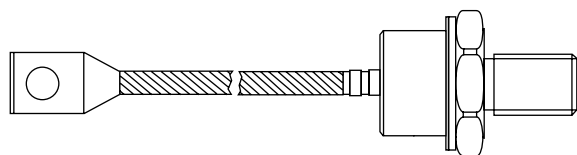


Standard Recovery Diodes (Stud Version), 300 A



DO-205AB (DO-9)

FEATURES

- Alloy diode
- Popular series for rough service
- Stud cathode and stud anode version
- RoHS compliant
- Designed and qualified for industrial level



TYPICAL APPLICATIONS

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

PRODUCT SUMMARY

$I_{F(AV)}$	300 A
-------------	-------

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 ² 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 $T_J = 175^\circ\text{C}$ mA
300U(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	Sinusoidal half wave, initial T _J = T _J maximum	6550	A
		t = 8.3 ms			6850	
		t = 10 ms	100 % V _{RRM} reapplied		5500	
		t = 8.3 ms			5750	
Maximum I ² t for fusing	I ² t	t = 10 ms	No voltage reapplied		214	kA ² s
		t = 8.3 ms			195	
		t = 10 ms	100 % V _{RRM} reapplied		151	
		t = 8.3 ms			138	
Maximum I ² √t for fusing	I ² √t	t = 0.1 to 10 ms, no voltage reapplied			2140	kA ² √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) ⁽¹⁾	

Note

⁽¹⁾ 302U-A uses case style B-26

ΔR_{thJC} CONDUCTION				
CONDUCTION ANGLE	SINUSOIDAL CONDUCTION	RECTANGULAR CONDUCTION	TEST CONDITIONS	UNITS
180°	0.020	0.015	$T_J = T_J \text{ maximum}$	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

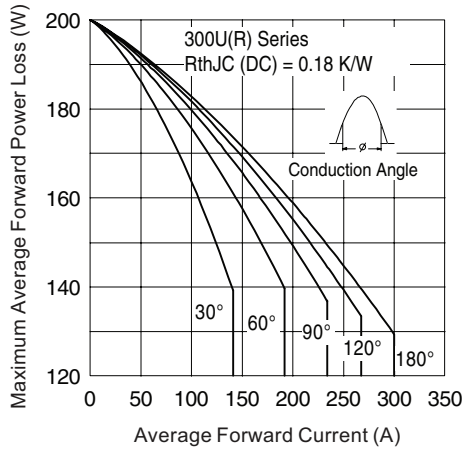


Fig. 1 - Current Ratings Characteristics

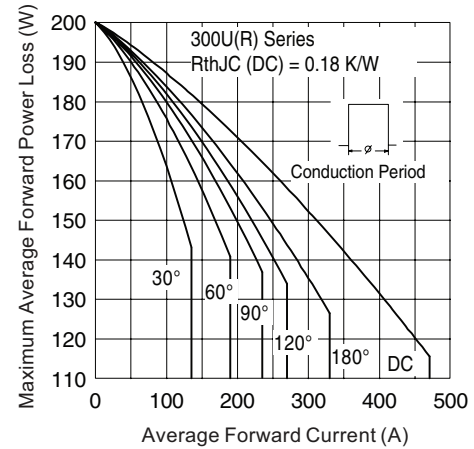


Fig. 2 - Current Ratings Characteristics

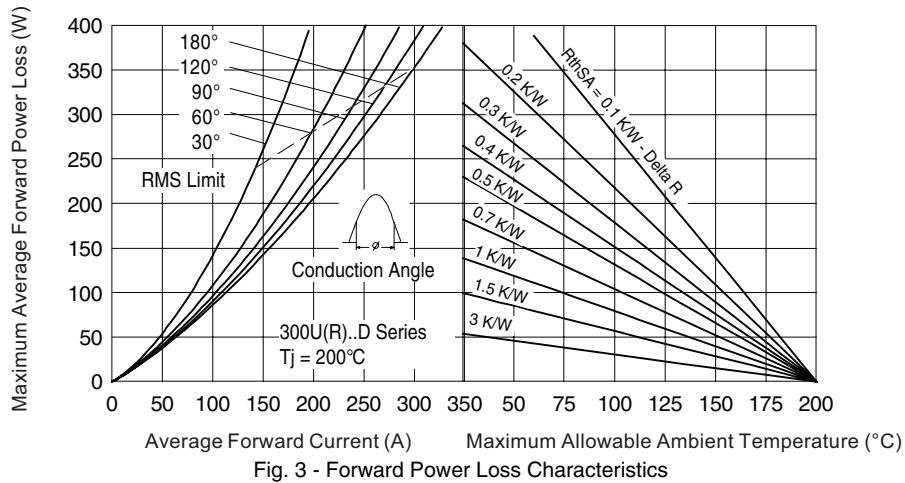


Fig. 3 - Forward Power Loss Characteristics

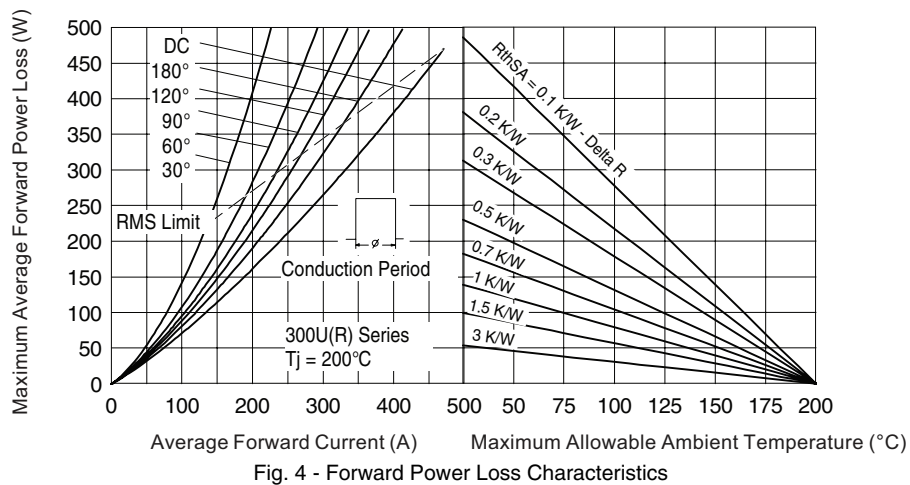


Fig. 4 - Forward Power Loss Characteristics

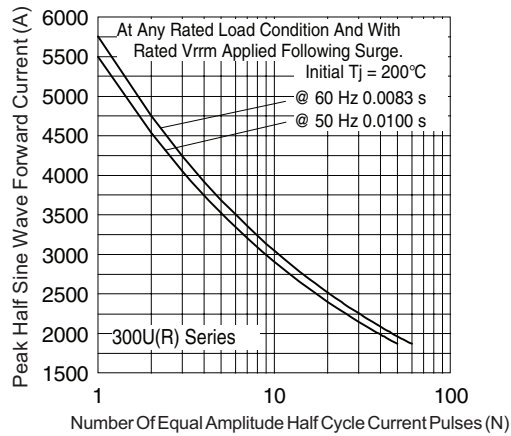


Fig. 5 - Maximum Non-Repetitive Surge Current

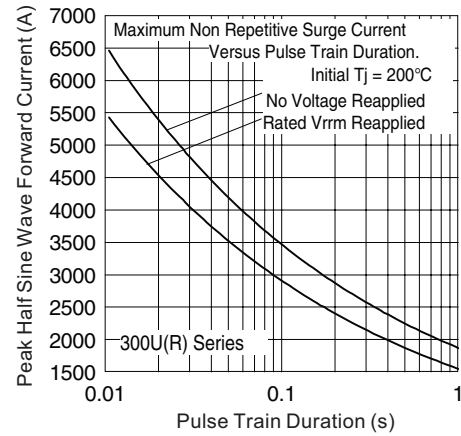


Fig. 6 - Maximum Non-Repetitive Surge Current

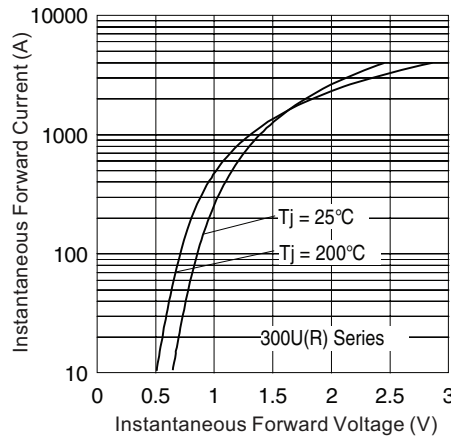


Fig. 7 - Forward Voltage Drop Characteristics

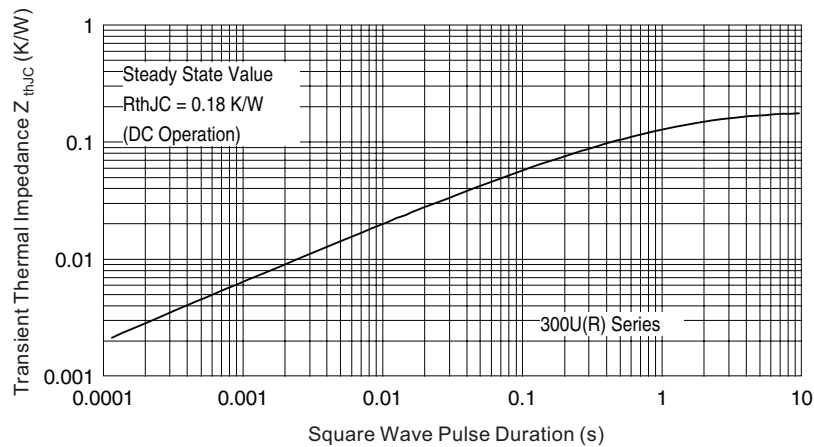


Fig. 8 - Thermal Impedance Z_{thJC} Characteristic



ORDERING INFORMATION TABLE

Device code	300	U	R	60	A
	1	2	3	4	5
1	- 300 = Standard 300U device 302 = 300U top threaded version				
2	- U = Essential part number				
3	- - R = Stud reverse polarity (anode to stud) - None = Stud normal polarity (cathode to stud)				
4	- Voltage code x 10 = V_{RRM} (see Voltage Ratings table)				
5	- A = Essential part number				

Note: For metric device M16 x 1.5 contact factory

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



Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.