


International
IR Rectifier

SAFEIR 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 @ $T_C = 95^\circ\text{C}$	85	A
$I_{F(RMS)}$	160	A
V_{RRM} range (*)	800 and 1200	V
I_{FSM}	1400	A
V_F @ 85A, $T_J = 25^\circ\text{C}$	1.15	V
T_J range	-40 to 150	$^\circ\text{C}$



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 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	$A^2\sqrt{s}$	$t = 0.1$ to 10ms, no voltage reapplied

Electrical Specifications

Parameters	85EPS..	Units	Conditions
V_{FM} Max. Forward Voltage Drop	1.15	V	@ 85A, $T_J = 25^\circ\text{C}$
r_t Forward slope resistance	3.17	$m\Omega$	$T_J = 150^\circ\text{C}$
$V_{F(TO)}$ Threshold voltage	0.86	V	
I_{RM} Max. Reverse Leakage Current	0.1	mA	$T_J = 25^\circ\text{C}$
	3.0		$T_J = 150^\circ\text{C}$

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

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	<i>PowIRtab</i> TM		

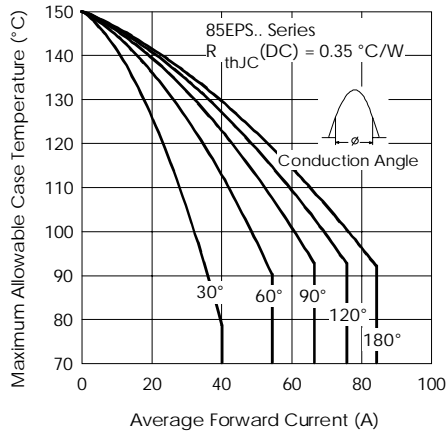


Fig. 1 - Current Rating Characteristics

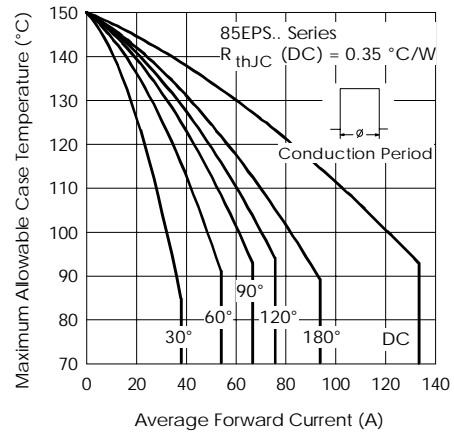


Fig. 2 - Current Rating Characteristics

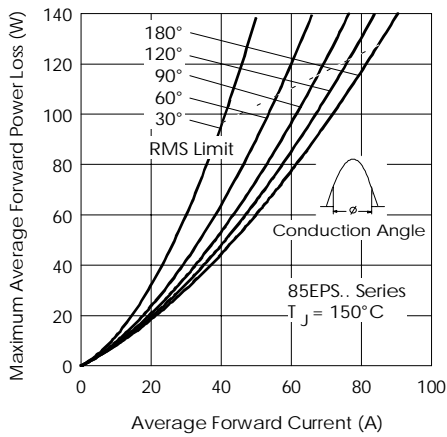


Fig. 3 - Forward Power Loss Characteristics

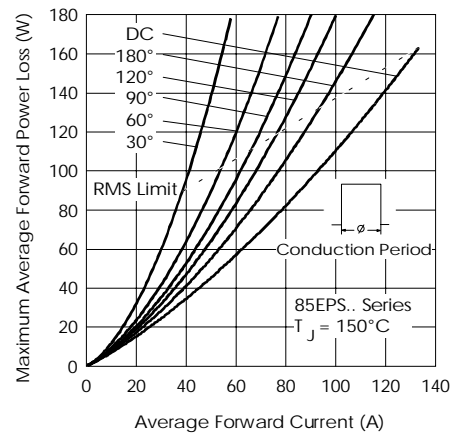


Fig. 4 - Forward Power Loss Characteristics

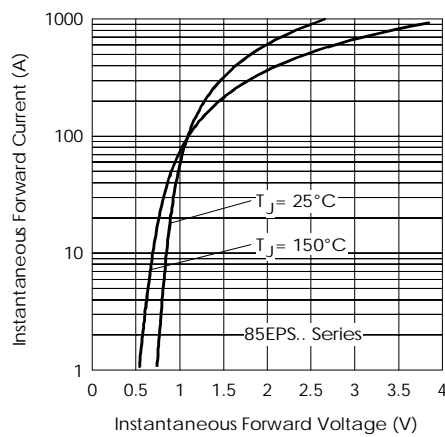


Fig. 5 - Forward Voltage Drop Characteristics

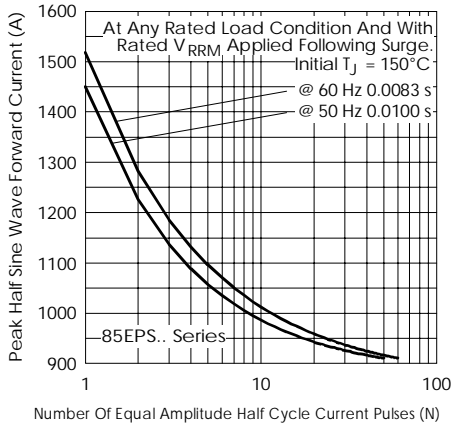


Fig.6-Maximum Non-Repetitive Surge Current

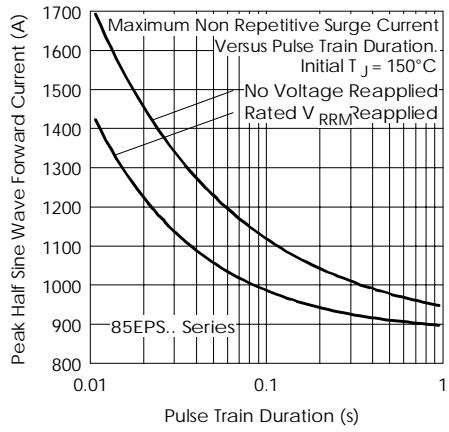


Fig.7-Maximum Non-Repetitive Surge Current

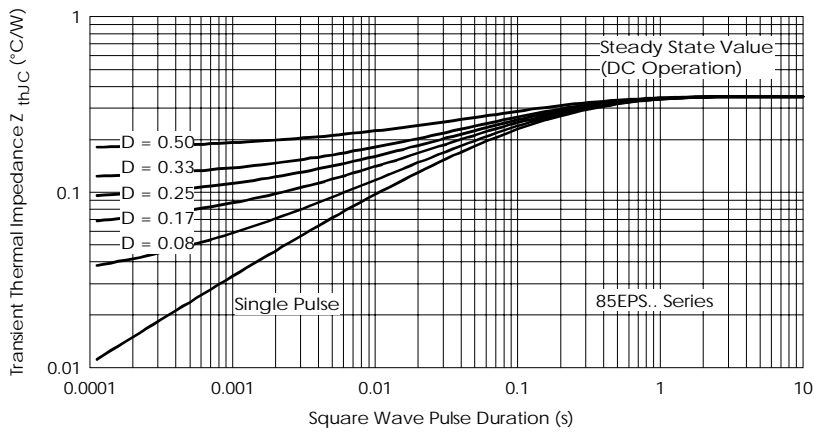
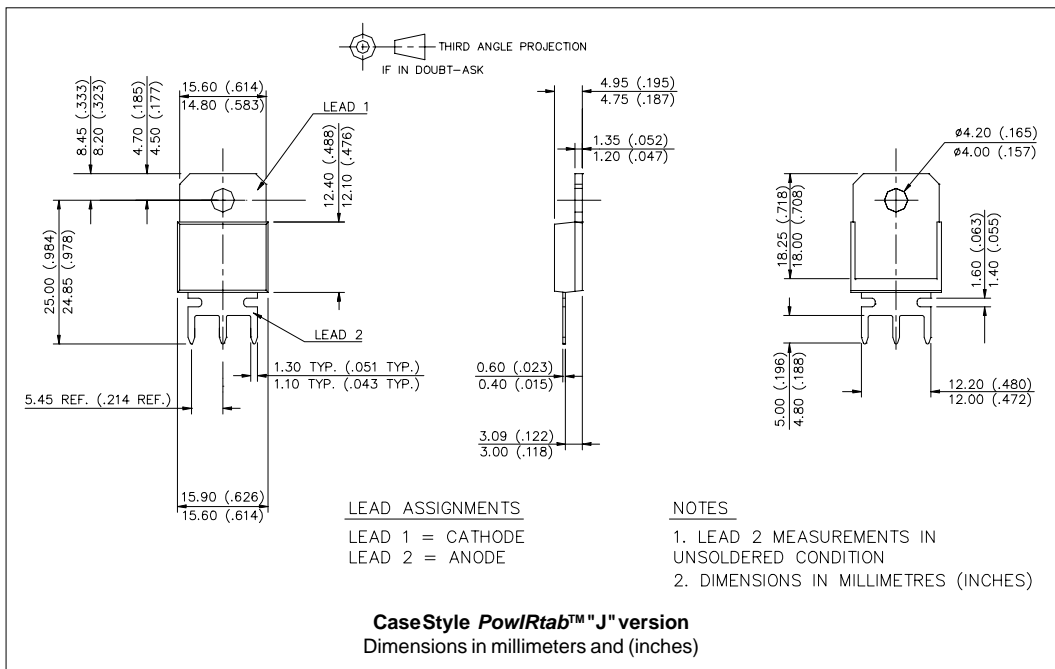
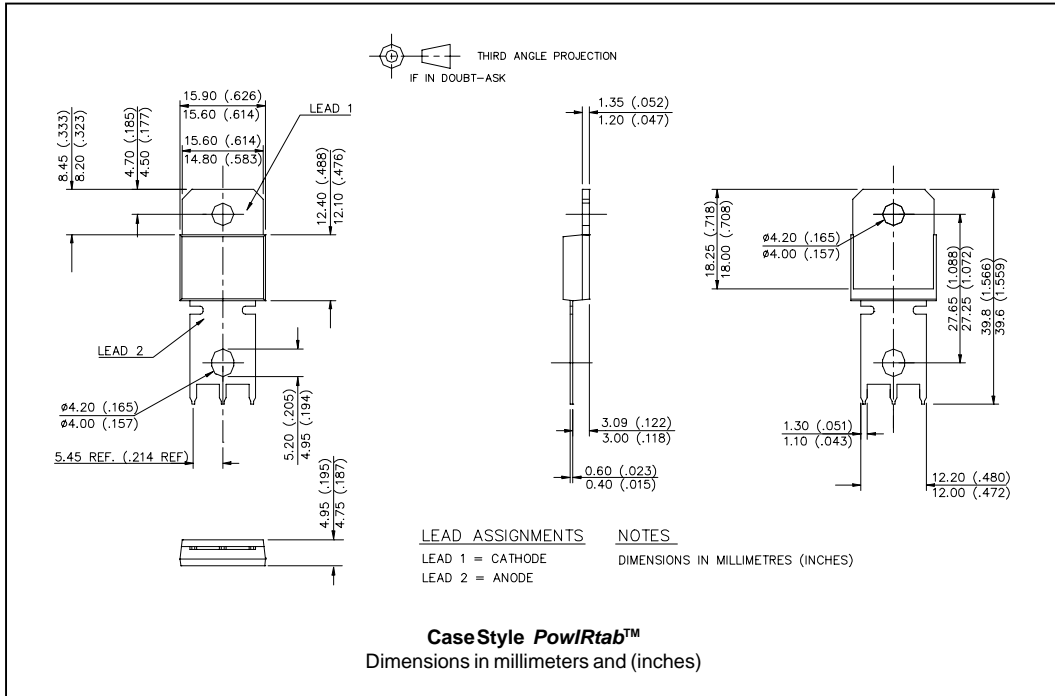


Fig.8-Thermal Impedance Z_{thJC} Characteristics

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 = <i>PowIRtab</i> TM				
4	- Type of Silicon: S = Standard Recovery Rectifier				
5	- Voltage code: Code x 100 = $V_{RRM}^{(*)}$				
6	- none= <i>PowIRtab</i> TM standard J = Short Lead Version				

Base Cathode

2

1 3

Anode Anode

08 = 800V
12 = 1200V

(*) 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.