Bulletin I2029 rev. D 09/03

International
IOR Rectifier

240U(R).. SERIES

STANDARD RECOVERY DIODES

Stud Version

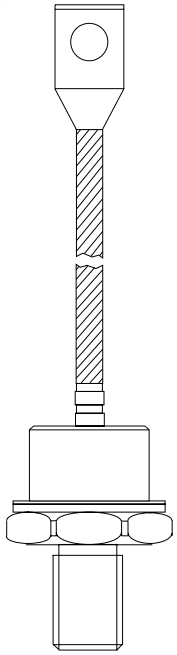
320A

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

Typical Applications

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



case style
DO-205AB (DO-9)

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^2s
	@ 60Hz	92	KA^2s
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	320	A	180° conduction, half sine wave	
	@ Case temperature	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 reapplied
		4700		t = 8.3ms	
		3800		t = 10ms	100% V_{RRM} reapplied
		4000		t = 8.3ms	
I^2t	Maximum I^2t for fusing	101	KA^2s	t = 10ms	No voltage reapplied
		92		t = 8.3ms	
		72		t = 10ms	100% V_{RRM} reapplied
		66		t = 8.3ms	
$I^2\sqrt{t}$	Maximum $I^2\sqrt{t}$ for fusing	1010	$KA^2\sqrt{s}$	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°C, t_p = 10ms sinusoidal wave	

Sinusoidal half wave, Initial $T_J = T_J$ max.

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 resistence 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

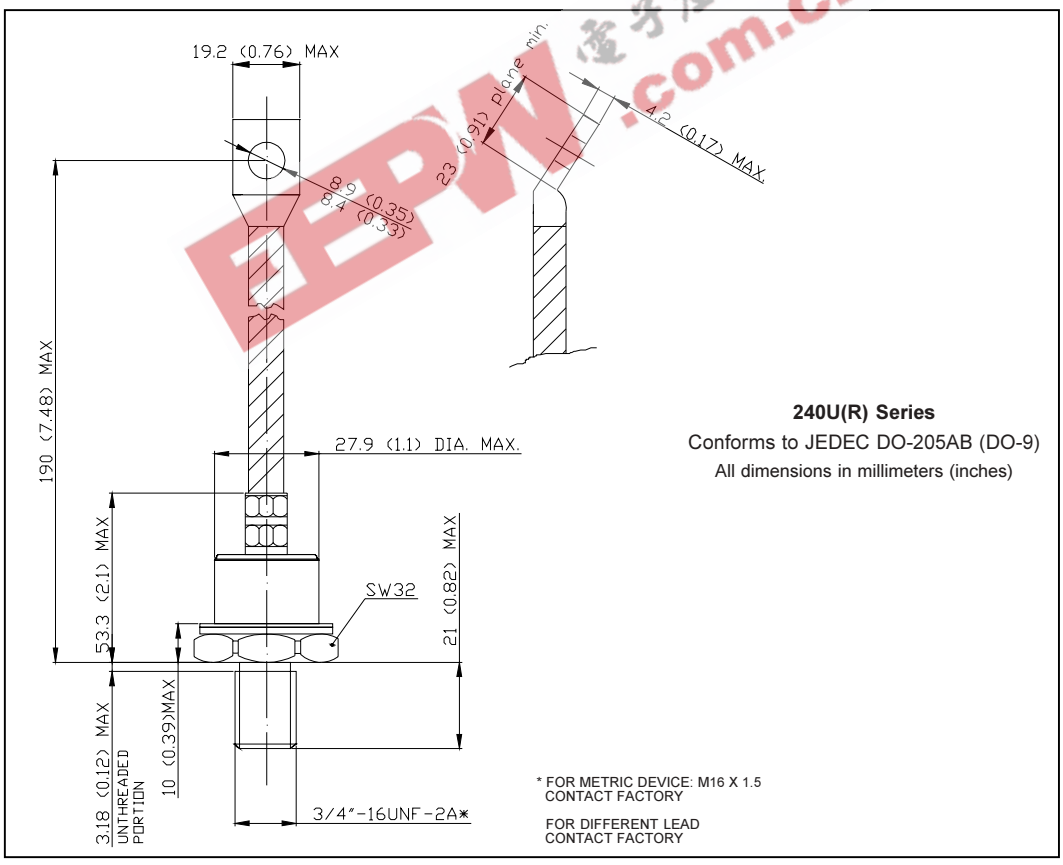
Device Code

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)

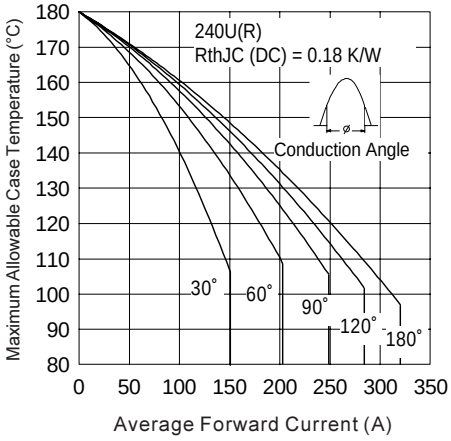


Fig. 1 - Current Ratings Characteristics

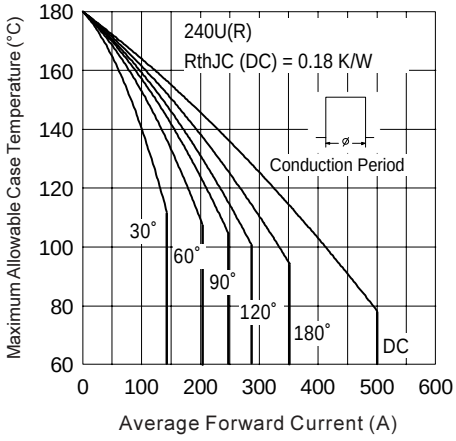


Fig. 2 - Current Ratings Characteristics

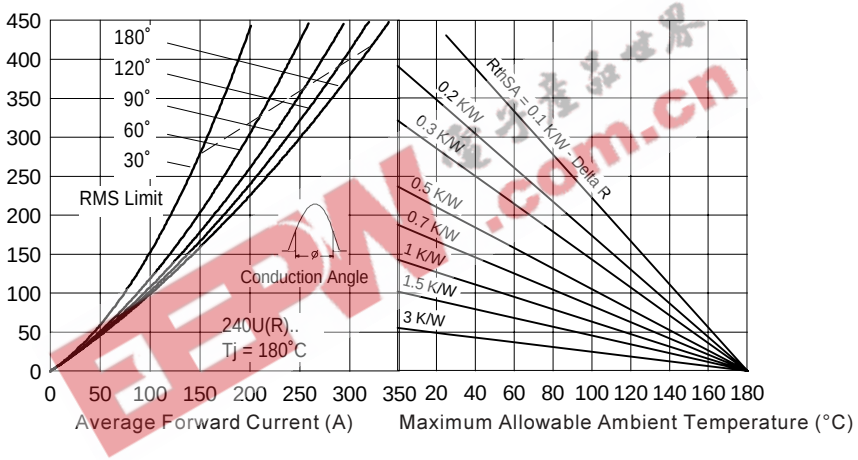


Fig. 3 - Forward Power Loss Characteristics

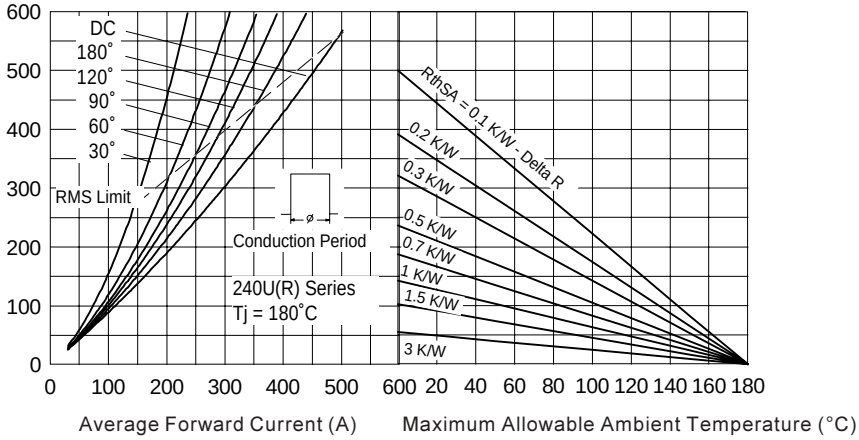


Fig. 4 - Forward Power Loss Characteristics

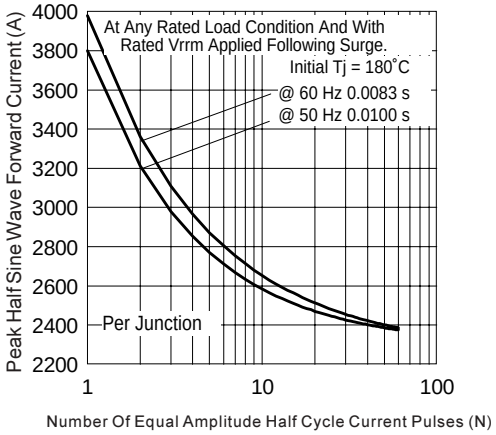


Fig. 5 - Maximum Non-Repetitive Surge Current

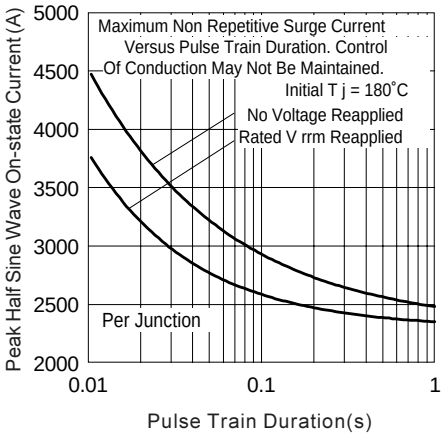


Fig. 6 - Maximum Non-Repetitive Surge Current

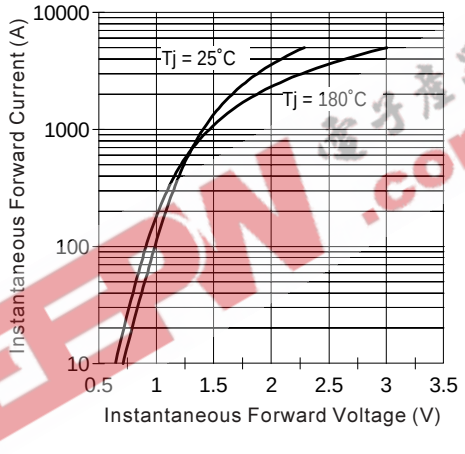


Fig. 7 - Forward Voltage Drop Characteristics

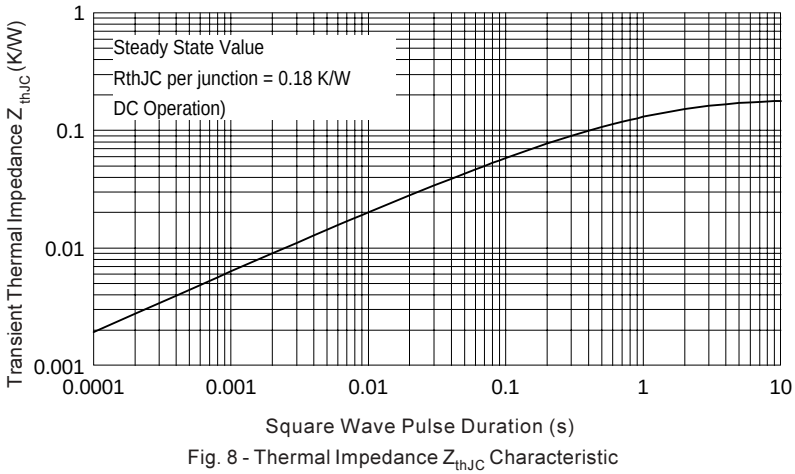


Fig. 8 - Thermal Impedance Z_{thJC} Characteristic

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.

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