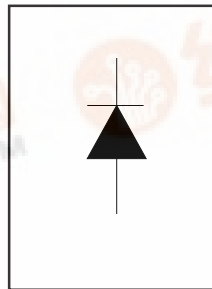


# International **IOR** Rectifier

## SAFEIR Series 60EPS...PbF

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



$$V_F < 1V @ 30A$$

$$I_{FSM} = 950A$$

$$V_{RRM} = 800 \text{ to } 1200V$$

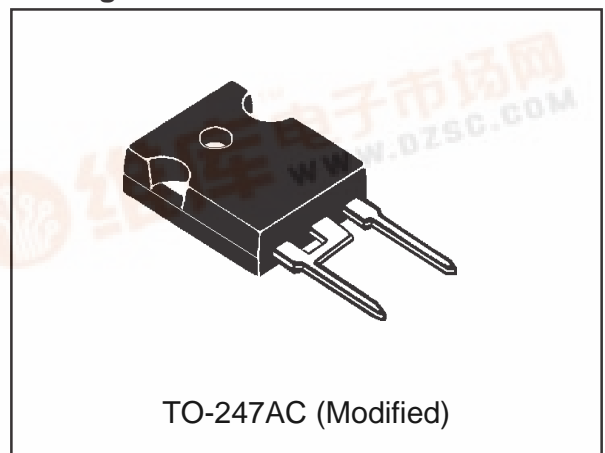
### Description/ Features

The 60EPS...PbF 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	Values	Units
$I_{F(AV)}$ Sinusoidal waveform	60	A
$V_{RRM}$	800-1200	V
$I_{FSM}$	950	A
$V_F$ @ 30A, $T_J = 25^\circ C$	1.0	V
$T_J$	-40 to 150	°C

### Package Outline



## 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
60EPS10PbF	1000	1100	1
60EPS12PbF	1200	1300	1

## Absolute Maximum Ratings

Parameters	60EPS..	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current	60	A	@ $T_C = 118^\circ\text{C}$ , 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	1.09	V	@ 60A, $T_J = 25^\circ\text{C}$
$r_t$ Forward slope resistance	3.96	mΩ	$T_J = 150^\circ\text{C}$
$V_{F(TO)}$ Threshold voltage	0.74	V	
$I_{RM}$ Max. Reverse Leakage Current	0.1	mA	$T_J = 25^\circ\text{C}$
	1.0		$T_J = 150^\circ\text{C}$
$V_R = \text{rated } V_{RRM}$			

## 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)

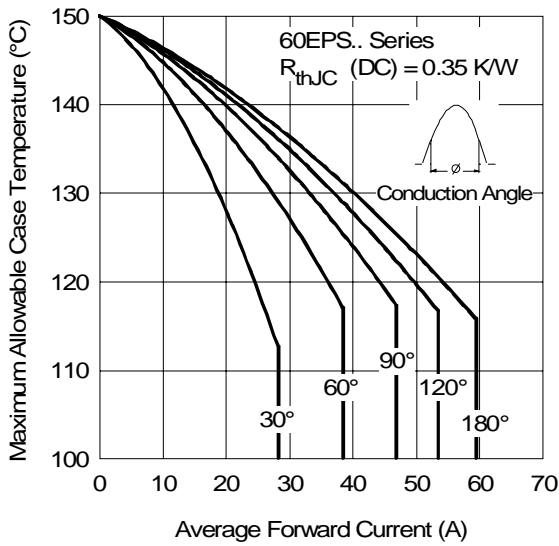


Fig. 1 - Current Rating Characteristics

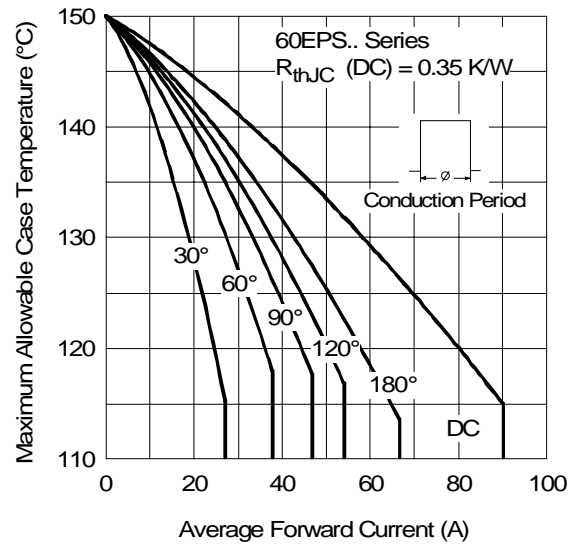


Fig. 2 - Current Rating Characteristics

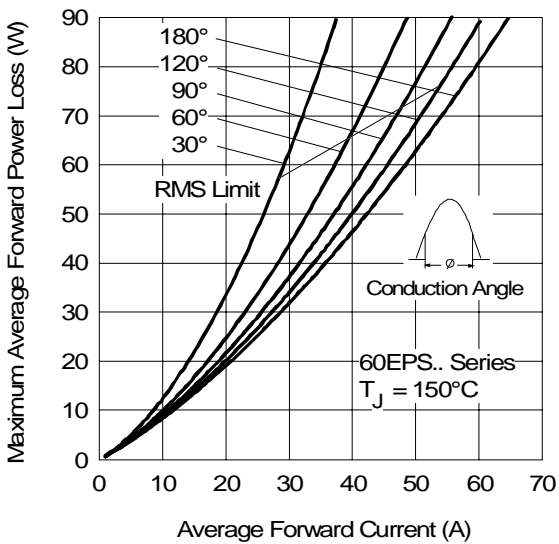


Fig. 3 - Forward Power Loss Characteristics

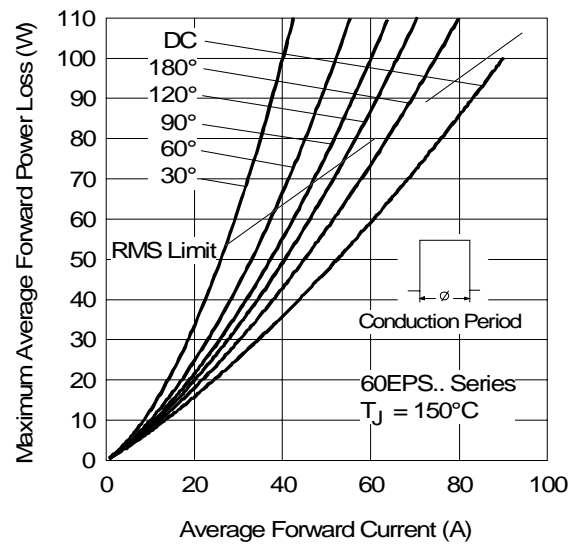


Fig. 4 - Forward Power Loss Characteristics

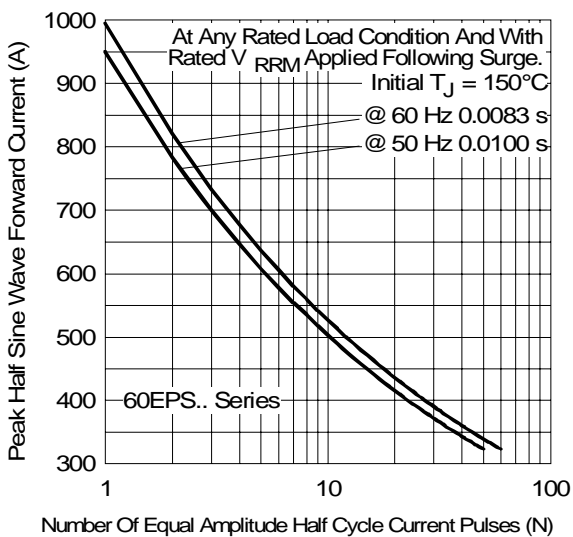


Fig. 5 - Maximum Non-Repetitive Surge Current

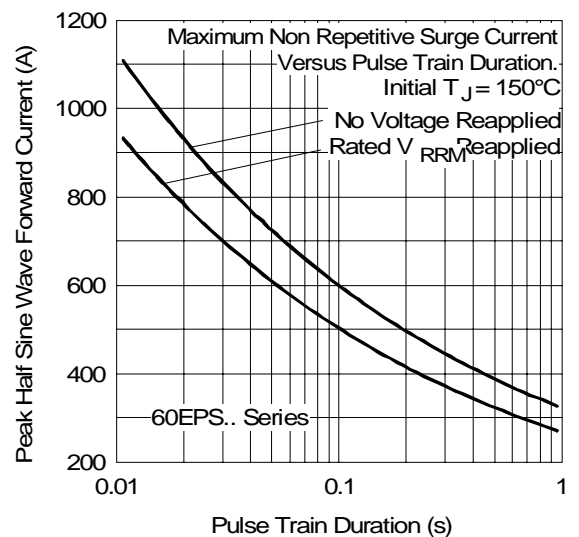


Fig. 6 - Maximum Non-Repetitive Surge Current

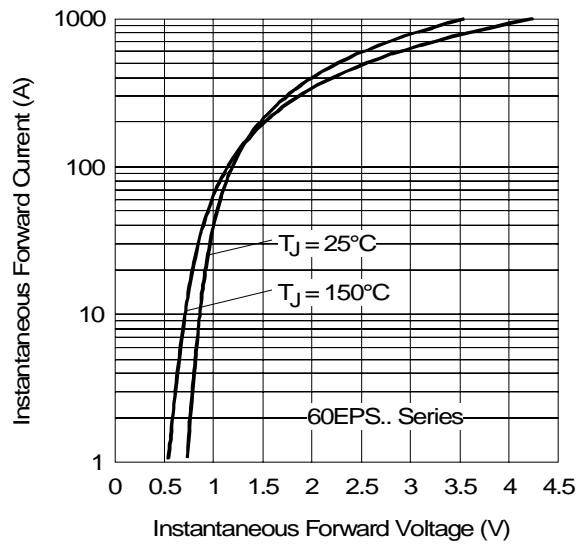


Fig. 7 - Forward Voltage Drop Characteristics

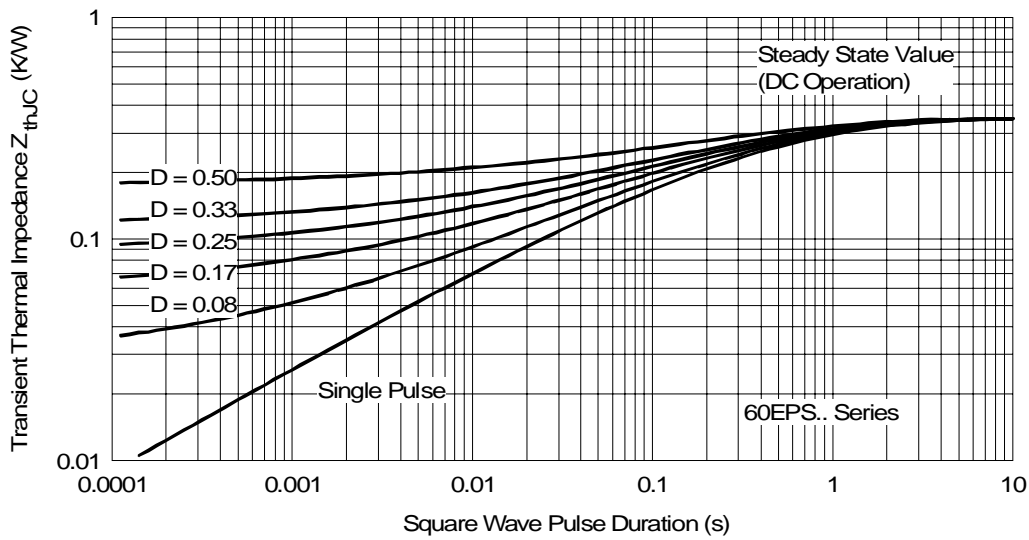
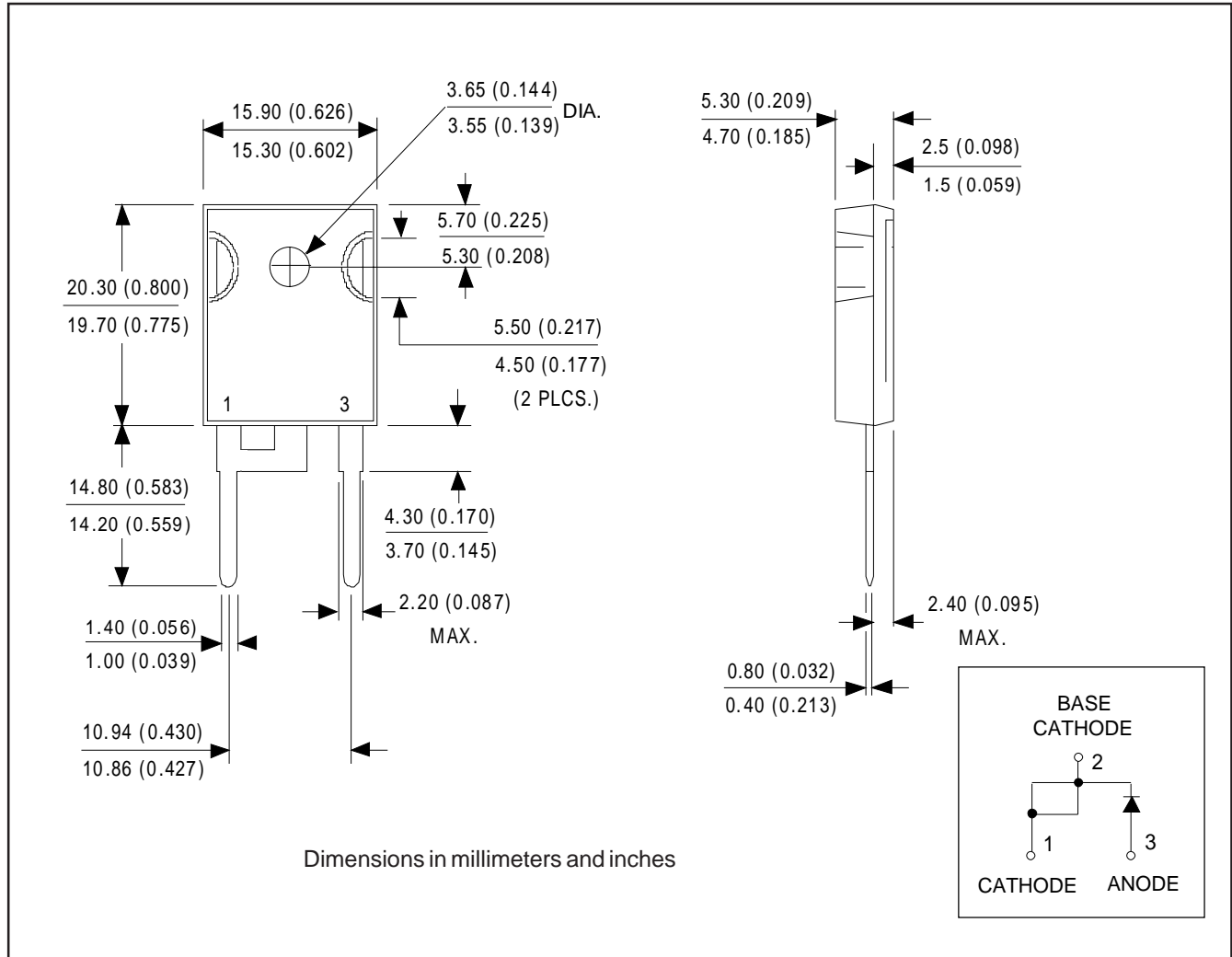
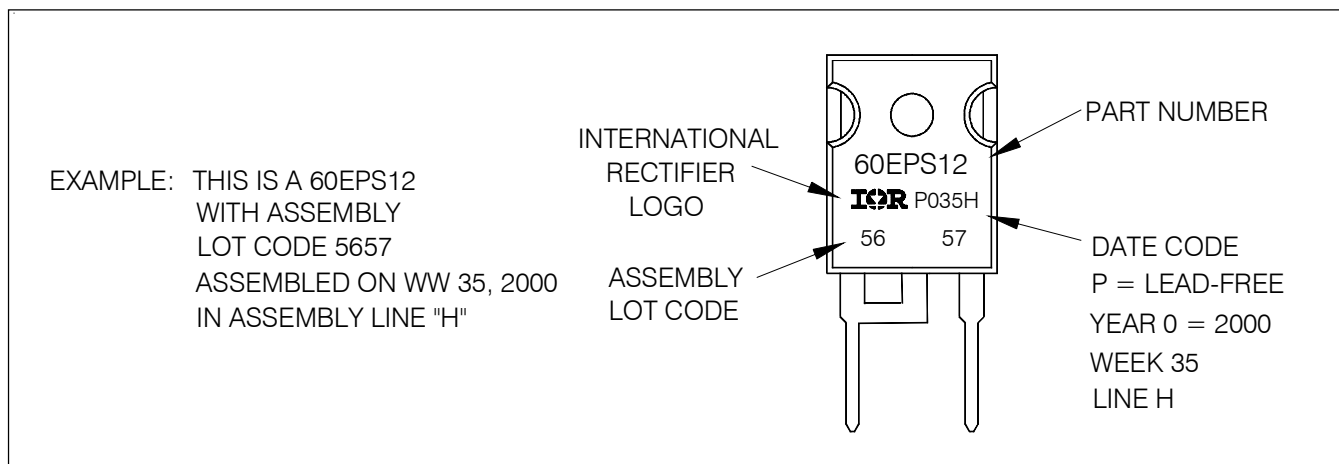


Fig. 8 - Thermal Impedance  $Z_{thJC}$  Characteristics

Outline Table



Marking Information



Ordering Information Table

Device Code						
<b>60</b>	<b>E</b>	<b>P</b>	<b>S</b>	<b>12</b>	<b>PbF</b>	
①	②	③	④	⑤	⑥	
<b>1</b>	-	Current Rating (60 = 60A)				
<b>2</b>	-	Circuit Configuration: E = Single Diode				
<b>3</b>	-	Package: P = TO-247AC (Modified)				
<b>4</b>	-	Type of Silicon: S = Standard Recovery Rectifier				
<b>5</b>	-	Voltage Code X 100 = VRRM			10 = 1000V 12 = 1200V	
<b>6</b>	-	<ul style="list-style-type: none"> <li>• none = Standard Production</li> <li>• PbF = Lead-Free</li> </ul>				

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.