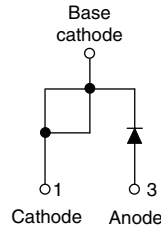




Input Rectifier Diode TO-220 FULL-PAK, 10 A



TO-220AC FULL-PAK



DESCRIPTION

The 10ETS12FPPbF 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.



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.

Fully isolated package ($V_{INS} = 2500 V_{RMS}$) is UL E78996 approved

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

PRODUCT SUMMARY

V_F at 10 A	< 1.1 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}	Range	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
10ETS08FPPbF	800	900	0.5
10ETS12FPPbF	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 ² 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 ² /s

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

10ETS..FPPbF High Voltage Series



Vishay High Power Products Input Rectifier Diode
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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	$m\Omega$
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	$^\circ\text{C/W}$
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 TO-220 FULL-PAK (94/V0)		10ETS12FP	



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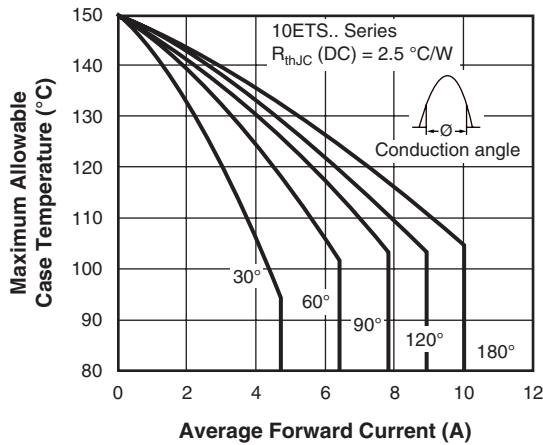


Fig. 1 - Current Rating Characteristics

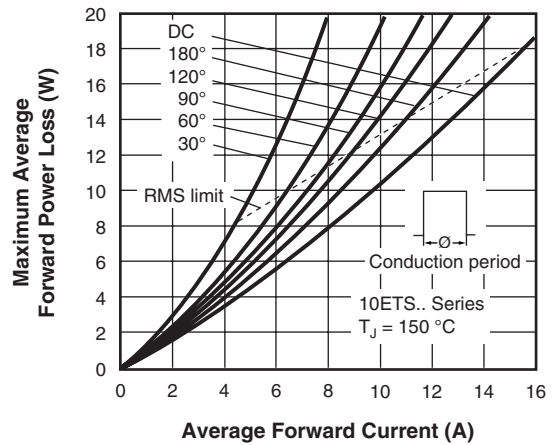


Fig. 4 - Forward Power Loss Characteristics

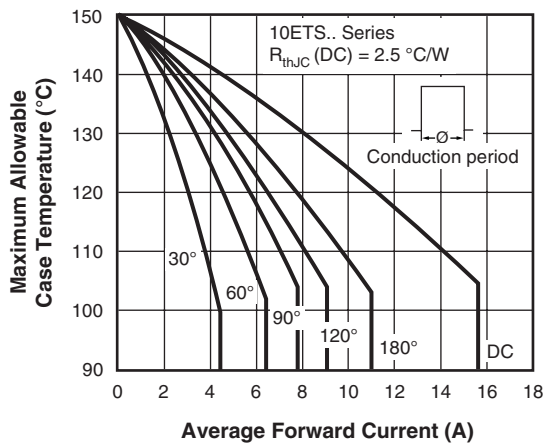


Fig. 2 - Current Rating Characteristics

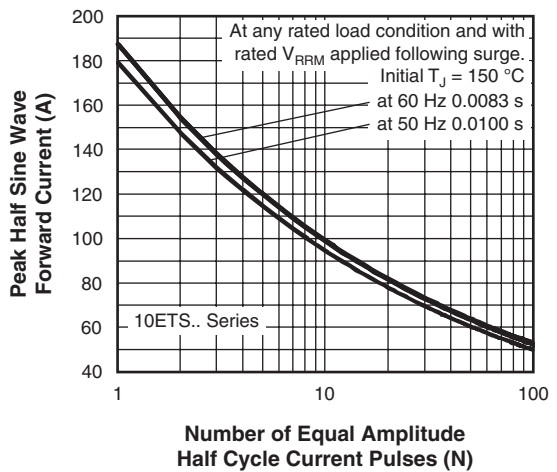


Fig. 5 - Maximum Non-Repetitive Surge Current

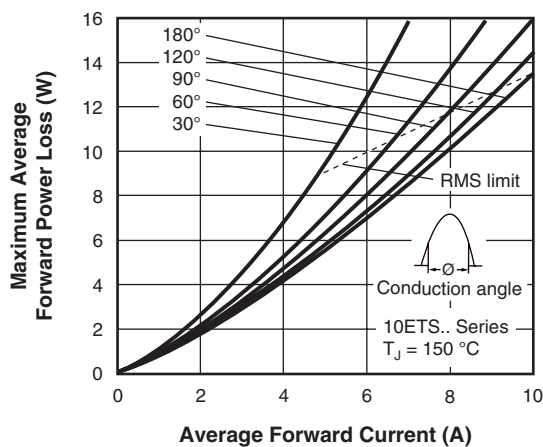


Fig. 3 - Forward Power Loss Characteristics

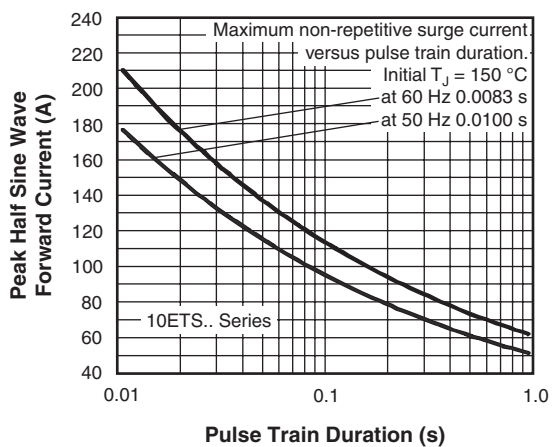


Fig. 6 - Maximum Non-Repetitive Surge Current

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Input Rectifier Diode
TO-220 FULL-PAK, 10 A

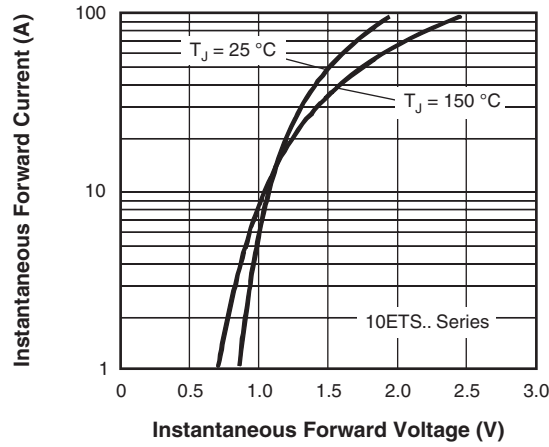


Fig. 7 - Forward Voltage Drop Characteristics

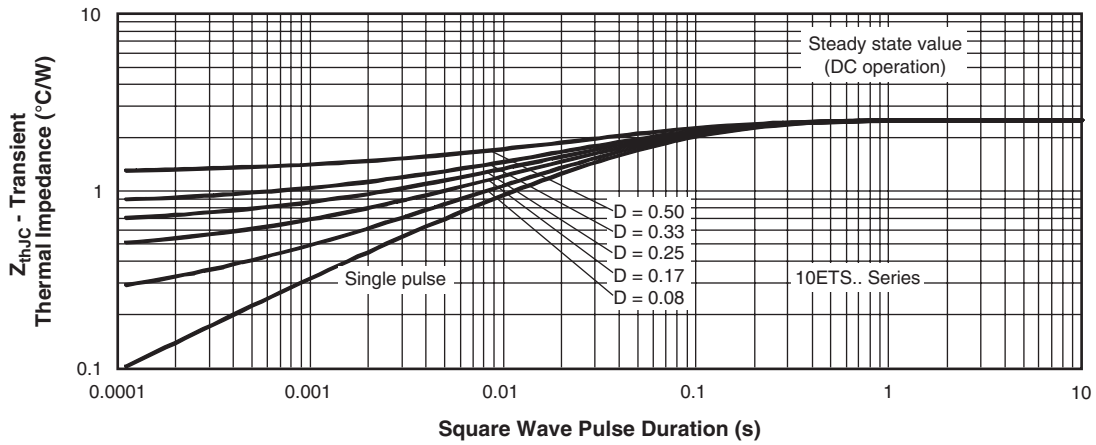


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics

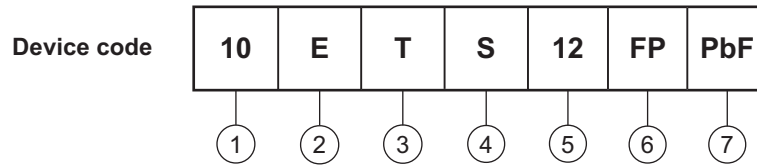


10ETS..FPPbF High Voltage Series

Input Rectifier Diode
TO-220 FULL-PAK, 10 A

Vishay High Power Products

ORDERING INFORMATION TABLE



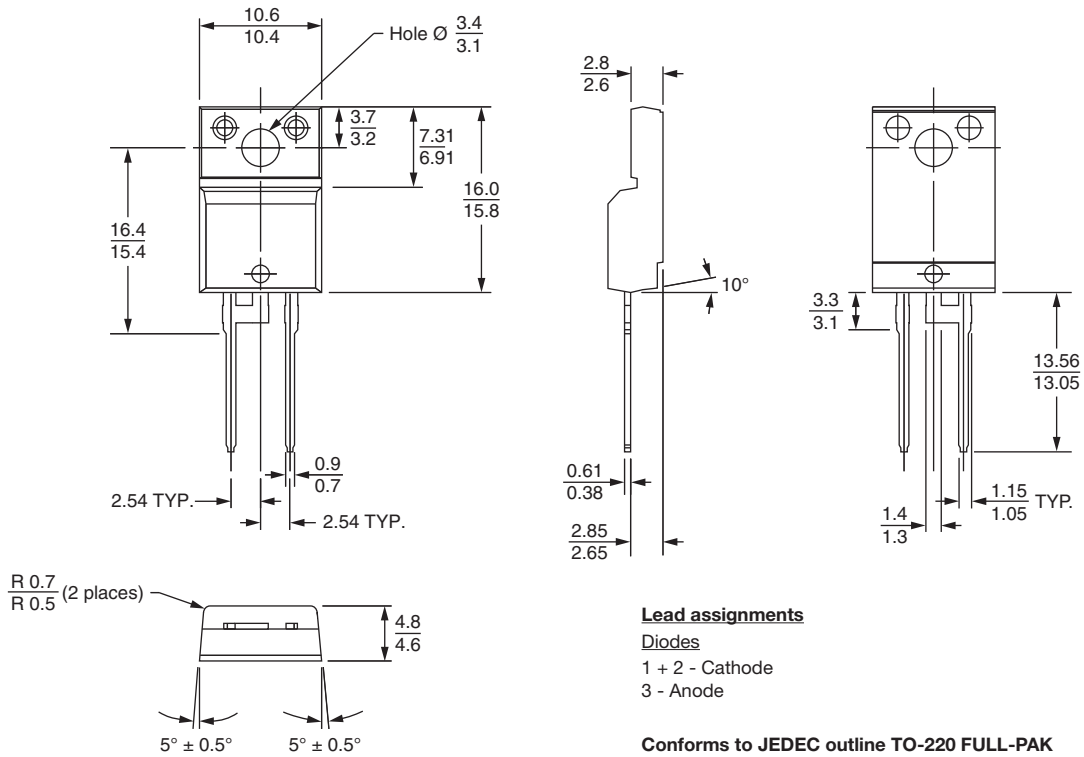
- 1** - Current rating (10 = 10 A)
- 2** - Circuit configuration:
E = Single diode
- 3** - Package:
T = TO-220AC
- 4** - Type of silicon:
S = Standard recovery rectifier
- 5** - Voltage rating —————

08 = 800 V
12 = 1200 V
- 6** - FULL-PAK
- 7** -
 - None = Standard production
 - PbF = Lead (Pb)-free

LINKS TO RELATED DOCUMENTS	
Dimensions	http://www.vishay.com/doc?95005
Part marking information	http://www.vishay.com/doc?95009



DIMENSIONS in millimeters



Lead assignments

- Diodes**
1 + 2 - Cathode
3 - Anode

Conforms to JEDEC outline TO-220 FULL-PAK



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