



# Standard Recovery Diodes (Stud Version), 300 A



DO-205AB (DO-9)

### FEATURES

- Alloy diode
- Popular series for rough service
- Stud cathode and stud anode version
- Designed and qualified for industrial level
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



RoHS  
COMPLIANT

### TYPICAL APPLICATIONS

- Welders
- Power supplies
- Motor controls
- Battery chargers
- General industrial current rectification

PRODUCT SUMMARY	
$I_{F(AV)}$	300 A
Package	DO-205AB (DO-9)
Circuit configuration	Single diode

MAJOR RATINGS AND CHARACTERISTICS			
PARAMETER	TEST CONDITIONS	VALUES	UNITS
$I_{F(AV)}$		300	A
	$T_C$	150	°C
$I_{FSM}$	50 Hz	6550	A
	60 Hz	6850	
$I^2t$	50 Hz	214	kA <sup>2</sup> s
	60 Hz	195	
$V_{RRM}$	Range	100 to 600	V
$T_J$		-65 to 200	°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 $T_J = 175\text{ °C}$ mA
VS-70U(R)	10	100	200	40
	20	200	300	
	30	300	400	
	40	400	500	
	60	600	700	



FORWARD CONDUCTION						
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS	
Maximum average forward current at case temperature	$I_{F(AV)}$	180° conduction, half sine wave		300	A	
				130	°C	
Maximum peak, one cycle forward, non-repetitive surge current	$I_{FSM}$	t = 10 ms	No voltage reapplied	6550	A	
		t = 8.3 ms		Sinusoidal half wave, initial $T_J = T_J$ maximum		6850
		t = 10 ms	100 % $V_{RRM}$ reapplied			5500
		t = 8.3 ms				5750
Maximum $I^2t$ for fusing	$I^2t$	t = 10 ms	No voltage reapplied		214	kA <sup>2</sup> s
		t = 8.3 ms		100 % $V_{RRM}$ reapplied	195	
		t = 10 ms	151			
		t = 8.3 ms	138			
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 ms to 10 ms, no voltage reapplied			2140	kA <sup>2</sup> √s
Maximum value of threshold voltage	$V_{F(TO)}$	$T_J = 200$ °C		0.610	V	
Maximum value of forward slope resistance	$r_f$			0.751	mΩ	
Maximum forward voltage drop	$V_{FM}$			$I_{pk} = 942$ A, $T_J = 25$ °C	1.40	V

THERMAL AND MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum junction operating and storage temperature range	$T_J, T_{Stg}$			-65 to 200	°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		0.08	
Maximum allowed mounting torque +0 -20 %		Not lubricated threads		37	Nm
		Lubricated threads		28	
Approximate weight				250	g
Case style		(JEDEC) see dimensions - link at the end of datasheet		DO-205AB (DO-9) <sup>(1)</sup>	

**Note**

<sup>(1)</sup> 72U-A uses case style B-26

$\Delta R_{thJC}$ CONDUCTION				
CONDUCTION ANGLE	SINUSOIDAL CONDUCTION	RECTANGULAR CONDUCTION	TEST CONDITIONS	UNITS
180°	0.020	0.015	$T_J = T_J$ maximum	K/W
120°	0.024	0.025		
90°	0.031	0.034		
60°	0.045	0.047		
30°	0.077	0.077		

**Note**

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

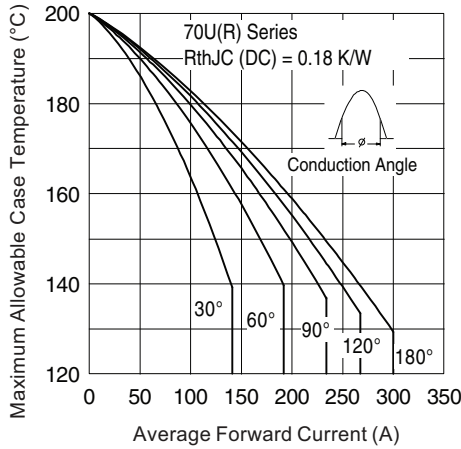


Fig. 1 - Current Ratings Characteristics

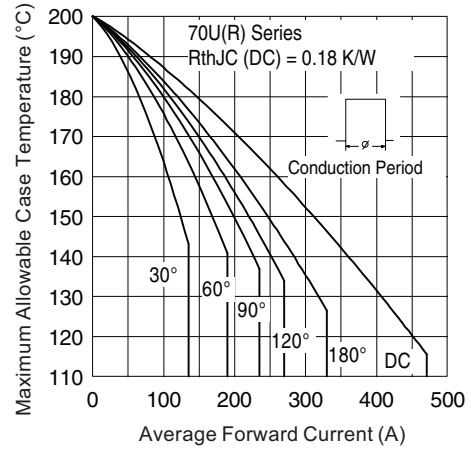


Fig. 2 - Current Ratings Characteristics

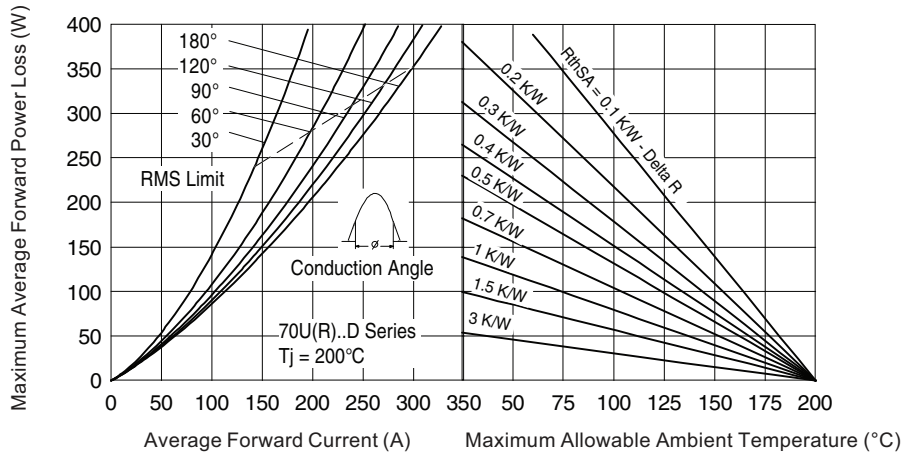


Fig. 3 - Forward Power Loss Characteristics

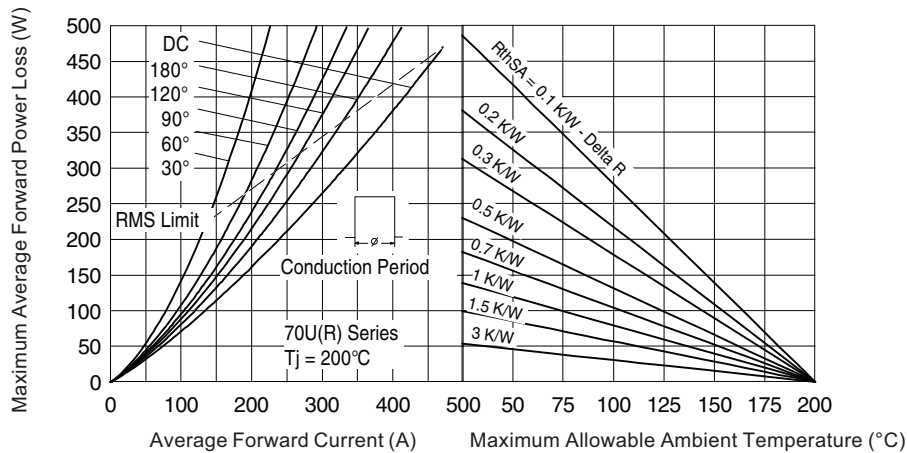


Fig. 4 - Forward Power Loss Characteristics

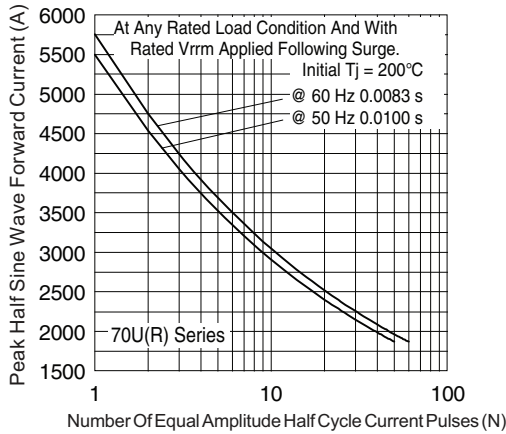


Fig. 5 - Maximum Non-Repetitive Surge Current

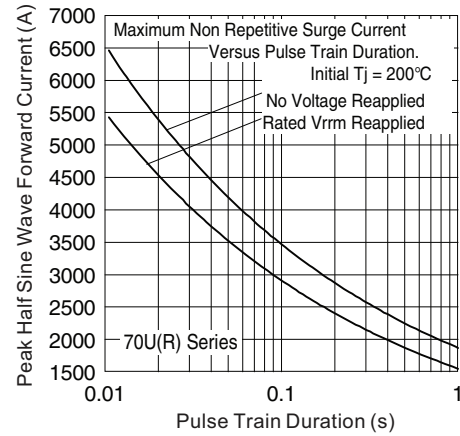


Fig. 6 - Maximum Non-Repetitive Surge Current

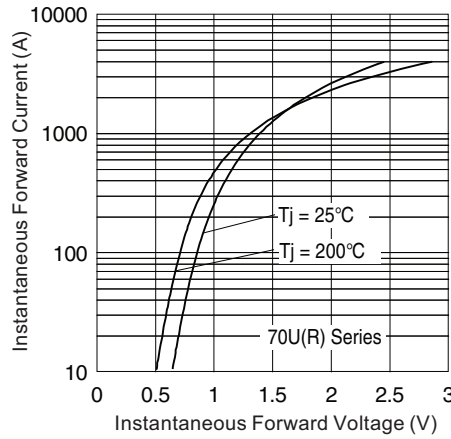


Fig. 7 - Forward Voltage Drop Characteristics

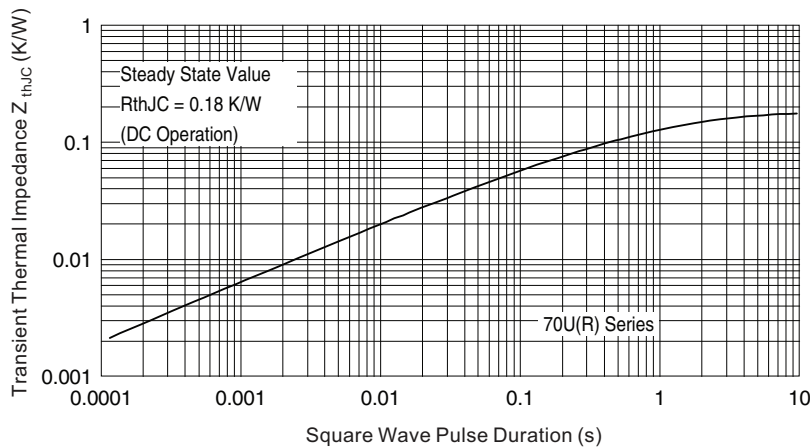
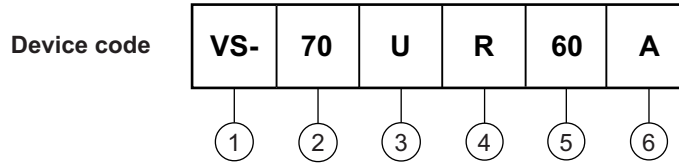


Fig. 8 - Thermal Impedance  $Z_{thJC}$  Characteristic



**ORDERING INFORMATION TABLE**



- 1** - Vishay Semiconductors product
- 2** -
  - 70 = Standard 70U device
  - 72 = 70U top threaded version
- 3** - U = Essential part number
- 4** -
  - R = Stud reverse polarity (anode to stud)
  - None = Stud normal polarity (cathode to stud)
- 5** - Voltage code x 10 =  $V_{RRM}$  (see Voltage Ratings table)
- 6** - A = Essential part number

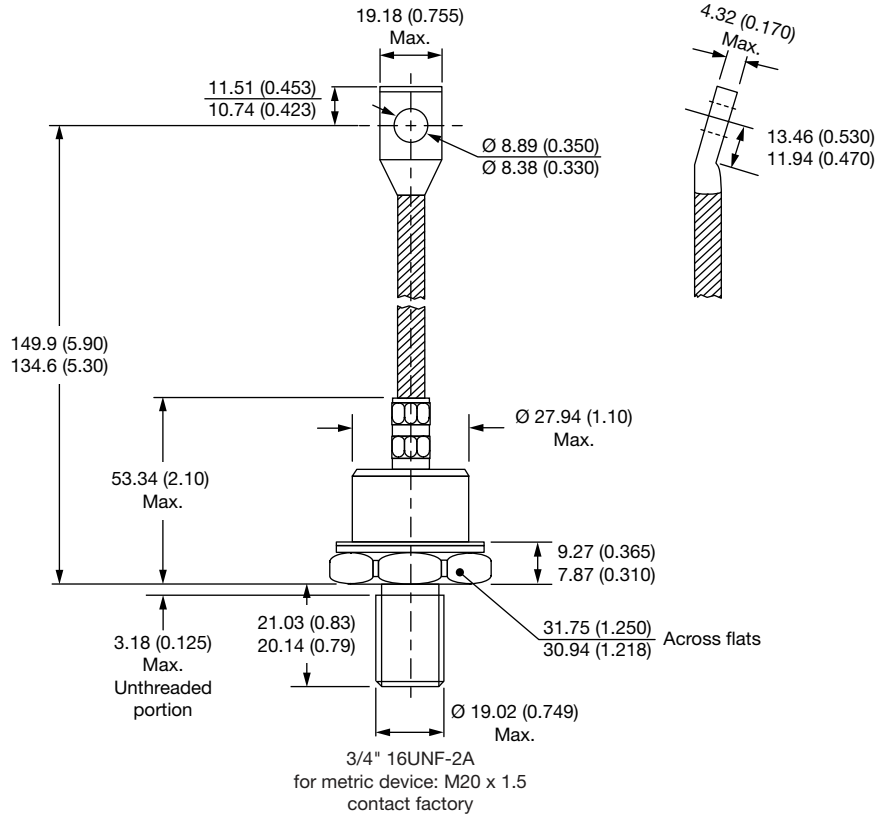
Note: For metric device M16 x 1.5 contact factory

LINKS TO RELATED DOCUMENTS	
Dimensions	<a href="http://www.vishay.com/doc?95340">www.vishay.com/doc?95340</a>

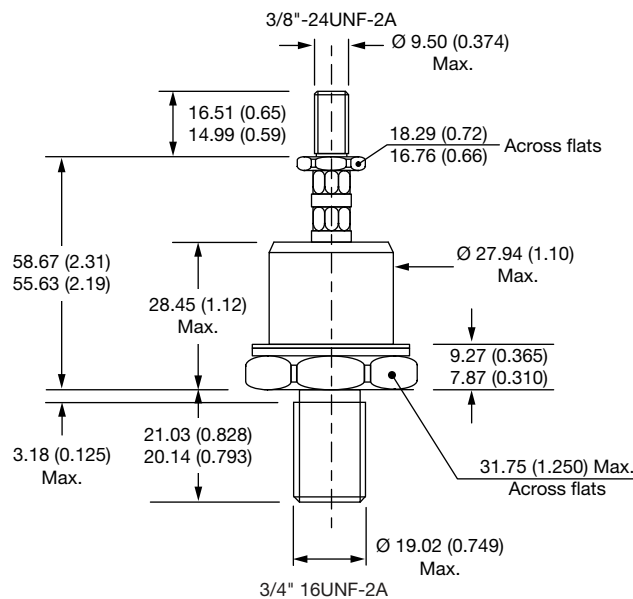


## DO-9 (DO-205AB) and B-26 for 300U(R) Series

### DIMENSIONS FOR 300U(R)-A SERIES - DO-9 (DO-205AB) in millimeters (inches)



### DIMENSIONS FOR 302U(R)-A SERIES - B-26 in millimeters (inches)





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