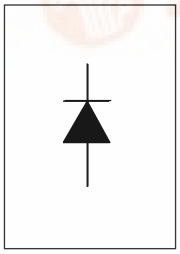
I2139 rev. B 01/2000

International
IOR Rectifier

SAFEIR Series 85EPS..

INPUT RECTIFIER DIODE



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

Major Ratings and Characteristics

Characteristics	85EPS..	Units
$I_{F(AV)}$ Sine waveform @ T_C = 95° 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°C	1.15	V
T_J range	-40 to 150	°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° 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 sturdeness 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°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	$A^2\sqrt{s}$	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	°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		PowIRtab™		

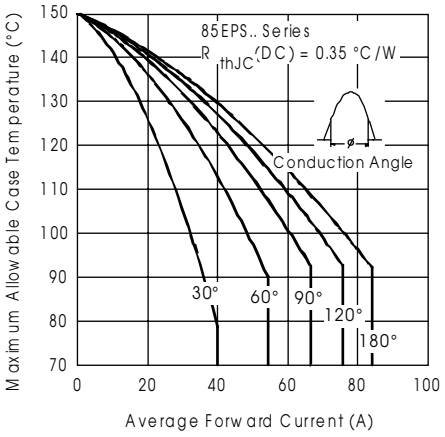


Fig. 1 - Current Rating Characteristics

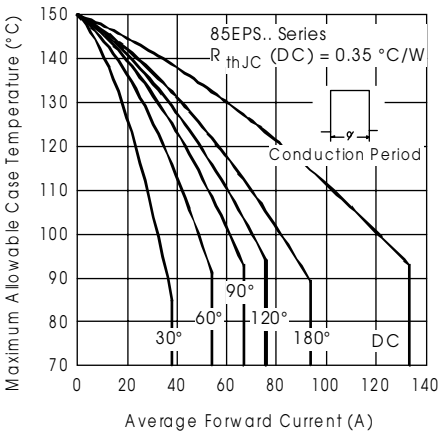


Fig. 2 - Current Rating Characteristics

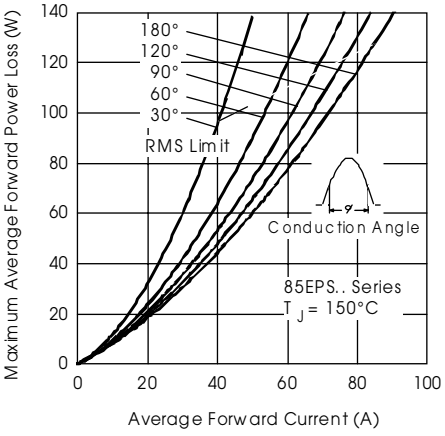


Fig. 3 - Forward Power Loss Characteristics

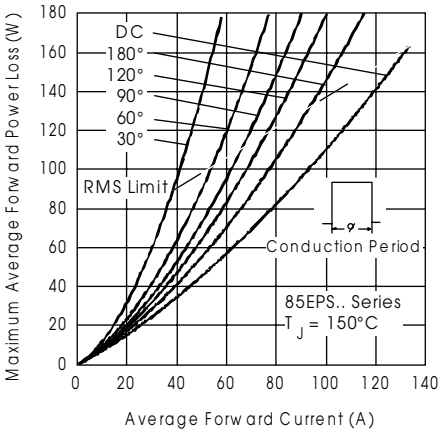


Fig. 4 - Forward Power Loss Characteristics

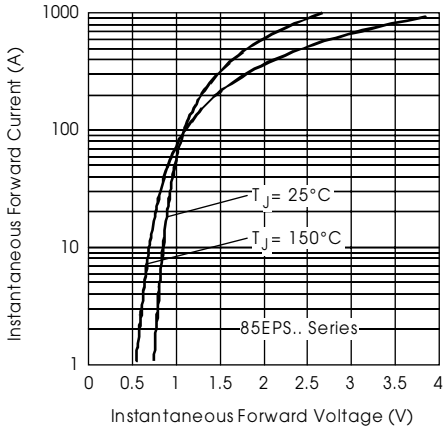


Fig. 5 - Forward Voltage Drop Characteristics

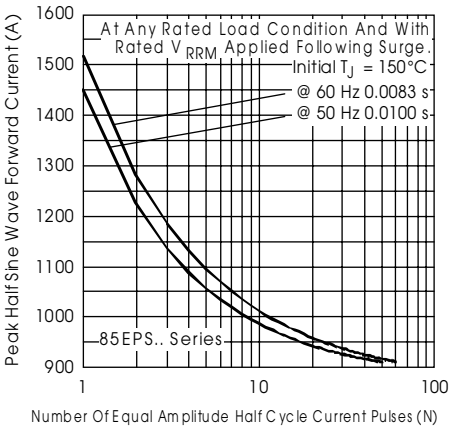


Fig.6-MaximumNon-RepetitiveSurgeCurrent

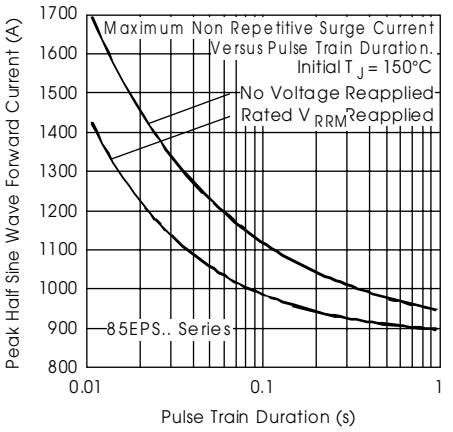


Fig.7-MaximumNon-RepetitiveSurgeCurrent

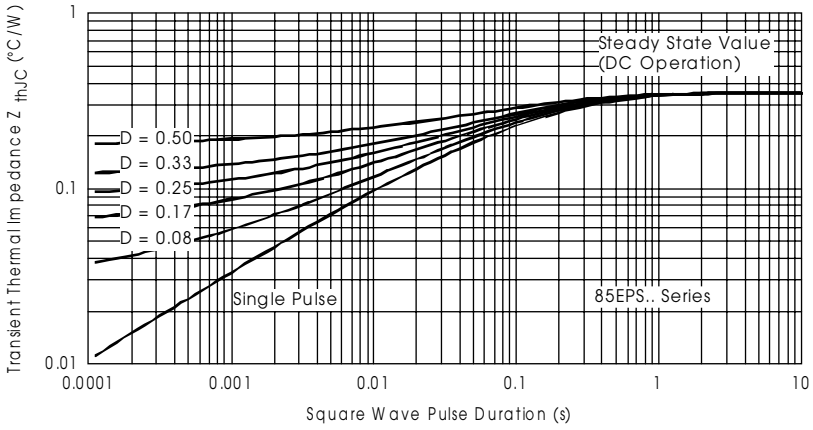
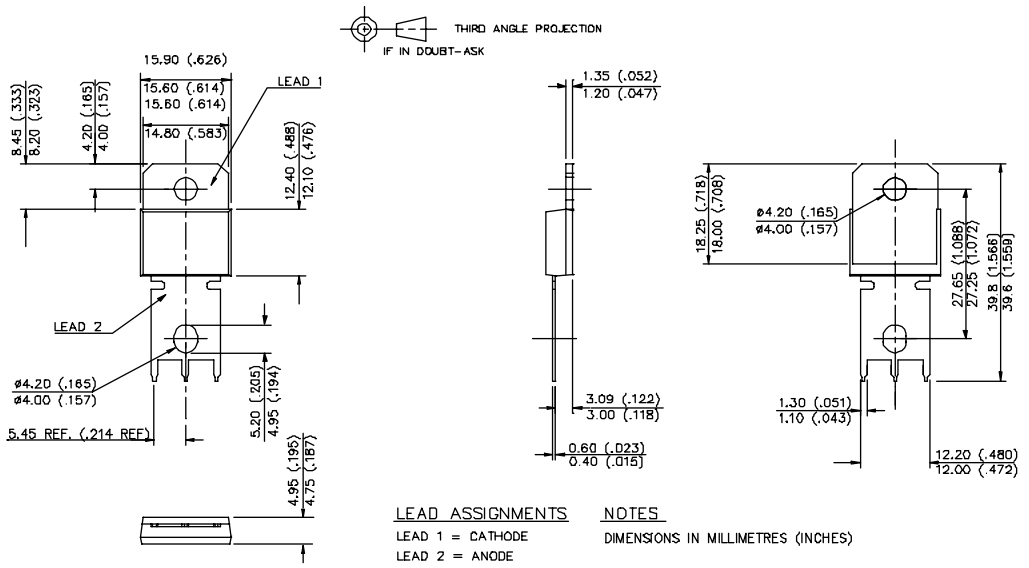
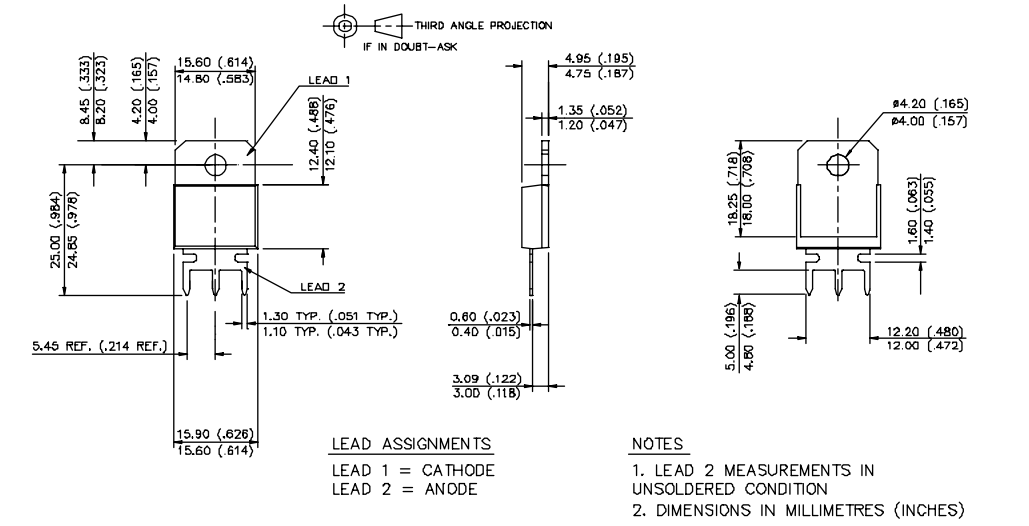


Fig.8-ThermalImpedanceZ_{thJC}Characteristics

Outline Table



Case Style PowIRtab™
Dimensions in millimeters and (inches)

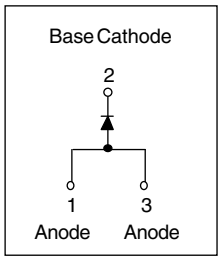


Case Style PowIRtab™ "J" version
Dimensions in millimeters and (inches)

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 = Pow**IR**tab™

4 - Type of Silicon:
S = Standard Recovery Rectifier

5 - Voltage code: Code x 100 = V_{RRM} (*)
- 08 = 800V
- 12 = 1200V

6 - none=PowIRtab™ standard
J = Short Lead Version

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

International
IOR Rectifier

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