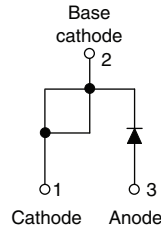


## Input Rectifier Diode, 10 A



TO-220AC



### FEATURES

- Compliant to RoHS directive 2002/95/EC
- Designed and qualified for industrial level



RoHS\*  
COMPLIANT

### APPLICATIONS

- Input rectification
- Vishay Semiconductors switches and output rectifiers which are available in identical package outlines

### DESCRIPTION

The 10ETS..PbF 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.

### PRODUCT SUMMARY

$V_F$ at 10 A	< 1.1 V
$I_{FSM}$	200 A
$V_{RRM}$	800 V/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 $1\text{ °C/W}$	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
10ETS08PbF	800	900	0.5
10ETS12PbF	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	$I^2\sqrt{t}$	$t = 0.1\text{ ms to }10\text{ ms}$ , no voltage reapplied	1450	A <sup>2</sup> √s

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

# 10ETS08PbF, 10ETS12PbF High Voltage Series



Vishay Semiconductors

Input Rectifier Diode, 10 A

ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop	$V_{FM}$	10 A, $T_J = 25\text{ }^\circ\text{C}$		1.1	V
Forward slope resistance	$r_t$	$T_J = 150\text{ }^\circ\text{C}$		20	$\text{m}\Omega$
Threshold voltage	$V_{F(TO)}$			0.82	V
Maximum reverse leakage current	$I_{RM}$	$T_J = 25\text{ }^\circ\text{C}$	$V_R = \text{Rated } V_{RRM}$	0.05	mA
		$T_J = 150\text{ }^\circ\text{C}$		0.50	

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		2.5	$^\circ\text{C}/\text{W}$
Maximum thermal resistance, junction to ambient (PCB mount)	$R_{thJA}^{(1)}$			62	
Soldering temperature	$T_S$			240	$^\circ\text{C}$
Approximate weight				2	g
				0.07	oz.
Marking device		Case style TO-220AC		10ETS08	
				10ETS12	

## 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



# 10ETS08PbF, 10ETS12PbF High Voltage Series

Input Rectifier Diode, 10 A

Vishay Semiconductors

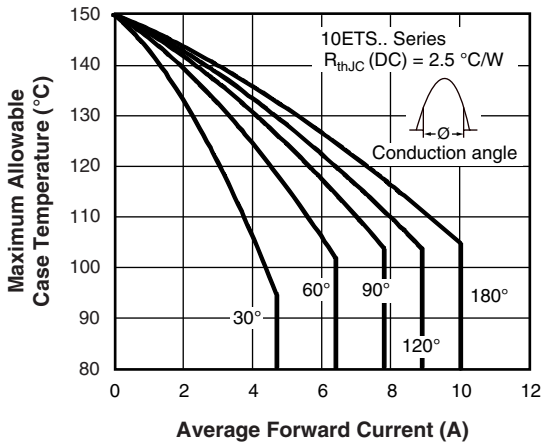


Fig. 1 - Current Rating Characteristics

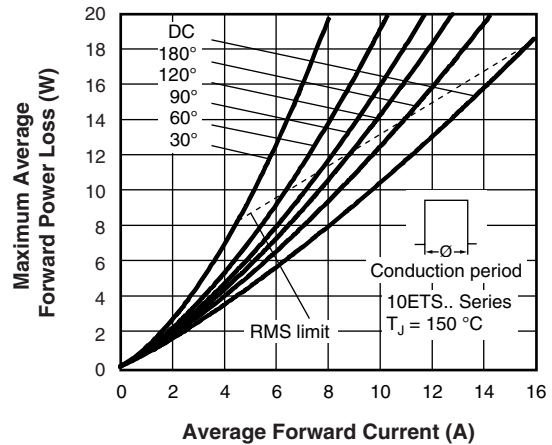


Fig. 4 - Forward Power Loss Characteristics

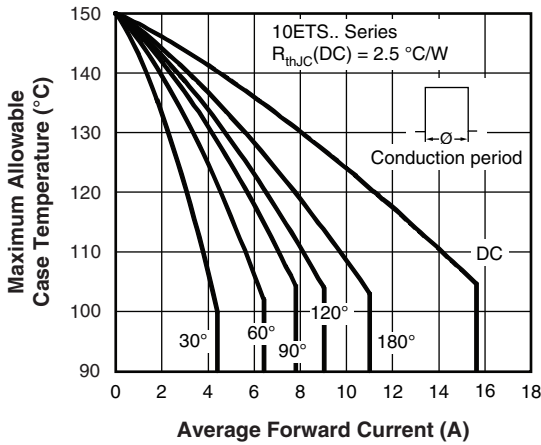


Fig. 2 - Current Rating Characteristics

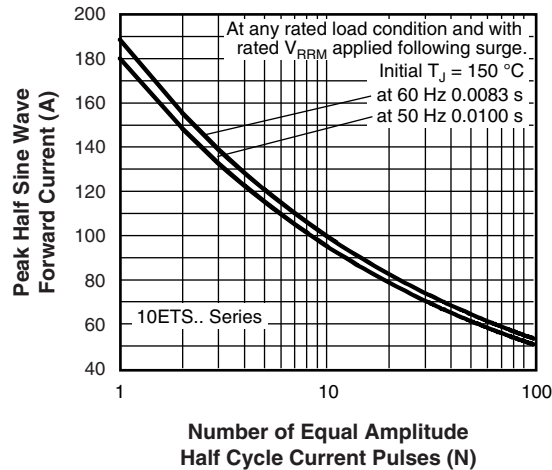


Fig. 5 - Maximum Non-Repetitive Surge Current

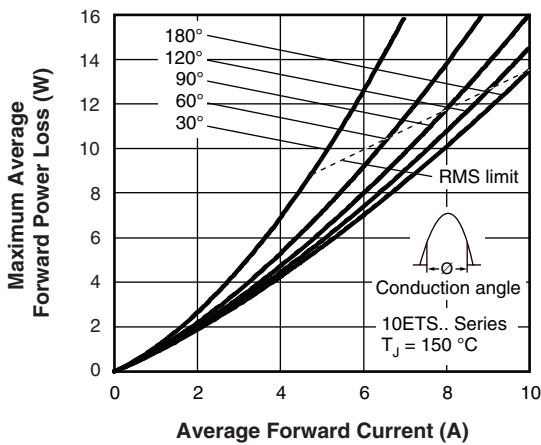


Fig. 3 - Forward Power Loss Characteristics

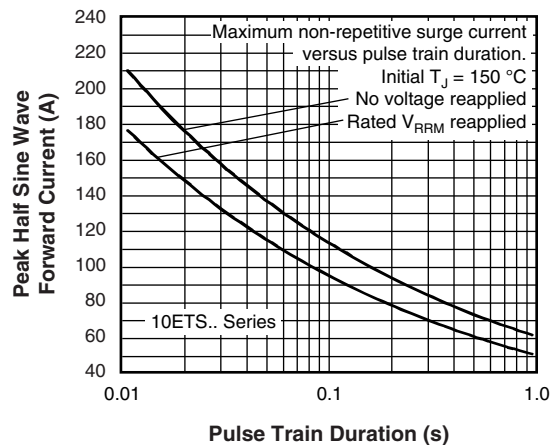


Fig. 6 - Maximum Non-Repetitive Surge Current

# 10ETS08PbF, 10ETS12PbF High Voltage Series

Vishay Semiconductors

Input Rectifier Diode, 10 A

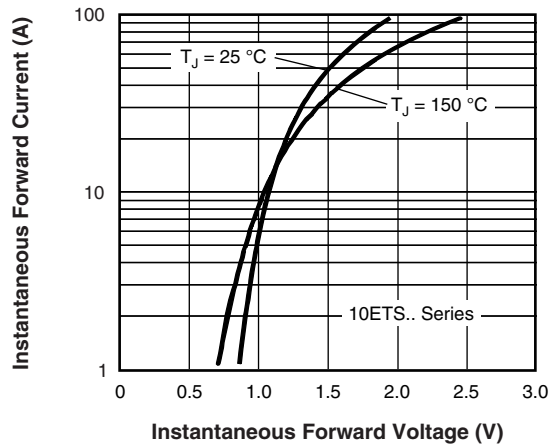


Fig. 7 - Forward Voltage Drop Characteristics

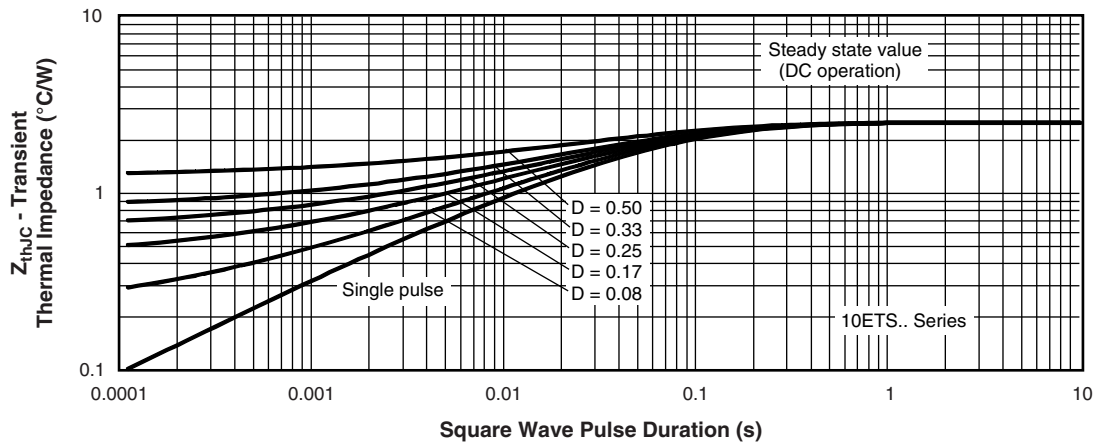


Fig. 8 - Thermal Impedance  $Z_{thJC}$  Characteristics



# 10ETS08PbF, 10ETS12PbF High Voltage Series

Input Rectifier Diode, 10 A

Vishay Semiconductors

## ORDERING INFORMATION TABLE

Device code	<b>10</b>	<b>E</b>	<b>T</b>	<b>S</b>	<b>12</b>	<b>PbF</b>
	①	②	③	④	⑤	⑥
	<b>1</b>	-	Current rating (10 = 10 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 code x 100 = $V_{RRM}$			08 = 800 V 12 = 1200 V
	<b>6</b>	-	• None = Standard production • PbF = Lead (Pb)-free			

LINKS TO RELATED DOCUMENTS	
Dimensions	<a href="http://www.vishay.com/doc?95221">www.vishay.com/doc?95221</a>
Part marking information	<a href="http://www.vishay.com/doc?95224">www.vishay.com/doc?95224</a>



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