

Bulletin I20262 Rev.A 06/03

International **IOR** Rectifier

8AF SERIES

PRESSFIT RECTIFIER DIODES

Features and Descriptions

- Convenient pressfit package
- Available with and without leads
- High surge capabilities

50 A

Application

- Welders, Battery charges, Alternators

Major Ratings and Characteristics

Parameters	8AF	Units
$I_{F(AV)}$	50	A
@ T_C	150	°C
$I_{F(RMS)}$	79	A
I_{FSM} @50Hz	714	A
@60Hz	747	A
I^2t @50Hz	2546	A ² s
@60Hz	2324	A ² s
$I^2\sqrt{t}$	25455	A ² √s
V_{RRM} range	100to800	V
T_J	-65to195	°C



IR Case Style B-47



8AF Series

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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. @ $T_J = 150^\circ\text{C}$ mA
8AF	1	100	150	5
	2	200	300	5
	4	400	500	5
	8	800	900	5

Forward Conduction

Parameter		8AF	Units	Conditions		
I _{F(AV)}	Maximum average forward current @ Case temperature	50	A	180° conduction, half sine wave		
		150	°C			
I _{F(RMS)}	Maximum RMS forward current	79	A			
I _{FSM}	Maximum peak, one-cycle forward, non-repetitive surge current	714	A	t = 10ms	No voltage	Sinusoidal half wave, Initial T _J = T _J max.
		t = 8.3ms		reapplied		
		600		100% V _{RRM}		
		t = 8.3ms		reapplied		
I ² t	Maximum I ² t for fusing	2546	A ² s	t = 10ms	No voltage	
		2324		t = 8.3ms	reapplied	
		1800		t = 10ms	100% V _{RRM}	
		1643		t = 8.3ms	reapplied	
I ² /t	Maximum I ² /t for fusing	25455	A ² √s	t = 0.1 to 10ms, no voltage reapplied		
V _{F(TO)1}	Low level value of threshold voltage	0.60	V	(16.7% × π × I _{F(AV)} < I < π × I _{F(AV)}), T _J = T _J max.		
V _{F(TO)2}	High level value of threshold voltage	0.68		(π × I _{F(AV)} < I < 20 × π × I _{F(AV)}), T _J = T _J max.		
r _{f1}	Low level value of forward slope resistance	6.66	mΩ	(16.7% × π × I _{F(AV)} < I < π × I _{F(AV)}), T _J = T _J max.		
r _{f2}	High level value of forward slope resistance	6.25		(π × I _{F(AV)} < I < 20 × π × I _{F(AV)}), T _J = T _J max.		
V _{FM}	Maximum forward voltage drop	1.45	V	T _J = 25°C, I _{FM} = π × rated I _{F(AV)}		

Thermal and Mechanical Specifications

Parameter	8AF	Units	Conditions
T_J Max. junction operating temperature range	- 65 to 195	°C	
T_{stg} Storage temperature range	- 65 to 195		
R_{thJC} Max. thermal resistance, junction to case	0.60	K/W	DC operation
R_{thCS} Typical thermal resistance, case to heatsink	0.50		As per mounting details
wt Approximate weight	10 (0.36)	g (oz)	
Case style	B-47		See outline table

MOUNTING: A $12.6 \pm 0.02\text{mm}$ (0.496 to 0.497 inch) diameter hole should be drilled in heatsink, the leading edge chamfered to 0.038mm (0.015 inch) x 45°. The diode should then be press fitted, ensuring that the sides of the diode are kept parallel to the sides of the hole.

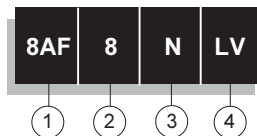
ΔR_{thJC} Conduction

(The following table shows the increment of thermal resistance R_{thJC} when devices operate at different conduction angles than DC)

Conduction angle	Sinusoidal conduction	Rectangular conduction	Units	Conditions
180°	0.042	0.026	K/W	$T_J = T_{J \text{ max.}}$
120°	0.045	0.043		
90°	0.06	0.06		
60°	0.10	0.10		
30°	0.15	0.15		

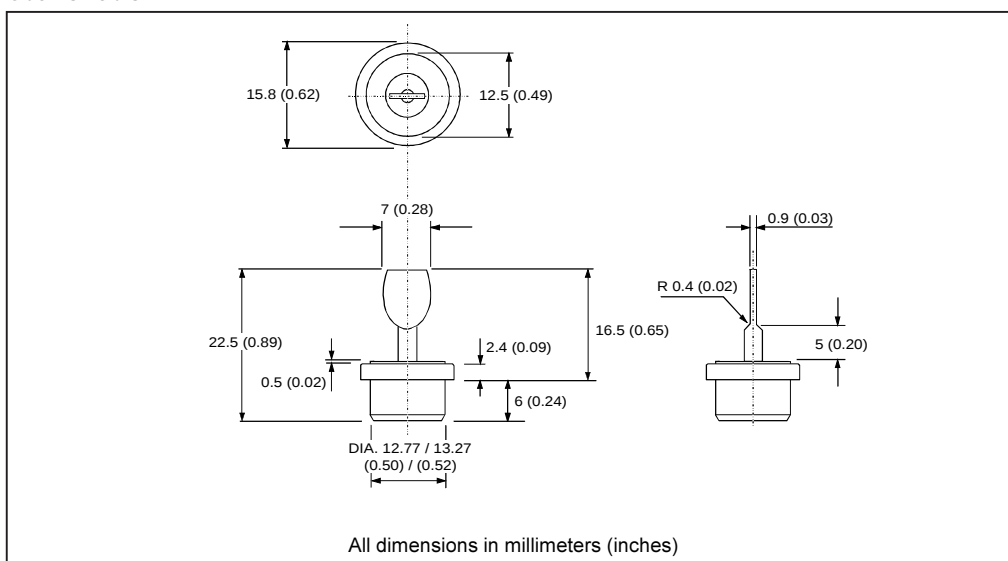
Ordering Information Table

Device Code



- 1** - Essential part number
- 2** - Voltage code: Code x 100 = V_{RRM} (See Voltage Ratings Table)
- 3** - N = Normal Polarity (cathode to case)
R = Reverse Polarity (anode to case)
- 4** - PP = Without Lead
LH = Horizontal Lead
LV = Vertical Lead
Available as special product - Contact Factory

Outline Table



8AF Series

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International
IRF Rectifier

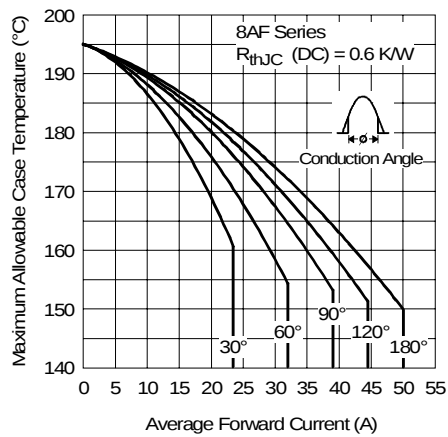


Fig. 1 - Current Ratings Characteristics

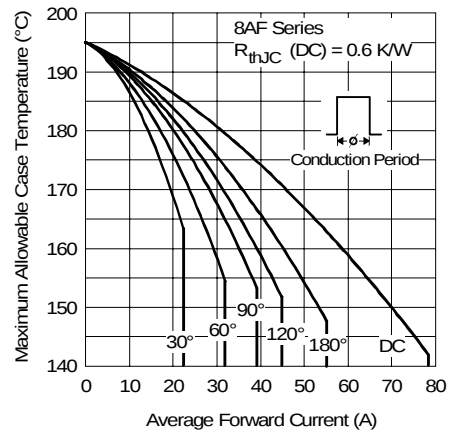


Fig. 2 - Current Ratings Characteristics

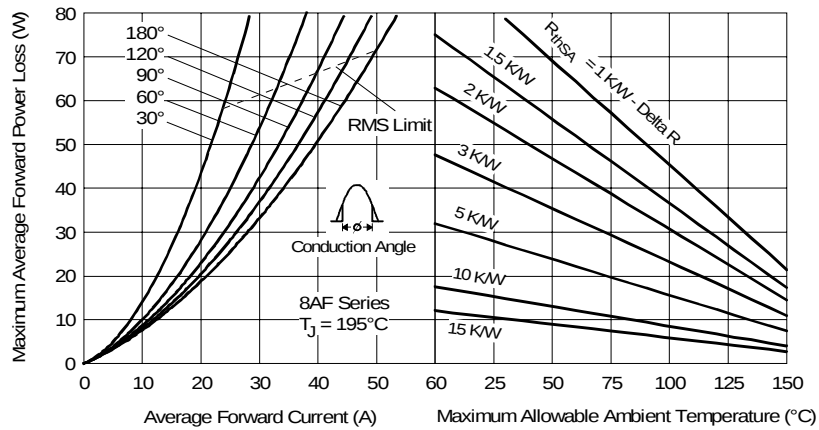


Fig. 3 - Forward Power Loss Characteristics

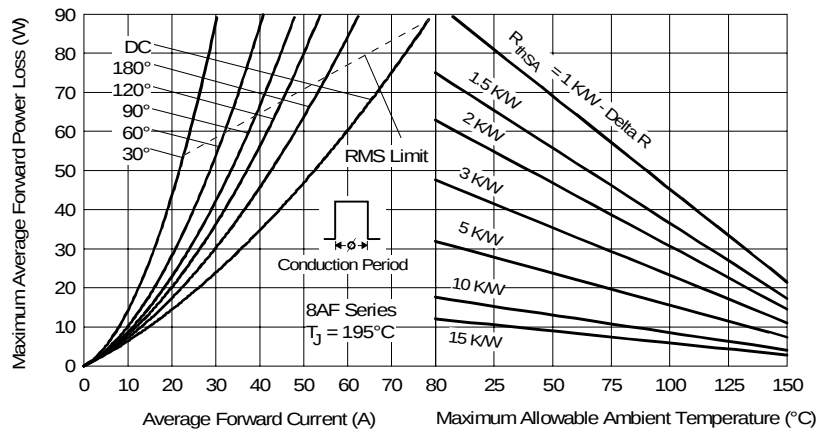


Fig. 4 - Forward Power Loss Characteristics

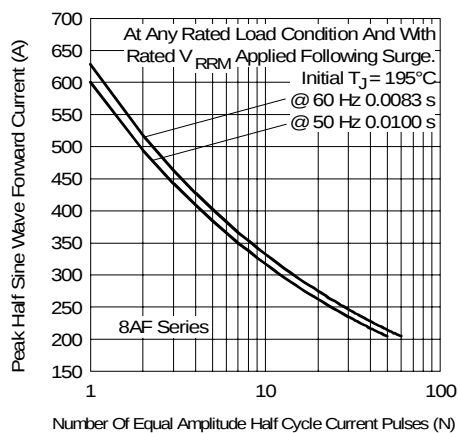


Fig. 5 - Maximum Non-Repetitive Surge Current

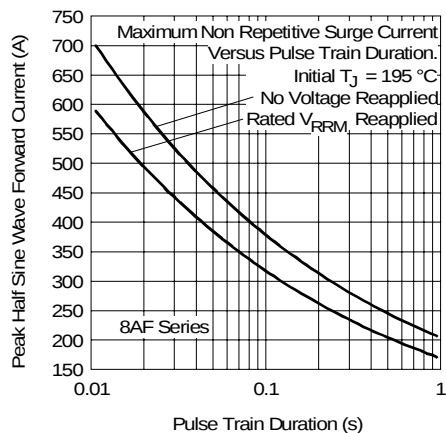


Fig. 6 - Maximum Non-Repetitive Surge Current

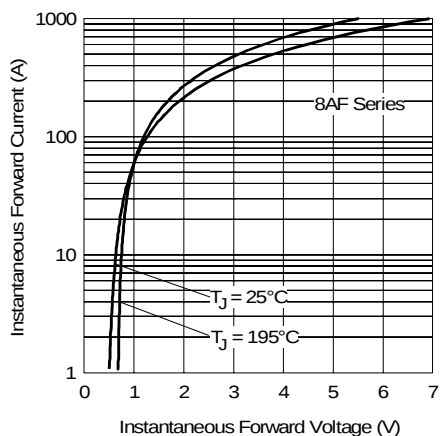


Fig. 7 - Forward Voltage Drop Characteristics

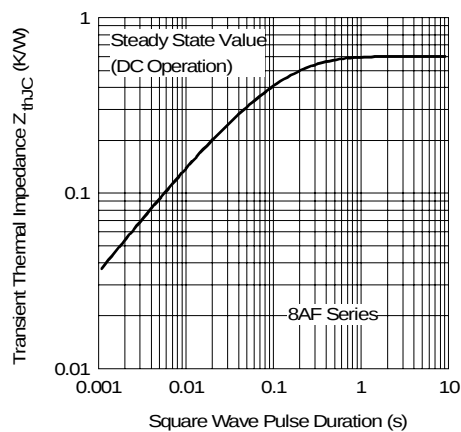


Fig. 8 - Thermal Impedance Z_{thJC} Characteristic