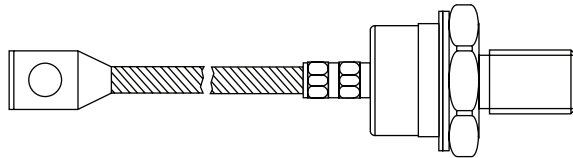


## Standard Recovery Diodes (Stud Version), 320 A



DO-205AB (DO-9)

### FEATURES

- Diffused diode
- Wide current range
- High voltage ratings up to 1200 V
- High surge current capabilities
- Stud cathode and stud anode version
- Hermetic metal case
- RoHS compliant
- Designed and qualified for industrial level


**RoHS**  
COMPLIANT

### PRODUCT SUMMARY

$I_{F(AV)}$	320 A
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### TYPICAL APPLICATIONS

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

### MAJOR RATINGS AND CHARACTERISTICS

PARAMETER	TEST CONDITIONS	VALUES	UNITS
$I_{F(AV)}$		320	A
	$T_C$	100	°C
$I_{F(RMS)}$		500	A
$I_{FSM}$	50 Hz	4500	A
	60 Hz	4700	
$I^2t$	50 Hz	101	kA <sup>2</sup> s
	60 Hz	92	
$V_{RRM}$	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 REVERSE VOLTAGE V	$I_{RRM}$ MAXIMUM AT $T_J = T_J$ MAXIMUM mA
240U(R)..	60	600	700	15
	80	800	900	
	100	1000	1100	
	120	1200	1300	

# 240U(R).. Series



Vishay High Power Products Standard Recovery Diodes  
(Stud Version), 320 A

FORWARD CONDUCTION					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum average forward current at case temperature	$I_{F(AV)}$	180° conduction, half sine wave		320	A
				100	°C
Maximum RMS forward current	$I_{F(RMS)}$	DC at 80 °C case temperature		500	A
Maximum peak, one cycle forward, non-repetitive surge current	$I_{FSM}$	t = 10 ms	No voltage reapplied	4500	
		t = 8.3 ms		4700	
		t = 10 ms	100 % $V_{RRM}$ reapplied	3800	
		t = 8.3 ms		4000	
Maximum $I^2t$ for fusing	$I^2t$	t = 10 ms	No voltage reapplied	101	kA <sup>2</sup> s
		t = 8.3 ms		92	
		t = 10 ms	100 % $V_{RRM}$ reapplied	72	
		t = 8.3 ms		66	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 to 10 ms, no voltage reapplied		1010	kA <sup>2</sup> /s
Slope resistance	$r_f$	$T_J = T_J$ maximum		0.6	mΩ
Threshold voltage	$V_{F(T0)}$			0.83	V
Maximum forward voltage drop	$V_{FM}$	$I_{pk} = 750$ A, $T_J = 25$ °C, $t_p = 10$ ms sinusoidal wave		1.33	

THERMAL AND MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum junction operating and storage temperature range	$T_J, T_{Stg}$			- 40 to 180	°C
Maximum thermal resistance, junction to case	$R_{thJC}$	DC operation		0.18	K/W
Maximum thermal resistance, case to heatsink	$R_{thCS}$	Mounting surface, smooth, flat and greased		0.8	
Maximum allowed mounting torque + 0 - 20 %		Not lubricated threads		37 (330)	N · m (lbf · in)
		Lubricated threads		28 (250)	
Approximate weight				250	g
Case style		See dimensions - link at the end of datasheet		DO-205AB (DO-9)	

$\Delta R_{thJC}$ CONDUCTION				
CONDUCTION ANGLE	SINUSOIDAL CONDUCTION	RECTANGULAR CONDUCTION	TEST CONDITIONS	UNITS
180°	0.019	0.015	$T_J = T_J$ maximum	K/W
120°	0.023	0.025		
90°	0.030	0.034		
60°	0.045	0.047		
30°	0.076	0.076		

### Note

- The table above shows the increment of thermal resistance  $R_{thJC}$  when devices operate at different conduction angles than DC

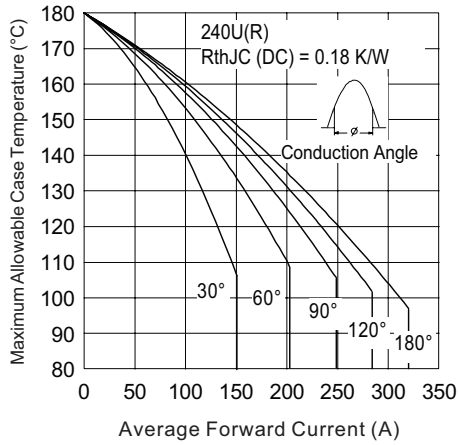


Fig. 1 - Current Ratings Characteristics

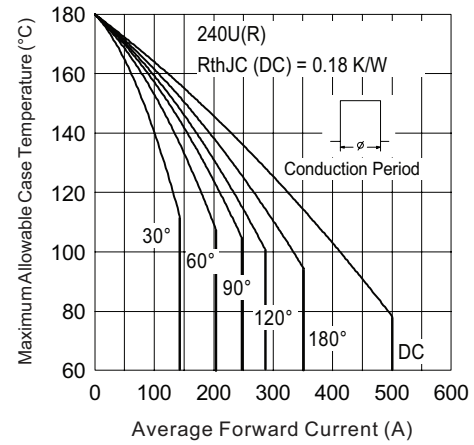


Fig. 2 - Current Ratings Characteristics

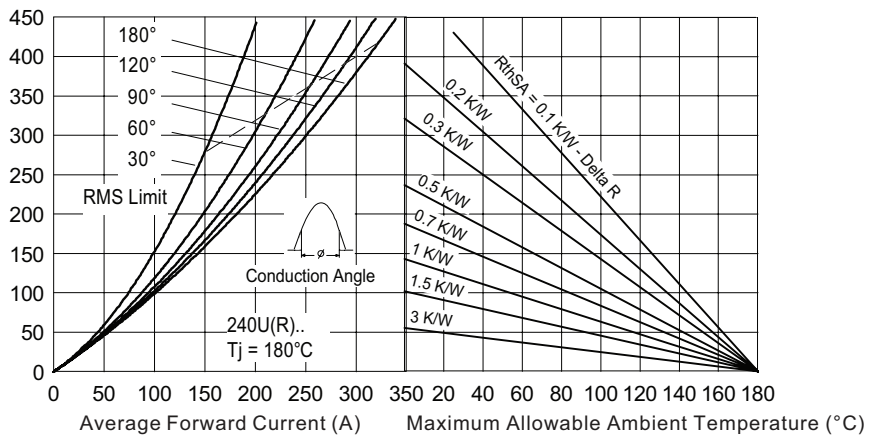


Fig. 3 - Forward Power Loss Characteristics

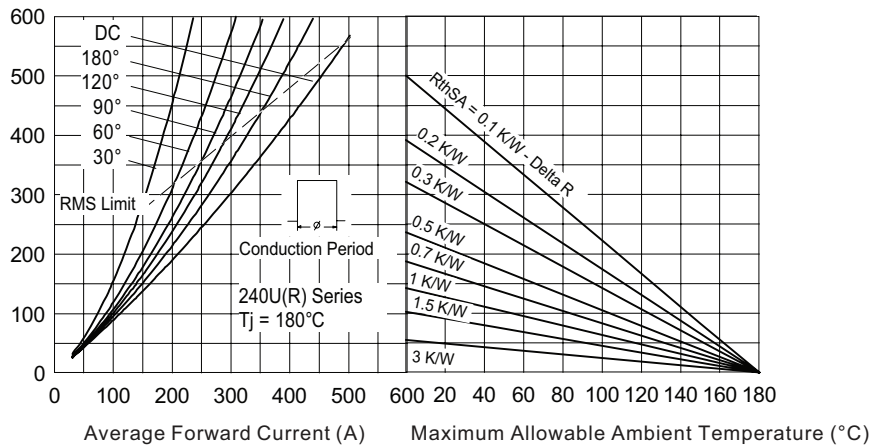
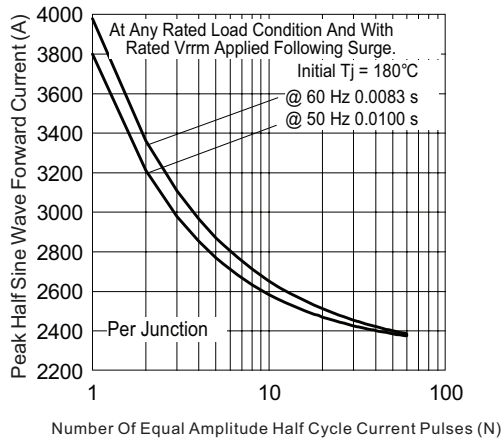
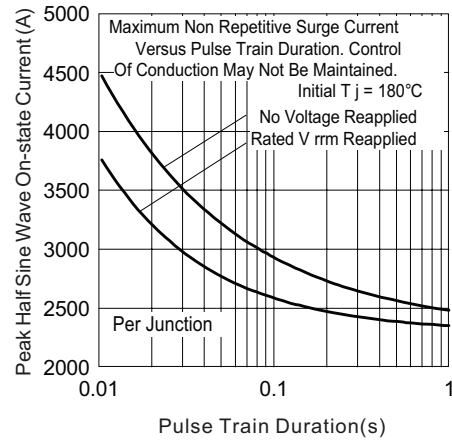


Fig. 4 - Forward Power Loss Characteristics



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

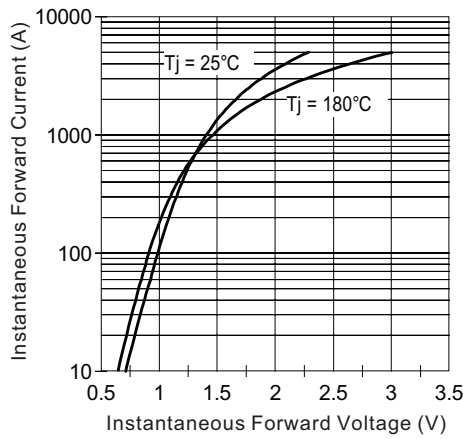


Fig. 7 - Forward Voltage Drop Characteristics

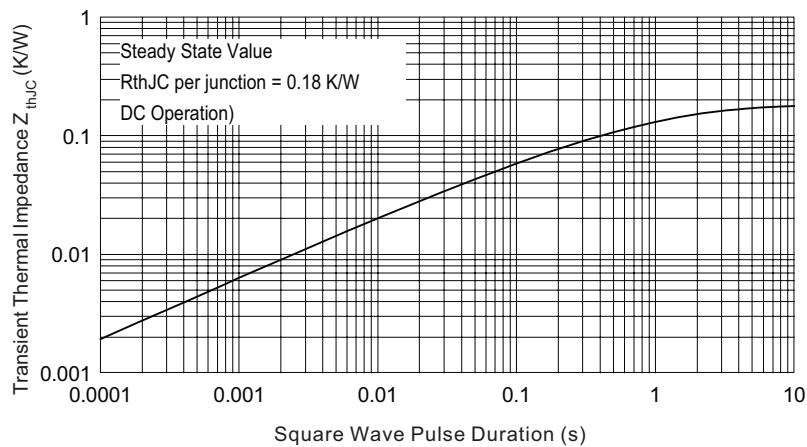
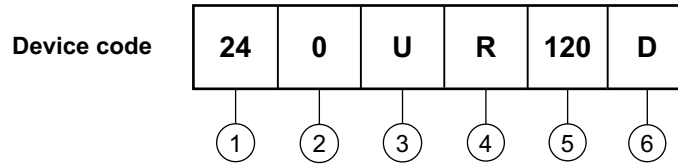


Fig. 8 - Thermal Impedance  $Z_{thJC}$  Characteristic



## ORDERING INFORMATION TABLE



- 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 x 10 =  $V_{RRM}$  (see Voltage Ratings table)
- 6** - Diffused diode

Note = For metric device M16 x 1.5 contact factory

LINKS TO RELATED DOCUMENTS	
Dimensions	<a href="http://www.vishay.com/doc?95317">http://www.vishay.com/doc?95317</a>



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