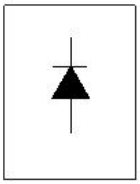
Bulletin I2122 rev. A 07/97

International
IOR Rectifier

SAFEIR Series
60EPS..

INPUT RECTIFIER DIODE



V_F < 1V @ 30A
I_{FSM} = 950A
V_{RRM} 800 to 1600V

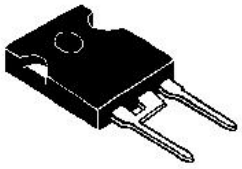
Description/Features

The 60EPS.. 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.

Major Ratings and Characteristics

Characteristics	60EPS..	Units
$I_{F(AV)}$ Sinusoidal waveform	60	A
V_{RRM}	800to 1600	V
I_{FSM}	950	A
V_F @30A, T_J = 25°C	1.0	V
T_J	-40to150	°C

Package Outline



TO-247AC (Modified)

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
60EPS08	800	900	1
60EPS12	1200	1300	
60EPS16	1600	1700	

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 Sinepulse, rated V_{RRM} applied
	6300		10ms Sinepulse, 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	
VF(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		TJ = 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)

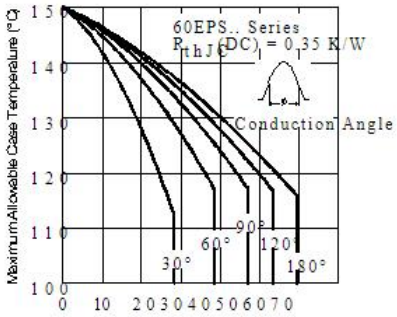


Fig. 1 - Current Rating Characteristics

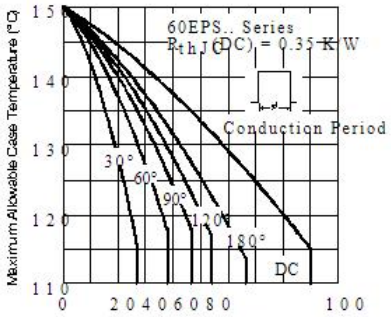


Fig. 2 - Current Rating Characteristics

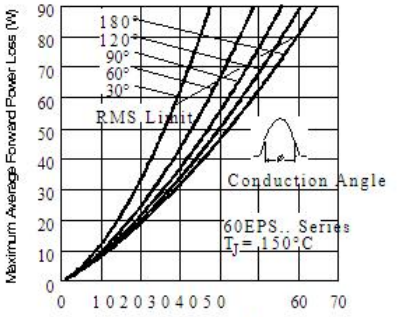


Fig. 3 - Forward Power Loss Characteristics

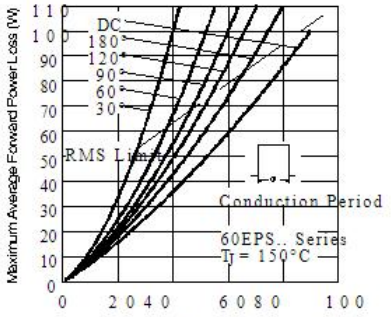


Fig. 4 - Forward Power Loss Characteristics

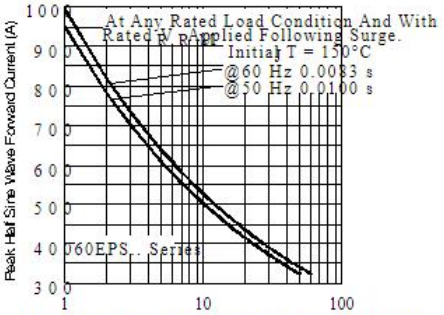


Fig. 5 - Maximum Non-Repetitive Surge Current

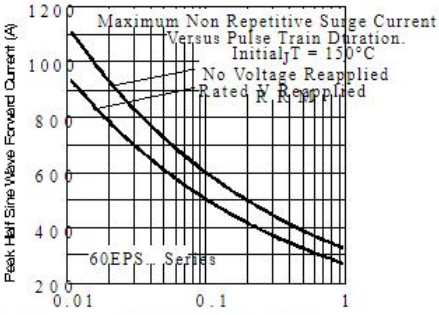


Fig. 6 - Maximum Non-Repetitive Surge Current

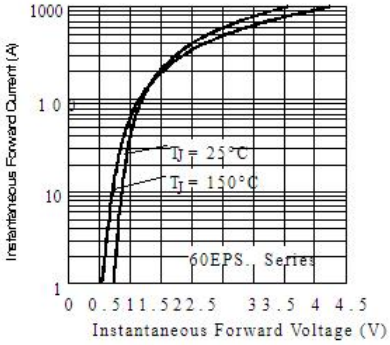


Fig. 7 - Forward Voltage Drop Characteristics

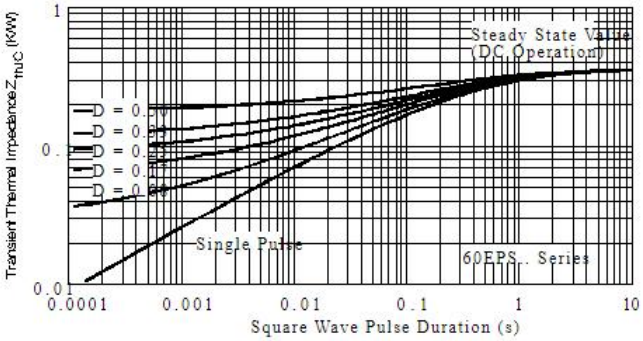
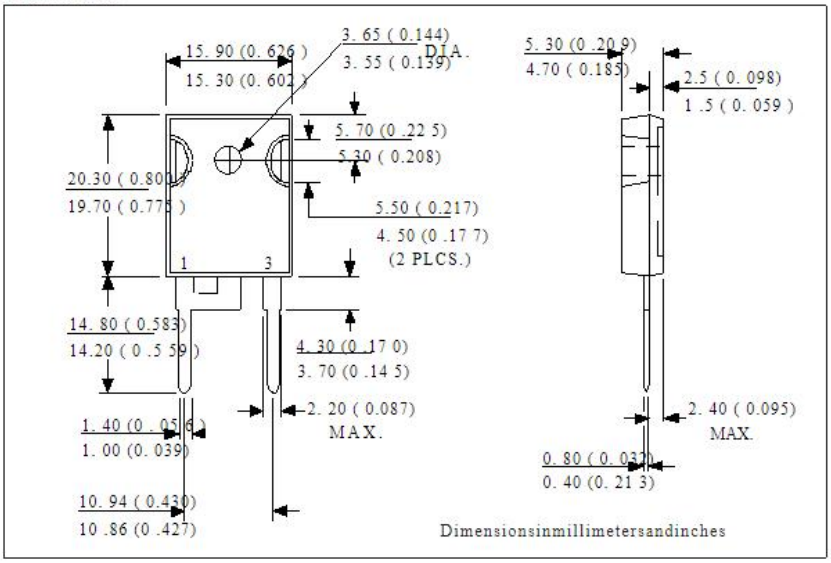


Fig.8-ThermalImpedance Z_{thJC} Characteristics

Outline Table



Ordering Information Table