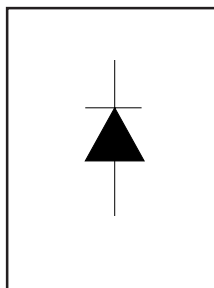


International
IR Rectifier

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

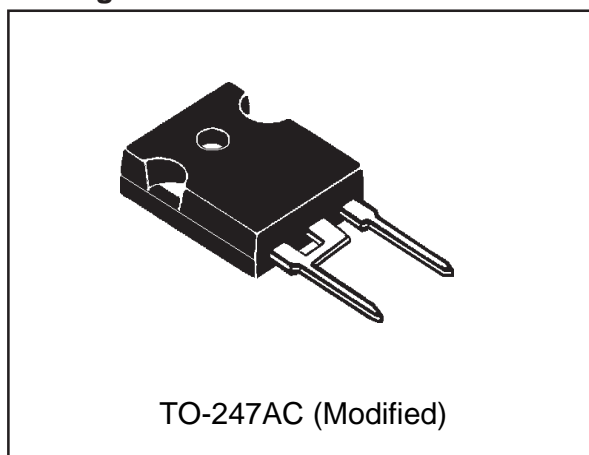
The 60EPS...PbF rectifier **SAFEIR** series has been optimized for very low forward voltage drop, with moderate leakage. The glass passivation technology used has reliable operation up to 150° C junction temperature.

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)

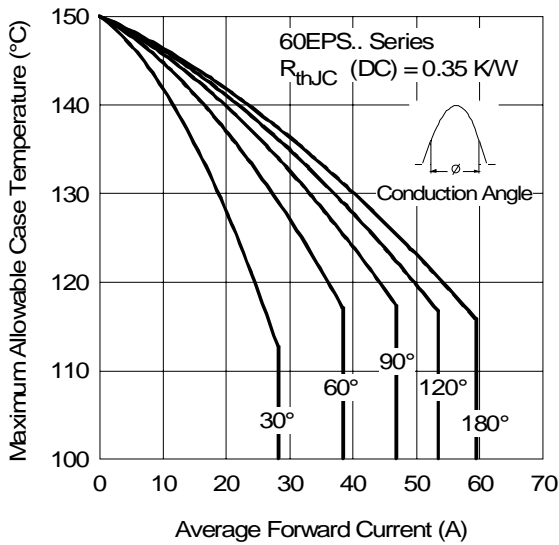


Fig. 1 - Current Rating Characteristics

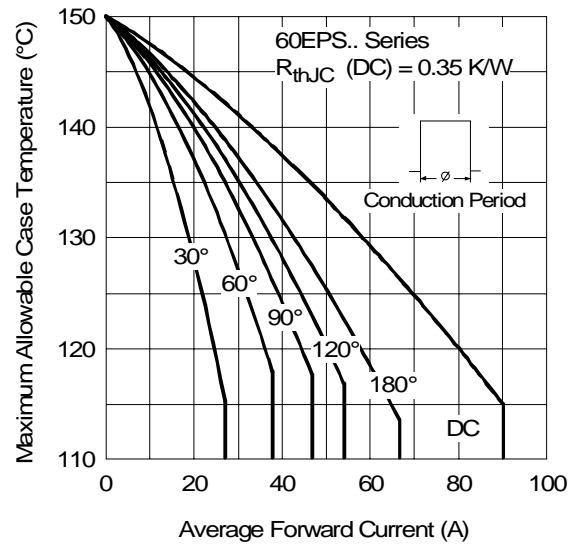


Fig. 2 - Current Rating Characteristics

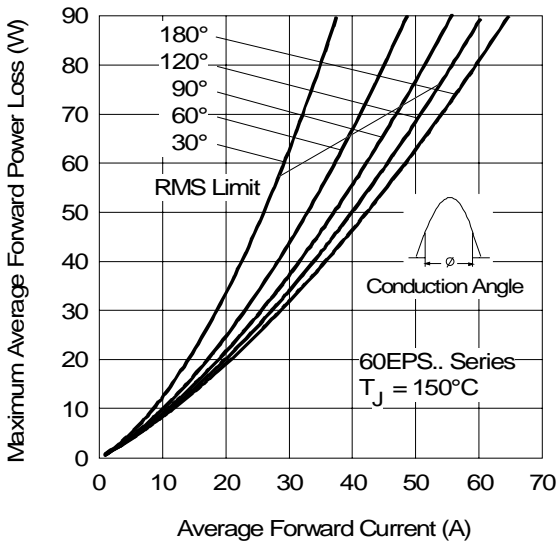


Fig. 3 - Forward Power Loss Characteristics

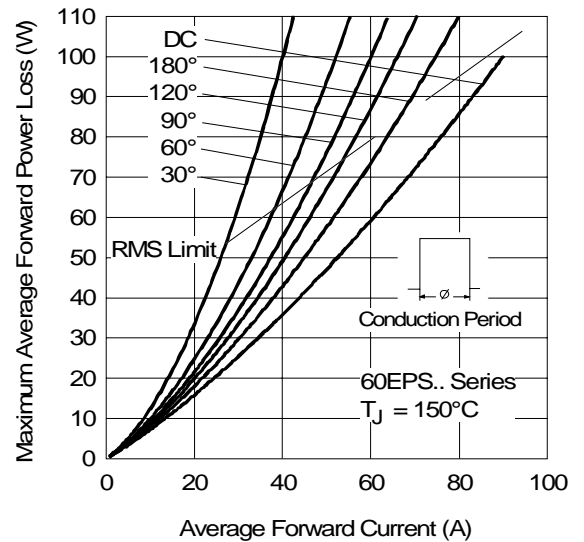


Fig. 4 - Forward Power Loss Characteristics

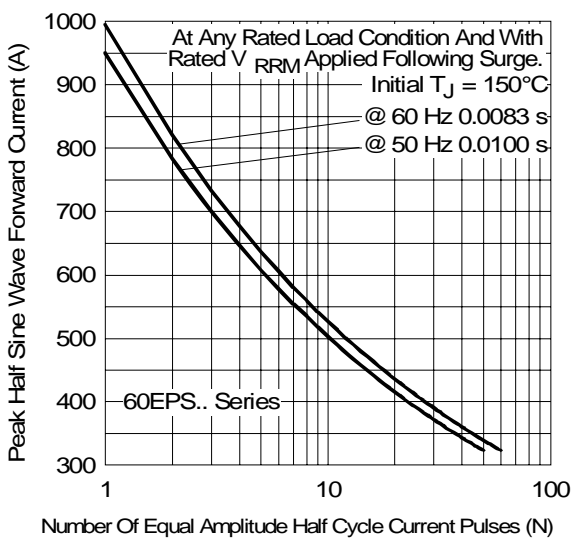


Fig. 5 - Maximum Non-Repetitive Surge Current

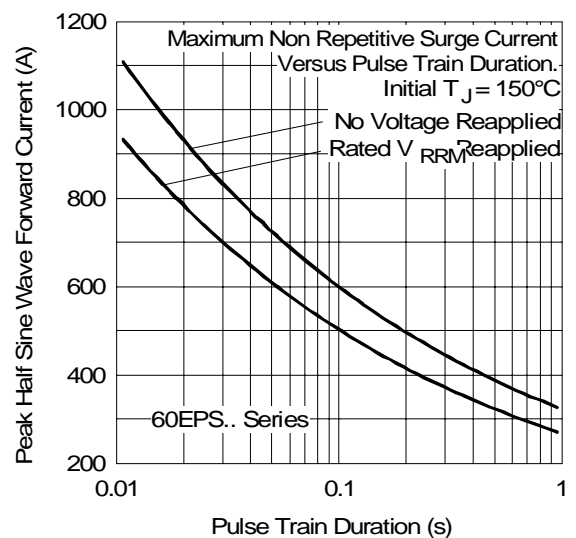


Fig. 6 - Maximum Non-Repetitive Surge Current

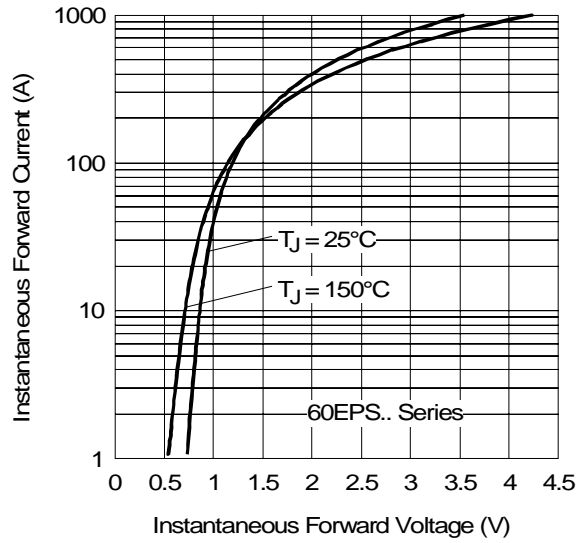


Fig. 7 - Forward Voltage Drop Characteristics

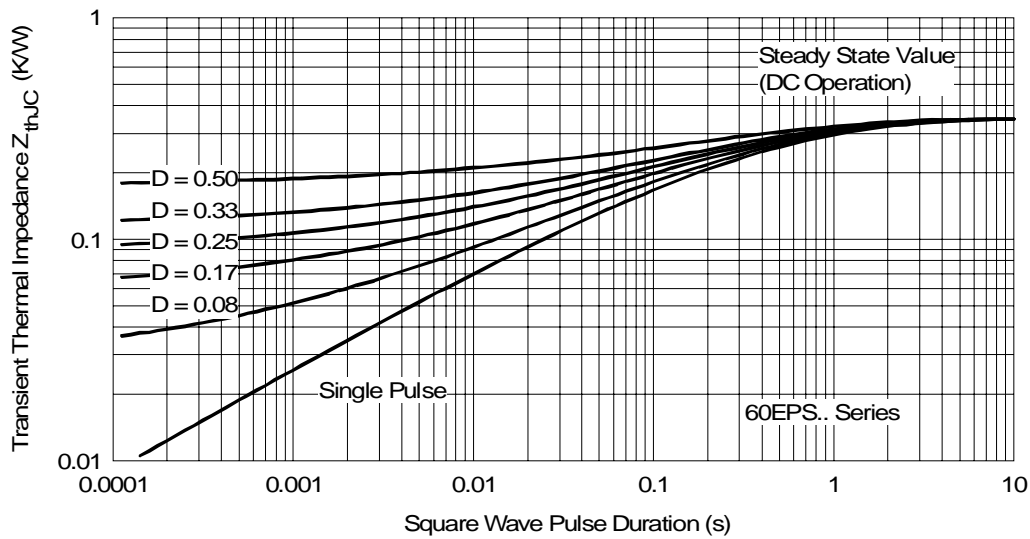
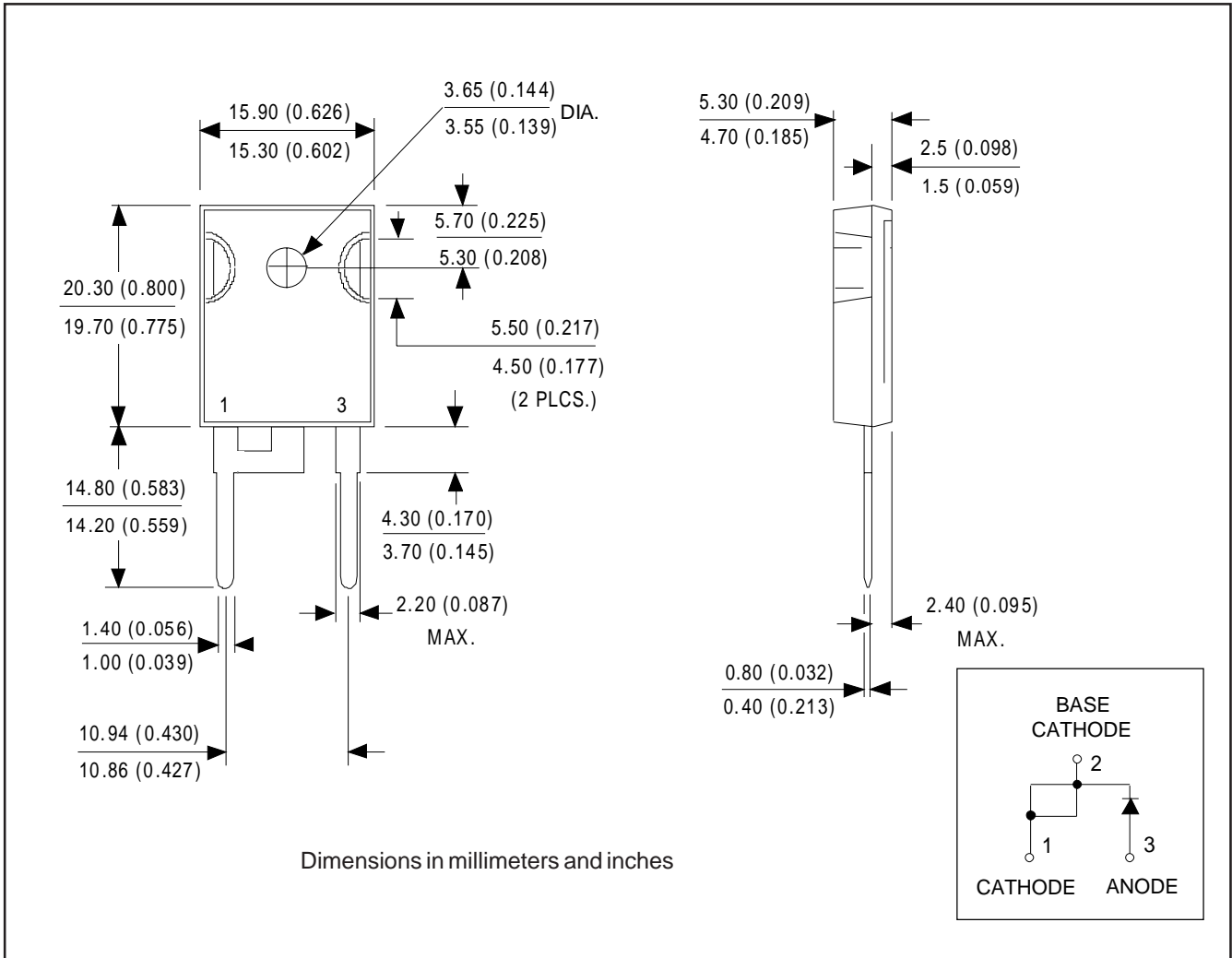
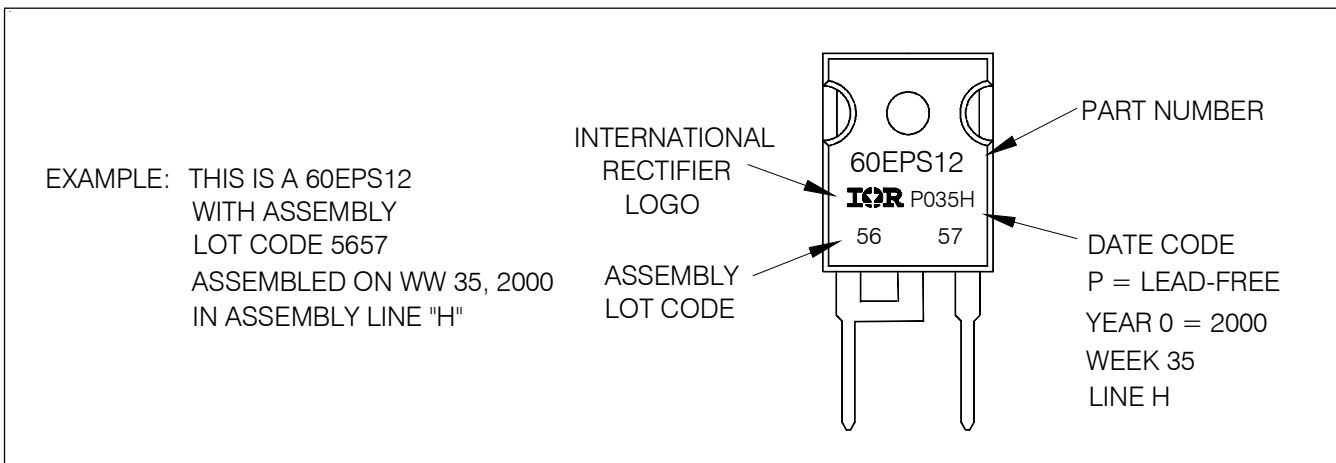


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics

Outline Table



Marking Information



Ordering Information Table

Device Code					
60	E	P	S	12	PbF
①	②	③	④	⑤	⑥
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 Code X 100 = VRRM			
6	-	• none = Standard Production • PbF = Lead-Free			

10 = 1000V
12 = 1200V

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.