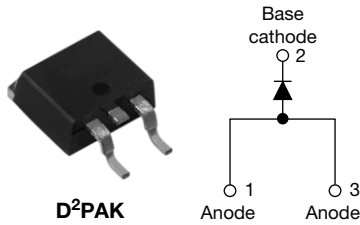


## Input Rectifier Diode, 25 A



### DESCRIPTION/FEATURES

The 25ETS..SPbF 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.

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 series has been designed and qualified for industrial level.

Compliant to RoHS directive 2002/95/EC.

Halogen-free according to IEC 61249-2-21 definition.



**RoHS\***  
COMPLIANT  
HALOGEN  
**FREE**

### PRODUCT SUMMARY

$V_F$ at 10 A	< 1 V
$I_{FSM}$	300 A
$V_{RRM}$	800 V to 1200 V

### OUTPUT CURRENT IN TYPICAL APPLICATIONS

APPLICATIONS	SINGLE-PHASE BRIDGE	THREE-PHASE BRIDGE	UNITS
Capacitive input filter $T_A = 55\text{ °C}$ , $T_J = 125\text{ °C}$ common heatsink of $1\text{ °C/W}$	20	23	A

### MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Sinusoidal waveform	25	A
$V_{RRM}$		800 to 1200	V
$I_{FSM}$		300	A
$V_F$	10 A, $T_J = 25\text{ °C}$	1.0	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
25ETS08SPbF	800	900	1
25ETS10SPbF	1000	1100	
25ETS12SPbF	1200	1300	

### ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current	$I_{F(AV)}$	$T_C = 106\text{ °C}$ , 180° conduction half sine wave	25	A
Maximum peak one cycle non-repetitive surge current	$I_{FSM}$	10 ms sine pulse, rated $V_{RRM}$ applied	250	
		10 ms sine pulse, no voltage reapplied	300	
Maximum $I^2t$ for fusing	$I^2t$	10 ms sine pulse, rated $V_{RRM}$ applied	316	A <sup>2</sup> s
		10 ms sine pulse, no voltage reapplied	442	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	$t = 0.1\text{ ms to }10\text{ ms}$ , no voltage reapplied	4420	A <sup>2</sup> √s

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

# 25ETS..SPbF High Voltage Series



Vishay High Power Products Input Rectifier Diode, 25 A

ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop	$V_{FM}$	25 A, $T_J = 25\text{ }^\circ\text{C}$		1.14	V
Forward slope resistance	$r_t$	$T_J = 150\text{ }^\circ\text{C}$		9.62	$m\Omega$
Threshold voltage	$V_{F(TO)}$			0.87	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		0.9	$^\circ\text{C/W}$
Maximum thermal resistance, junction to ambient	$R_{thJA}$			62	
Typical thermal resistance, case to heatsink	$R_{thCS}$	Mounting surface, smooth and greased		0.5	
Approximate weight				2	g
				0.07	oz.
Mounting torque	minimum			6 (5)	kgf · cm (lbf · in)
	maximum			12 (10)	
Marking device		Case style D <sup>2</sup> PAK (SMD-220)		25ETS08S	
				25ETS10S	
				25ETS12S	

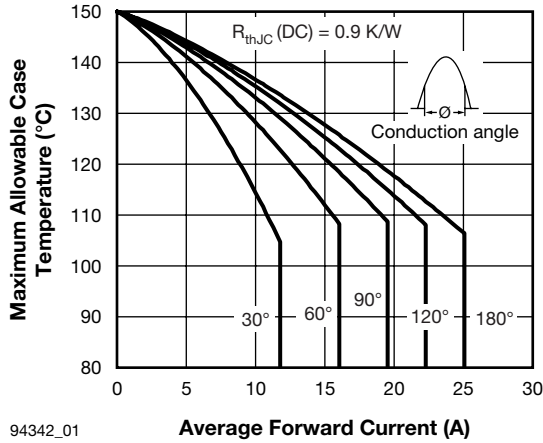


Fig. 1 - Current Rating Characteristics

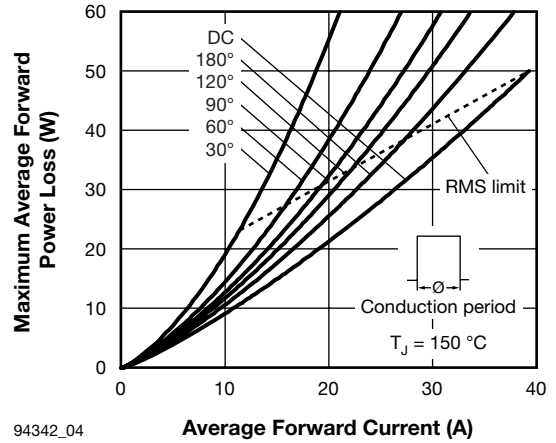


Fig. 4 - Forward Power Loss Characteristics

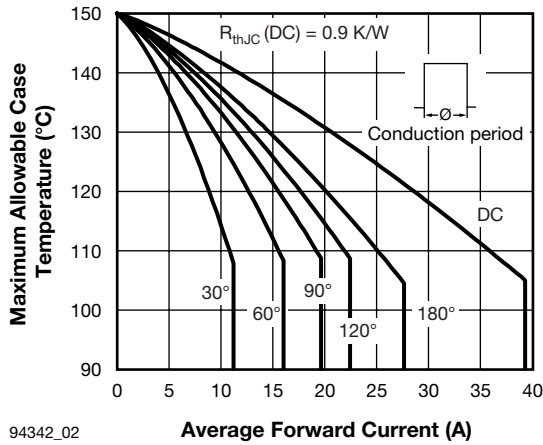


Fig. 2 - Current Rating Characteristics

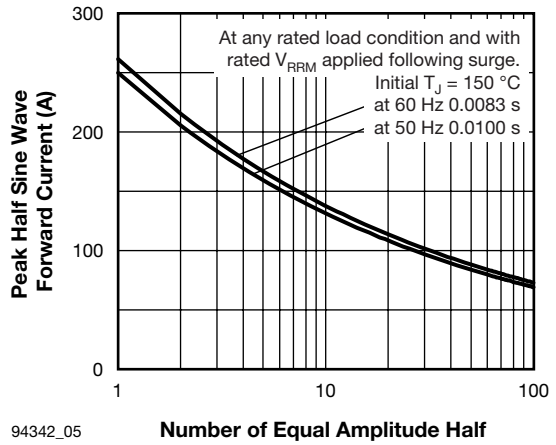


Fig. 5 - Maximum Non-Repetitive Surge Current

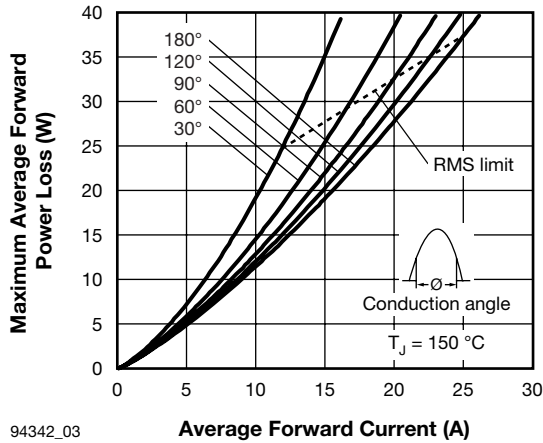


Fig. 3 - Forward Power Loss Characteristics

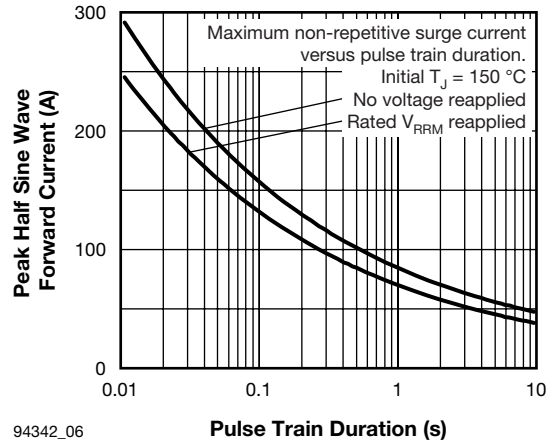


Fig. 6 - Maximum Non-Repetitive Surge Current

# 25ETS..SPbF High Voltage Series

Vishay High Power Products Input Rectifier Diode, 25 A

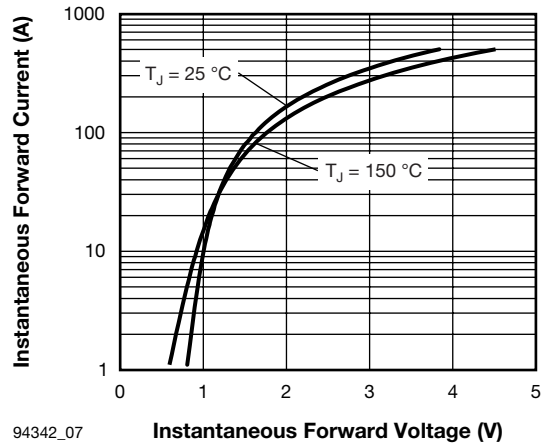


Fig. 7 - Forward Voltage Drop Characteristics

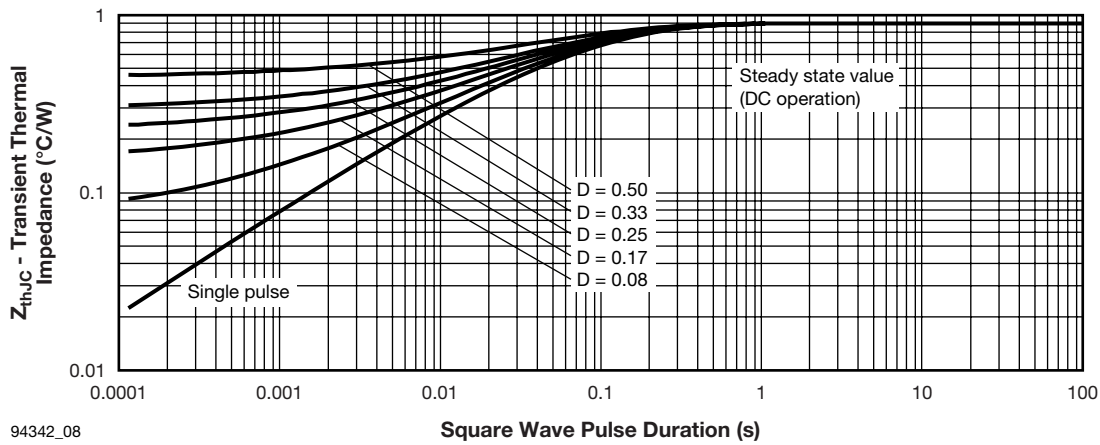


Fig. 8 - Thermal Impedance  $Z_{thJC}$  Characteristics



# 25ETS..SPbF High Voltage Series

Input Rectifier Diode, 25 A Vishay High Power Products

## ORDERING INFORMATION TABLE

Device code	<b>25</b>	<b>E</b>	<b>T</b>	<b>S</b>	<b>12</b>	<b>S</b>	<b>TRL</b>	<b>PbF</b>
	①	②	③	④	⑤	⑥	⑦	⑧
	<b>1</b>	-	Current rating (25 = 25 A)					
	<b>2</b>	-	Circuit configuration: E = Single diode					
	<b>3</b>	-	Package: T = TO-220AC					
	<b>4</b>	-	Type of silicon: S = Standard recovery rectifier					
	<b>5</b>	-	Voltage ratings					08 = 800 V 10 = 1000 V 12 = 1200 V
	<b>6</b>	-	S = TO-220 D <sup>2</sup> PAK (SMD-220) version					
	<b>7</b>	-	• None = Tube • TRL = Tape and reel (left oriented) • TRR = Tape and reel (right oriented)					
	<b>8</b>	-	• None = Standard production • PbF = Lead (Pb)-free					

LINKS TO RELATED DOCUMENTS	
Dimensions	<a href="http://www.vishay.com/doc?95046">www.vishay.com/doc?95046</a>
Part marking information	<a href="http://www.vishay.com/doc?95054">www.vishay.com/doc?95054</a>
Packaging information	<a href="http://www.vishay.com/doc?95032">www.vishay.com/doc?95032</a>



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