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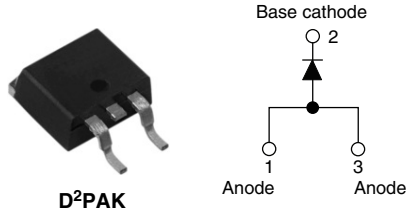
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10ETS..S High Voltage Series

Vishay High Power Products

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 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

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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 (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 D ² PAK (SMD-220)		10ETS08S	
				10ETS10S	
				10ETS12S	

Note

⁽¹⁾ When mounted on 1" square (650 mm²) PCB of FR-4 or G-10 material 4 oz. (140 μm) copper 40 $^\circ\text{C/W}$
For recommended footprint and soldering techniques refer to application note #AN-994



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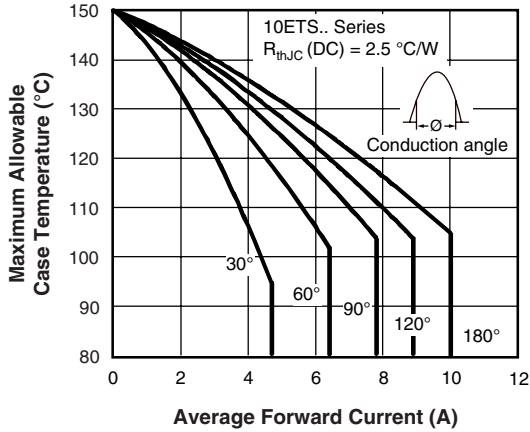


Fig. 1 - Current Rating Characteristics

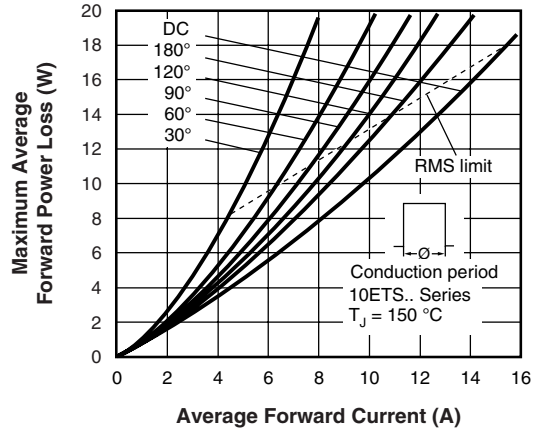


Fig. 4 - Forward Power Loss Characteristics

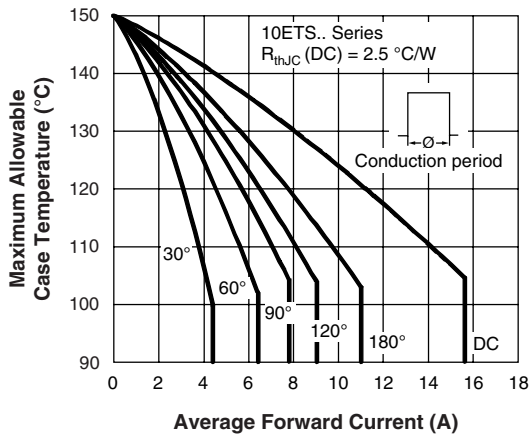


Fig. 2 - Current Rating Characteristics

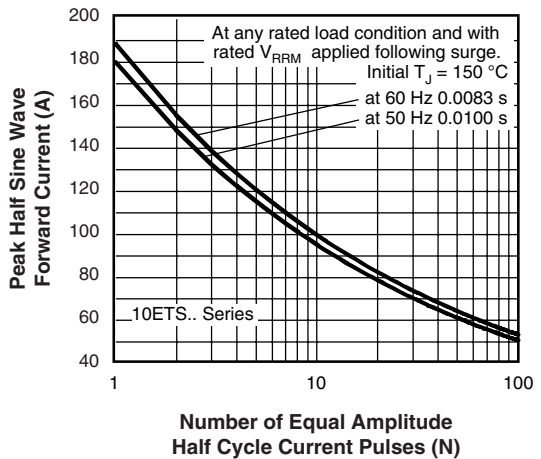


Fig. 5 - Maximum Non-Repetitive Surge Current

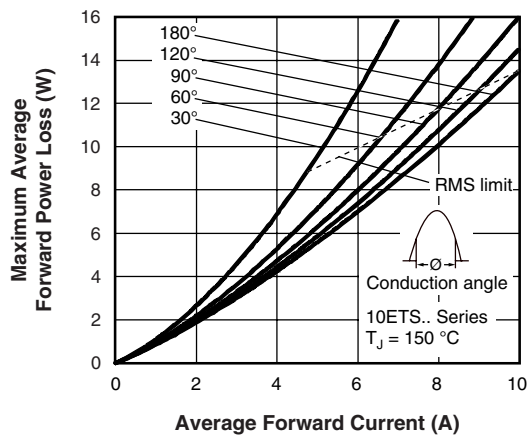


Fig. 3 - Forward Power Loss Characteristics

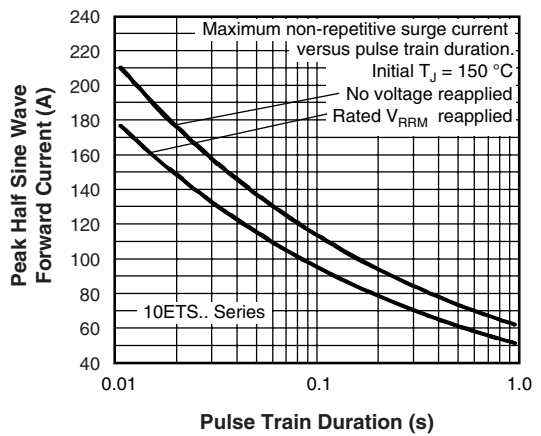


Fig. 6 - Maximum Non-Repetitive Surge Current

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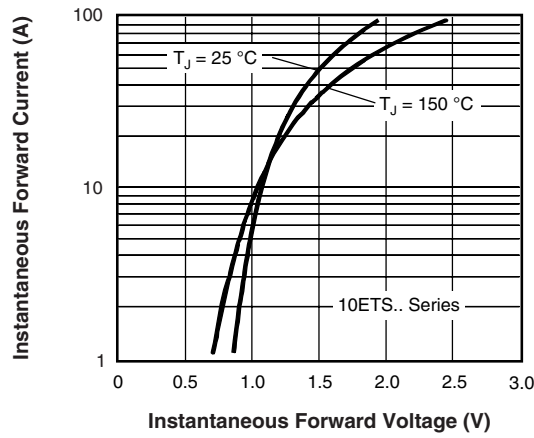


Fig. 7 - Forward Voltage Drop Characteristics

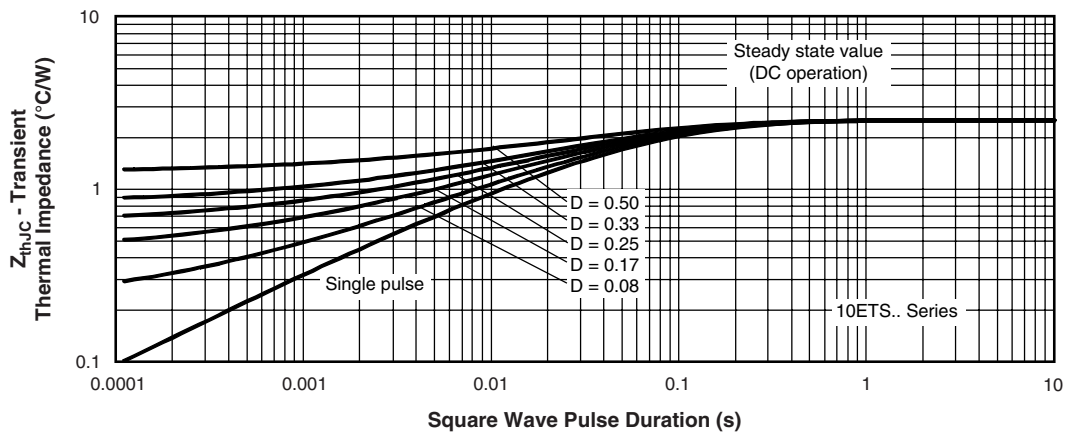


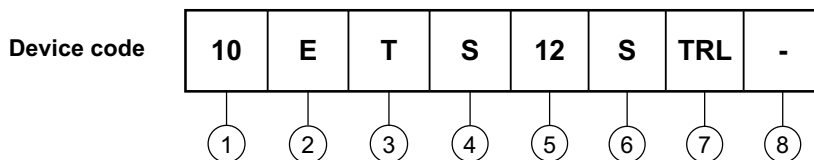
Fig. 8 - Thermal Impedance Z_{thJC} Characteristics



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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 code x 100 = V_{RRM}

08 = 800 V
10 = 1000 V
12 = 1200 V
- 6** - S = TO-220 D²PAK (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	http://www.vishay.com/doc?95046
Part marking information	http://www.vishay.com/doc?95054
Packaging information	http://www.vishay.com/doc?95032



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