Pressfit Rectifier Diodes, 50 A

B-47

FEATURES

- Convenient pressfit package
- Available with and without leads
- High surge capabilities
- Fully characterized bulletin
- RoHS compliant
- Designed and qualified for industrial level

RoHS COMPLIANT

PRODUCT SUMMARY	
$I_{F(AV)}$	50 A

MAJOR RATINGS AND CHARACTERISTICS			
PARAMETER	TEST CONDITIONS	VALUES	UNITS
$I_{F(AV)}$		50	A
	T_C	150	°C
$I_{F(RMS)}$		79	A
I_{FSM}	50 Hz	714	A
	60 Hz	747	
I^2t	50 Hz	2546	A^2s
	60 Hz	2324	
$I^2\sqrt{t}$		25 455	$A^2\sqrt{s}$
V_{RRM}	Range	50 to 400	V
T_J		- 65 to 195	°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 $T_J = T_J$ MAXIMUM mA
8AF	05	50	75	7
	1	100	150	7
	2	200	300	5
	4	400	500	5

FORWARD CONDUCTION						
PARAMETER	**SYMBOL**	**TEST CONDITIONS**			**VALUES**	**UNITS**
Maximum average forward current at case temperature	$I_{F(AV)}$	180° conduction, half sine wave			50	A
					150	°C
Maximum RMS forward current	$I_{F(RMS)}$				79	A
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	714	A
		t = 8.3 ms			747	
		t = 10 ms	100 % V_{RRM} reapplied		600	
		t = 8.3 ms			628	
Maximum I^2t for fusing	I^2t	t = 10 ms	No voltage reapplied		2546	A^2s
		t = 8.3 ms			2324	
		t = 10 ms	100 % V_{RRM} reapplied		1800	
		t = 8.3 ms			1643	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 to 10 ms, no voltage reapplied			25 455	$A^2\sqrt{s}$
Low level value of threshold voltage	$V_{F(TO)1}$	(16.7 % x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), T_J = T_J maximum			0.60	V
High level value of threshold voltage	$V_{F(TO)2}$	(π x $I_{F(AV)}$ < I < 20 x π x $I_{F(AV)}$), T_J = T_J maximum			0.68	
Low level value of forward slope resistance	r_{f1}	(16.7 % x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), T_J = T_J maximum			6.66	mΩ
High level value of forward slope resistance	r_{f2}	(π x $I_{F(AV)}$ < I < 20 x π x $I_{F(AV)}$), T_J = T_J maximum			6.25	
Maximum forward voltage drop	V_{FM}	T_J = 25 °C, I_{FM} = π x rated $I_{F(AV)}$			1.45	V

THERMAL AND MECHANICAL SPECIFICATIONS				
PARAMETER	**SYMBOL**	**TEST CONDITIONS**	**VALUES**	**UNITS**
Maximum junction operating and storage temperature range	T_J, T_{Stg}		- 65 to 195	°C
Maximum thermal resistance, junction to case	R_{thJC}	DC operation	0.60	K/W
Typical thermal resistance, case to heatsink	R_{thCS}	As per mounting details, see note (1)	0.50	
Approximate weight			10	g
			0.36	oz.
Case style		See dimensions - link at the end of datasheet	B-47	

Note

(1) Mounting: A 12.6 ± 0.02 mm (0.496 to 0.497") diameter hole should be drilled in heatsink, the leading edge chamfered to 0.038 mm (0.015") x 45°. The autodiode should then be press fitted, ensuring that the sides of the autodiode are kept parallel to the sides of the hole.

ΔR_{thJC} CONDUCTION				
CONDUCTION ANGLE	SINUSOIDAL CONDUCTION	RECTANGULAR CONDUCTION	TEST CONDITIONS	UNITS
180°	0.042	0.026	$T_J = T_J$ maximum	K/W
120°	0.045	0.043		
90°	0.06	0.06		
60°	0.10	0.10		
30°	0.15	0.15		

Note

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

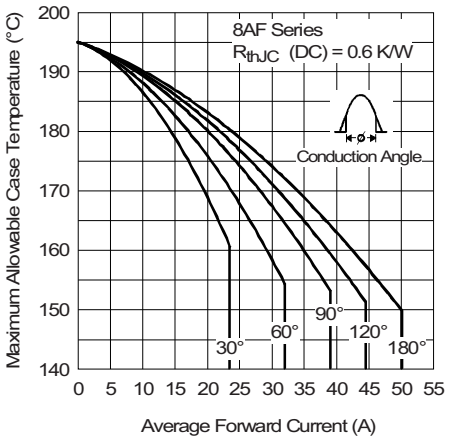


Fig. 1 - Current Ratings Characteristics

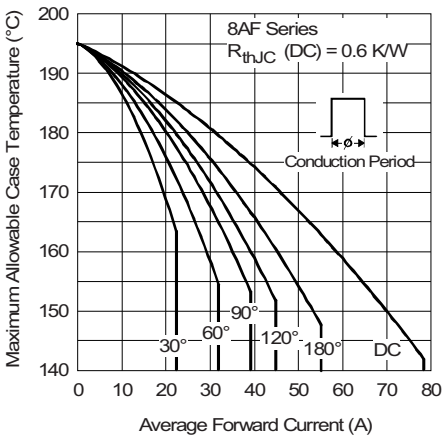


Fig. 2 - Current Ratings Characteristics

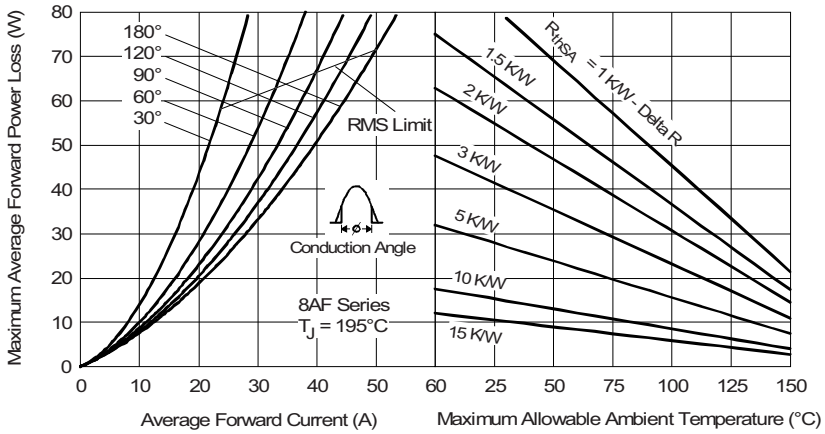


Fig. 3 - Forward Power Loss Characteristics

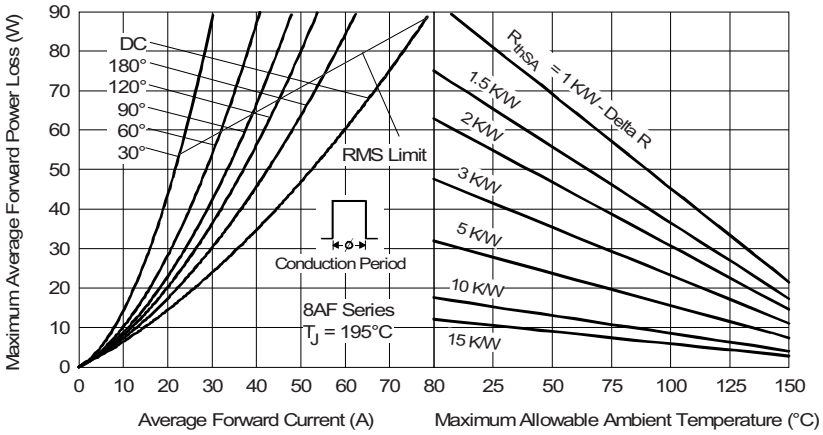


Fig. 4 - Forward Power Loss Characteristics

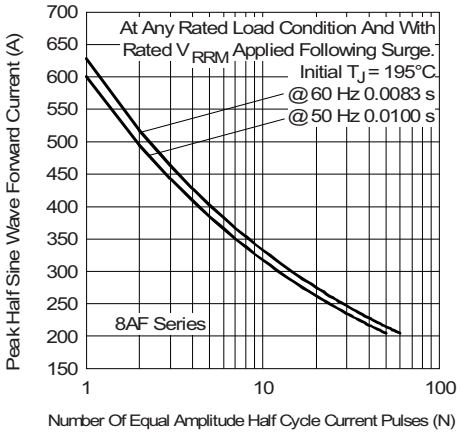


Fig. 5 - Maximum Non-Repetitive Surge Current

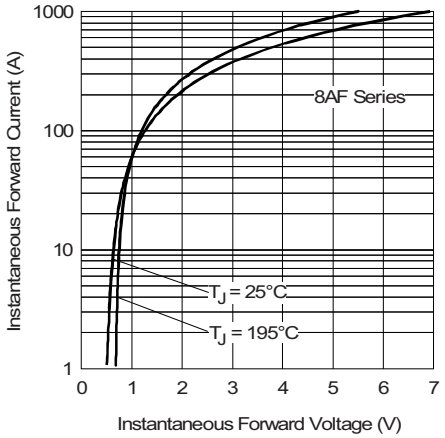


Fig. 7 - Forward Voltage Drop Characteristics

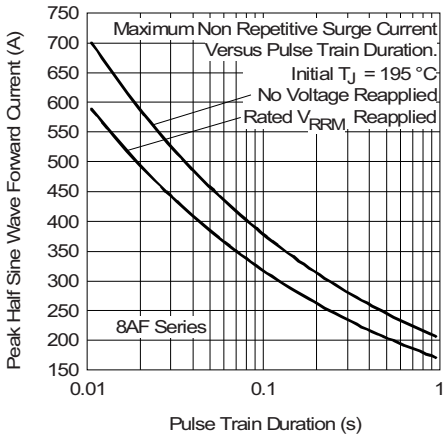


Fig. 6 - Maximum Non-Repetitive Surge Current

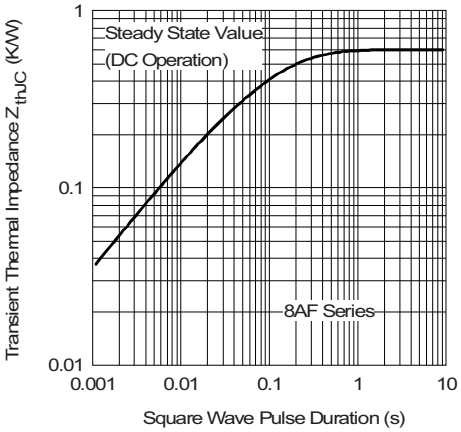
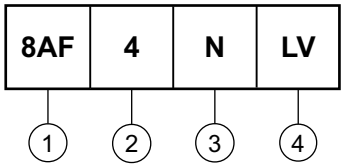


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics

ORDERING INFORMATION TABLE

Device code



1 - Essential part number

2 - Voltage 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

LINKS TO RELATED DOCUMENTS	
Dimensions	http://www.vishay.com/doc?95330

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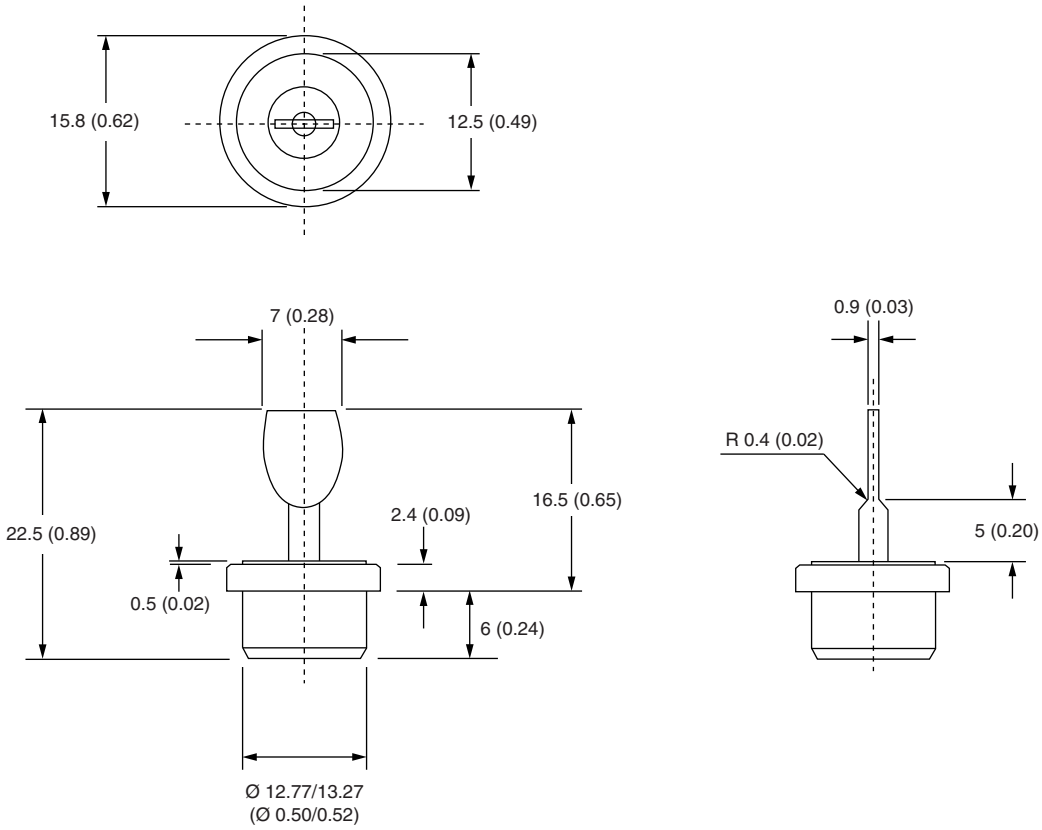
DIMENSIONS in millimeters (inches)



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