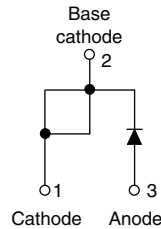


Fast Soft Recovery Rectifier Diode, 10 A



TO-220AC



FEATURES/DESCRIPTION

The 10ETF... fast soft recovery rectifier series has been optimized for combined short reverse recovery time and low forward voltage drop.

The glass passivation ensures stable reliable operation in the most severe temperature and power cycling conditions.

This product series has been designed and qualified for industrial level.

APPLICATIONS

- Output rectification and freewheeling in inverters, choppers and converters
- Input rectifications where severe restrictions on conducted EMI should be met

PRODUCT SUMMARY	
V_{RRM}	1000 to 1200 V
V_F at 10 A	< 1.33 V
t_{rr}	80 ns

MAJOR RATINGS AND CHARACTERISTICS			
SYMBOL	CHARACTERISTICS	VALUES	UNITS
V_{RRM}		1000 to 1200	V
$I_{F(AV)}$	Sinusoidal waveform	10	A
I_{FSM}		160	
t_{rr}	1 A, 100 A/ μ s	80	ns
V_F	10 A, $T_J = 25^\circ\text{C}$	1.33	V
T_J		- 40 to 150	$^\circ\text{C}$

VOLTAGE RATINGS			
PART NUMBER	V_{RRM} , MAXIMUM PEAK REVERSE VOLTAGE V	V_{RSM} , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	I_{RRM} AT 150 $^\circ\text{C}$ mA
10ETF10	1000	1100	4
10ETF12	1200	1200	

ABSOLUTE MAXIMUM RATINGS				
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current	$I_{F(AV)}$	$T_C = 125^\circ\text{C}$, 180 $^\circ$ conduction half sine wave	10	A
Maximum peak one cycle non-repetitive surge current	I_{FSM}	10 ms sine pulse, rated V_{RRM} applied	160	
		10 ms sine pulse, no voltage reapplied	185	
Maximum I^2t for fusing	I^2t	10 ms sine pulse, rated V_{RRM} applied	128	A^2s
		10 ms sine pulse, no voltage reapplied	180	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	$t = 0.1$ to 10 ms, no voltage reapplied	1800	$\text{A}^2\sqrt{\text{s}}$

10ETF... Soft Recovery Series



Vishay High Power Products

Fast Soft Recovery
Rectifier Diode, 10 A

ELECTRICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum forward voltage drop	V_{FM}	10 A, $T_J = 25\text{ }^\circ\text{C}$		1.33	V
Forward slope resistance	r_t	$T_J = 150\text{ }^\circ\text{C}$		22.9	$\text{m}\Omega$
Threshold voltage	$V_{F(TO)}$			0.96	V
Maximum reverse leakage current	I_{RM}	$T_J = 25\text{ }^\circ\text{C}$	$V_R = \text{Rated } V_{RRM}$	0.1	mA
		$T_J = 150\text{ }^\circ\text{C}$		4	

RECOVERY CHARACTERISTICS					
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS	
Reverse recovery time	t_{rr}	I_F at 10 Apk 25 A/ μs 25 $^\circ\text{C}$	310	ns	
Reverse recovery current	I_{rr}		4.7	A	
Reverse recovery charge	Q_{rr}		1.05	μC	
Typical snap factor	S		0.6		

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	1.5	$^\circ\text{C/W}$
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-220AC (JEDEC)	10ETF10	
			10ETF12	



10ETF... Soft Recovery Series

Fast Soft Recovery
Rectifier Diode, 10 A

Vishay High Power Products

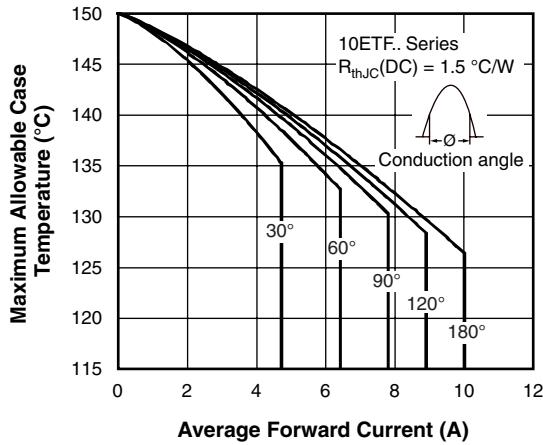


Fig. 1 - Current Rating Characteristics

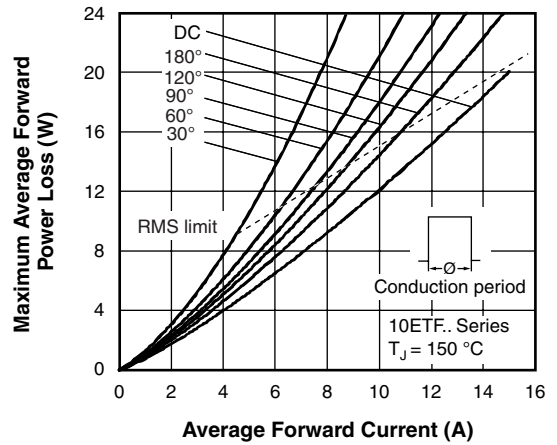


Fig. 4 - Forward Power Loss Characteristics

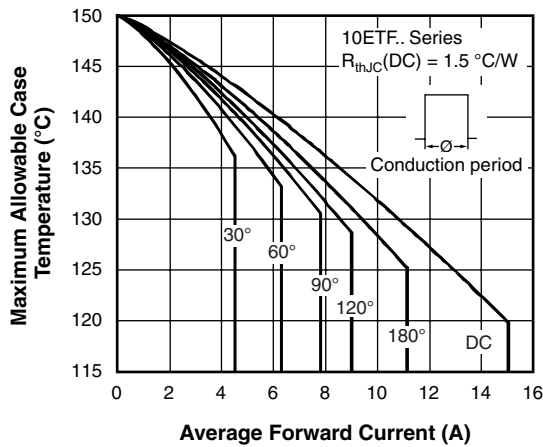


Fig. 2 - Current Rating Characteristics

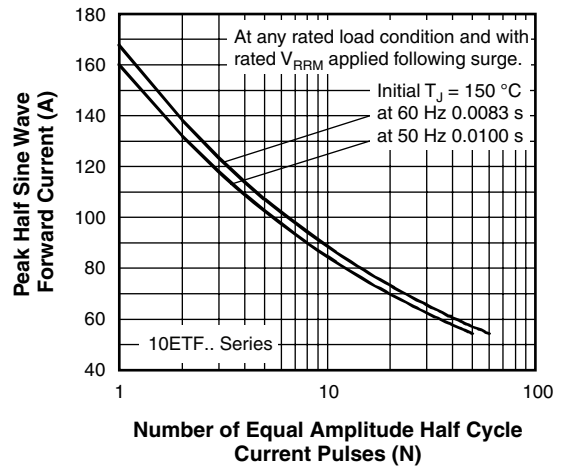


Fig. 5 - Maximum Non-Repetitive Surge Current

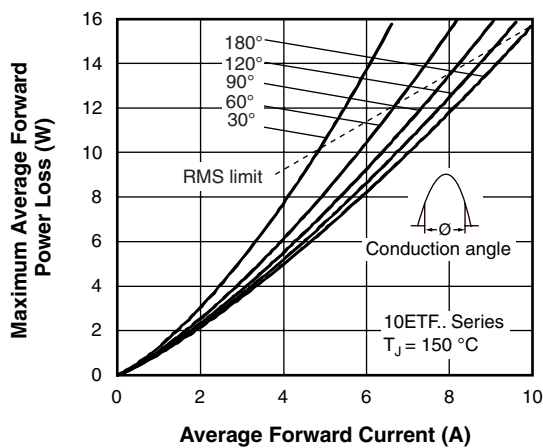


Fig. 3 - Forward Power Loss Characteristics

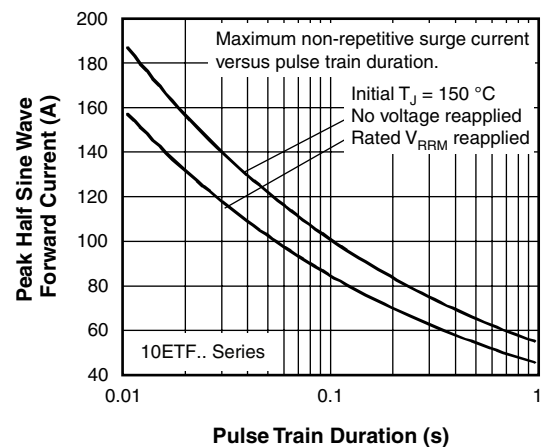


Fig. 6 - Maximum Non-Repetitive Surge Current

10ETF... Soft Recovery Series



Vishay High Power Products

Fast Soft Recovery Rectifier Diode, 10 A

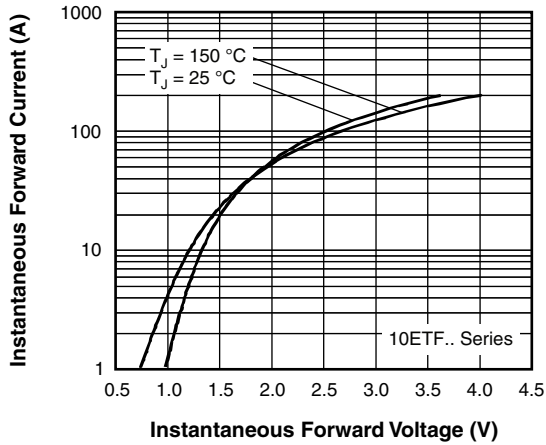


Fig. 7 - Forward Voltage Drop Characteristics

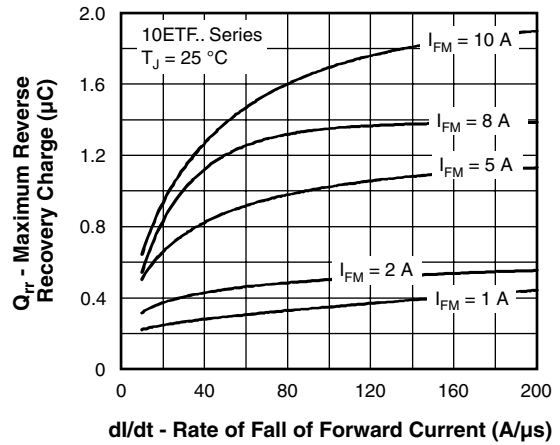


Fig. 10 - Recovery Charge Characteristics, $T_J = 25\text{ }^\circ\text{C}$

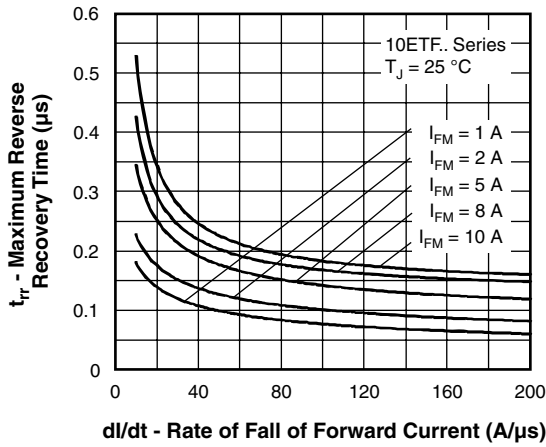


Fig. 8 - Recovery Time Characteristics, $T_J = 25\text{ }^\circ\text{C}$

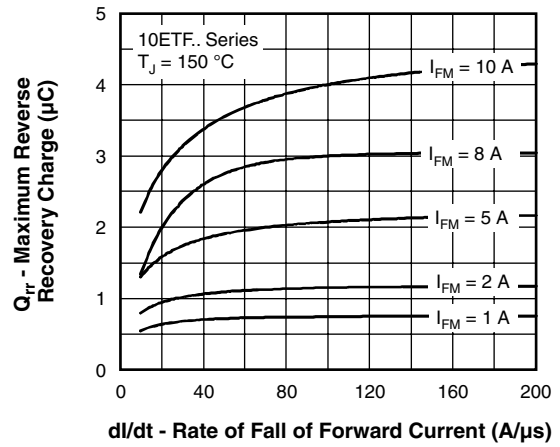


Fig. 11 - Recovery Charge Characteristics, $T_J = 150\text{ }^\circ\text{C}$

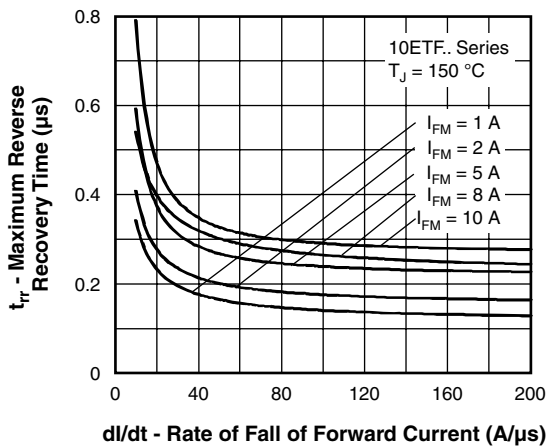


Fig. 9 - Recovery Time Characteristics, $T_J = 150\text{ }^\circ\text{C}$

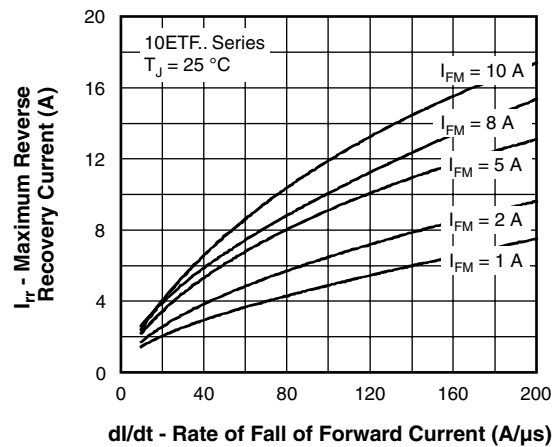


Fig. 12 - Recovery Current Characteristics, $T_J = 25\text{ }^\circ\text{C}$



10ETF... Soft Recovery Series

Fast Soft Recovery
Rectifier Diode, 10 A

Vishay High Power Products

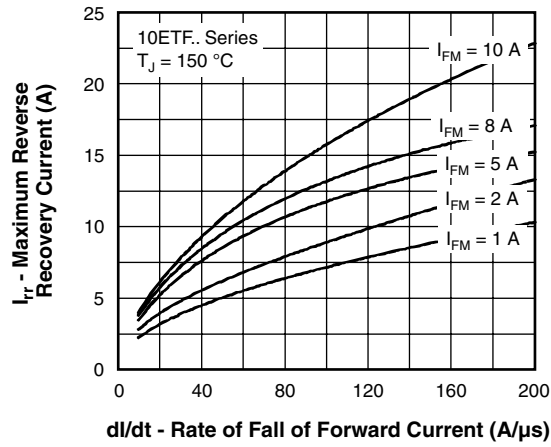


Fig. 13 - Recovery Current Characteristics, $T_J = 150\text{ }^\circ\text{C}$

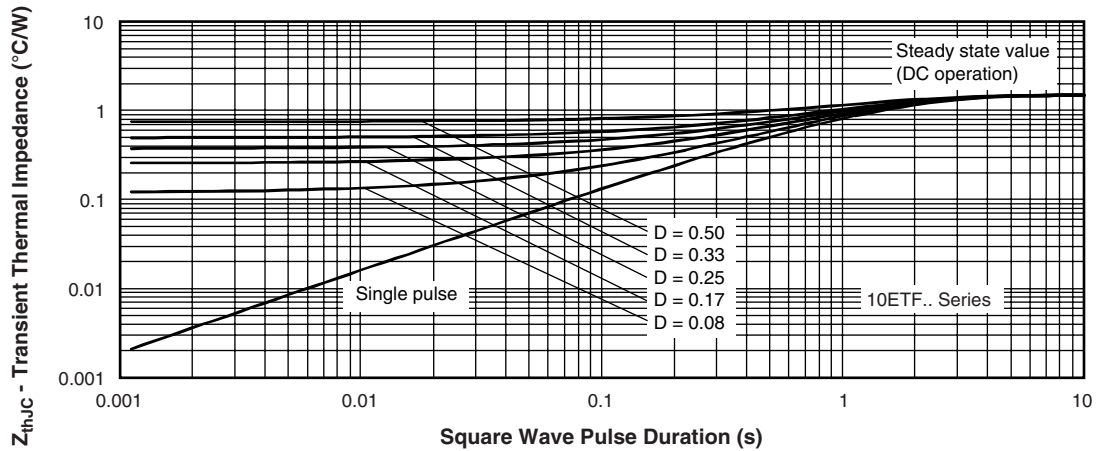


Fig. 14 - Thermal Impedance Z_{thJC} Characteristics

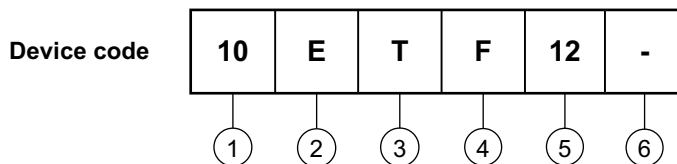
10ETF... Soft Recovery Series



Vishay High Power Products

Fast Soft Recovery
Rectifier Diode, 10 A

ORDERING INFORMATION TABLE



- 1** - Current rating (10 = 10 A)
- 2** - Circuit configuration:
E = Single diode
- 3** - Package:
T = TO-220AC
- 4** - Type of silicon:
F = Fast soft recovery rectifier
- 5** - Voltage code x 100 = V_{RRM}

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



Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.