


**INPUT RECTIFIER DIODE**

	$V_F < 1.1V @ 40A$ $I_{FSM} = 475A$ $V_{RRM} = 800 - 1200V$
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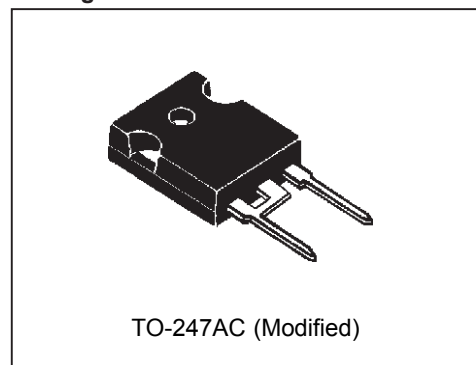
**Description/Features**

The 40EPS.. 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	40	A
$V_{RRM}$ Range (*)	800- 1200	V
$I_{FSM}$	475	A
$V_F$ @40A, $T_J=25^\circ C$	1.1	V
$T_J$	-40 to 150	°C

**Package Outline**



(\*) 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
40EPS08	800	900	1
40EPS12	1200	1300	

## Absolute Maximum Ratings

Parameters	40EPS..	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current	40	A	@ $T_C = 105^\circ\text{C}$ , 180° conduction half sine wave
$I_{FSM}$ Max. Peak One Cycle Non-Repetitive Surge Current	400	A	10ms Sine pulse, rated $V_{RRM}$ applied
	475		10ms Sine pulse, no voltage reapplied
$I^2t$ Max. $I^2t$ for fusing	800	$A^2s$	10ms Sine pulse, rated $V_{RRM}$ applied
	1131		10ms Sine pulse, no voltage reapplied
$I^2\sqrt{t}$ Max. $I^2\sqrt{t}$ for fusing	11310	$A^2\sqrt{s}$	$t = 0.1$ to 10ms, no voltage reapplied

## Electrical Specifications

Parameters	40EPS..	Units	Conditions
$V_{FM}$ Max. Forward Voltage Drop	1.1	V	@ 40A, $T_J = 25^\circ\text{C}$
$r_t$ Forward slope resistance	7.16	$m\Omega$	$T_J = 150^\circ\text{C}$
$V_{F(TO)}$ 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	40EPS..	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	0.6	$^\circ\text{C/W}$	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)	$\text{Kg-cm}$ $(\text{lbf-in})$
	Max.	12(10)	
Case Style	TO-247AC		JEDEC (Modified)

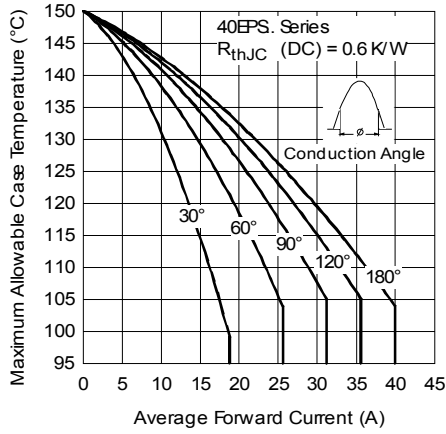


Fig. 1 - Current Rating Characteristics

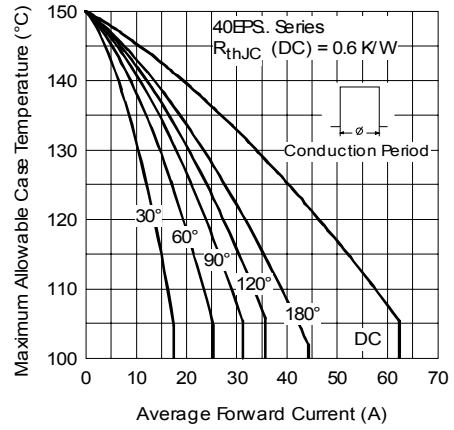


Fig. 2 - Current Rating Characteristics

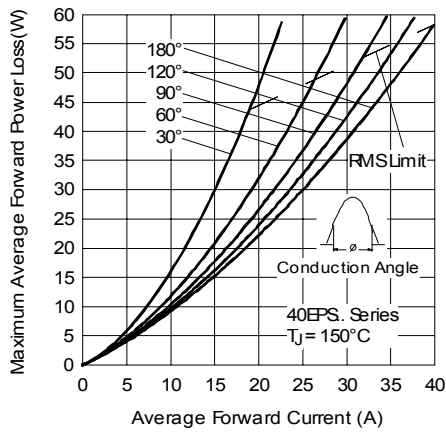


Fig. 3 - Forward Power Loss Characteristics

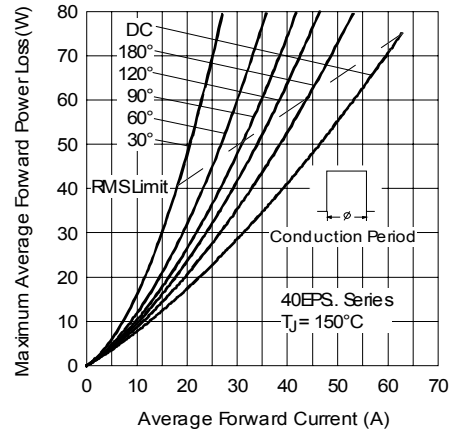


Fig. 4 - Forward Power Loss Characteristics

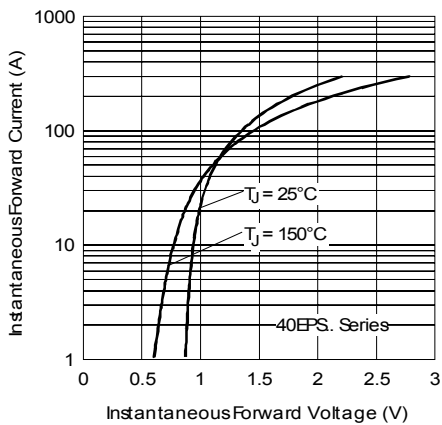


Fig. 5 - Forward Voltage Drop Characteristics

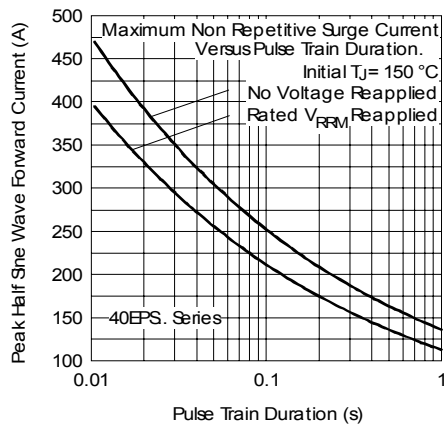


Fig. 6 - Maximum Non-Repetitive Surge Current

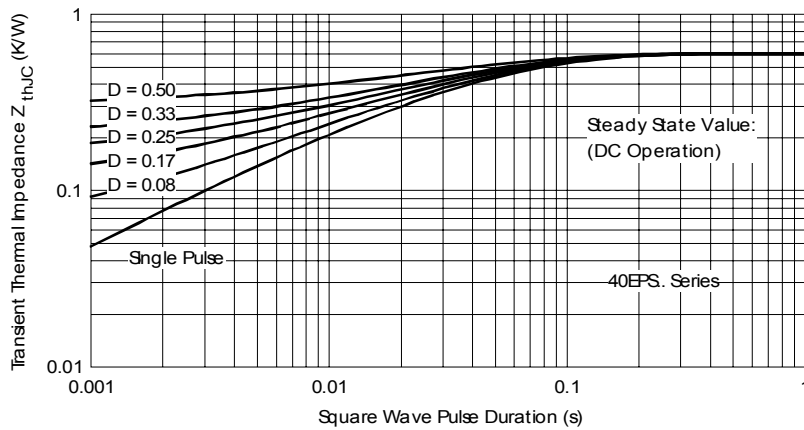
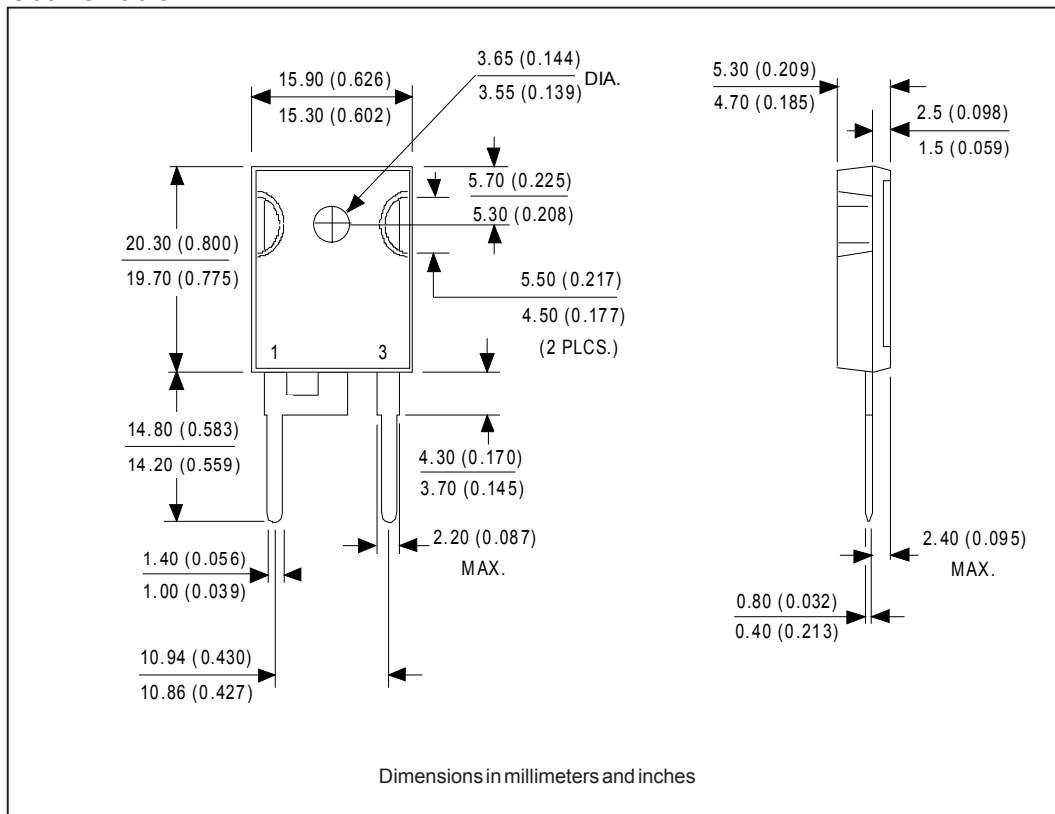


Fig. 7 - Thermal Impedance  $Z_{thJC}$  Characteristics

Outline Table



Marking Information

EXAMPLE: THIS IS A 40EPS12  
 WITH ASSEMBLY  
 LOT CODE 5657  
 ASSEMBLED ON WW 35, 2000  
 IN THE ASSEMBLY LINE "H"

INTERNATIONAL RECTIFIER LOGO  
 ASSEMBLY LOT CODE  
 PART NUMBER  
 DATE CODE  
 YEAR 0 = 2000  
 WEEK 35  
 LINE H

Ordering Information Table

**Device Code**

40	E	P	S	12
①	②	③	④	⑤

- 1** - Current Rating (40 = 40A)
- 2** - Circuit Configuration  
E = Single Diode
- 3** - Package  
P = TO-247AC (Modified)
- 4** - Type of Silicon  
S = Standard Recovery Rectifier
- 5** - Voltage code: Code x 100 =  $V_{RRM}$

08 = 800V  
 12 = 1200V

BASE  
 CATHODE  
 ANODE

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.



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