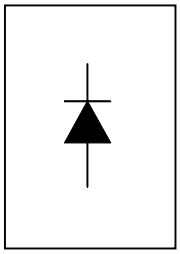
Bulletin I2139 rev. C 10/02

International
IOR Rectifier

*SAFE**IR*** Series
85EPS..

INPUT RECTIFIER DIODE



$I_{F(RMS)}$ = 160A
V_F < 1.15V @ 85A
I_{FSM} = 1400A
V_{RRM} 800 and 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 and 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 *SAFE**IR*** 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 *Pow**IR**tab*™ 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		*Pow**IR**tab*™		

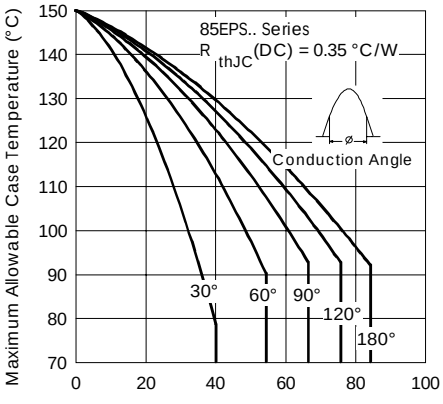


Fig. 1 - Current Rating Characteristics

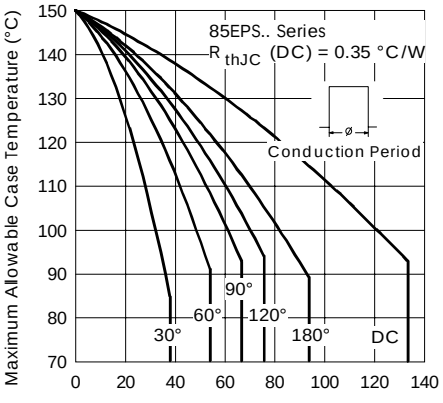


Fig. 2 - Current Rating Characteristics

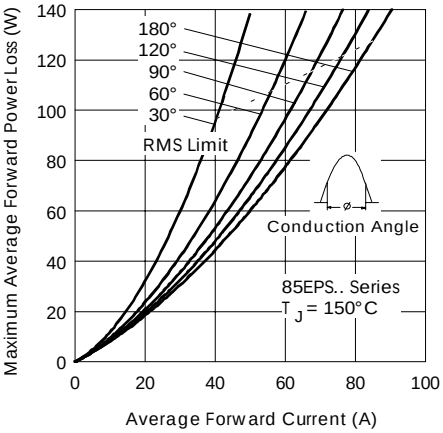


Fig. 3 - Forward Power Loss Characteristics

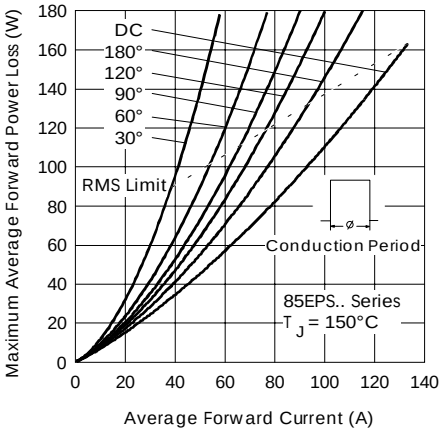


Fig. 4 - Forward Power Loss Characteristics

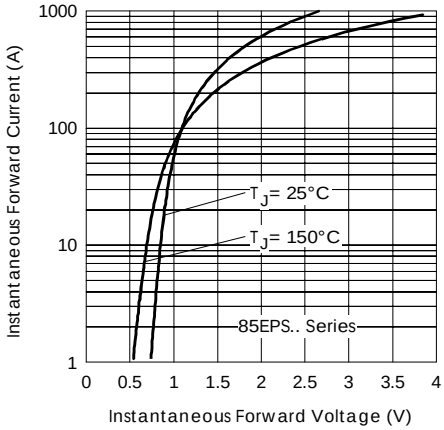


Fig. 5 - Forward Voltage Drop Characteristics

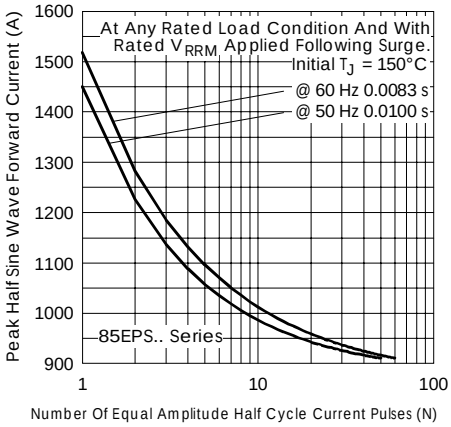


Fig. 6 - Maximum Non-Repetitive Surge Current

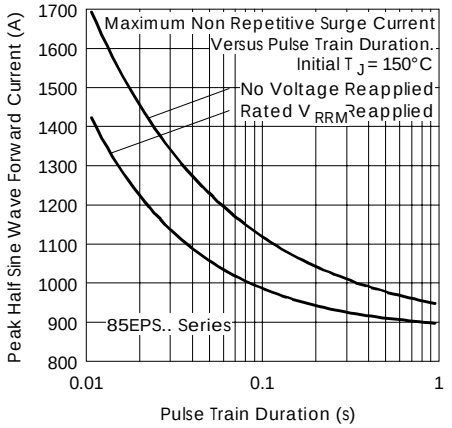


Fig. 7 - Maximum Non-Repetitive Surge Current

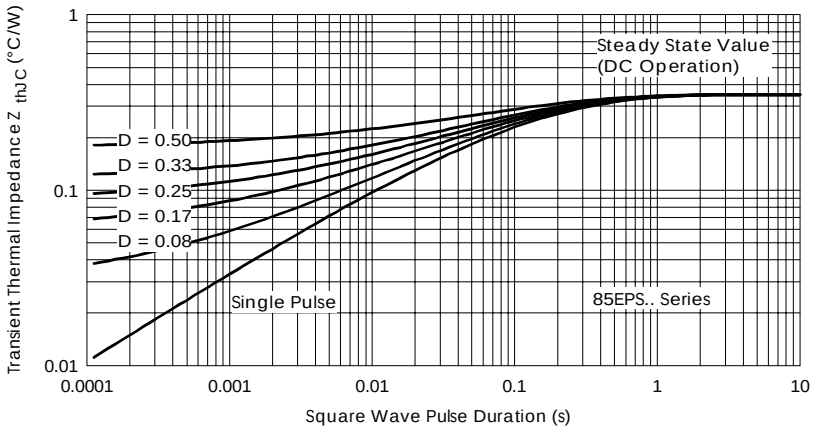
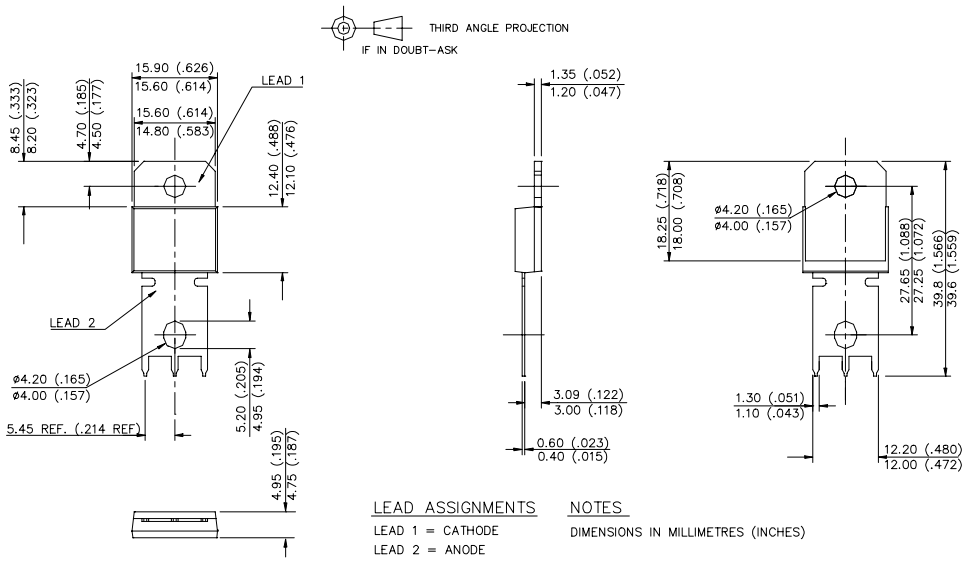
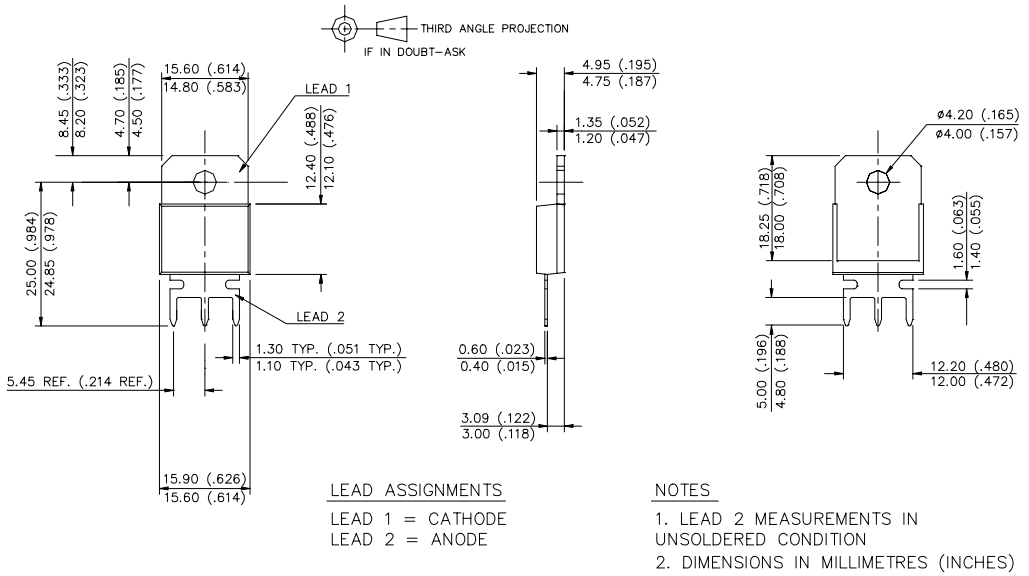


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics

Outline Table



CaseStyle *PowIRtab*™
Dimensions in millimeters and (inches)

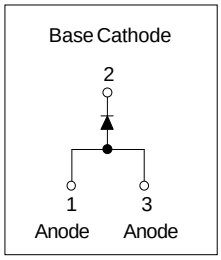


CaseStyle *PowIRtab*™"J"version
Dimensions in millimeters and (inches)

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

Data and specifications subject to change without notice.
This product has been designed and qualified for Industrial Level.
Qualification Standards can be found on IR's Web site.

International IOR Rectifier

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