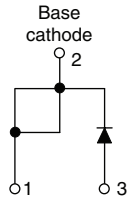
Input Rectifier Diode, 10 A

TO-220AC



FEATURES/DESCRIPTION

The 10ETS... 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 has been designed and qualified for industrial level.

PRODUCT SUMMARY	
V_F at 10 A	< 1 V
I_{FSM}	200 A
V_{RRM}	800 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	12.0	16.0	A

MAJOR RATINGS AND CHARACTERISTICS			
SYMBOL	**CHARACTERISTICS**	**VALUES**	**UNITS**
$I_{F(AV)}$	Sinusoidal waveform	10	A
V_{RRM}		800 to 1200	V
I_{FSM}		200	A
V_F	10 A, T_J = 25 °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**
10ETS08	800	900	0.5
10ETS10	1000	1100	
10ETS12	1200	1300	

ABSOLUTE MAXIMUM RATINGS				
PARAMETER	**SYMBOL**	**TEST CONDITIONS**	**VALUES**	**UNITS**
Maximum average forward current	$I_{F(AV)}$	T_C = 105 °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^2s
		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	$A^2\sqrt{s}$

ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop	V_{FM}	10 A, T_J = 25 °C		1.1	V
Forward slope resistance	r_t	T_J = 150 °C		20	mΩ
Threshold voltage	$V_{F(TO)}$			0.82	V
Maximum reverse leakage current	I_{RM}	T_J = 25 °C	V_R = Rated V_{RRM}	0.05	mA
		T_J = 150 °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	°C
Maximum thermal resistance, junction to case	R_{thJC}	DC operation	2.5	°C/W
Maximum thermal resistance, junction to ambient (PCB mount)	R_{thJA} (1)		62	
Soldering temperature	T_S		240	°C
Approximate weight			2	g
			0.07	oz.
Marking device		Case style TO-220AC	10ETS08	
			10ETS10	
			10ETS12	

Note

(1) When mounted on 1" square (650 mm^2) PCB of FR-4 or G-10 material 4 oz. (140 µm) copper 40 °C/W
For recommended footprint and soldering techniques refer to application note #AN-994

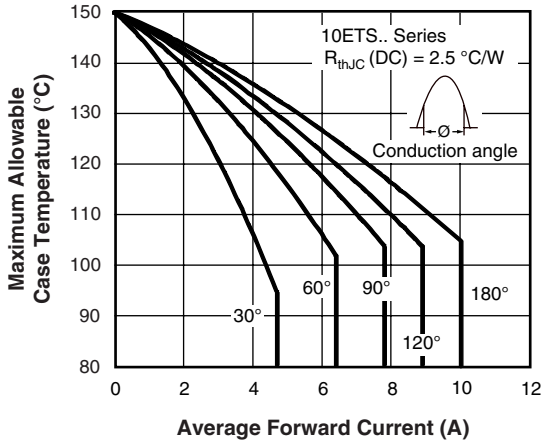


Fig. 1 - Current Rating Characteristics

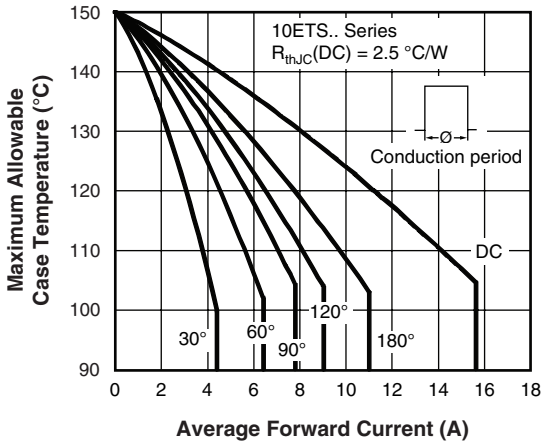


Fig. 2 - Current Rating Characteristics

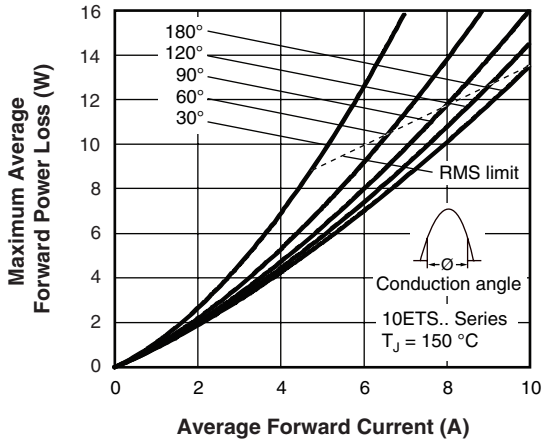


Fig. 3 - Forward Power Loss Characteristics

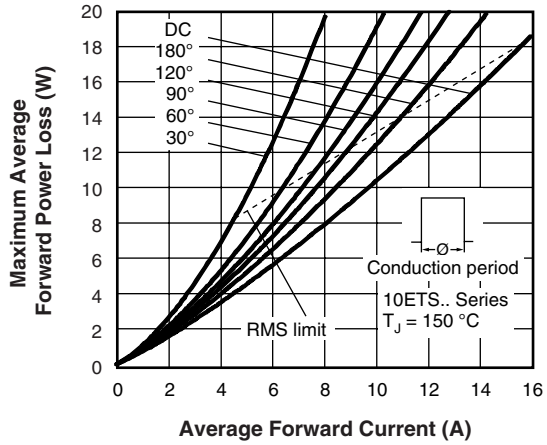


Fig. 4 - Forward Power Loss Characteristics

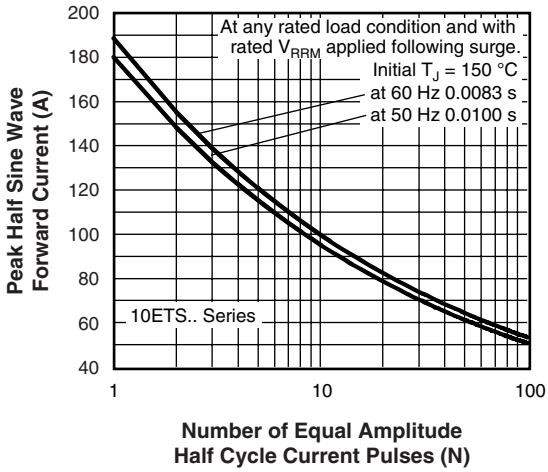


Fig. 5 - Maximum Non-Repetitive Surge Current

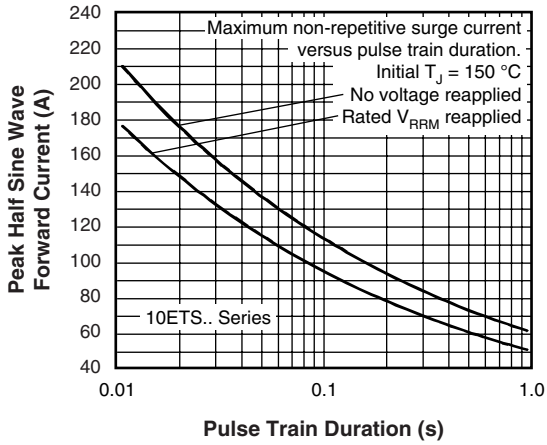


Fig. 6 - Maximum Non-Repetitve Surge Current

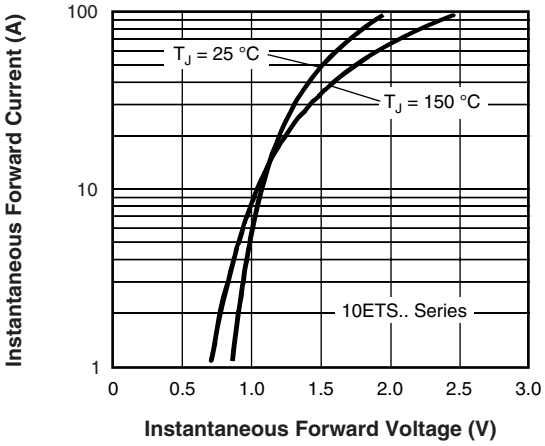


Fig. 7 - Forward Voltage Drop Characteristics

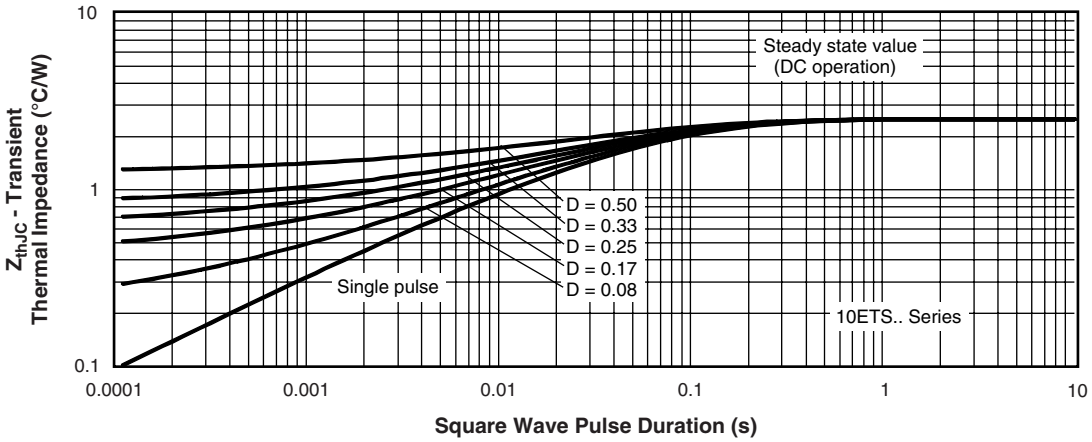


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics

ORDERING INFORMATION TABLE

Device code

10	E	T	S	12	-
1	2	3	4	5	6

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 - • None = Standard production
• PbF = Lead (Pb)-free

LINKS TO RELATED DOCUMENTS	
Dimensions	http://www.vishay.com/doc?95221
Part marking information	http://www.vishay.com/doc?95224

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