

Standard Recovery Diodes (Stud Version), 300 A



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

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

TYPICAL APPLICATIONS

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

MAJOR RATINGS AND CHARACTERISTICS					
PARAMETER	TEST CONDITIONS	VALUES	UNITS		
I _{F(AV)}		300	Α		
	Tc	150	°C		
I _{FSM}	50 Hz	6550	A		
	60 Hz	6850	^		
l ² t	50 Hz	214	kA ² s		
	60 Hz	195	KA-S		
V _{RRM}	Range	400	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 °C mA		
	10	100	200			
	20	200	300			
VS-300U(R)	30	300	400	40		
	40	400	500			
	60	600	700			



FORWARD CONDUCTION						
PARAMETER	SYMBOL	TEST CONDITIONS			VALUES	UNITS
Maximum average forward current	I	180° conduction, half sine wave		300	А	
at case temperature	I _{F(AV)}			130	°C	
		t = 10 ms	No voltage	Sinusoidal half wave, initial $T_J = T_J$ maximum	6550	A A kA ² s
Maximum peak, one cycle forward,		t = 8.3 ms	reapplied		6850	
non-repetitive surge current	I _{FSM}	t = 10 ms	100 % V _{RRM} reapplied		5500	
		t = 8.3 ms			5750	
	l ² t	t = 10 ms	No voltage		214	
Maximum 12t far fusing		t = 8.3 ms	reapplied		195	
Maximum I ² t for fusing		t = 10 ms	100 % V _{RRM}		151	
		t = 8.3 ms	reapplied		138	
Maximum I²√t for fusing	I²√t	t = 0.1 to 10 ms, no voltage reapplied		2140	kA²√s	
Maximum value of threshold voltage	V _{F(TO)}	T _J = 200 °C 0.610 0.751		0.610	V	
Maximum value of forward slope resistance	r _f			mΩ		
Maximum forward voltage drop	V _{FM}	I _{pk} = 942 A, T _J = 25 °C 1.40 V			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	INIII
Approximate weight			250	g
Case style		(JEDEC®) see dimensions - link at the end of datasheet DO-205AB (DO-9)		3 (DO-9) ⁽¹⁾

Note

(1) 302U-A uses case style B-26

△R _{thJC} CONDUCTION						
CONDUCTION ANGLE	SINUSOIDAL CONDUCTION	RECTANGULAR CONDUCTION	TEST CONDITIONS	UNITS		
180°	0.020	0.015				
120°	0.024	0.025				
90°	0.031	0.034	$T_J = T_J$ maximum	K/W		
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

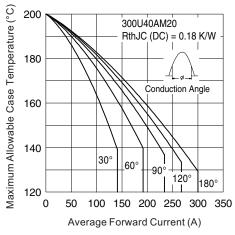


Fig. 1 - Current Ratings Characteristics

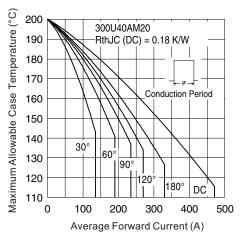


Fig. 2 - Current Ratings Characteristics

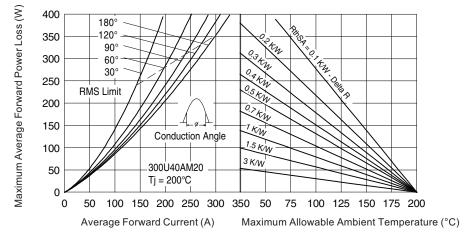


Fig. 3 - Forward Power Loss Characteristics

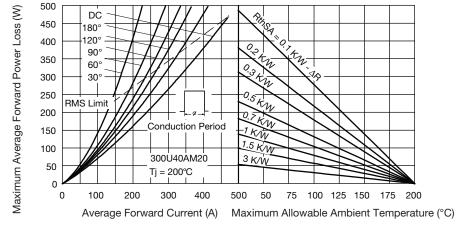


Fig. 4 - Forward Power Loss Characteristics

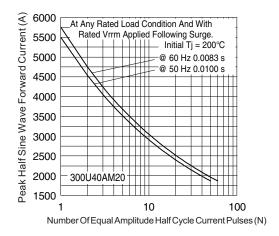


Fig. 5 - Maximum Non-Repetitive Surge Current

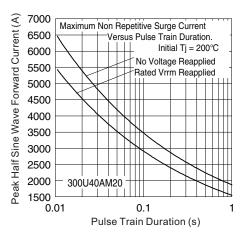


Fig. 6 - Maximum Non-Repetitive Surge Current

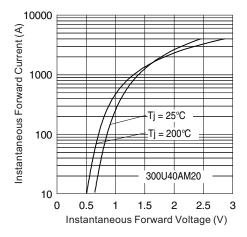


Fig. 7 - Forward Voltage Drop Characteristics

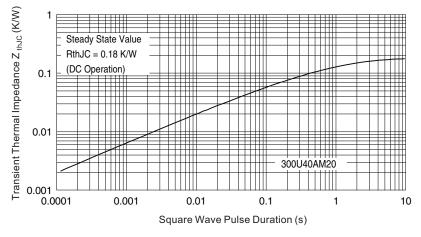
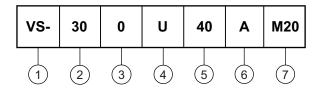


Fig. 8 - Thermal Impedance Z_{thJC} Characteristic

ORDERING INFORMATION TABLE

Device code



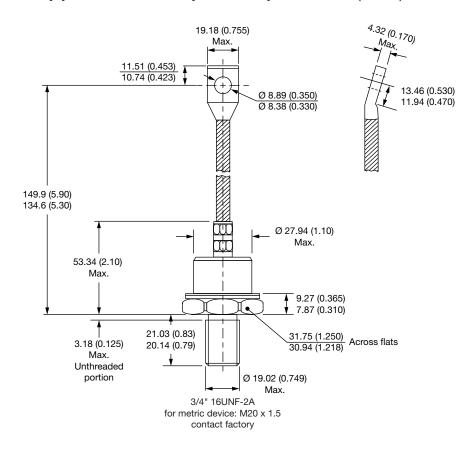
- 1 Vishay Semiconductors product
- 2 30 = essential part number
- 3 0 = standard device
 - 2 = 300U top threaded version
- U = stud normal polarity (cathode to stud)
 - UR = stud reverse polarity (anode to stud)
- Voltage code x 10 = V_{RRM} (see Voltage Ratings table)
- 6 A = essential part number
- None = stud base DO-205AB (DO-9) 3/4" 16UNF-2A
 M20 = Metric device M20 x 1.5 (available with standard device only)

LINKS TO RELATED DOCUMENTS			
Dimensions	www.vishay.com/doc?95340		

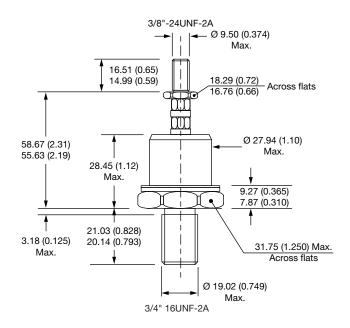


DO-9 (DO-205AB) and B-26 for 300U(R) Series

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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