fig. 6 - Maximum Non-Repetitive Surge Current

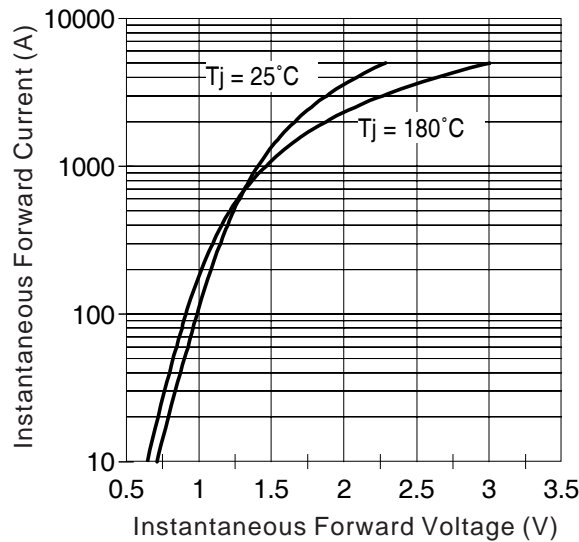


Fig. 7 - Forward Voltage Drop Characteristics

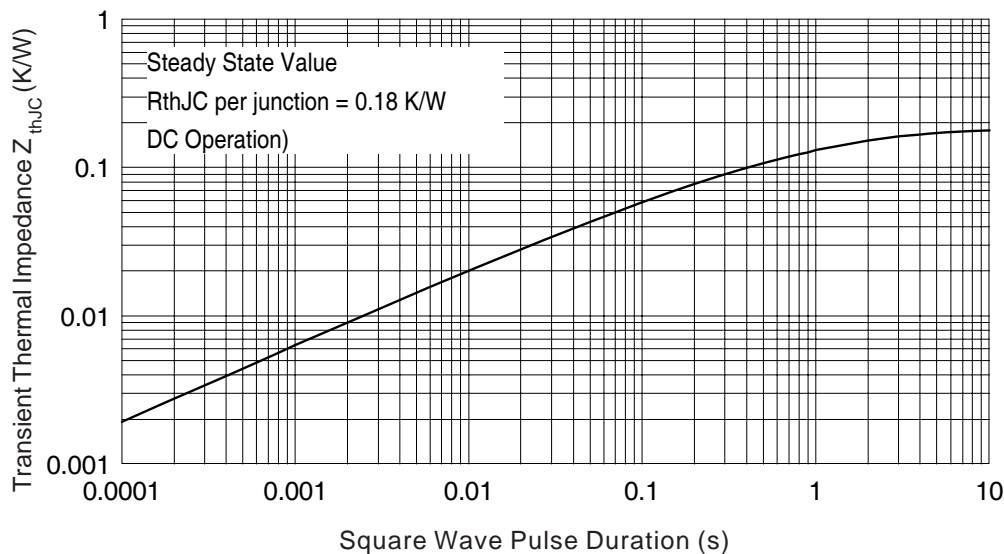


Fig. 8 - Thermal Impedance Z_{thJC} Characteristic

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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