Bulletin I2014 02/05

International
IOR Rectifier

300HF..L SERIES

STANDARD RECOVERY DIODES
"Lead-Free"

Stud Version

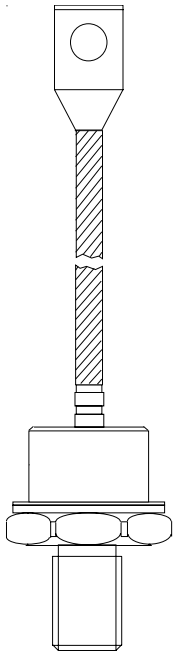
Features

- Diffused glass passivate die
- Popular series for rough service
- Stud cathode and stud anode version
- High surge capability
- Very low V_F

I_F = 300A
V_F typ = 1.0 V
@ 1000A
T_J max

Typical Applications

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



case style
DO-205AB (DO-9)

Major Ratings and Characteristics

Parameters		300HF	Units
$I_{F(AV)}$		300	A
	@ T_C	120	°C
I_{FSM}	@ 50Hz	5700	A
	@ 60Hz	5900	A
I^2t	@ 50Hz	160	KA^2s
	@ 60Hz	148	KA^2s
V_{RRM} range		400 and 600	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 rev. voltage V	I_{RRM} max. T_J = 180°C mA
300HF	40	400	500	10
	60	600	700	

Forward Conduction

	Parameter	300HF	Units	Conditions		
$I_{F(AV)}$	Max. average forward current	300	A	180° conduction, half sine wave		
	@ Case temperature	120	°C			
I_{FSM}	Max. peak, one-cycle forward, non-repetitive surge current	5700	A	t = 10ms	No voltage reapplied	Sinusoidal half wave, Initial $T_J = T_J$ max.
		5900		t = 8.3ms		
		4800		t = 10ms	100% V_{RRM} reapplied	
		5000		t = 8.3ms		
I^2t	Maximum I^2t for fusing	160	KA^2s	t = 10ms	No voltage reapplied	
		148		t = 8.3ms		
		115		t = 10ms	100% V_{RRM} reapplied	
		105		t = 8.3ms		
$I^2\sqrt{t}$	Maximum $I^2\sqrt{t}$ for fusing	1600	$KA^2\sqrt{s}$	t = 0.1 to 10ms, no voltage reapplied		
$V_{F(TO)}$	Max. value of threshold voltage	0.70	V	T_J = 180°C		
r_f	Max. value of forward slope resistance	0.40	mΩ			
V_{FM}	Max. peak forward voltage	1.14	V	I_{peak} = 942A, T_J = 25°C		

Thermal and Mechanical Specifications

	Parameter	300HF	Units	Conditions
T_J	Max. junction operating temperature range	-40 to 180	°C	
T_{stg}	Max. storage temperature range	-40 to 180		
R_{thJC}	Max. thermal resistance, junction to case	0.17	K/W	DC operation
R_{thCS}	Max. thermal resistance, case to heatsink	0.08		Mounting surface, smooth, flat and greased
T	Max. allowed mounting torque +0 -20%	37	Nm	Not lubricated threads
		28		Lubricated threads
wt	Approximate weight	250	g	
	Case style	DO-205AB (DO-9)		JEDEC (See Outline Table)

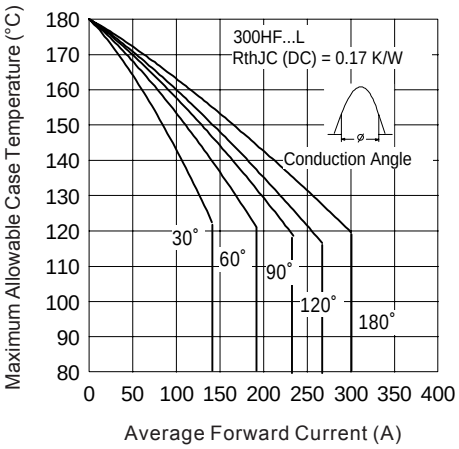


Fig. 1 - Current Ratings Characteristics

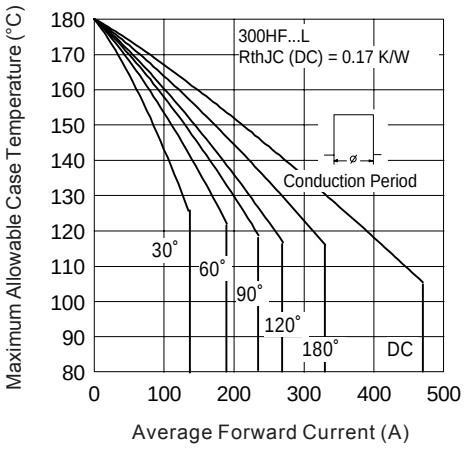


Fig. 2 - Current Ratings Characteristics

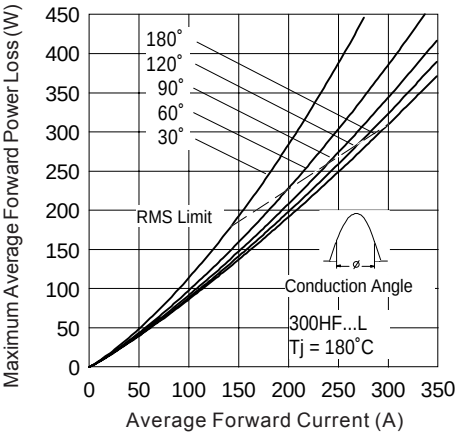


Fig. 3 - Forward Power Loss Characteristics

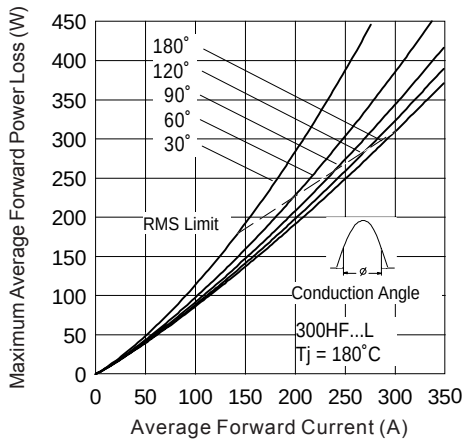


Fig. 4 - Forward Power Loss Characteristics

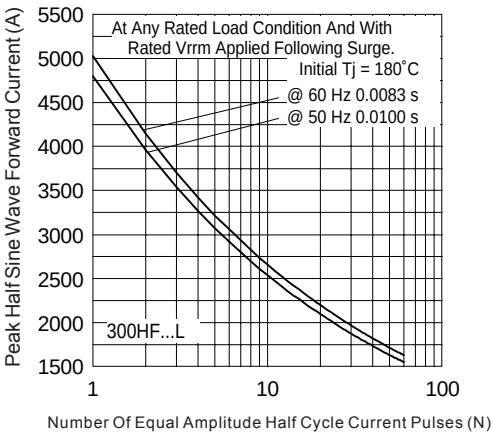


Fig. 5 - Maximum Non-Repetitive Surge Current

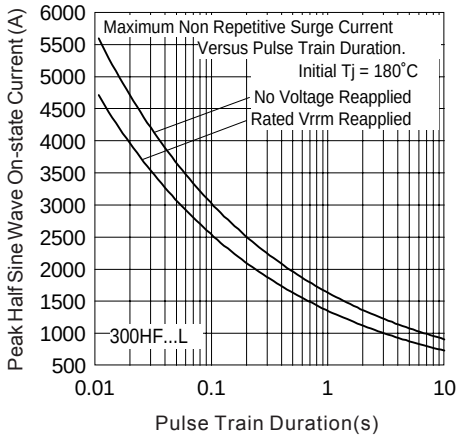


Fig. 6 - Maximum Non-Repetitive Surge Current

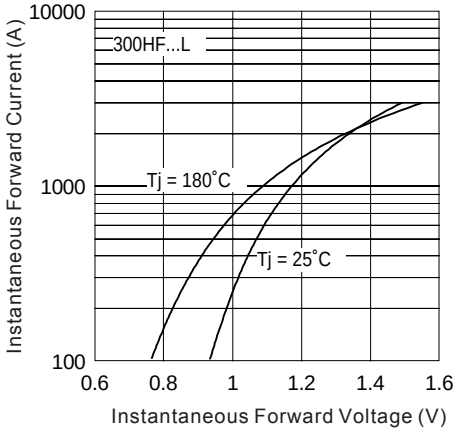


Fig. 7 - Forward Voltage Drop Characteristics

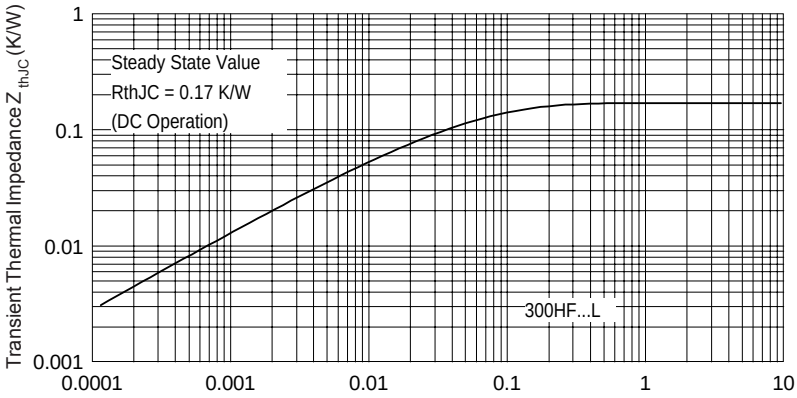
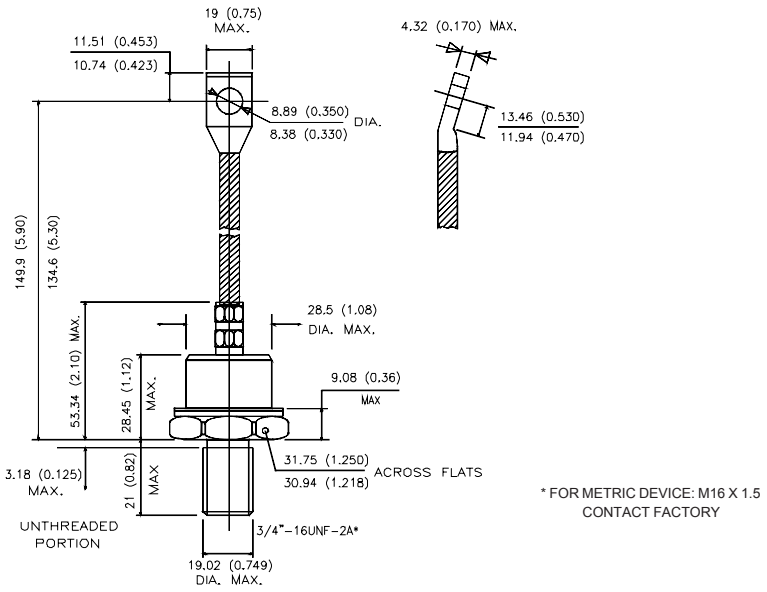
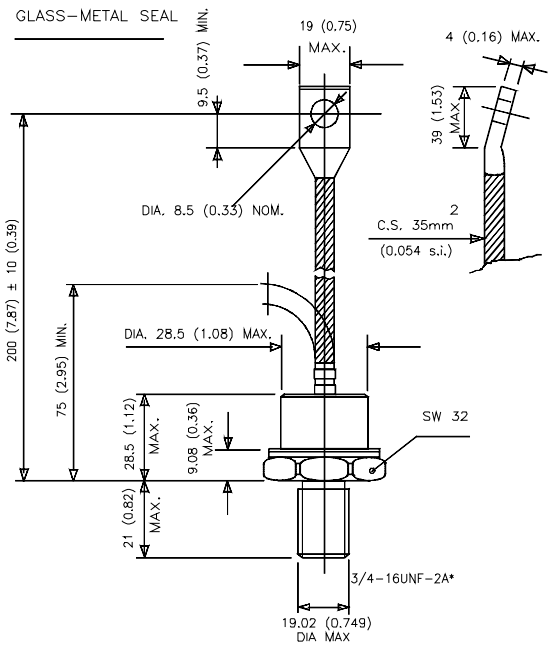


Fig. 8 - Thermal Impedance Z_{thJC} Characteristic

Outlines Table

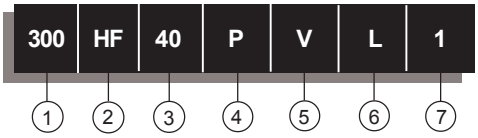


Conforms to JEDEC DO-205AB (DO-9)
All dimensions in millimeters (inches)



Ordering Information Table

Device Code



1	-	Current Rating (300 = 300A)
2	-	Diode Diffused
3	-	Voltage Ratings — 40 = 400V, 60 = 600V
4	-	• P = 3/4 UNF • M = Metric M16 x 1.5 (*)
5	-	Glass-Metal Seal
6	-	L = Low V_F
7	-	• 1 = Lead 150 mm • 2 = Lead 200 mm

(*) For "M" type Contact Factory

Data and specifications subject to change without notice.
This product has been designed and qualified for Industrial Level and Lead-Free.
Qualification Standards can be found on IR's Web site.

International
IOR Rectifier

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