

# 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  $V_F$

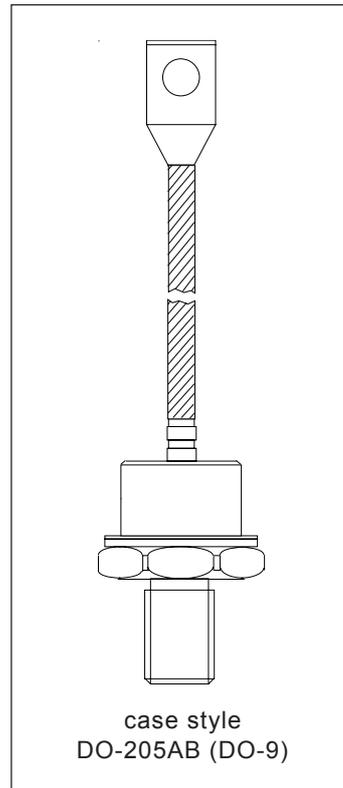
$I_F = 300A$   
 $V_F \text{ typ} = 1.0 V$   
**@ 1000A**  
 $T_J \text{ max}$

### Typical Applications

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

### 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 <sup>2</sup> s
@ 60Hz	148	KA <sup>2</sup> s
$V_{RRM}$ range	400 and 600	V
$T_J$	-40 to 180	°C



## 300HF..L Series

Final I2014 02/05

International  
IR Rectifier

### 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. $T_J = 180^\circ\text{C}$ mA
300HF	40	400	500	10
	60	600	700	

#### Forward Conduction

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

#### 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)

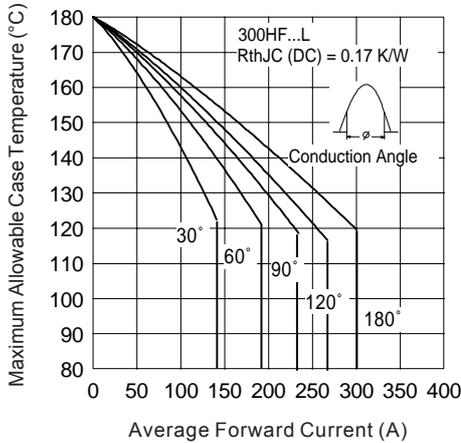


Fig. 1 - Current Ratings Characteristics

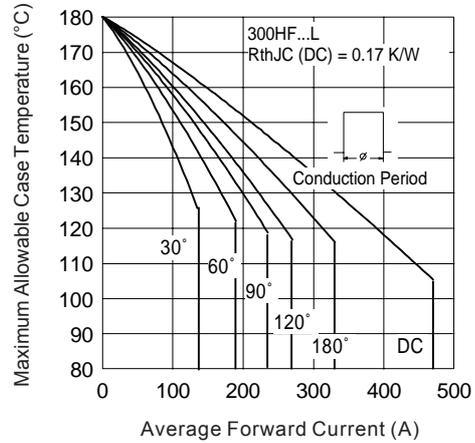


Fig. 2 - Current Ratings Characteristics

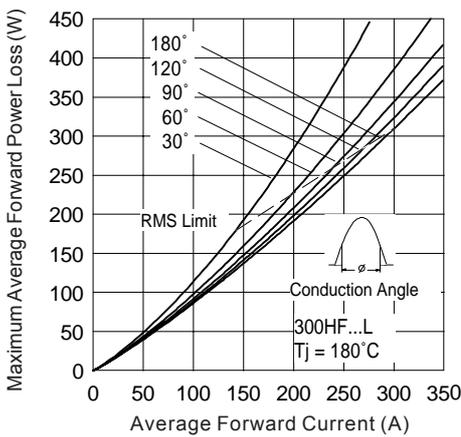


Fig. 3 - Forward Power Loss Characteristics

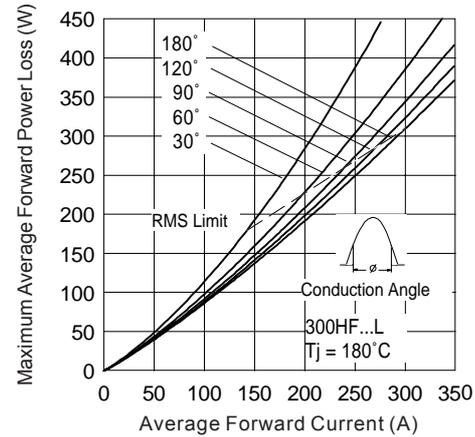


Fig. 4 - Forward Power Loss Characteristics

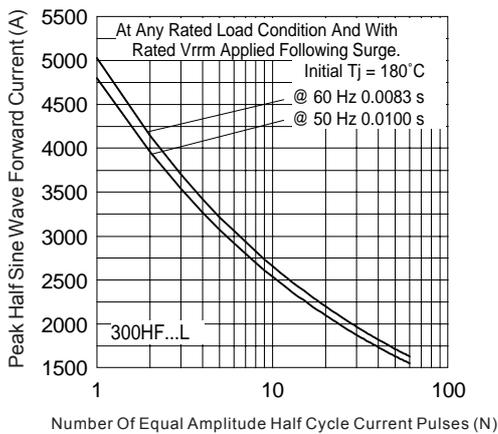


Fig. 5 - Maximum Non-Repetitive Surge Current

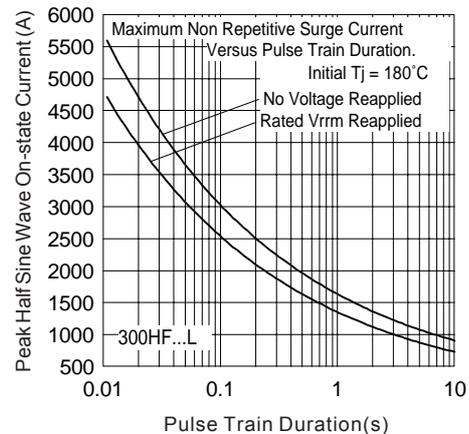


Fig. 6 - Maximum Non-Repetitive Surge Current

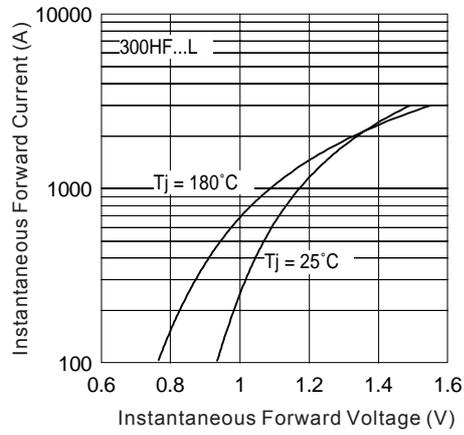


Fig. 7 - Forward Voltage Drop Characteristics

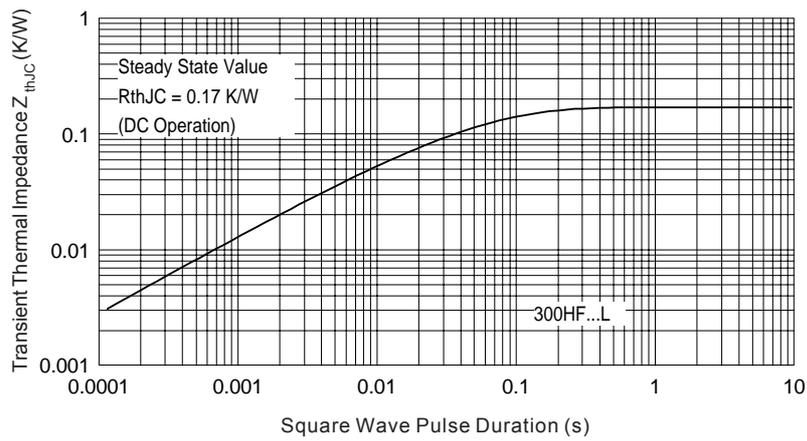
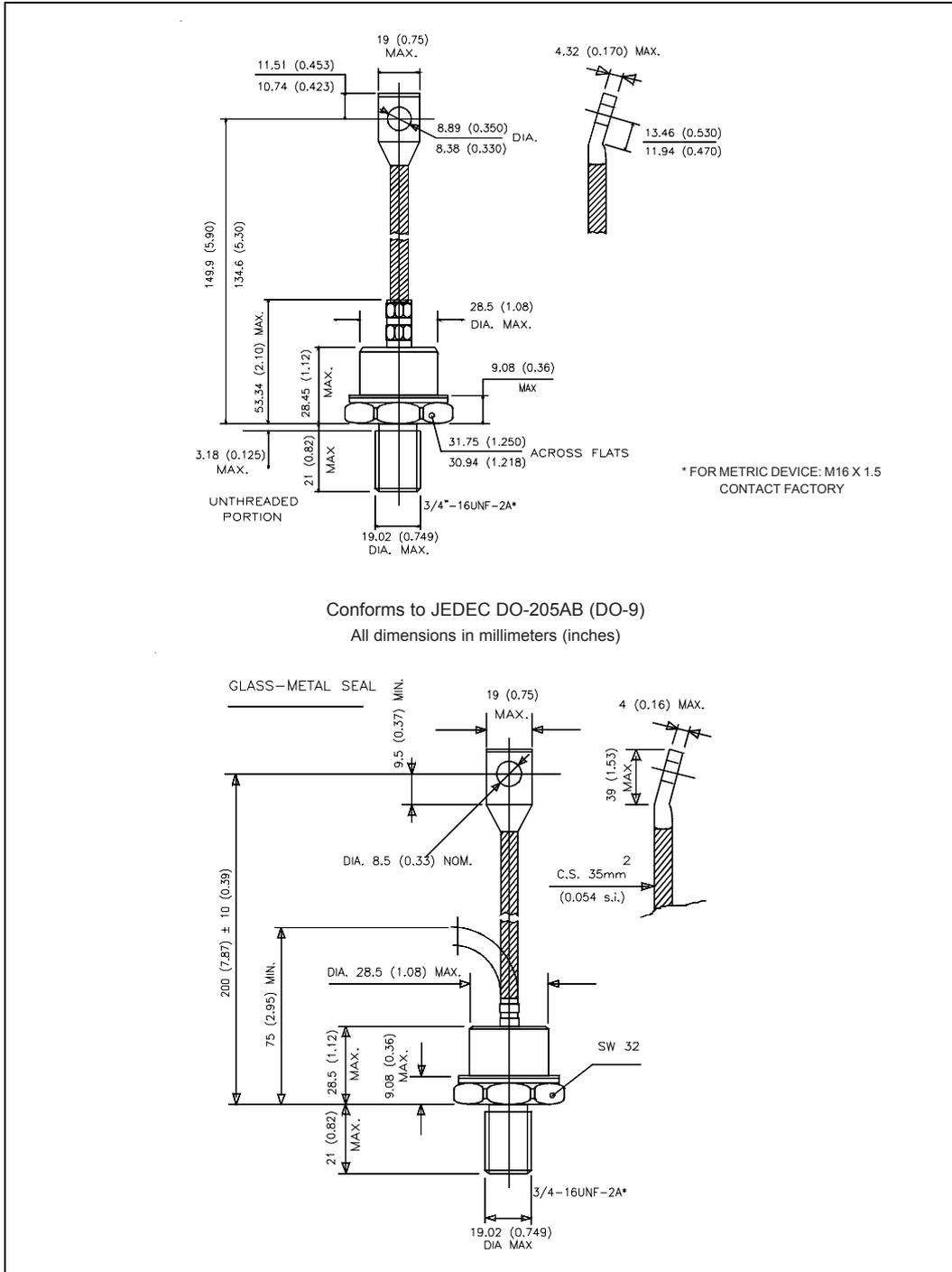


Fig. 8 - Thermal Impedance  $Z_{thJC}$  Characteristic

Outlines Table



## 300HF..L Series

Final I2014 02/05

International  
**IR** Rectifier

### Ordering Information Table

Device Code						
300	HF	40	P	V	L	1
①	②	③	④	⑤	⑥	⑦
<b>1</b>	-	Current Rating (300 = 300A)				
<b>2</b>	-	Diode Diffused				
<b>3</b>	-	Voltage Ratings				40 = 400V 60 = 600V
<b>4</b>	-	• P = 3/4 UNF • M = Metric M16 x 1.5 (*)				
<b>5</b>	-	Glass-Metal Seal				
<b>6</b>	-	L = Low $V_F$				
<b>7</b>	-	• 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  
**IR** Rectifier

**IR WORLD HEADQUARTERS:** 233 Kansas St., El Segundo, California 90245, USA Tel: (310) 252-7105  
TAC Fax: (310) 252-7309  
Visit us at [www.irf.com](http://www.irf.com) for sales contact information. 02/05