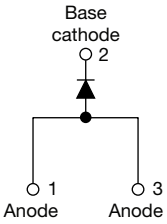
Input Rectifier Diode, 25 A

D²PAK



DESCRIPTION/FEATURES

The VS-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.

RoHS COMPLIANT
HALOGEN FREE

- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Compliant to RoHS directive 2002/95/EC
- Halogen-free according to IEC 61249-2-21 definition
- Designed and qualified for industrial level

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 °C, T_J = 125 °C common heatsink of 1 °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 °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**
VS-25ETS08SPbF	800	900	1
VS-25ETS10SPbF	1000	1100	
VS-25ETS12SPbF	1200	1300	

ABSOLUTE MAXIMUM RATINGS				
PARAMETER	**SYMBOL**	**TEST CONDITIONS**	**VALUES**	**UNITS**
Maximum average forward current	$I_{F(AV)}$	T_C = 106 °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^2s
		10 ms sine pulse, no voltage reapplied	442	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 ms to 10 ms, no voltage reapplied	4420	$A^2\sqrt{s}$

ELECTRICAL SPECIFICATIONS					
PARAMETER	**SYMBOL**	**TEST CONDITIONS**		**VALUES**	**UNITS**
Maximum forward voltage drop	V_{FM}	25 A, T_J = 25 °C		1.14	V
Forward slope resistance	r_t	T_J = 150 °C		9.62	mΩ
Threshold voltage	$V_{F(TO)}$			0.87	V
Maximum reverse leakage current	I_{RM}	T_J = 25 °C	V_R = Rated V_{RRM}	0.1	mA
		T_J = 150 °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	°C
Maximum thermal resistance, junction to case		R_{thJC}	DC operation	0.9	°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^2PAK (SMD-220)	25ETS08S	
				25ETS10S	
				25ETS12S	

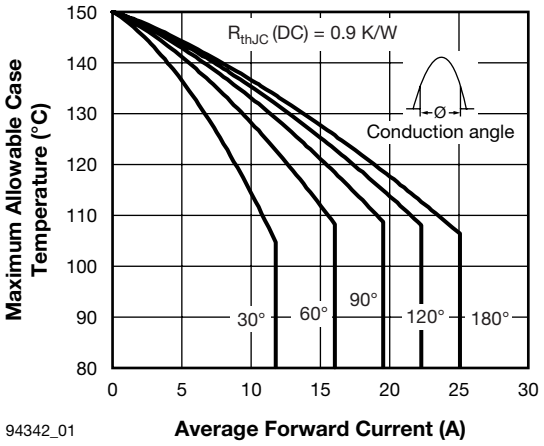


Fig. 1 - Current Rating Characteristics

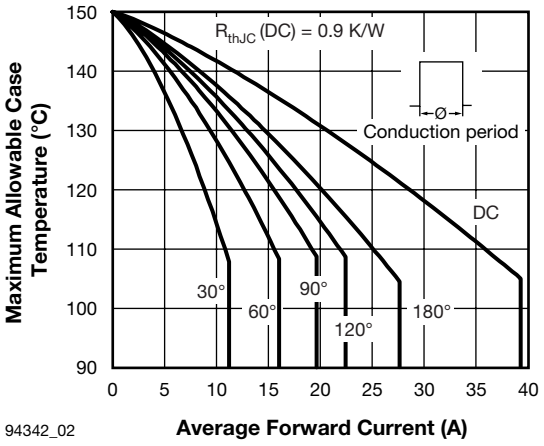


Fig. 2 - Current Rating Characteristics

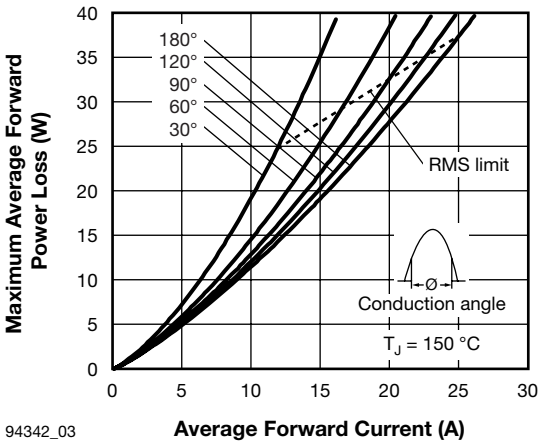


Fig. 3 - Forward Power Loss Characteristics

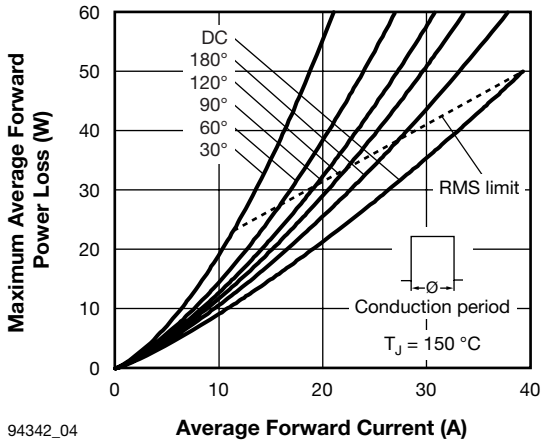


Fig. 4 - Forward Power Loss Characteristics

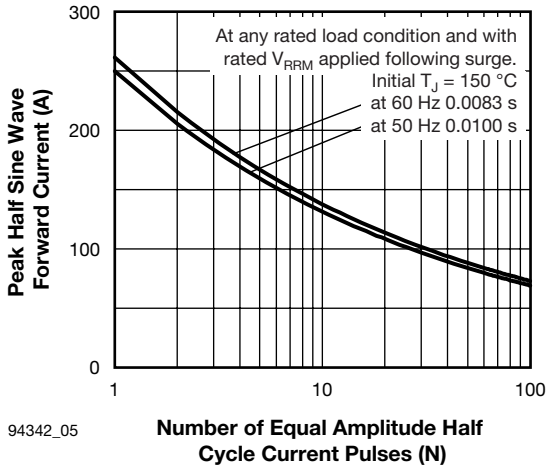


Fig. 5 - Maximum Non-Repetitive Surge Current

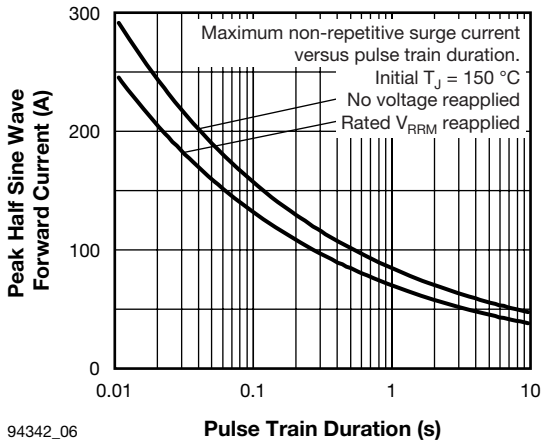


Fig. 6 - Maximum Non-Repetitive Surge Current

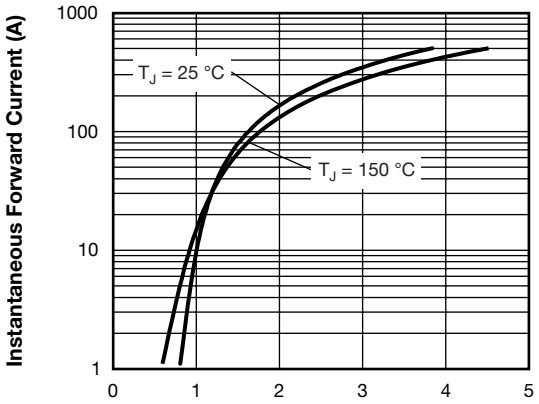


Fig. 7 - Forward Voltage Drop Characteristics

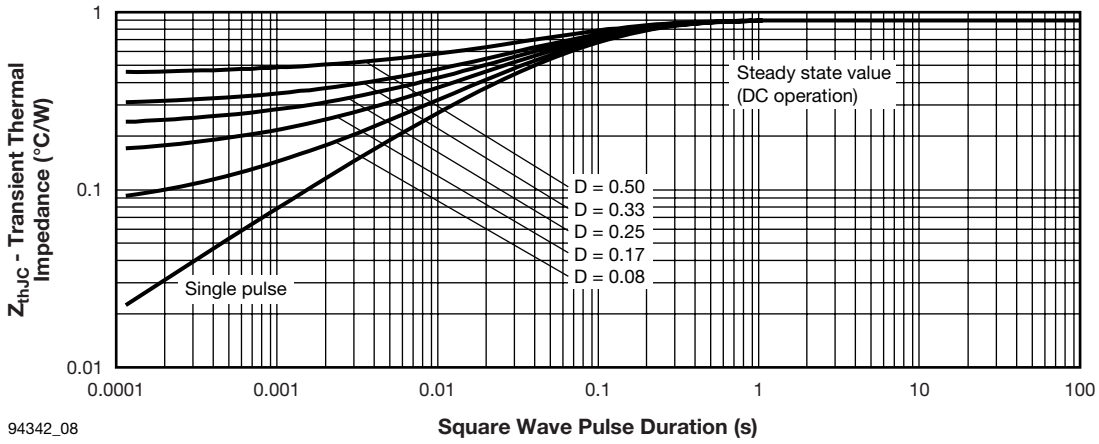
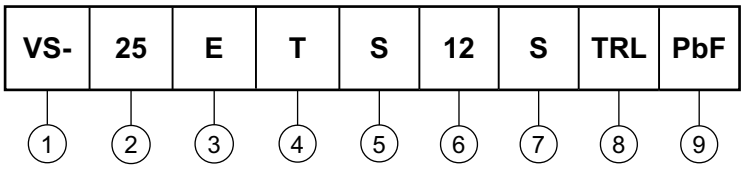


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics

ORDERING INFORMATION TABLE

Device code



1 - HPP product suffix
2 - Current rating (25 = 25 A)
3 - Circuit configuration
E = Single diode
4 - Package:
T = TO-220AC
5 - Type of silicon:
S = Standard recovery rectifier
6 - Voltage code x 100 = V_{RRM} (08 = 800 V, 10 = 1000 V, 12 = 1200 V)
7 - S = TO-220 D^2PAK (SMD-220) version
8 - • None = Tube
• TRL = Tape and reel (left oriented)
• TRR = Tape and reel (right oriented)
9 - PbF = Lead (Pb)-free

LINKS TO RELATED DOCUMENTS	
Dimensions	www.vishay.com/doc?95046
Part marking information	www.vishay.com/doc?95054
Packaging information	www.vishay.com/doc?95032

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