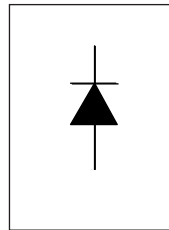


International  
**IOR** Rectifier

**SAFEIR** Series  
 80EPS..

## INPUT RECTIFIER DIODE



$$V_F < 1.17V @ 80A$$

$$I_{FSM} = 1450A$$

$$V_{RRM} 800 \text{ to } 1600V$$

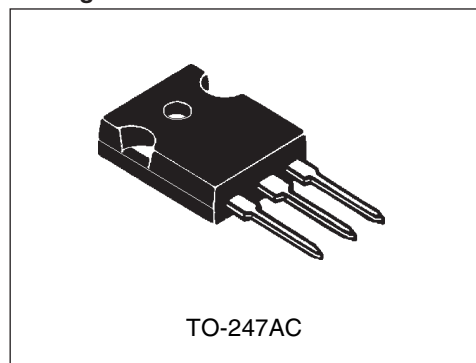
### Description/Features

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, $T_J = 25^\circ C$	1.17	V
$T_J$	-40 to 150	°C

### Package Outline



## 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 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, $T_J = 25^\circ\text{C}$
$r_t$ Forward slope resistance	3.17	$m\Omega$	$T_J = 150^\circ\text{C}$
$V_{F(TO)}$ Threshold voltage	0.73	V	
$I_{RM}$ Max. Reverse Leakage Current	0.1	mA	$T_J = 25^\circ\text{C}$
	1.0		$T_J = 150^\circ\text{C}$

$V_R = \text{rated } V_{RRM}$

## 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)	$\text{Kg-cm}$ $(\text{lbf-in})$
	Max.	12(10)	
Case Style	TO-247AC		JEDEC

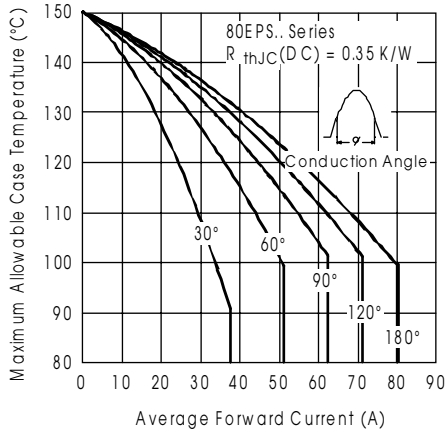


Fig. 1 - Current Rating Characteristics

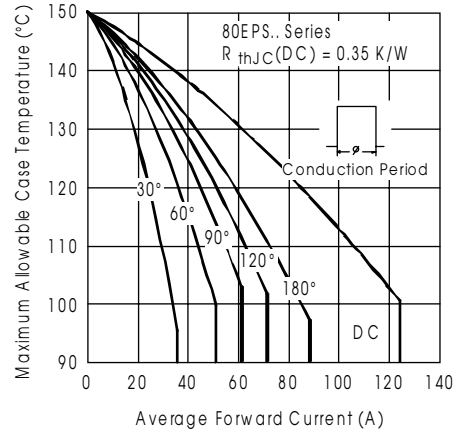


Fig. 2 - Current Rating Characteristics

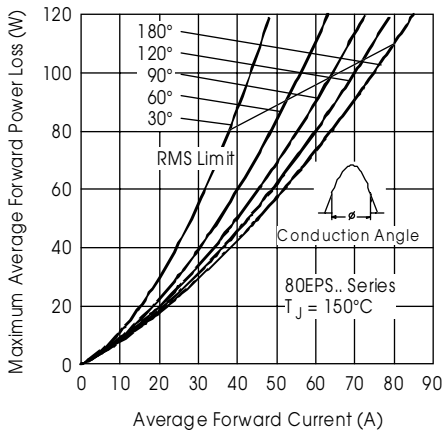


Fig. 3 - Forward Power Loss Characteristics

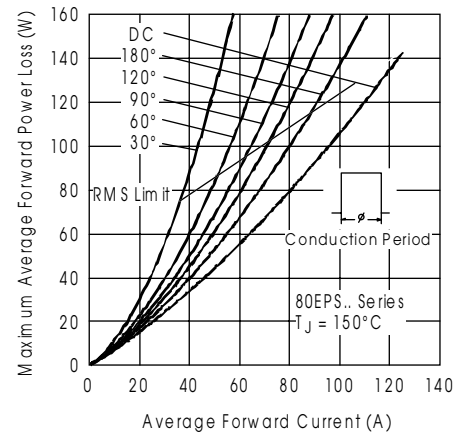


Fig. 4 - Forward Power Loss Characteristics

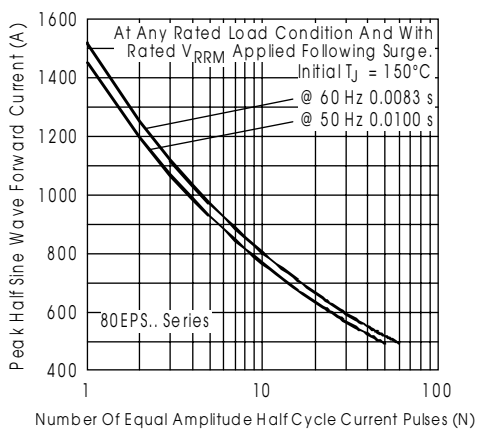


Fig. 5 - Maximum Non-Repetitive Surge Current

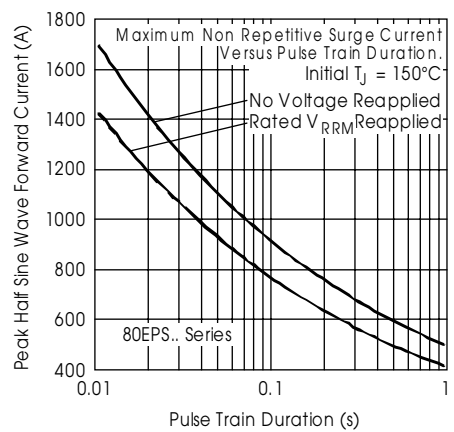


Fig. 6 - Maximum Non-Repetitive Surge Current

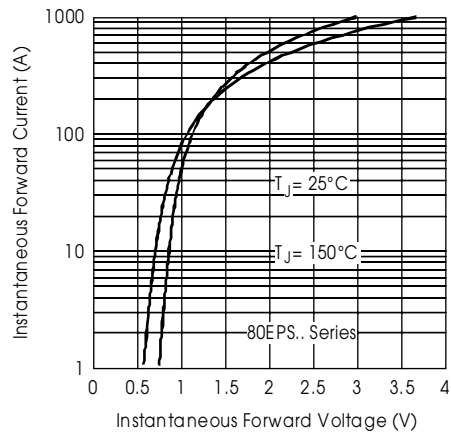


Fig.7-Forward Voltage Drop Characteristics

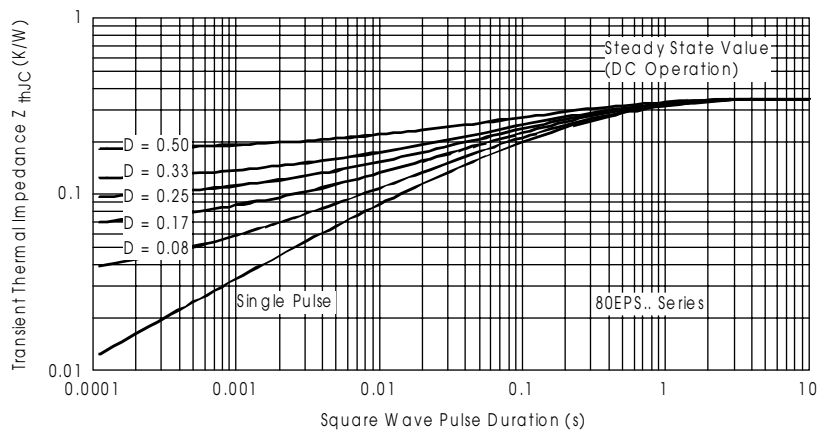
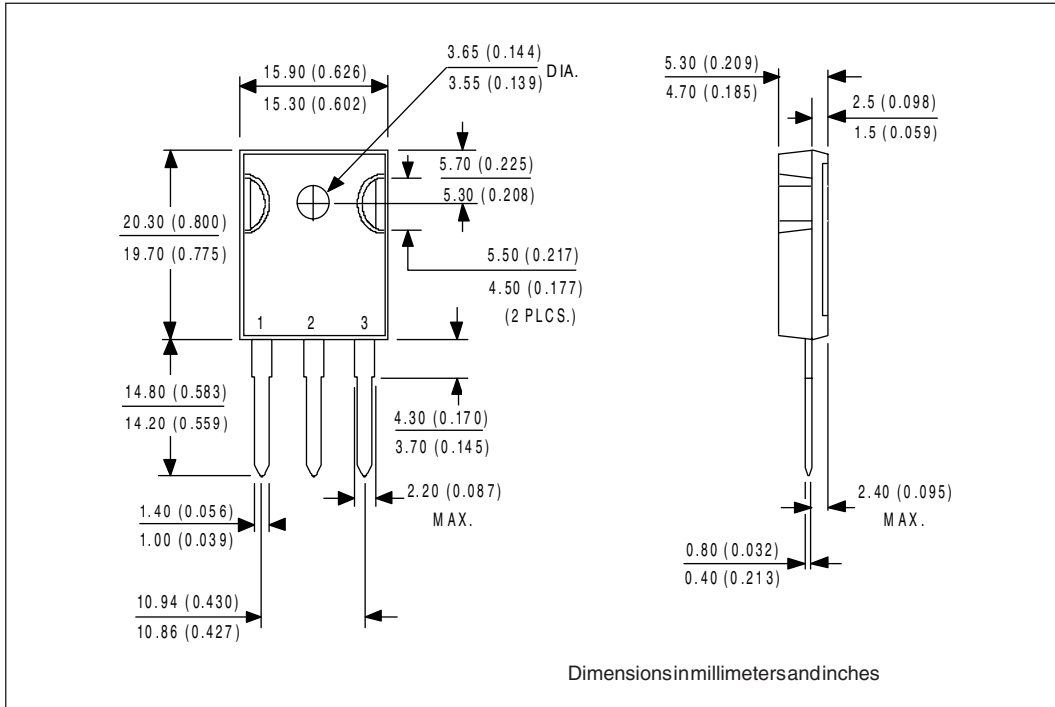
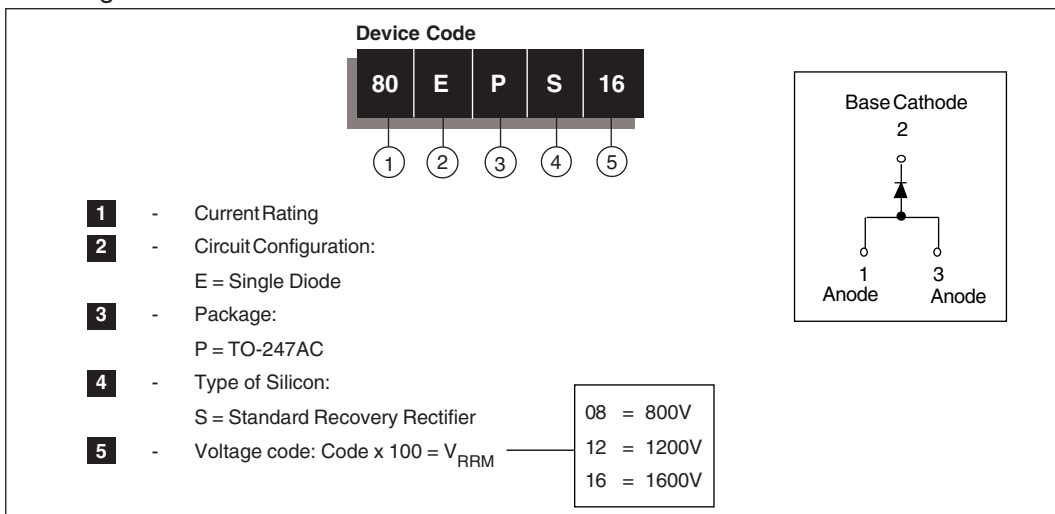


Fig.8-Thermal Impedance  $Z_{thJC}$  Characteristics

Outline Table



Ordering Information Table



## 80EPS.. SAFEIR Series

I2123 rev. B 11/99

International  
**IOR** Rectifier

International  
**IOR** Rectifier

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Data and specifications subject to change without notice

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