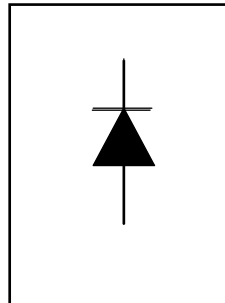


# 40EPS.. SERIES

## INPUT RECTIFIER DIODE



$V_F$	$< 1V @ 20A$
$I_{FSM}$	$= 475A$
$V_{RRM}$	$800 \text{ to } 1600V$

### Description/Features

The 40EPS rectifier series has been optimized for very low forward voltage drop with moderate leakage. The glass passivation technology used operates reliably up to 150°C junction temperature.

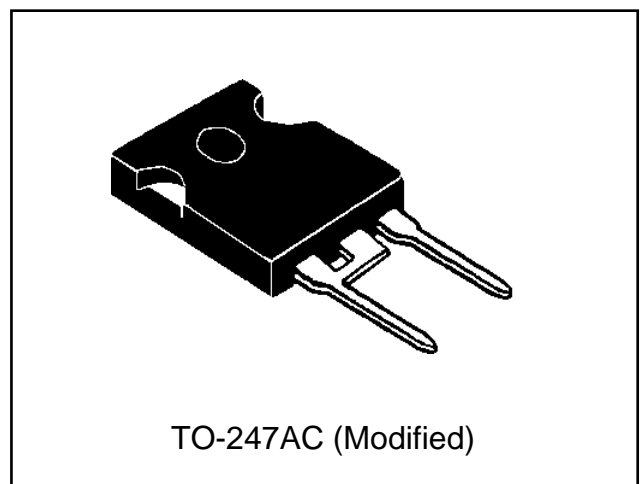
Typical applications are in input rectification, and these products are designed to be used with International Rectifier switches and output rectifiers which are available in identical package outlines.

### Output Current in Typical Applications

	Single-phase Bridge	Three-phase Bridge	Units
Capacitive input filter $T_A = 55^\circ C$ , $T_J = 125^\circ C$ , common heatsink of $1^\circ C/W$	21.3	27.3	A

### Major Ratings and Characteristics

Characteristics	40EPS..	Units
$I_{F(AV)}$ Sinusoidal waveform	40	A
$V_{RRM}$	800 to 1600	V
$I_{FSM}$	475	A
$V_F @ 20A, T_J = 25^\circ C$	1.0	V
$T_J$	-40 to 150	$^\circ C$



## 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	
40EPS16	1600	1700	

## 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	8000	$A^2\sqrt{s}$	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	$T_J = 25^\circ\text{C}$	$V_R = \text{rated } V_{RRM}$
	1.0		$T_J = 150^\circ\text{C}$	

## 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)	Kg-cm (lbf-in)
	Max.	12 (10)	
Case Style	TO-247AC		JEDEC (Modified)

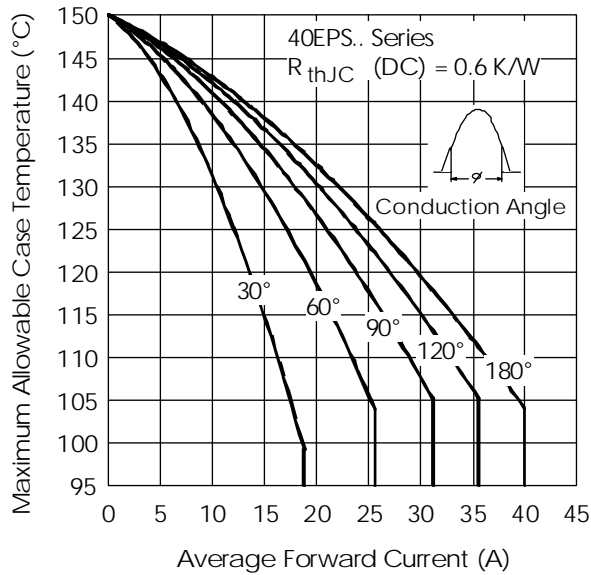


Fig. 1 - Current Rating Characteristics

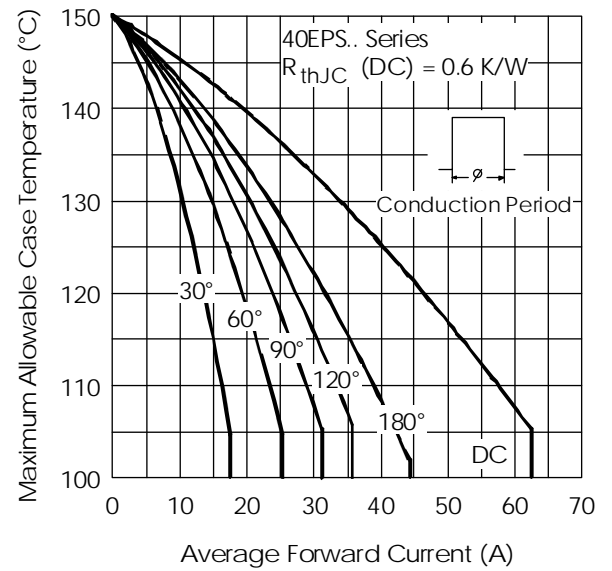


Fig. 2 - Current Rating Characteristics

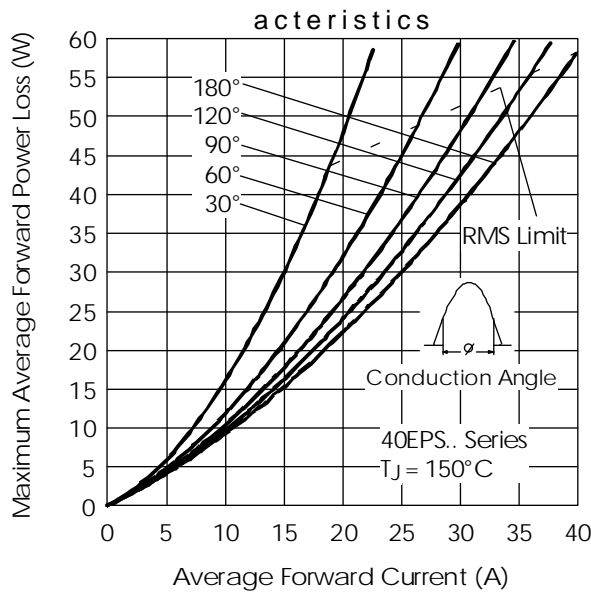


Fig. 3 - Forward Power Loss Characteristics

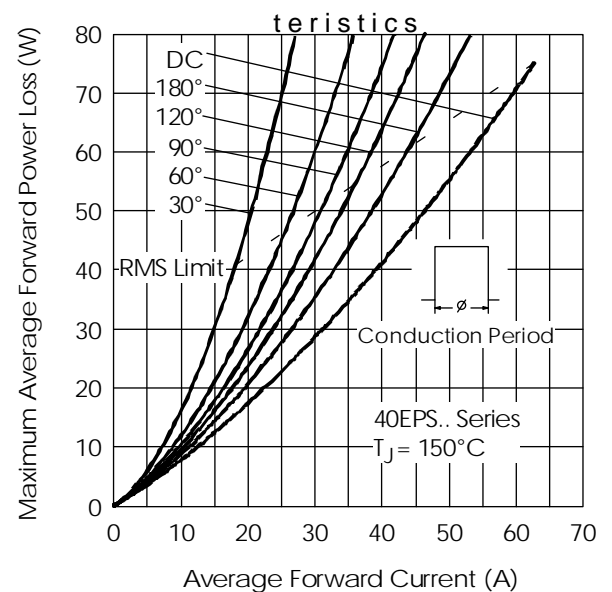


Fig. 4 - Forward Power Loss Characteristics

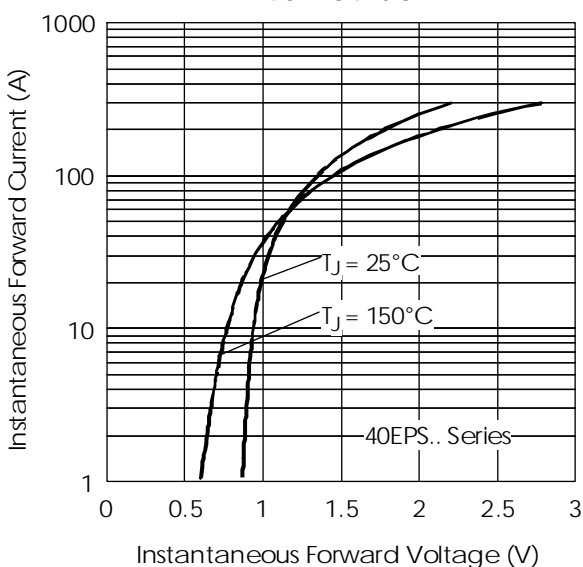


Fig. 5 - Forward Voltage Drop Characteristics

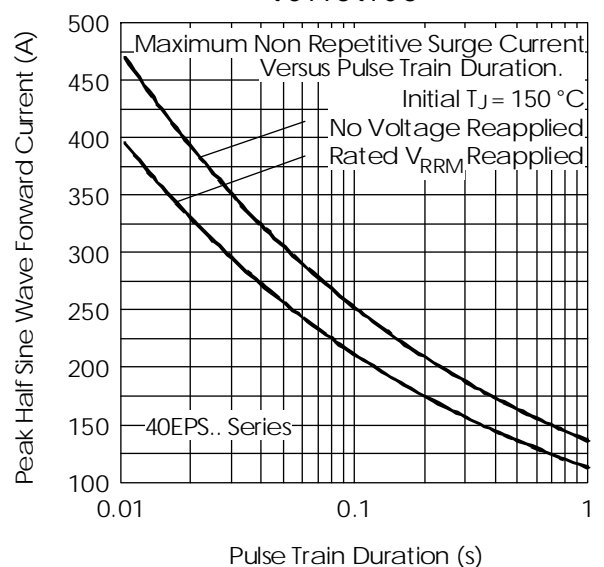


Fig. 6 - Maximum Non-Repetitive Surge Current

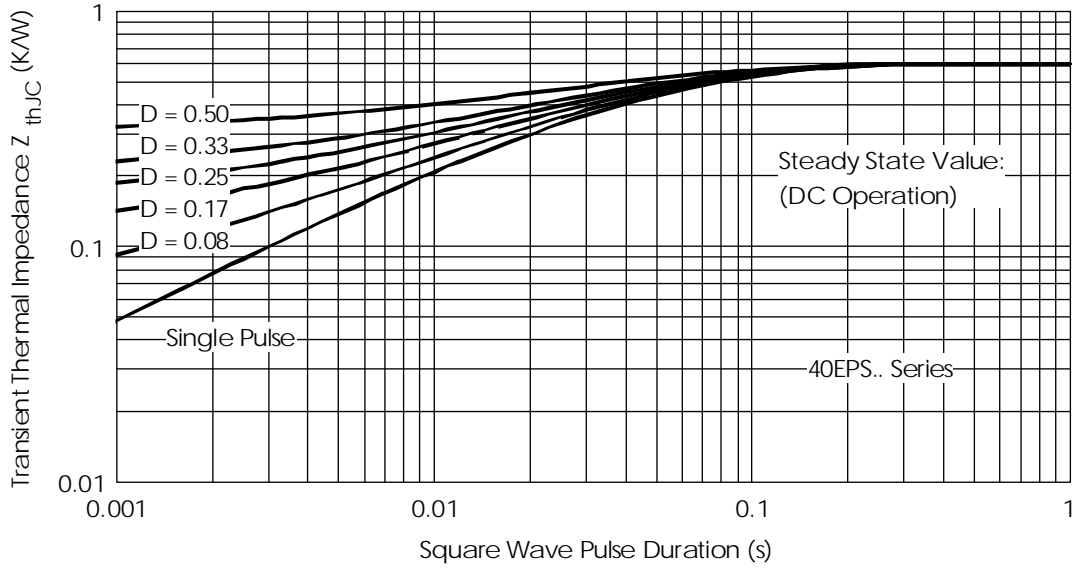
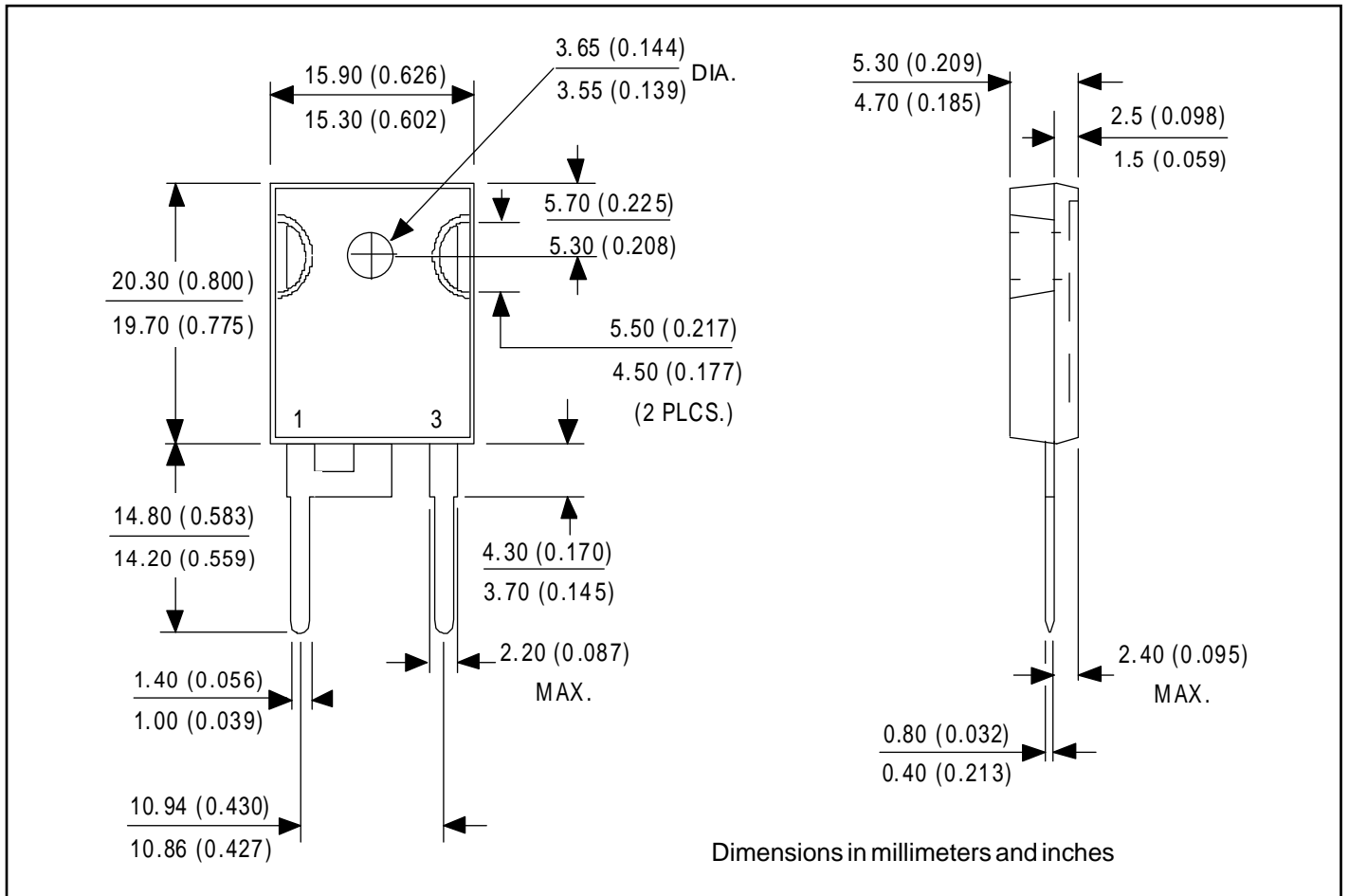


Fig. 7 - Thermal Impedance  $Z_{thJC}$  Characteristics

Outline Table



Ordering Information Table

Device Code				
40	E	P	S	16
①	②	③	④	⑤

<p><b>1</b> - Current Rating</p> <p><b>2</b> - Circuit Configuration</p> <p>E = Single Diode</p> <p><b>3</b> - Package</p> <p>P = TO-247AC (Modified)</p> <p><b>4</b> - Type of Silicon</p> <p>S = Standard Recovery Rectifier</p> <p><b>5</b> - Voltage code: Code x 100 = <math>V_{RRM}</math></p>	<table border="1"> <tr> <td>08 = 800V</td> </tr> <tr> <td>12 = 1200V</td> </tr> <tr> <td>16 = 1600V</td> </tr> </table>	08 = 800V	12 = 1200V	16 = 1600V
08 = 800V				
12 = 1200V				
16 = 1600V				

BASE  
CATHODE

②

①      ③

CATHODE      ANODE