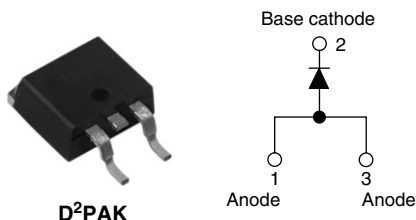


## Input Rectifier Diode, 10 A



### DESCRIPTION/FEATURES

The 10ETS..S rectifier 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.

### PRODUCT SUMMARY

$V_F$ at 10 A	< 1 V
$I_{FSM}$	200 A
$V_{RRM}$	800/1200 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 °C/W	12.0	16.0	A

### MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Sinusoidal waveform	10	A
$V_{RRM}$		800/1200	V
$I_{FSM}$		200	A
$V_F$	10 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
10ETS08S	800	900	0.5
10ETS10S	1000	1100	
10ETS12S	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	10	A
Maximum peak one cycle non-repetitive surge current	$I_{FSM}$	10 ms sine pulse, rated $V_{RRM}$ applied	170	
		10 ms sine pulse, no voltage reapplied	200	
Maximum $I^2t$ for fusing	$I^2t$	10 ms sine pulse, rated $V_{RRM}$ applied	130	A <sup>2</sup> s
		10 ms sine pulse, no voltage reapplied	145	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	$t = 0.1$ to 10 ms, no voltage reapplied	1450	A <sup>2</sup> √s

# 10ETS..S High Voltage Series

Vishay High Power Products Input Rectifier Diode, 10 A



ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop	V <sub>FM</sub>	10 A, T <sub>J</sub> = 25 °C		1.1	V
Forward slope resistance	r <sub>t</sub>	T <sub>J</sub> = 150 °C		20	mΩ
Threshold voltage	V <sub>F(TO)</sub>			0.82	V
Maximum reverse leakage current	I <sub>RM</sub>	T <sub>J</sub> = 25 °C	V <sub>R</sub> = Rated V <sub>RRM</sub>	0.05	mA
		T <sub>J</sub> = 150 °C		0.50	

THERMAL - MECHANICAL SPECIFICATIONS				
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction and storage temperature range	T <sub>J</sub> , T <sub>Stg</sub>		- 40 to 150	°C
Maximum thermal resistance, junction to case	R <sub>thJC</sub>	DC operation	2.5	°C/W
Maximum thermal resistance, junction to ambient (PCB mount)	R <sub>thJA</sub> <sup>(1)</sup>		62	
Soldering temperature	T <sub>S</sub>		240	°C
Approximate weight			2	g
			0.07	oz.
Marking device		Case style D <sup>2</sup> PAK (SMD-220)	10ETS08S	
			10ETS10S	
			10ETS12S	

## Note

<sup>(1)</sup> When mounted on 1" square (650 mm<sup>2</sup>) PCB of FR-4 or G-10 material 4 oz. (140  $\mu\text{m}$ ) copper 40  $^{\circ}\text{C}/\text{W}$   
For recommended footprint and soldering techniques refer to application note #AN-994



# 10ETS..S High Voltage Series

Input Rectifier Diode, 10 A Vishay High Power Products

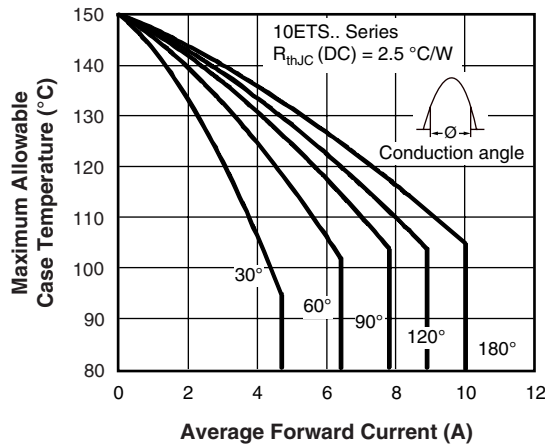


Fig. 1 - Current Rating Characteristics

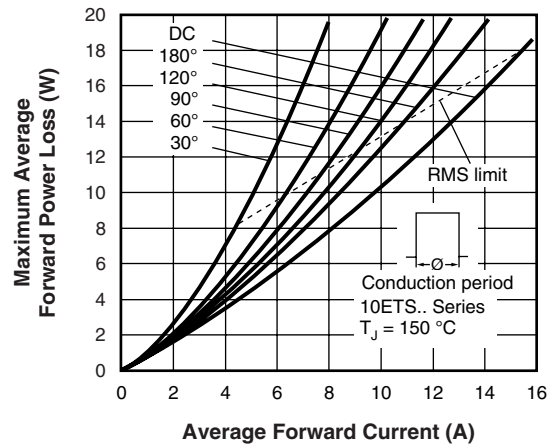


Fig. 4 - Forward Power Loss Characteristics

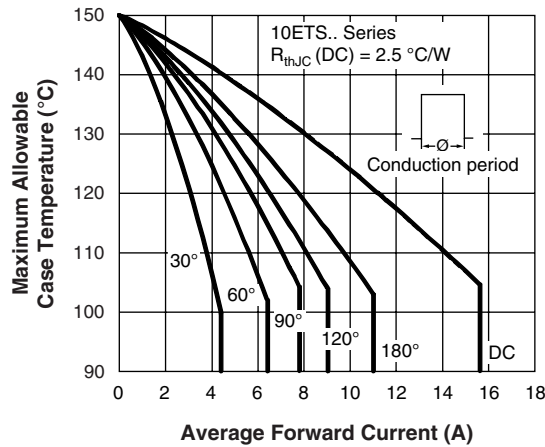


Fig. 2 - Current Rating Characteristics

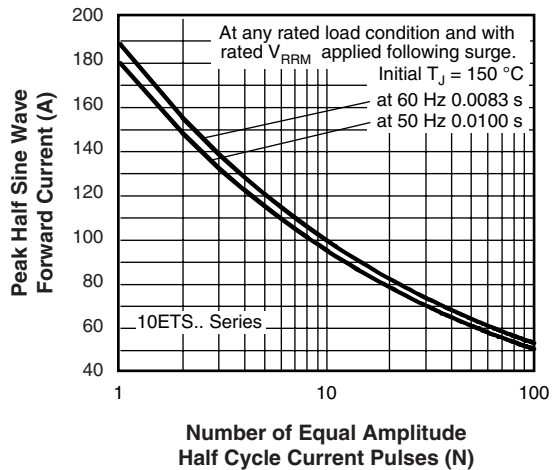


Fig. 5 - Maximum Non-Repetitive Surge Current

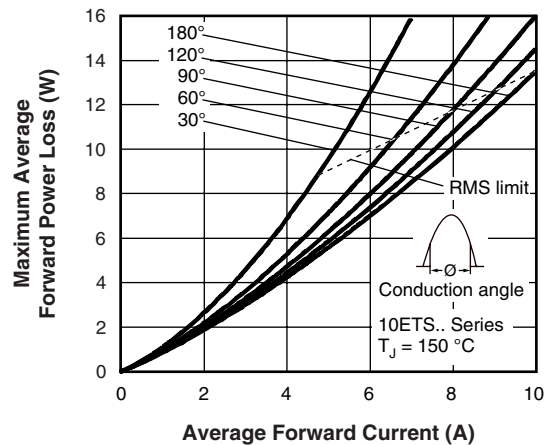


Fig. 3 - Forward Power Loss Characteristics

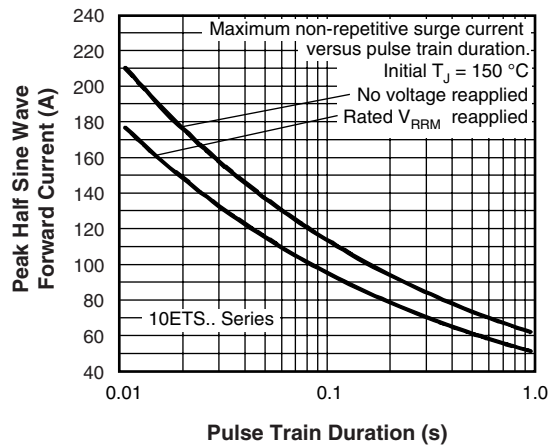


Fig. 6 - Maximum Non-Repetitive Surge Current

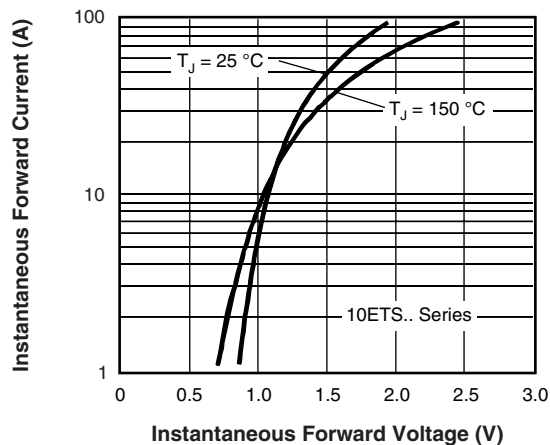


Fig. 7 - Forward Voltage Drop Characteristics

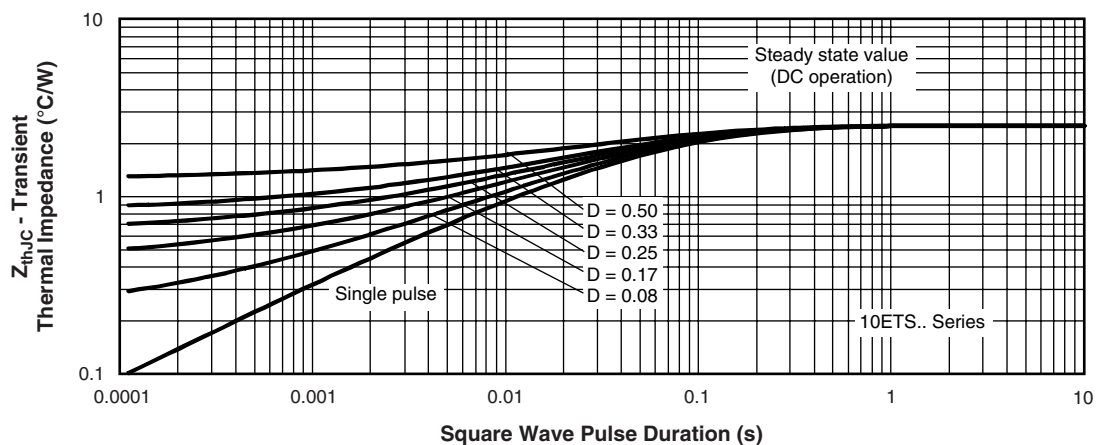


Fig. 8 - Thermal Impedance  $Z_{thJC}$  Characteristics



# 10ETS..S High Voltage Series

Input Rectifier Diode, 10 A Vishay High Power Products

## ORDERING INFORMATION TABLE

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

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



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