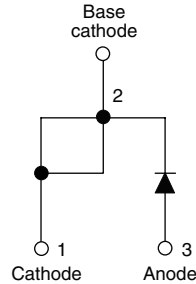


## Input Rectifier Diode, 40 A



TO-247AC modified



### DESCRIPTION/FEATURES

The 40EPS..PbF rectifier High Voltage 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.



**RoHS\***  
COMPLIANT

Typical applications are in input rectification and these products are designed to be used with Vishay HPP Switches and output rectifiers which are available in identical package outlines.

This product has been designed and qualified for industrial level and lead (Pb)-free.

### PRODUCT SUMMARY

$V_F$ at 40 A	1.1 V
$I_{FSM}$	475 A
$V_{RRM}$	800/1200 V

### MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Sinusoidal waveform	40	A
$V_{RRM}$	Range	800/1200	V
$I_{FSM}$		475	A
$V_F$	40 A, $T_J = 25\text{ °C}$	1.1	V
$T_J$		- 40 to 150	°C

### VOLTAGE RATINGS

PART NUMBER	$V_{RRM}$ , MAXIMUM PEAK REVERSE VOLTAGE V	$V_{RSM}$ , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	$I_{RRM}$ AT 150 °C mA
40EPS08PbF	800	900	1
40EPS12PbF	1200	1300	

### ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current	$I_{F(AV)}$	$T_C = 105\text{ °C}$ , 180° conduction half sine wave	40	A
Maximum peak one cycle non-repetitive surge current	$I_{FSM}$	10 ms sine pulse, rated $V_{RRM}$ applied	400	
		10 ms sine pulse, no voltage reapplied	475	
Maximum $I^2t$ for fusing	$I^2t$	10 ms sine pulse, rated $V_{RRM}$ applied	800	A <sup>2</sup> s
		10 ms sine pulse, no voltage reapplied	1131	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	$t = 0.1$ to 10 ms, no voltage reapplied	11 310	A <sup>2</sup> √s

\* Pb containing terminations are not RoHS compliant, exemptions may apply

# 40EPS..PbF High Voltage Series



Vishay High Power Products Input Rectifier Diode, 40 A

ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop	$V_{FM}$	20 A, $T_J = 25\text{ }^\circ\text{C}$		1.0	V
		40 A, $T_J = 25\text{ }^\circ\text{C}$		1.1	
Forward slope resistance	$r_t$	$T_J = 150\text{ }^\circ\text{C}$		7.16	$m\Omega$
Threshold voltage	$V_{F(TO)}$			0.74	V
Maximum reverse leakage current	$I_{RM}$	$T_J = 25\text{ }^\circ\text{C}$	$V_R = \text{Rated } V_{RRM}$	0.1	mA
		$T_J = 150\text{ }^\circ\text{C}$		1.0	

THERMAL - MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum junction and storage temperature range	$T_J, T_{Stg}$			- 40 to 150	$^\circ\text{C}$
Maximum thermal resistance, junction to case	$R_{thJC}$	DC operation		0.6	$^\circ\text{C/W}$
Maximum thermal resistance, junction to ambient	$R_{thJA}$			40	
Typical thermal resistance, case to heatsink	$R_{thCS}$	Mounting surface, flat, smooth and greased		0.2	
Approximate weight				6	g
				0.21	oz.
Mounting torque	minimum			6 (5)	kgf · cm (lbf · in)
	maximum			12 (10)	
Marking device		Case style TO-247AC modified (JEDEC)		40EPS08	
				40EPS12	



# 40EPS..PbF High Voltage Series

Input Rectifier Diode, 40 A Vishay High Power Products

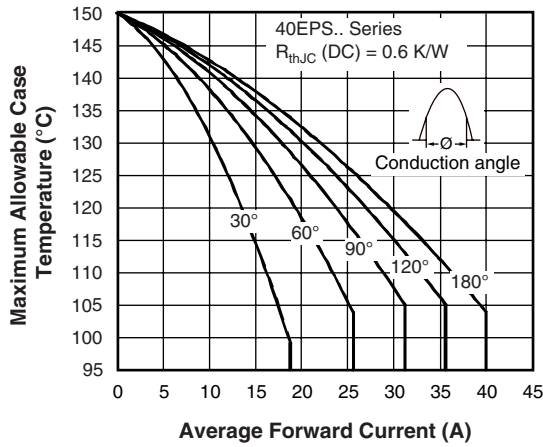


Fig. 1 - Current Rating Characteristics

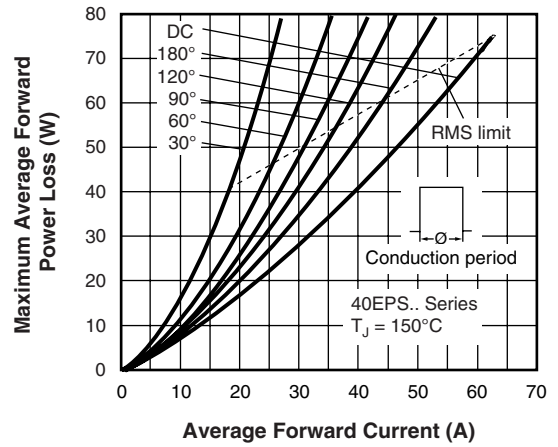


Fig. 4 - Forward Power Loss Characteristics

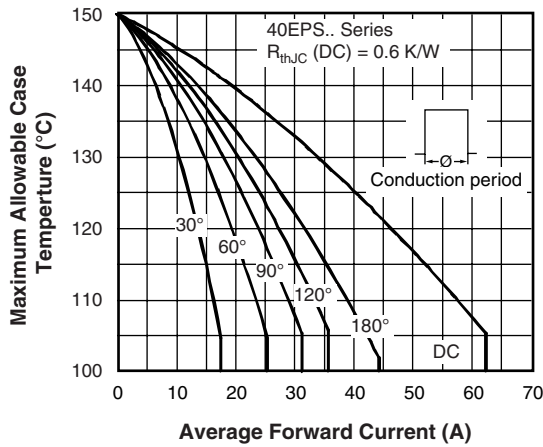


Fig. 2 - Current Rating Characteristics

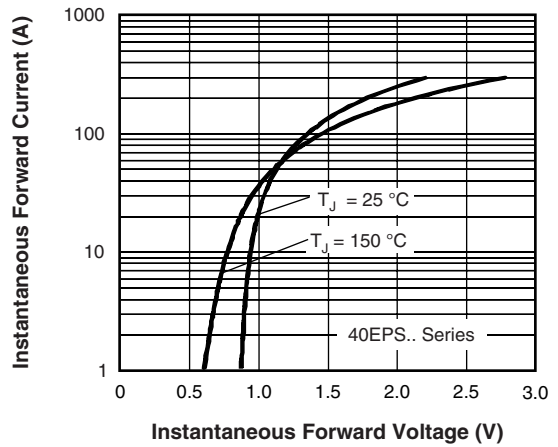


Fig. 5 - Forward Voltage Drop Characteristics

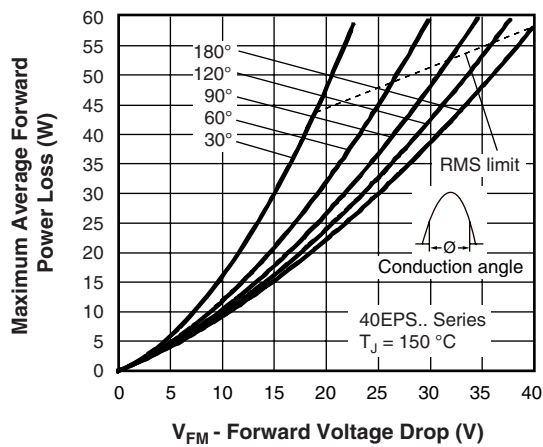


Fig. 3 - Forward Power Loss Characteristics

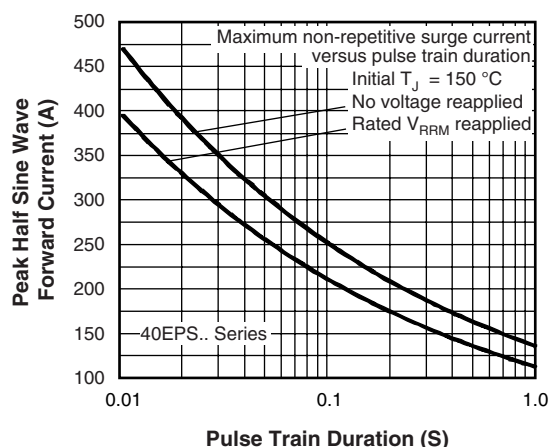


Fig. 6 - Maximum Non-Repetitive Surge Current

# 40EPS..PbF High Voltage Series

Vishay High Power Products Input Rectifier Diode, 40 A

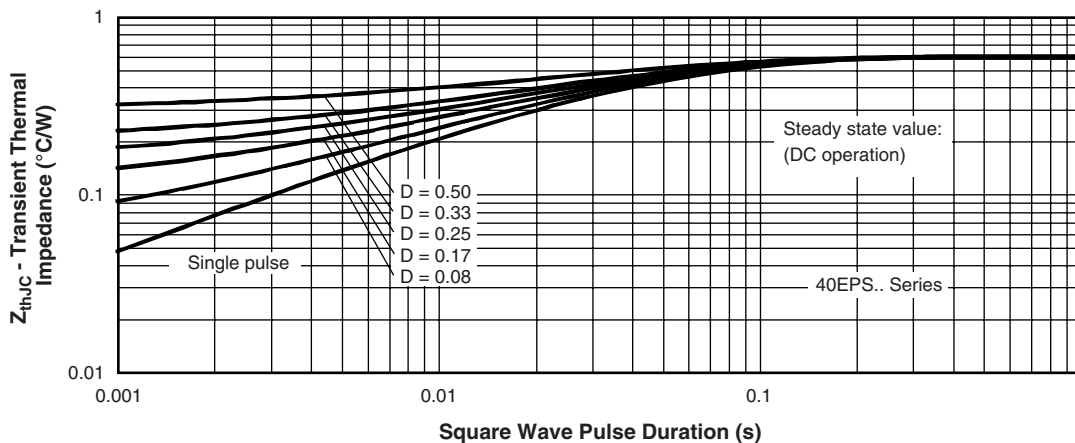


Fig. 7 - Thermal Impedance  $Z_{thJC}$  Characteristics

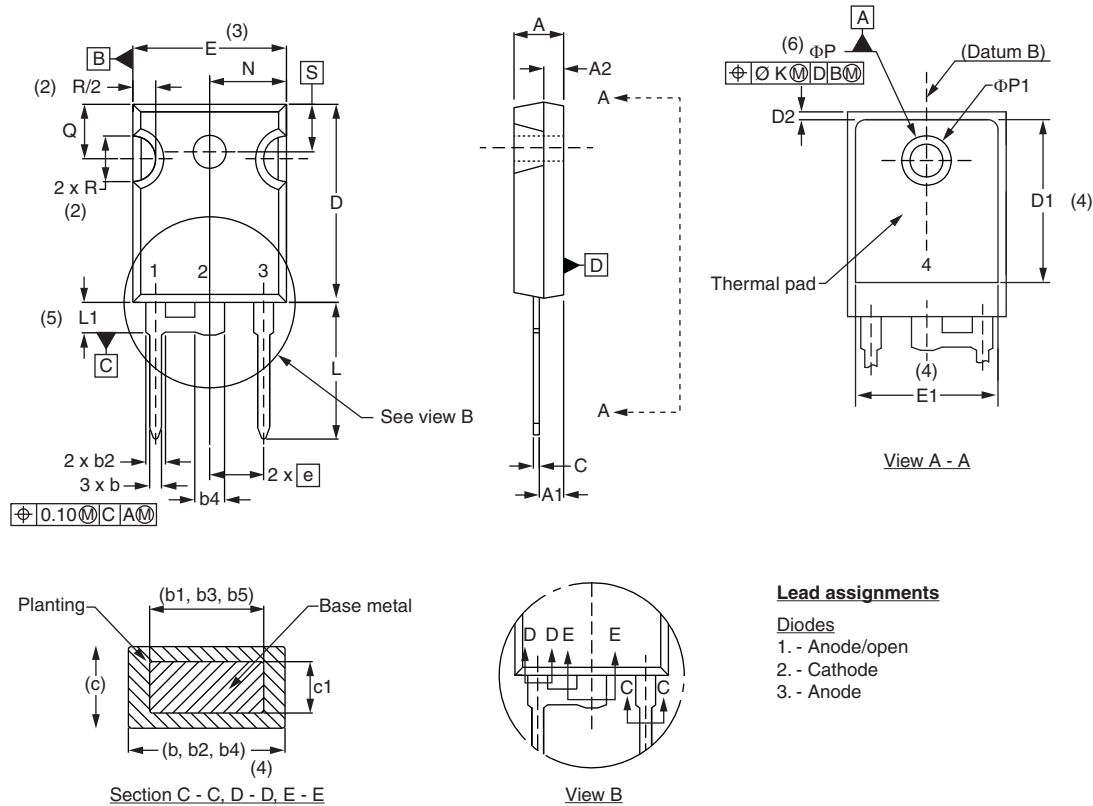
## ORDERING INFORMATION TABLE

Device code	<b>40</b>	<b>E</b>	<b>P</b>	<b>S</b>	<b>12</b>	<b>PbF</b>
	①	②	③	④	⑤	⑥
	<b>1</b>	-	Current rating (40 = 40 A)			
	<b>2</b>	-	Circuit configuration: E = Single diode			
	<b>3</b>	-	Package: P = TO-247AC modified			
	<b>4</b>	-	Type of silicon: S = Standard recovery rectifier			
	<b>5</b>	-	Voltage rating		08 = 800 V	
	<b>6</b>	-	• None = Standard production • PbF = Lead (Pb)-free		12 = 1200 V	

LINKS TO RELATED DOCUMENTS	
Dimensions	<a href="http://www.vishay.com/doc?95253">http://www.vishay.com/doc?95253</a>
Part marking information	<a href="http://www.vishay.com/doc?95255">http://www.vishay.com/doc?95255</a>



**DIMENSIONS** in millimeters and inches



SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	4.65	5.31	0.183	0.209	
A1	2.21	2.59	0.087	0.102	
A2	1.50	2.49	0.059	0.098	
b	0.99	1.40	0.039	0.055	
b1	0.99	1.35	0.039	0.053	
b2	1.65	2.39	0.065	0.094	
b3	1.65	2.37	0.065	0.094	
b4	2.59	3.43	0.102	0.135	
b5	2.59	3.38	0.102	0.133	
c	0.38	0.86	0.015	0.034	
c1	0.38	0.76	0.015	0.030	
D	19.71	20.70	0.776	0.815	3
D1	13.08	-	0.515	-	4
D2	0.51	1.30	0.020	0.051	
E	15.29	15.87	0.602	0.625	3
E1	13.72	-	0.540	-	
e	5.46 BSC		0.215 BSC		
ΦK	2.54		0.010		
L	14.20	16.10	0.559	0.634	
L1	3.71	4.29	0.146	0.169	
N	7.62 BSC		0.3		
ΦP	3.56	3.66	0.14	0.144	
ΦP1	-	6.98	-	0.275	
Q	5.31	5.69	0.209	0.224	
R	4.52	5.49	1.78	0.216	
S	5.51 BSC		0.217 BSC		

**Notes**

- Dimensioning and tolerance per ASME Y14.5M-1994
- Contour of slot optional
- Dimension D and E do not include mold flash. Mold flash shall not exceed 0.127 mm (0.005") per side. These dimensions are measured at the outermost extremes of the plastic body
- Thermal pad contour optional with dimensions D1 and E1
- Lead finish uncontrolled in L1
- ΦP to have a maximum draft angle of 1.5 to the top of the part with a maximum hole diameter of 3.91 mm (0.154")
- Outline conforms to JEDEC outline TO-247 with exception of dimension c



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