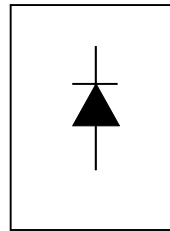


International  
**IR** Rectifier

**SAFEIR** Series  
 40EPS16

## INPUT RECTIFIER DIODE



$$V_F < 1V @ 20A$$

$$I_{FSM} = 475A$$

$$V_{RRM} = 1600V$$

### Description/Features

The 40EPS16 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.

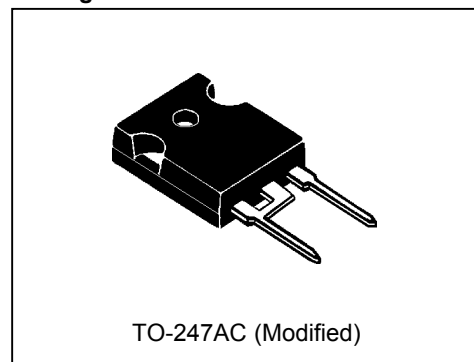
Typical applications are in input rectification and these products are designed to be used with International Rectifier Switches and Output Rectifiers which are available in identical package outlines.

### Major Ratings and Characteristics

Characteristics	40EPS..	Units
$I_{F(AV)}$ Sinusoidal waveform	40	A
$V_{RRM}$ Range(*)	1600	V
$I_{FSM}$	475	A
$V_F$ @20A, $T_J=25^\circ C$	1.0	V
$T_J$	-40 to 150	°C

(\*) Contact Factory

### 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
40EPS16	1600	1700	1

## Absolute Maximum Ratings

Parameters	40EPS16	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	40EPS16	Units	Conditions
$V_{FM}$ Max. Forward Voltage Drop	1.14	V	@ 40A, $T_J = 25^\circ\text{C}$
$r_t$ Forward slope resistance	7.6	$m\Omega$	$T_J = 150^\circ\text{C}$
$V_{F(TO)}$ Threshold voltage	0.72	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	40EPS16	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)	Kg-cm (lbf-in)
	Max.	12 (10)	
Case Style	TO-247AC		JEDEC (Modified)

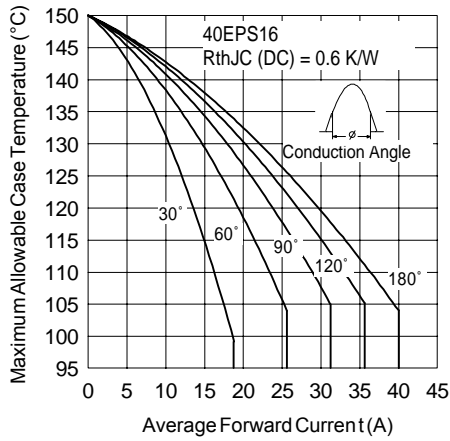


Fig. 1 - Current Rating Characteristics

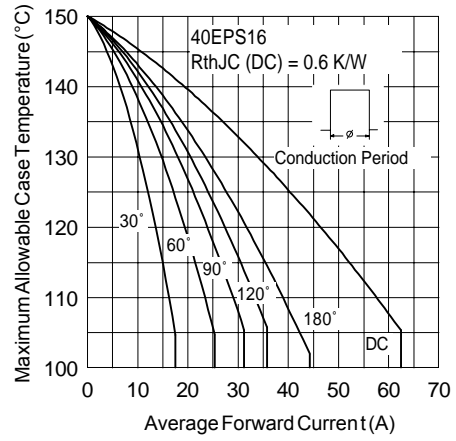


Fig. 2 - Current Rating Characteristics

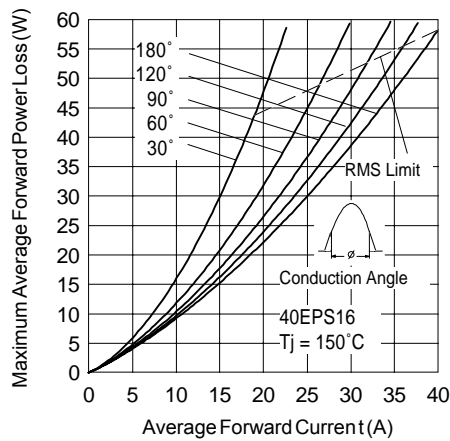


Fig. 3 - Forward Power Loss Characteristics

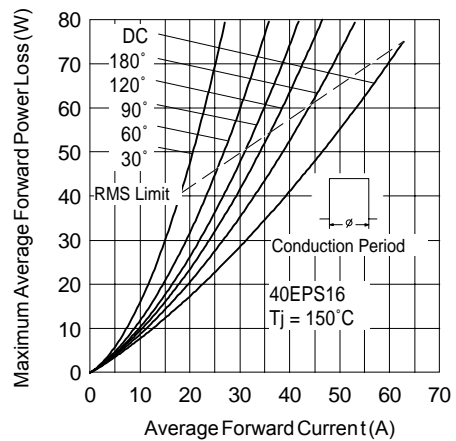


Fig. 4 - Forward Power Loss Characteristics

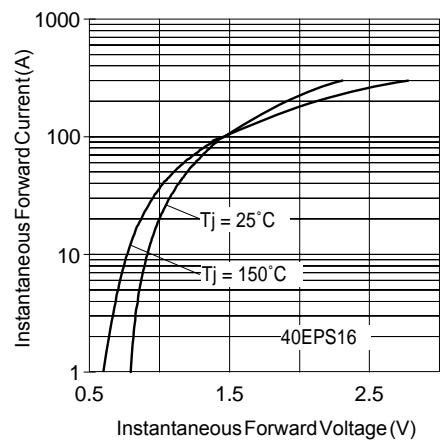


Fig. 5 - Forward Voltage Drop Characteristics

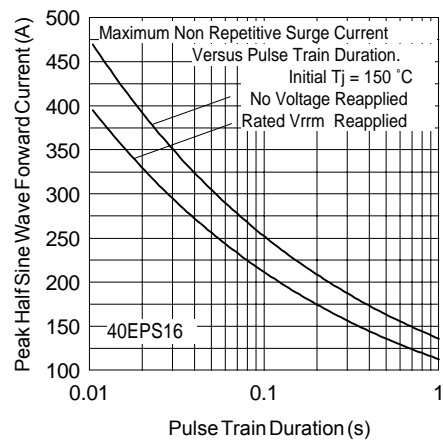


Fig. 6 - Maximum Non-Repetitive Surge Current

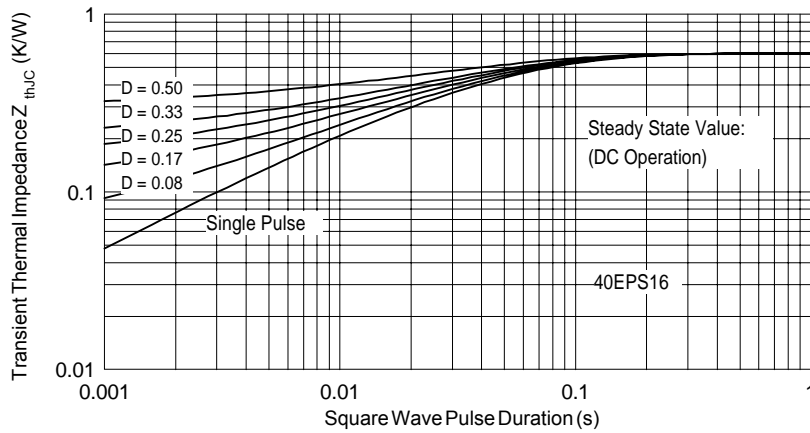
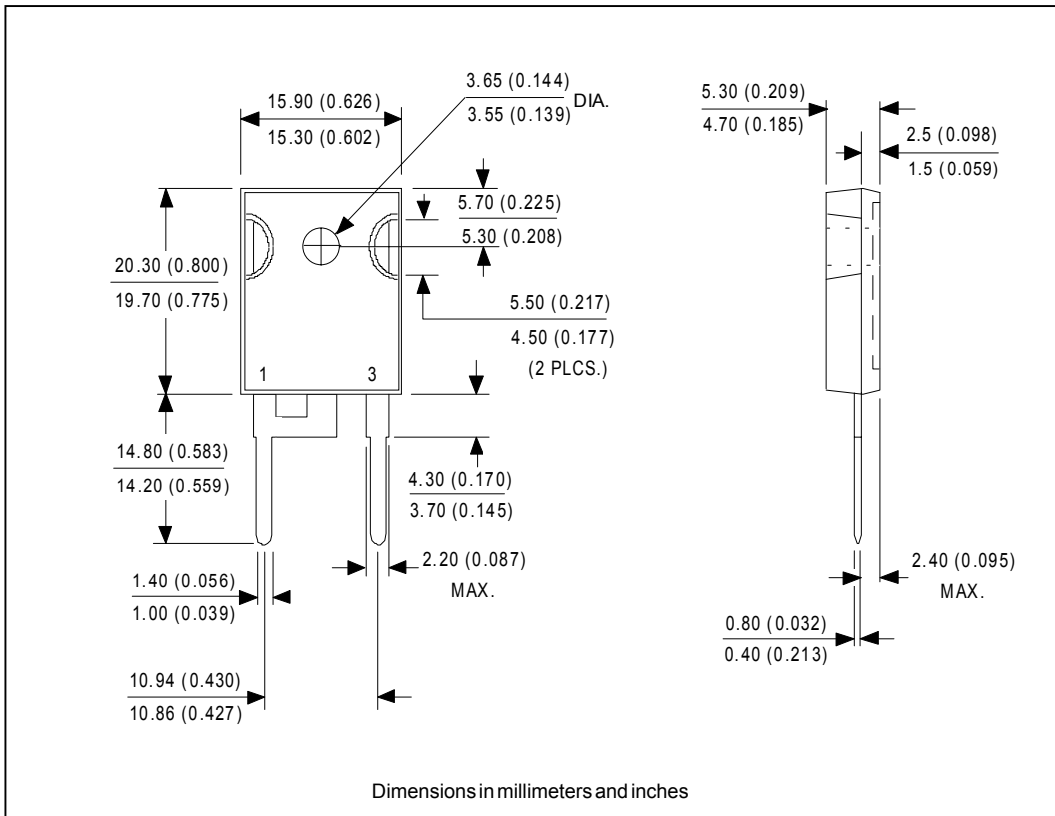


Fig. 7 - Thermal Impedance  $Z_{thJC}$  Characteristics

Outline Table



Marking Information

EXAMPLE: THIS IS A 40EPS16 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	16
①	②	③	④	⑤

- 1** - Current Rating
- 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 =  $V_{RRM}$  (\*) ——— 16 = 1600V

(\*) Contact Factory

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.