

International
IOR Rectifier

SAFEIR Series 85EPS..

INPUT RECTIFIER DIODE



$$\begin{aligned} I_{F(RMS)} &= 160A \\ V_F &< 1.15V @ 85A \\ I_{FSM} &= 1400A \\ V_{RRM} &800 \text{ to } 1200V \end{aligned}$$

Major Ratings and Characteristics

Characteristics	85EPS..	Units
$I_{F(AV)}$ Sine waveform @ $T_C = 95^\circ C$	85	A
$I_{F(RMS)}$	160	A
V_{RRM} range (*)	800 to 1200	V
I_{FSM}	1400	A
V_F @ 85A, $T_J = 25^\circ C$	1.15	V
T_J range	-40 to 150	$^\circ C$

Description/Features

The 85EPS.. 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 $150^\circ C$ junction temperature.

Available in the new PowIRtab™ package, this new series is suitable for a large range of applications combining excellent die to footprint ratio and sturdiness connectivity for use in high current environments.

Case Styles

85EPS..



85EPS..J



(*) for higher voltage up to 1600V contact factory

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
85EPS08	800	900	3
85EPS12	1200	1300	

Absolute Maximum Ratings

Parameters	85EPS..	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current	85	A	@ $T_C = 95^\circ\text{C}$, 180° conduction half sine wave
$I_{F(RMS)}$ Max. RMS Forward Current	160	A	
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current	1400	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
	9550		10ms Sine pulse, no voltage reapplied
$I^2\sqrt{t}$ Max. $I^2\sqrt{t}$ for fusing	105000	$\text{A}^2\sqrt{\text{s}}$	$t = 0.1$ to 10ms, no voltage reapplied

Electrical Specifications

Parameters		85EPS..	Units	Conditions	
V _{FM}	Max. Forward Voltage Drop	1.15	V	@ 85A, T _J = 25°C	
r _t	Forward slope resistance	3.17	mΩ	T _J = 150°C	
V _{F(TO)}	Threshold voltage	0.86	V		
I _{RM}	Max. Reverse Leakage Current	0.1	mA	T _J = 25 °C	V _R = rated V _{RRM}
		3.0		T _J = 150 °C	

Thermal-Mechanical Specifications

Parameters	85EPS..	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	PowIRtab™		

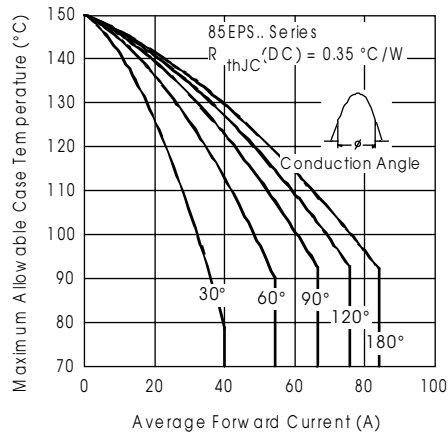


Fig. 1 - Current Rating Characteristics

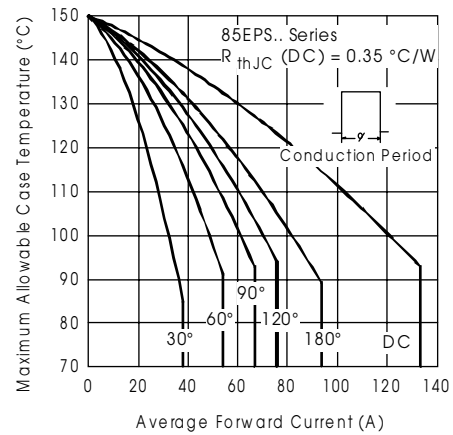


Fig. 2 - Current Rating Characteristics

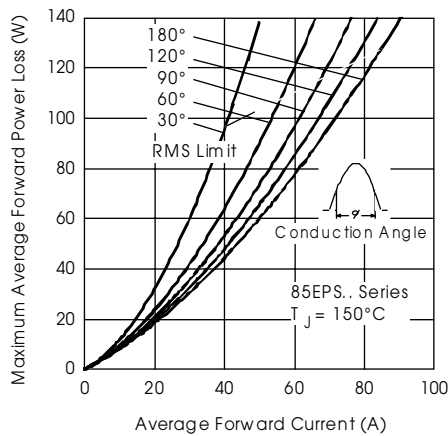


Fig. 3 - Forward Power Loss Characteristics

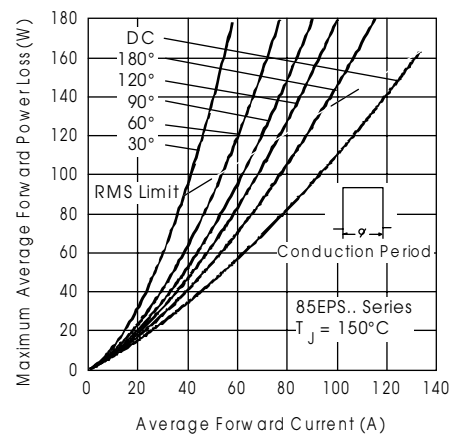


Fig. 4 - Forward Power Loss Characteristics

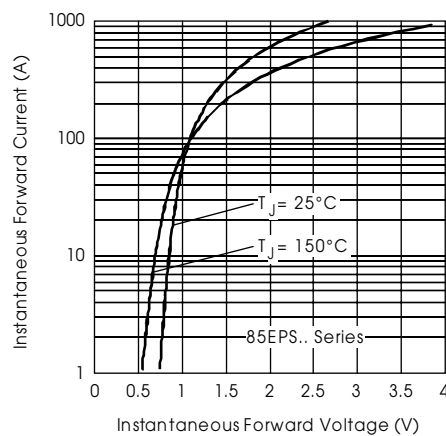


Fig. 5 - Forward Voltage Drop Characteristics

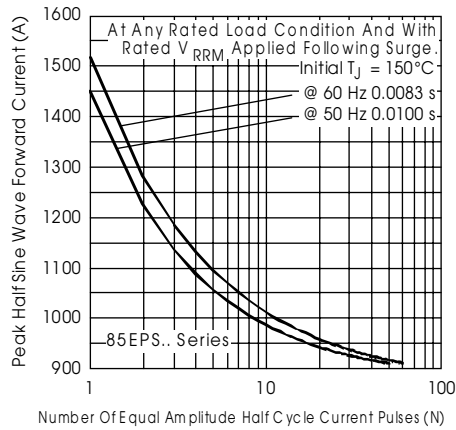


Fig. 6 - Maximum Non-Repetitive Surge Current

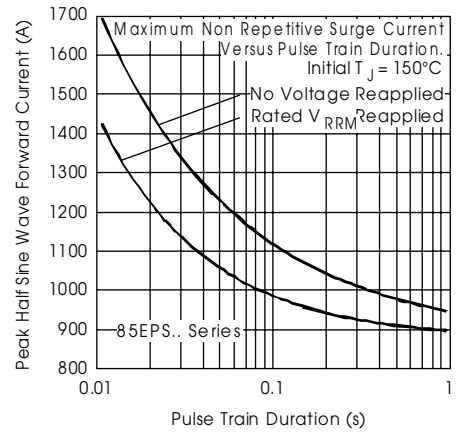


Fig. 7 - Maximum Non-Repetitive Surge Current

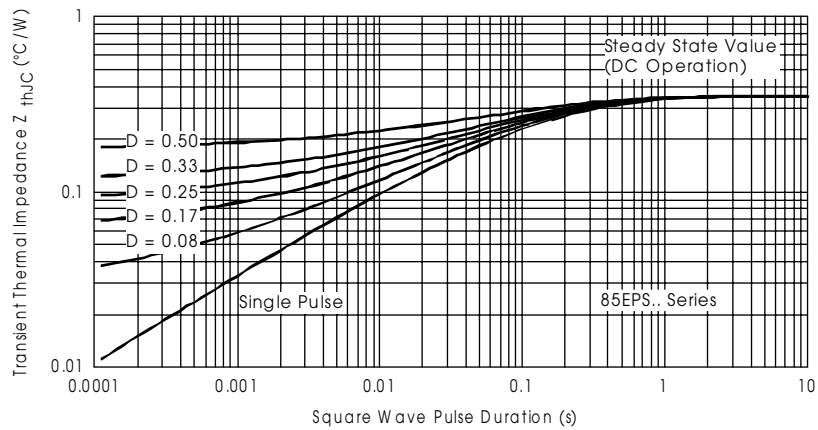
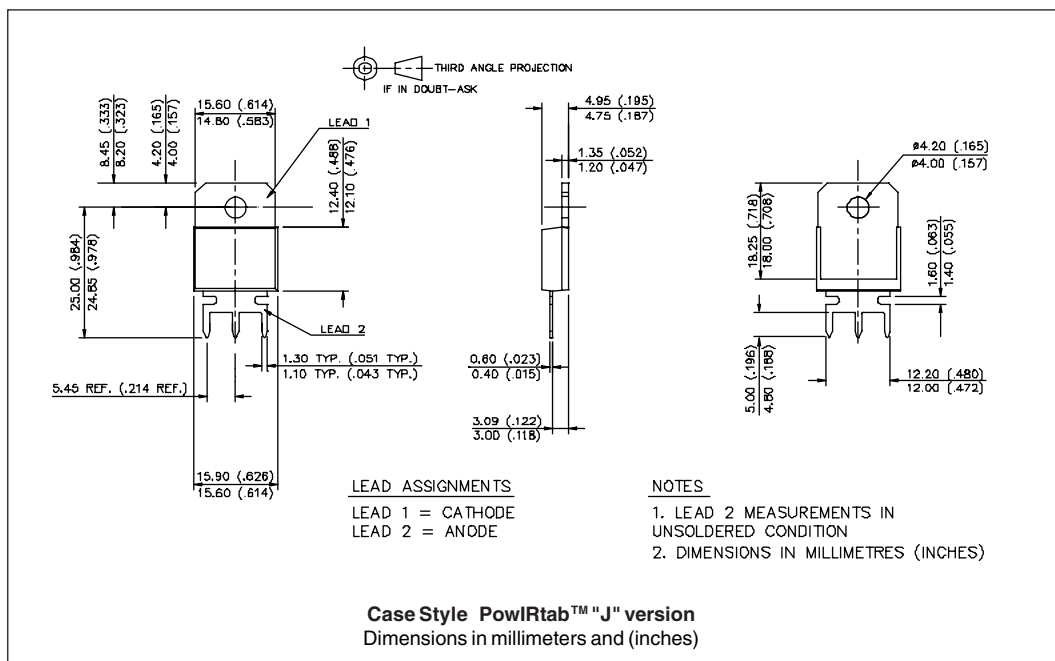
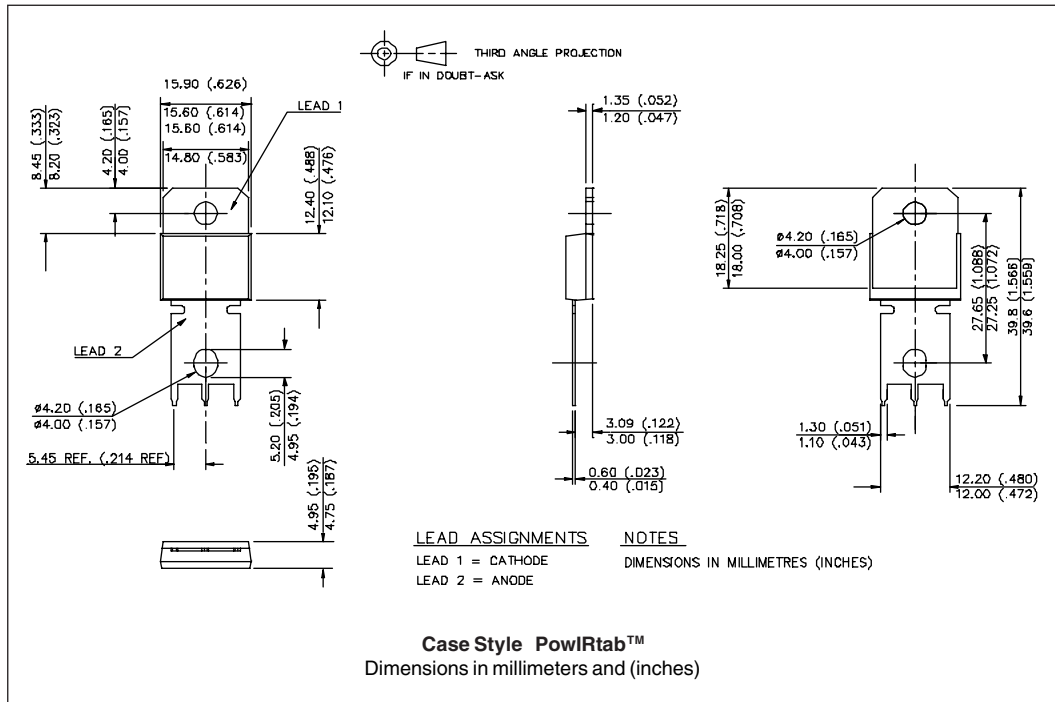


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics

Outline Table



Ordering Information Table

Device Code					
85	E	P	S	12	J
1	2	3	4	5	6
1	- Current Rating				
2	- Circuit Configuration:				
	E = Single Diode				
3	- Package:				
	P = PowIRtab™				
4	- Type of Silicon:				
	S = Standard Recovery Rectifier				
5	- Voltage code: Code x 100 = V _{RRM} (*)				
6	- none = PowIRtab™ standard				
	J = Short Lead Version				

08 = 800V
 12 = 1200V

Base Cathode

2

1 3

Anode Anode

(*) for higher voltage up to 1600V contact factory