Bulletin I2185 12/04

International
IOR Rectifier

SAFEIR Series
60EPS16PbF

INPUT RECTIFIER DIODE
Lead-Free ("PbF" suffix)

V_F < 1V @ 30A
I_{FSM} = 950A
V_{RRM} = 1600V

Major Ratings and Characteristics

Characteristics	Values	Units
$I_{F(AV)}$ Sinusoidal waveform	60	A
V_{RRM}	1600	V
I_{FSM}	950	A
V_F @30A, T_J = 25°C	1.0	V
T_J	-40 to 150	°C

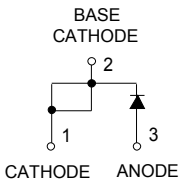
Description/ Features

The 60EPS16PbF 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.

Case Styles

60EPS16PbF

TO-247AC



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
60EPS16	1600	1700	1

Absolute Maximum Ratings

Parameters		60EPS..	Units	Conditions
$I_{F(AV)}$	Max. Average Forward Current	60	A	@ T_C = 118° C, 180° conduction half sine wave
I_{FSM}	Max. Peak One Cycle Non-Repetitive Surge Current	950	A	10ms Sine pulse, rated V_{RRM} applied
		1100		10ms Sine pulse, no voltage reapplied
I^2t	Max. I^2t for fusing	4512	A^2s	10ms Sine pulse, rated V_{RRM} applied
		6300		10ms Sine pulse, no voltage reapplied
$I^2\sqrt{t}$	Max. $I^2\sqrt{t}$ for fusing	63000	$A^2\sqrt{s}$	t = 0.1 to 10ms, no voltage reapplied

Electrical Specifications

Parameters		60EPS..	Units	Conditions	
V_{FM}	Max. Forward Voltage Drop	1.07	V	@ 60A, T_J = 25°C	
r_t	Forward slope resistance	3.96	mΩ	T_J = 150°C	
$V_{F(TO)}$	Threshold voltage	0.74	V		
I_{RM}	Max. Reverse Leakage Current	0.1	mA	T_J = 25 °C	V_R = rated V_{RRM}
		1.0		T_J = 150 °C	

Thermal-Mechanical Specifications

Parameters			60EPS..	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		TO-247AC		JEDEC (Modified)
	Marking Device		60EPS16		

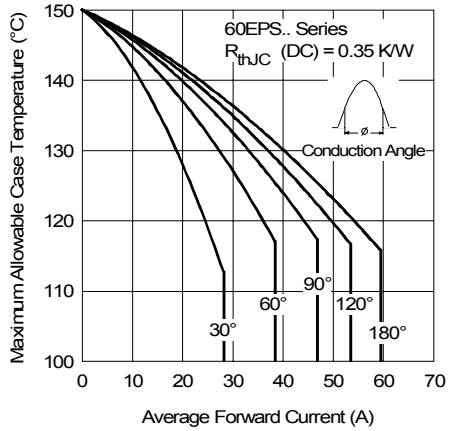


Fig. 1 - Current Rating Characteristics

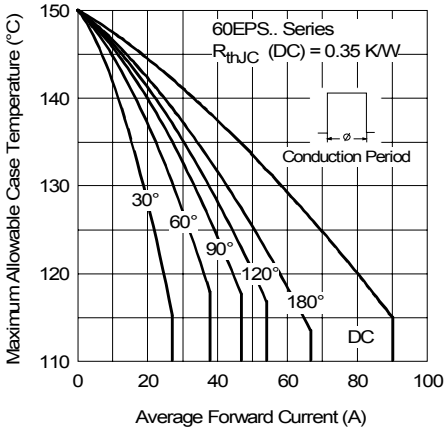


Fig. 2 - Current Rating Characteristics

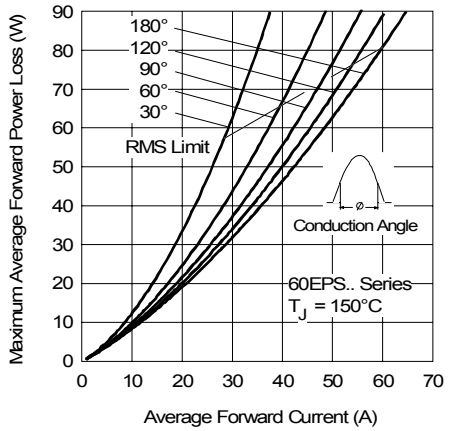


Fig. 3 - Forward Power Loss Characteristics

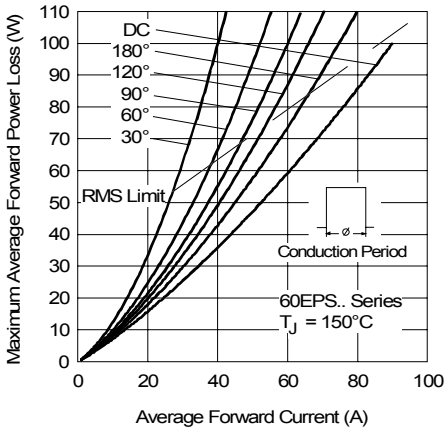


Fig. 4 - Forward Power Loss Characteristics

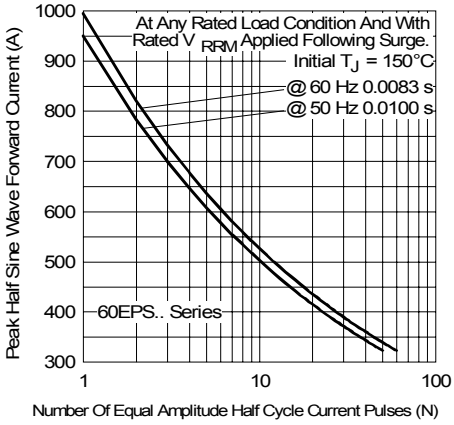


Fig. 5 - Maximum Non-Repetitive Surge Current

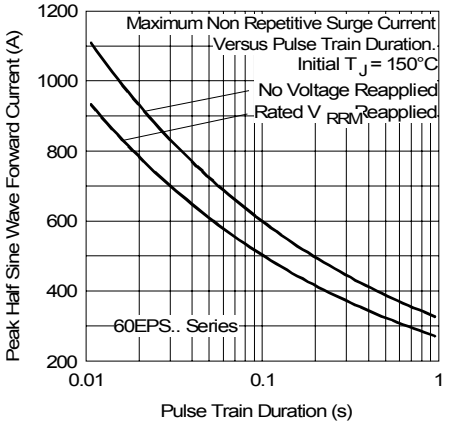


Fig. 6 - Maximum Non-Repetitive Surge Current

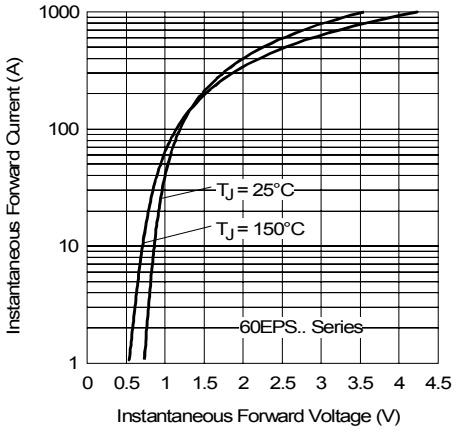


Fig. 7 - Forward Voltage Drop Characteristics

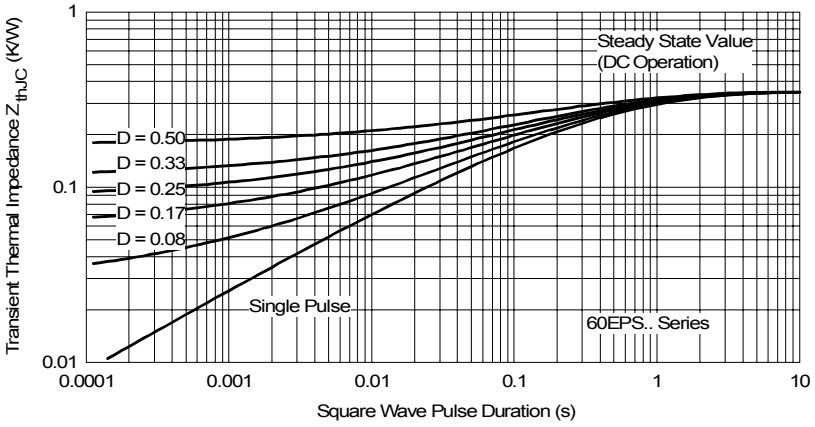
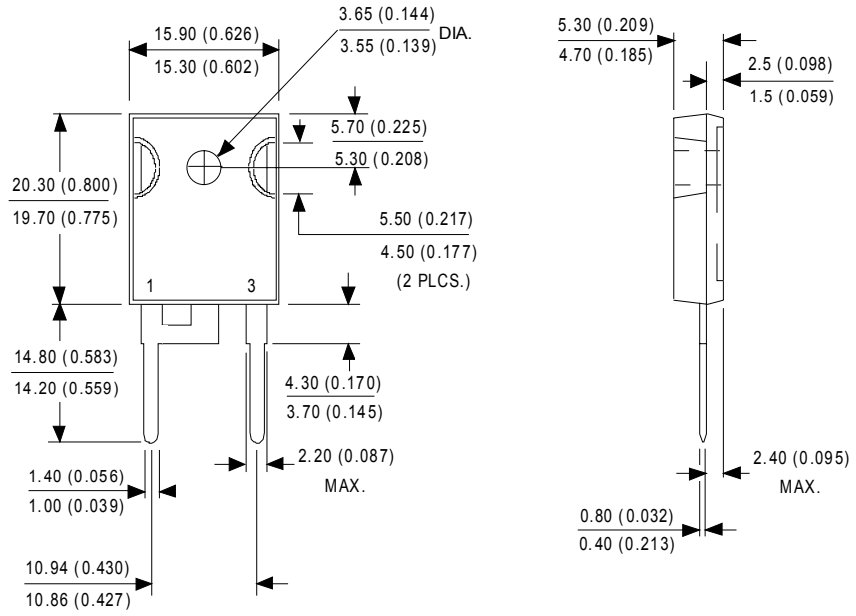


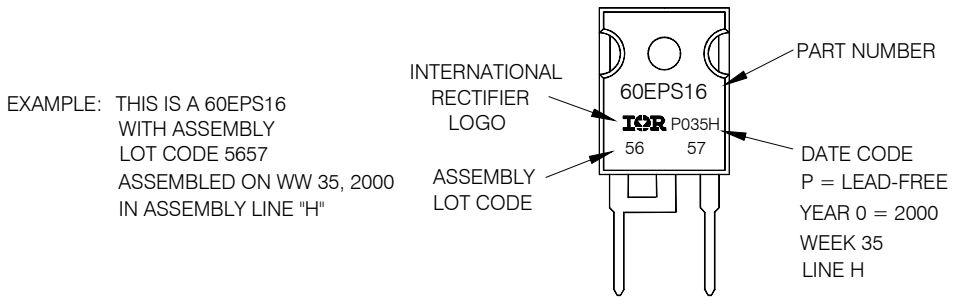
Fig. 8 - Thermal Impedance Z_{thJC} Characteristics

Outline Table



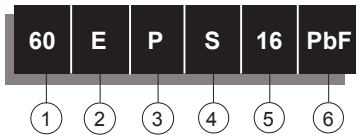
Dimensions in millimeters and inches

Marking Information



Ordering Information Table

Device Code



1	-	Current Rating (60 = 60A)
2	-	Circuit Configuration: E = Single Diode
3	-	Package: P = TO-247AC (Modified)
4	-	Type of Silicon: S = Standard Recovery Rectifier
5	-	Voltage rating (16 = 1600V)
6	-	• none = Standard Production • PbF = Lead-Free

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

International
IOR Rectifier

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12/04

Notice

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