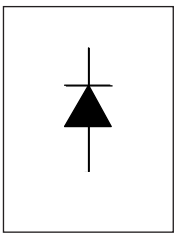
I2123 rev. B 11/99

International
IOR Rectifier

SAFEIR Series
80EPS..

INPUT RECTIFIER DIODE



V_F < 1.17V @ 80A
I_{FSM} = 1450A
V_{RRM} 800 to 1600V

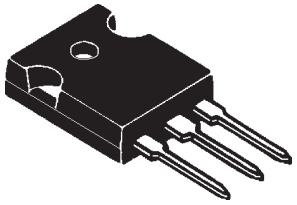
Description/Features

The 80EPS rectifier SAFEIR series has been optimized for very low forward voltage drop, with moderate leakage. The glass passivation technology used has reliable operation up to 150° C junction temperature.
Typical applications are in input rectification and these products are designed to be used with International Rectifier Switches and Output Rectifiers which are available in identical package outlines.

Major Ratings and Characteristics

Characteristics	80EPS..	Units
$I_{F(AV)}$ Sinusoidal waveform	80	A
V_{RRM}	800 to 1600	V
I_{FSM}	1450	A
V_F @ 80A, T_J = 25°C	1.17	V
T_J	-40 to 150	°C

Package Outline



TO-247AC

Voltage Ratings

Part Number	V_{RRM}, maximum peak reverse voltage V	V_{RSM}, maximum non repetitive peak reverse voltage V	I_{RRM} 150°C mA
80EPS08	800	900	1
80EPS12	1200	1300	
80EPS16	1600	1700	

Absolute Maximum Ratings

	Parameters	80EPS..	Units	Conditions
$I_{F(AV)}$	Max. Average Forward Current	80	A	@ T_C = 100°C, 180° conduction half sine wave
I_{FSM}	Max. Peak One Cycle Non-Repetitive Surge Current	1450	A	10ms Sine pulse, rated V_{RRM} applied
		1500		10ms Sine pulse, no voltage reapplied
I^2t	Max. I^2t for fusing	10500	A^2s	10ms Sine pulse, rated V_{RRM} applied
		14000		10ms Sine pulse, no voltage reapplied
$I^2\sqrt{t}$	Max. $I^2\sqrt{t}$ for fusing	105000	$A^2\sqrt{s}$	t = 0.1 to 10ms, no voltage reapplied

Electrical Specifications

	Parameters	80EPS..	Units	Conditions	
V_{FM}	Max. Forward Voltage Drop	1.17	V	@ 80A, T_J = 25°C	
r_t	Forward slope resistance	3.17	mΩ	T_J = 150°C	
$V_{F(TO)}$	Threshold voltage	0.73	V		
I_{RM}	Max. Reverse Leakage Current	0.1	mA	T_J = 25 °C	V_R = rated V_{RRM}
		1.0		T_J = 150 °C	

Thermal-Mechanical Specifications

	Parameters		80EPS..	Units	Conditions
T_J	Max. Junction Temperature Range		-40 to 150	°C	
T_{stg}	Max. Storage Temperature Range		-40 to 150	°C	
R_{thJC}	Max. Thermal Resistance Junction to Case		0.35	°C/W	DC operation
R_{thJA}	Max. Thermal Resistance Junction to Ambient		40	°C/W	
R_{thCS}	Typical Thermal Resistance, Case to Heatsink		0.2	°C/W	Mounting surface, smooth and greased
wt	Approximate Weight		6(0.21)	g(oz.)	
T	Mounting Torque	Min.	6(5)	Kg-cm (lbf-in)	
		Max.	12(10)		
	Case Style		TO-247AC		JEDEC

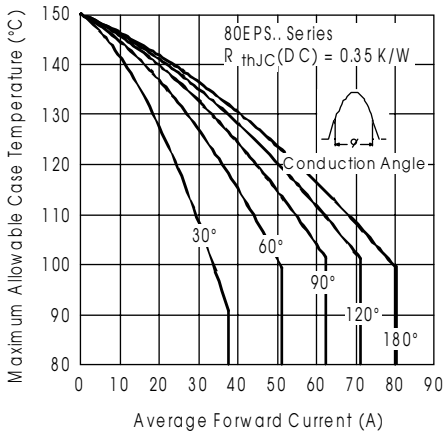


Fig. 1 - Current Rating Characteristics

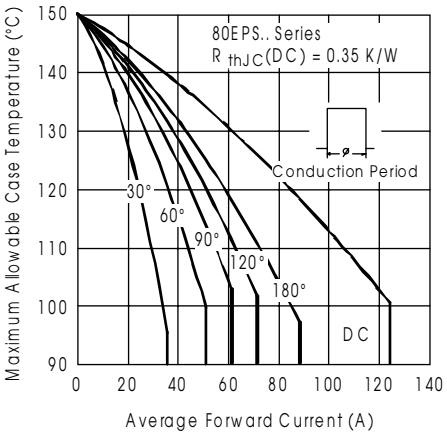


Fig. 2 - Current Rating Characteristics

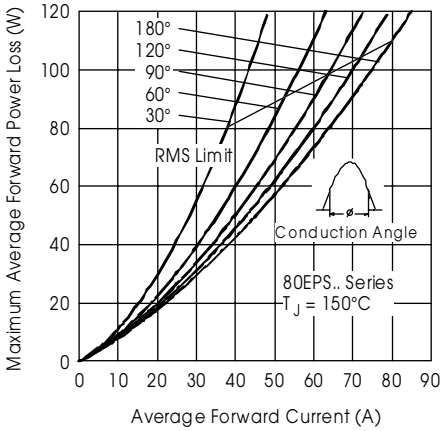


Fig. 3 - Forward Power Loss Characteristics

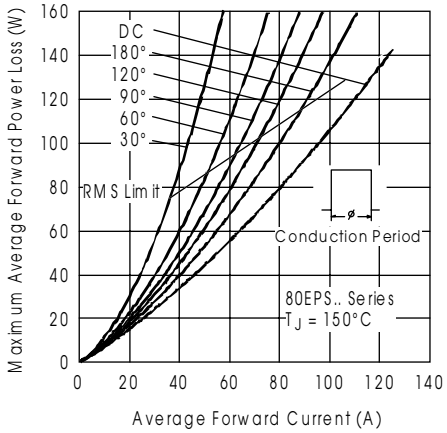


Fig. 4 - Forward Power Loss Characteristics

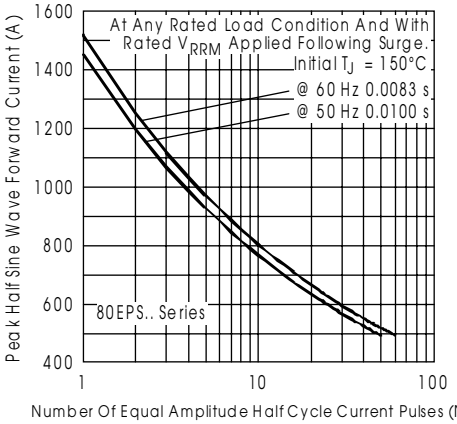


Fig. 5 - Maximum Non-Repetitive Surge Current

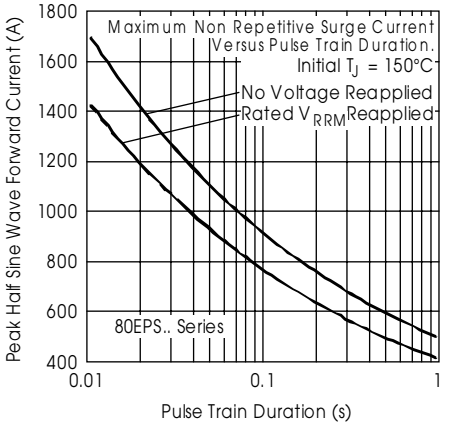


Fig. 6 - Maximum Non-Repetitive Surge Current

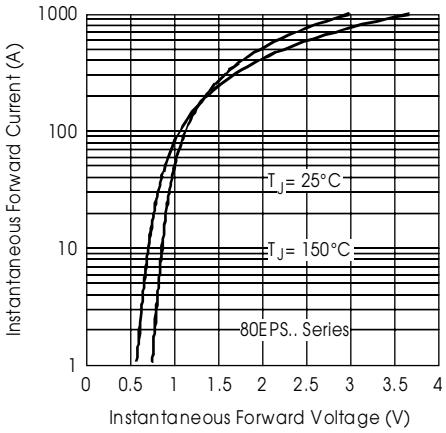


Fig.7 - Forward Voltage Drop Characteristics

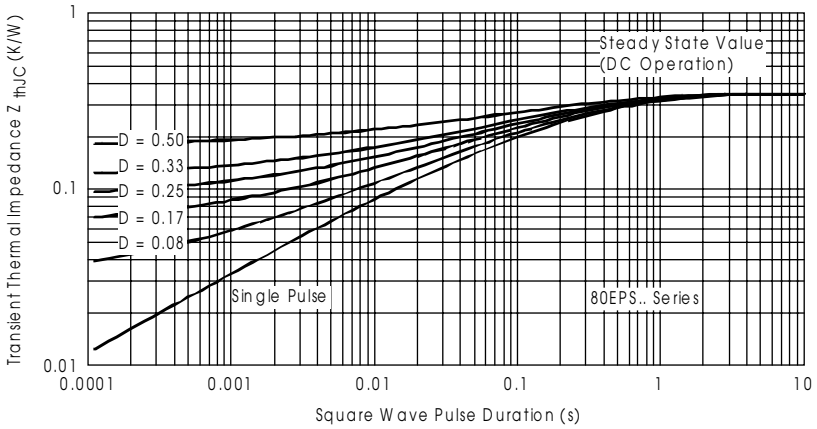
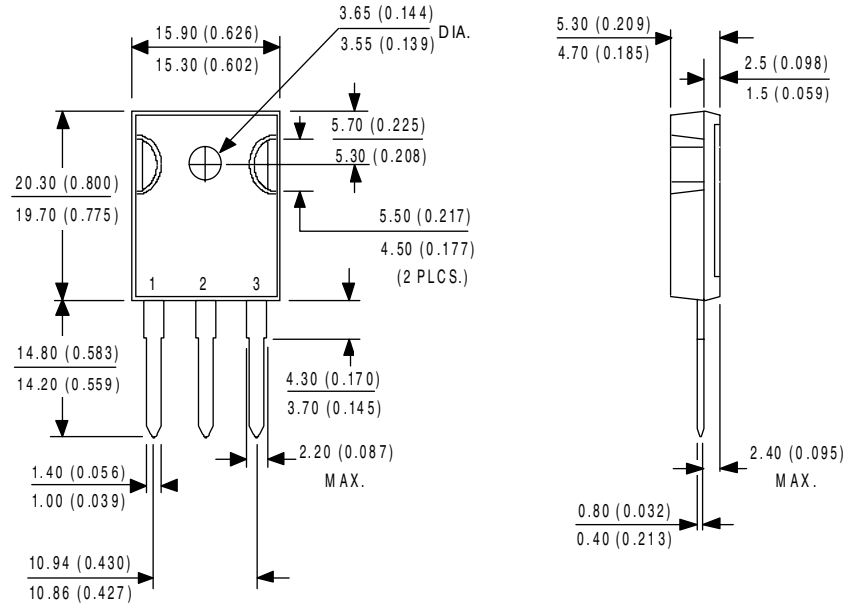


Fig.8 - Thermal Impedance Z_{thJC} Characteristics

Outline Table



Dimensions in millimeters and inches

Ordering Information Table

Device Code

80	E	P	S	16
①	②	③	④	⑤

1 - Current Rating

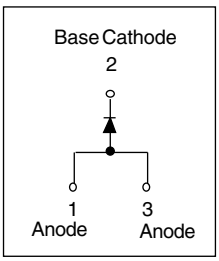
2 - Circuit Configuration:
E = Single Diode

3 - Package:
P = TO-247AC

4 - Type of Silicon:
S = Standard Recovery Rectifier

5 - Voltage code: Code x 100 = V_{RRM}

08	=	800V
12	=	1200V
16	=	1600V



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IR CANADA: 7231 Victoria Park Ave., Suite #201, Markham, Ontario L3R 2Z8 Tel: (905) 475 1897. Fax: (905) 475 8801
IR GERMANY: Saalburgstrasse 157, 61350 Bad Homburg Tel: ++ 49 6172 96590 Fax: ++ 49 6172 965933
IR ITALY: Via Liguria 49, 10071 Borgaro, Torino Tel: ++ 39 11 4510111 Fax: ++ 39 11 4510220
IR FAR EAST: K&H Bldg., 2F, 30-4 Nishi-Ikebukuro 3-Chome, Toshima-Ku, Tokyo, Japan 171 Tel: 81 3 3983 0086 Fax: 81 3 3983 0642
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