

International
IOR Rectifier

SAFEIR Series
80EPS..

INPUT RECTIFIER DIODE



$V_F < 1.1V @ 80A$
 $I_{FSM} = 1450A$
 $V_{RRM} 800 \text{ to } 1600V$

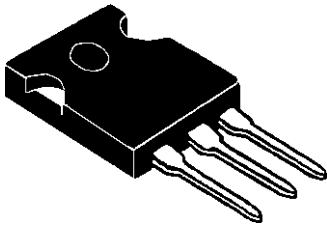
Description/Features

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
$V_F @ 80A, T_J = 25^{\circ}C$	1.1	V
T_J	-40 to 150	°C

Package Outline



TO-247AC

80EPS.. *SAFEIR* Series

Preliminary Data Sheet I2123 07/97

International
IOR Rectifier

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	@ $T_C = 100^\circ\text{C}$, 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 reappplied
I^2t Max. I^2t for fusing	10500	A^2s	10ms Sine pulse, rated V_{RRM} applied
	14000		10ms Sine pulse, no voltage reappplied
$I^2\sqrt{t}$ Max. $I^2\sqrt{t}$ for fusing	105000	$A^2\sqrt{s}$	$t = 0.1$ to 10ms, no voltage reappplied

Electrical Specifications

Parameters		80EPS..	Units	Conditions	
V _{FM}	Max. Forward Voltage Drop	1.1	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	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-40 to 150	$^\circ\text{C}$	
R_{thJC} Max. Thermal Resistance Junction to Case	0.35	$^\circ\text{C/W}$	DC operation
R_{thJA} Max. Thermal Resistance Junction to Ambient	40	$^\circ\text{C/W}$	
R_{thCS} Typical Thermal Resistance, Case to Heatsink	0.2	$^\circ\text{C/W}$	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

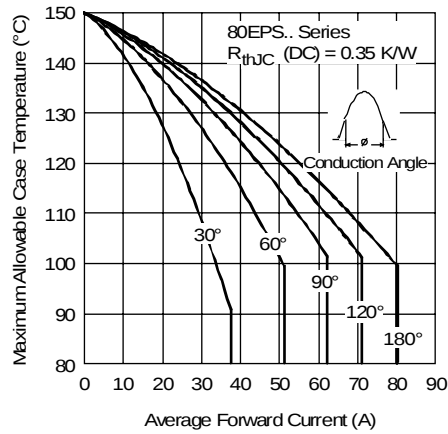


Fig. 1 - Current Rating Characteristics

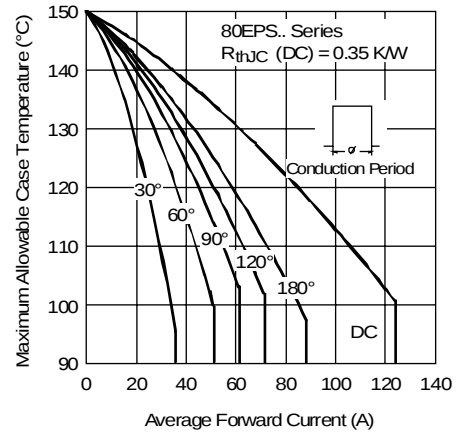


Fig. 2 - Current Rating Characteristics

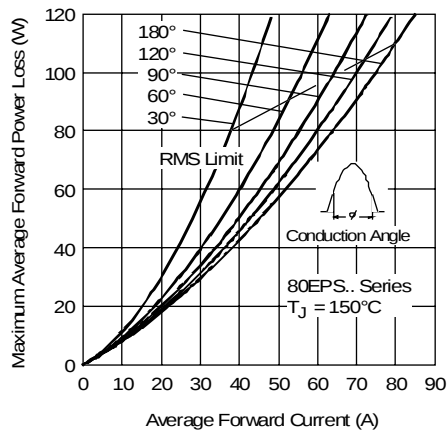


Fig. 3 - Forward Power Loss Characteristics

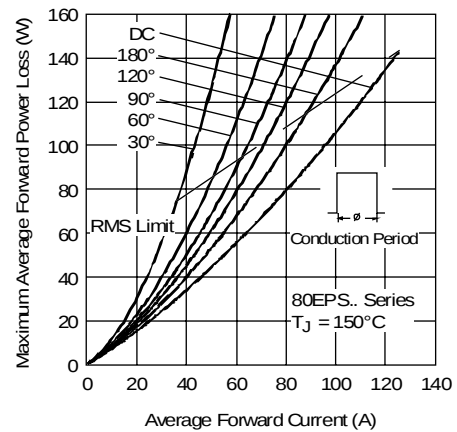


Fig. 4 - Forward Power Loss Characteristics

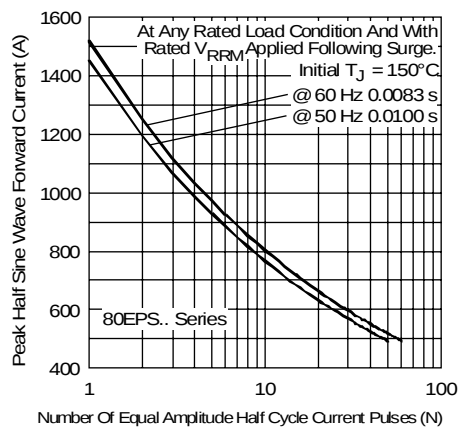


Fig. 5 - Maximum Non-Repetitive Surge Current

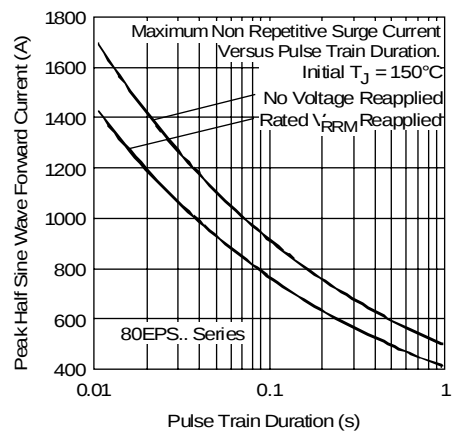


Fig. 6 - Maximum Non-Repetitive Surge Current

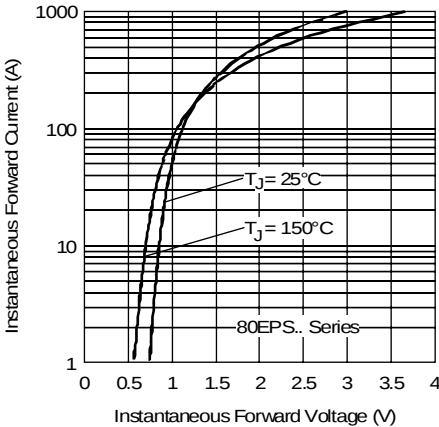


Fig. 7- Forward Voltage Drop Characteristics

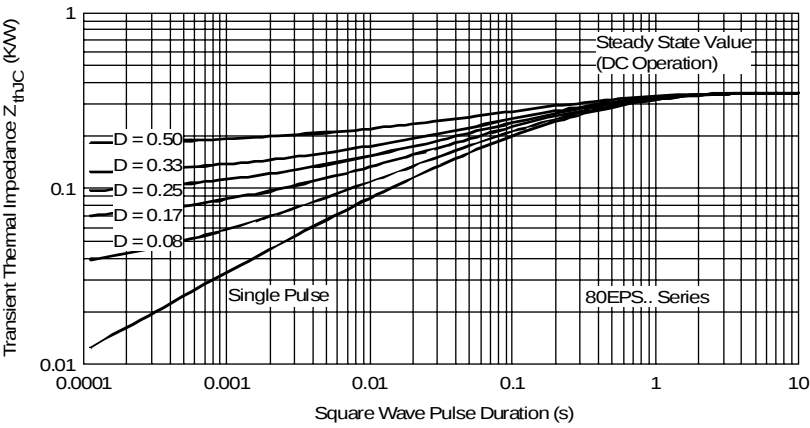
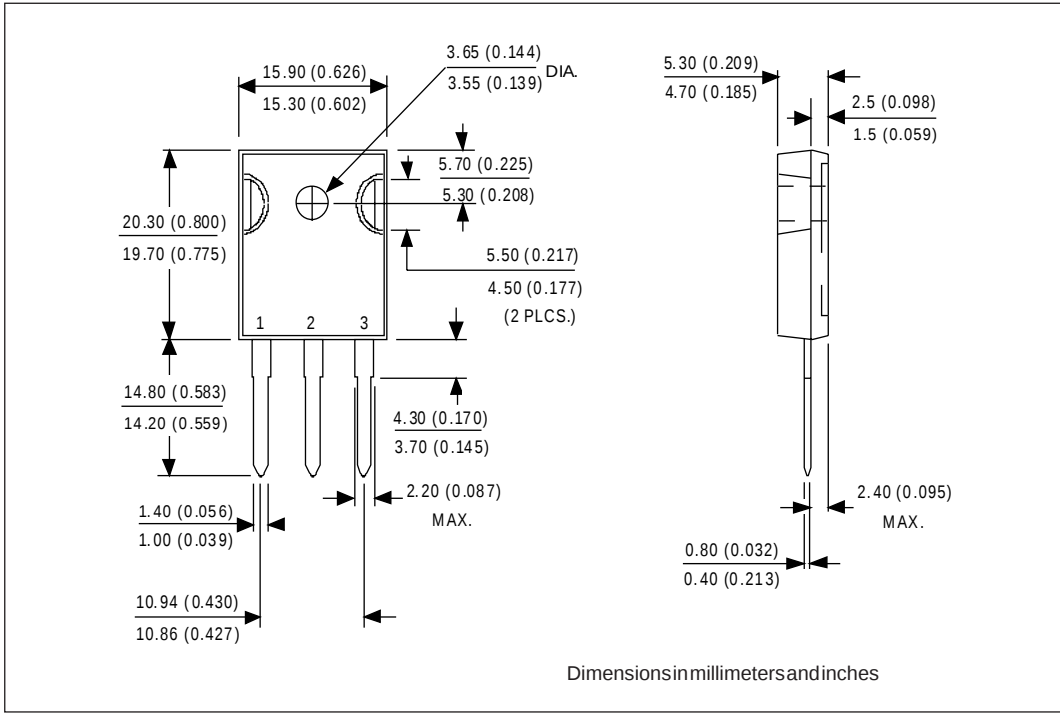


Fig. 8- Thermal Impedance Z_{thJC} Characteristics

Outline Table



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

Base Cathode

2

1 Anode 3 Anode