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
- Designed and qualified for industrial level
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

TYPICAL APPLICATIONS

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

PRODUCT SUMMARY	
$I_{F(AV)}$	320 A

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^2s
	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	

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	Sinusoidal half wave, initial $T_J = T_J$ maximum	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^2s
		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	$kA^2\sqrt{s}$
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	

ΔR_{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

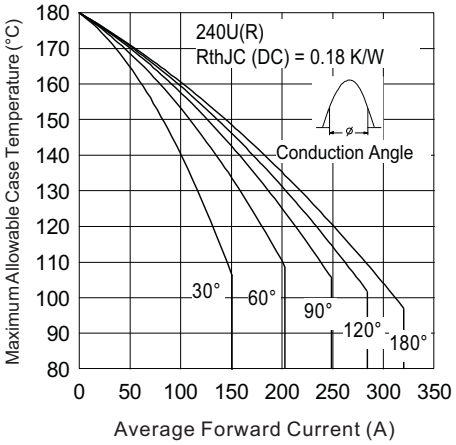


Fig. 1 - Current Ratings Characteristics

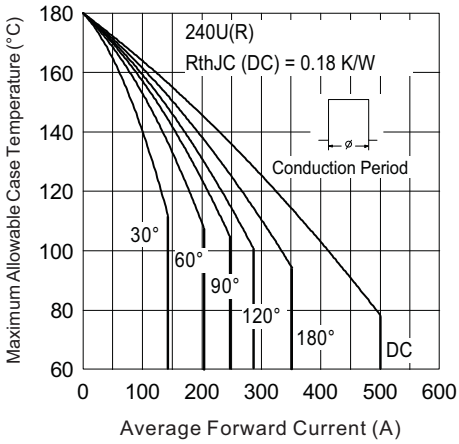


Fig. 1 - Current Ratings Characteristics

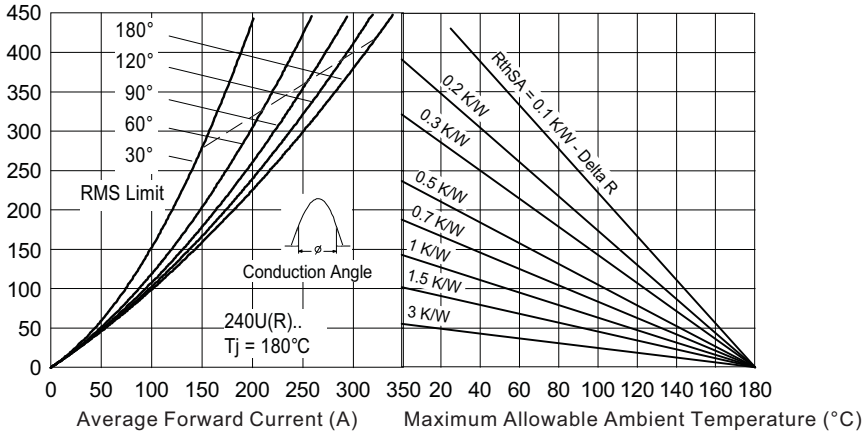


Fig. 2 - Forward Power Loss Characteristics

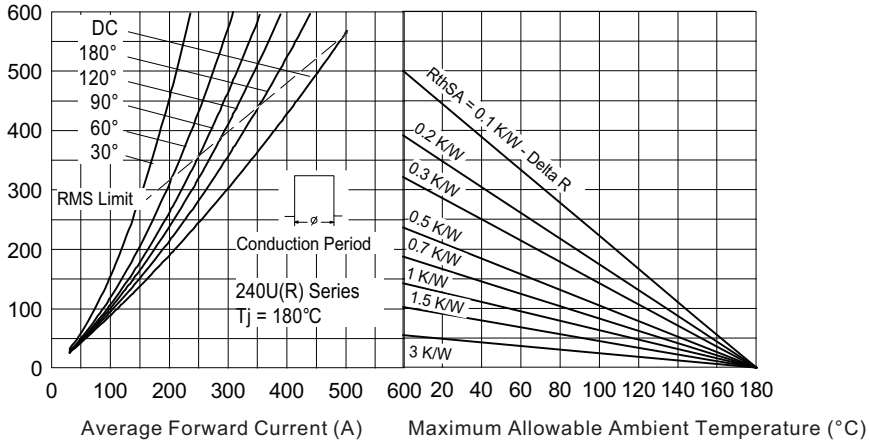


Fig. 3 - Forward Power Loss Characteristics

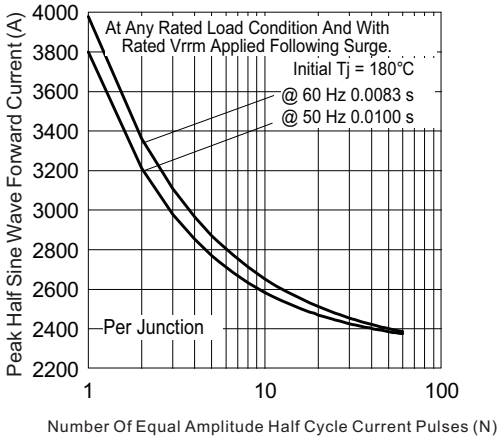


Fig. 4 - Maximum Non-Repetitive Surge Current

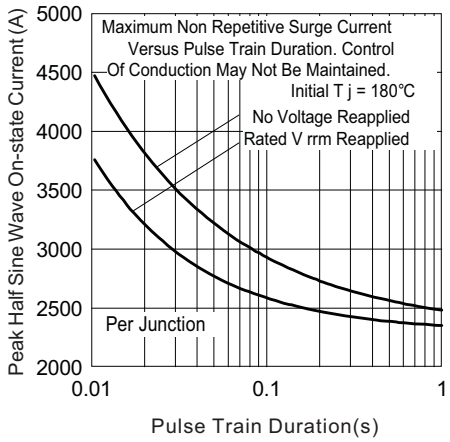


Fig. 5 - Maximum Non-Repetitive Surge Current

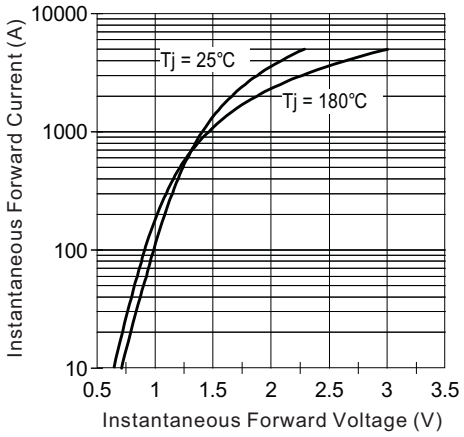


Fig. 6 - Forward Voltage Drop Characteristics

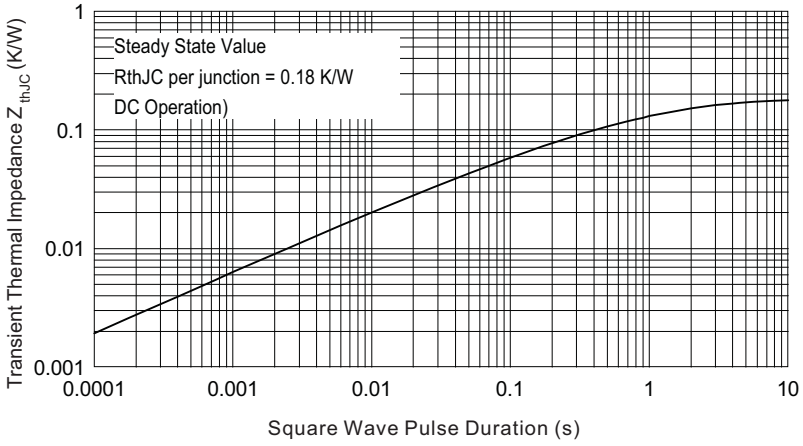
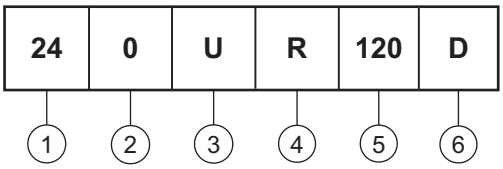


Fig. 7 - Thermal Impedance Z_{thJC} Characteristic

ORDERING INFORMATION TABLE

Device code



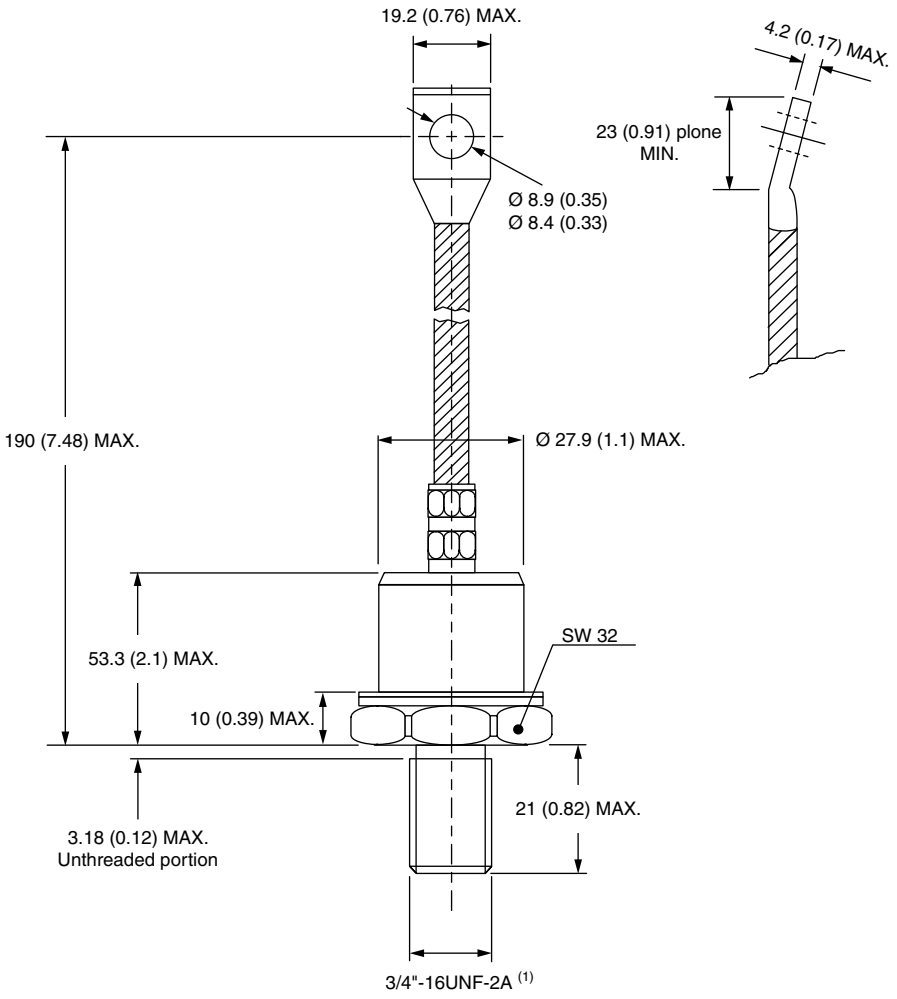
1 - 24 = Essential part number
2 - 0 = Standard device
3 - U = Stud normal polarity (cathode to stud)
4 - • None = Stud normal polarity (cathode to stud)
• R = Stud reverse polarity (anode to stud)
5 - Voltage code x 10 = V_{RRM} (see Voltage Ratings table)
6 - Diffused diode

Note = For metric device M16 x 1.5 contact factory

LINKS TO RELATED DOCUMENTS	
Dimensions	www.vishay.com/doc?95317

DO-205AB (DO-9) for 240U(R) Series

DIMENSIONS in millimeters (inches)



Note

(1) For metric device M16 x 1.5 contact factory

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