

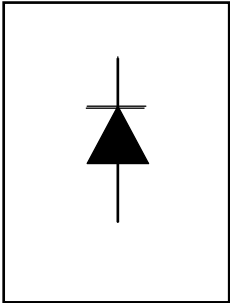
40EPS.. SERIES

INPUT RECTIFIER DIODE

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.



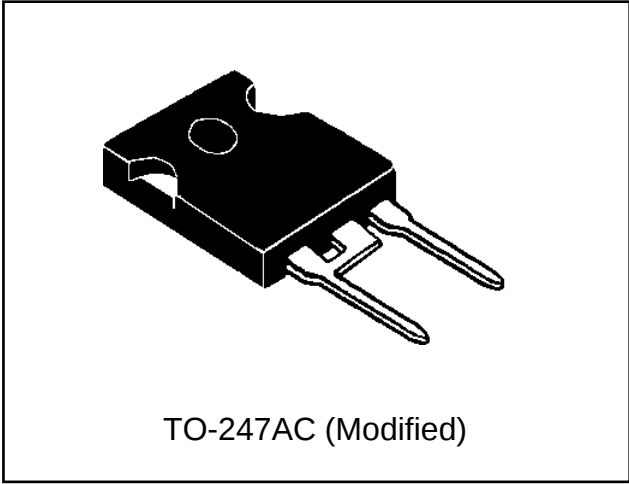
V_F	$< 1V @ 20A$
I_{FSM}	$= 475A$
V_{RRM}	800 to 1600V

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	$^{\circ}C$



TO-247AC (Modified)

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	°C	
T _{stg}	Max. Storage Temperature Range		- 40 to 150	°C	
R _{thJC}	Max. Thermal Resistance Junction to Case		0.6	°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)	

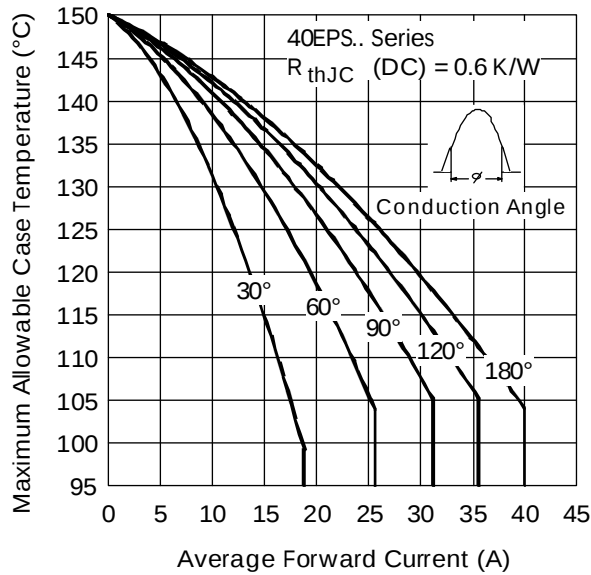


Fig. 1 - Current Rating Characteristics

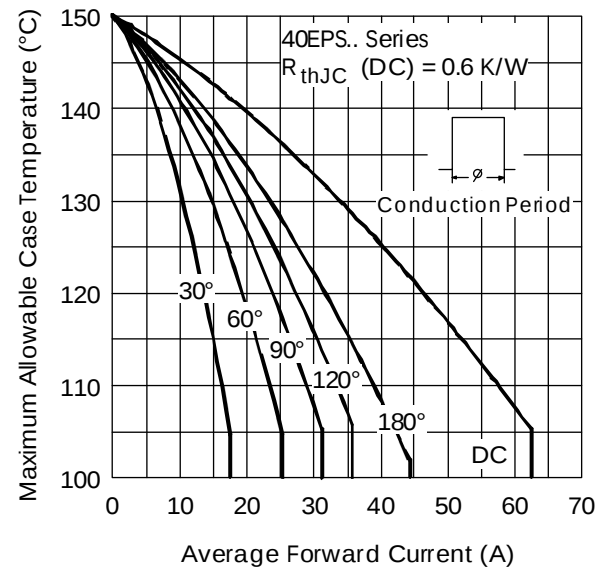


Fig. 2 - Current Rating Characteristics

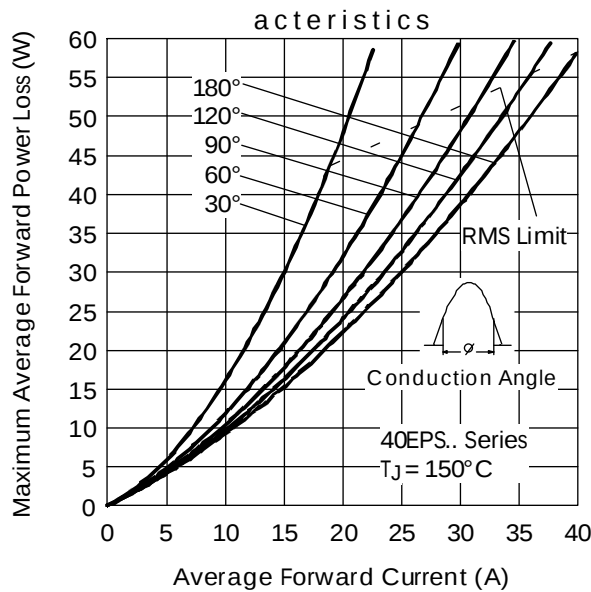


Fig. 3 - Forward Power Loss Characteristics

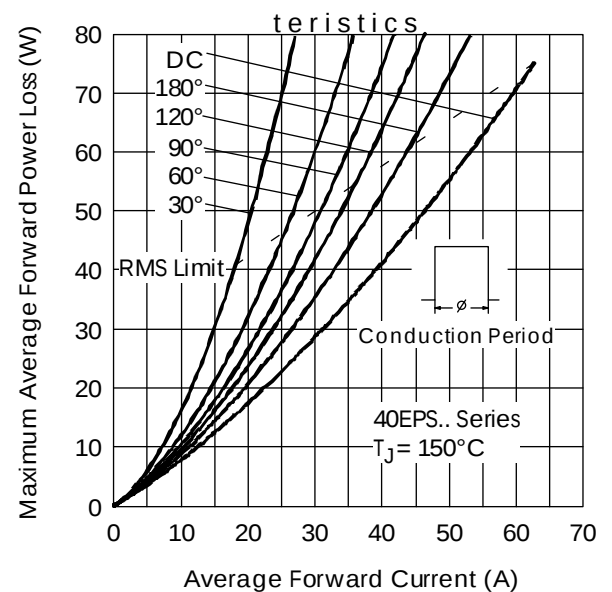


Fig. 4 - Forward Power Loss Characteristics

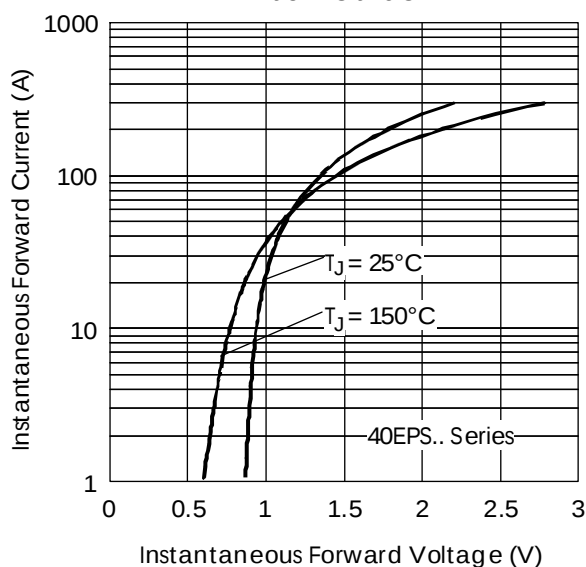


Fig. 5 - Forward Voltage Drop Characteristics

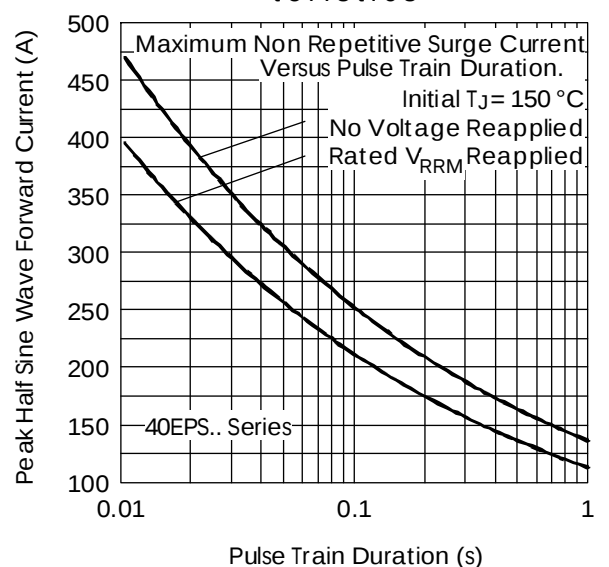


Fig. 6 - Maximum Non-Repetitive Surge Current

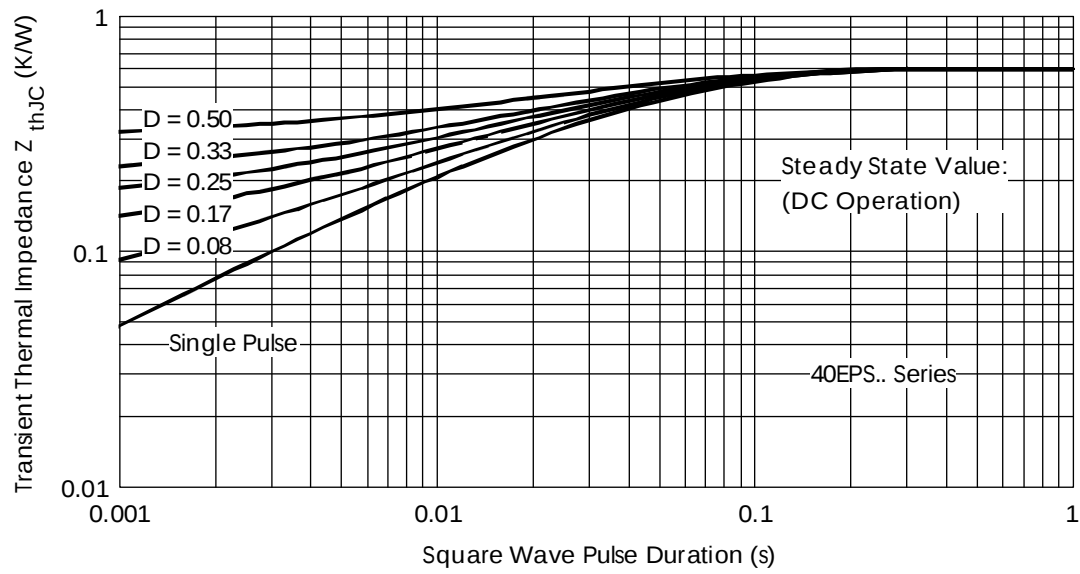
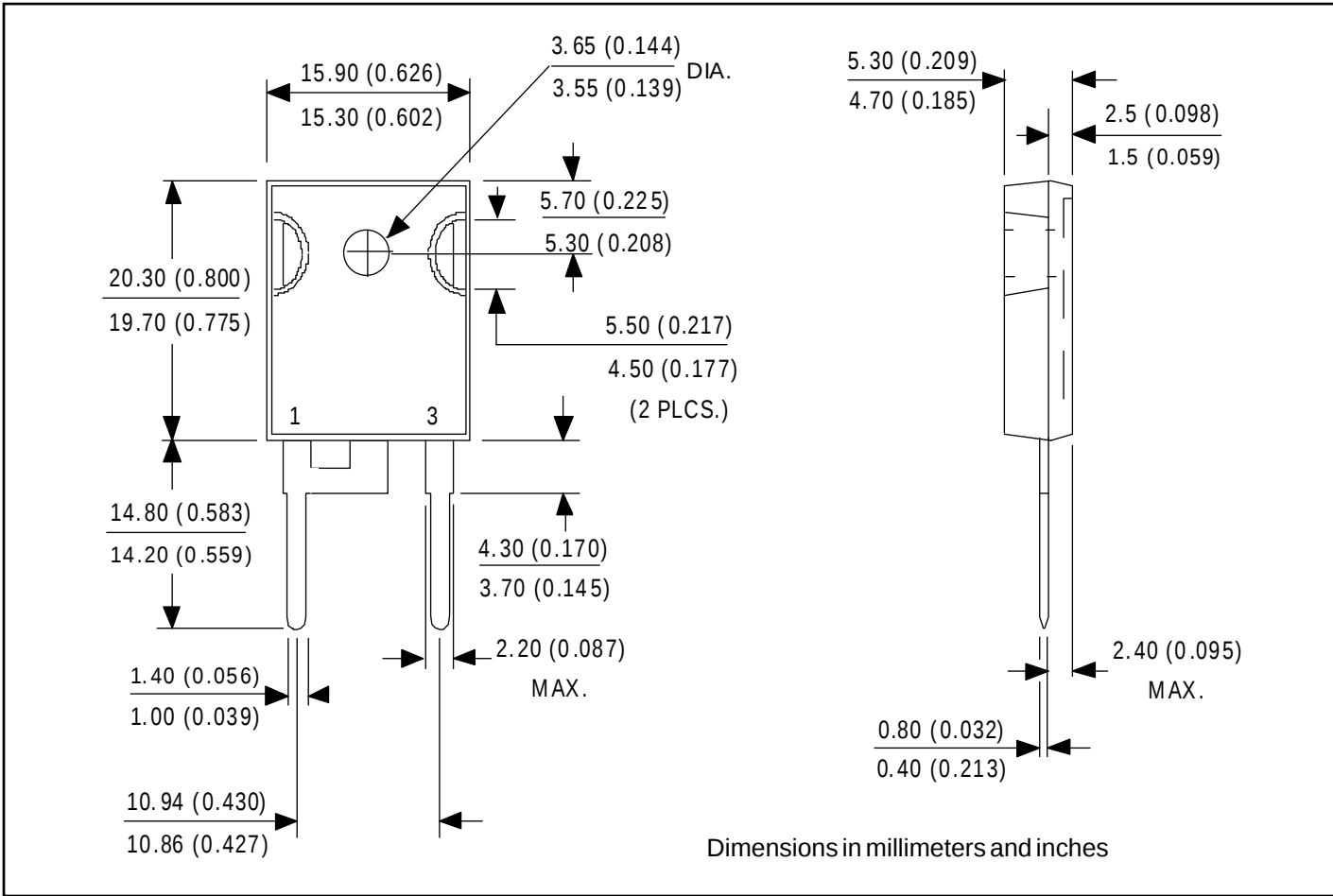


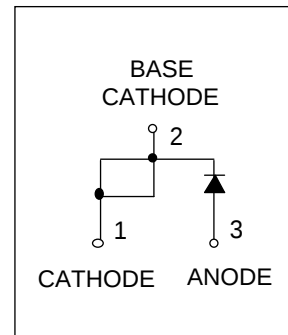
Fig. 7 - Thermal Impedance Z_{thJC} Characteristics

Outline Table



Ordering Information Table

Device Code				
40	E	P	S	16
1	2	3	4	5
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}		
				08 = 800V 12 = 1200V 16 = 1600V



International
IOR Rectifier

WORLD HEADQUARTERS: 233 Kansas St., El Segundo, California 90245, Tel: (310) 322 3331
EUROPEAN HEADQUARTERS: Hurst Green, Oxted, Surrey RH8 9BB, UK Tel: (44) 0883 713215
IR CANADA: 7321 Victoria Park Ave., Suite 201, Markham, Ontario L3R 3L1, Tel: (905) 475 1897 **IR GERMANY:**
 Saalburgstrasse 157, 61350 Bad Homburg Tel: 6172 37066 **IR ITALY:** Via Liguria 49, 10071 Borgaro, Torino Tel: (39)
 1145 10111 **IR FAR EAST:** K&H Bldg., 2F, 3-30-4 Nishi-Ikeburo 3-Chome, Toshima-Ki, Tokyo 171 Tel: (03)3983 0641
IR SOUTHEAST ASIA: 315 Outram Road, #10-02 Tan Boon Liat Building, Singapore 0316 Tel: 65 221 8371

Data and specifications subject to change without notice. 6/95