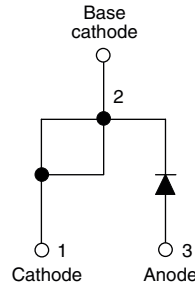


Fast Soft Recovery Rectifier Diode, 10 A



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} | 200 to 600 V |
| V_F at 10 A | < 1.2 V |
| t_{rr} | 50 ns |

| MAJOR RATINGS AND CHARACTERISTICS | | | |
|-----------------------------------|--------------------------------|-------------|------------------|
| SYMBOL | CHARACTERISTICS | VALUES | UNITS |
| V_{RRM} | | 200 to 600 | V |
| $I_{F(AV)}$ | Sinusoidal waveform | 10 | A |
| I_{FSM} | | 150 | |
| t_{rr} | 1 A, 100 A/ μ s | 50 | ns |
| V_F | 10 A, $T_J = 25^\circ\text{C}$ | 1.2 | 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 |
| 10ETF02 | 200 | 300 | 2 |
| 10ETF04 | 400 | 500 | |
| 10ETF06 | 600 | 700 | |

| ABSOLUTE MAXIMUM RATINGS | | | | |
|-----------------------------------------------------|---------------|--------------------------------------------------------------------|--------|-----------------------------|
| PARAMETER | SYMBOL | TEST CONDITIONS | VALUES | UNITS |
| Maximum average forward current | $I_{F(AV)}$ | $T_C = 128^\circ\text{C}$, 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 | 150 | |
| | | 10 ms sine pulse, no voltage reapplied | 160 | |
| Maximum I^2t for fusing | I^2t | 10 ms sine pulse, rated V_{RRM} applied | 112.5 | A^2s |
| | | 10 ms sine pulse, no voltage reapplied | 160 | |
| Maximum $I^2\sqrt{t}$ for fusing | $I^2\sqrt{t}$ | $t = 0.1$ to 10 ms, no voltage reapplied | 1600 | $\text{A}^2\sqrt{\text{s}}$ |

10ETF.. Soft Recovery Series

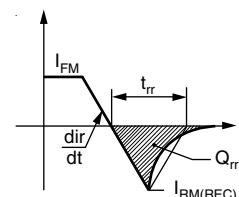
Vishay High Power Products

Fast Soft Recovery
Rectifier Diode, 10 A



| ELECTRICAL SPECIFICATIONS | | | | | |
|---------------------------------|-------------|----------------------------------------|-------------------------------|--------|-----------|
| PARAMETER | SYMBOL | TEST CONDITIONS | | VALUES | UNITS |
| Maximum forward voltage drop | V_{FM} | 10 A, $T_J = 25\text{ }^\circ\text{C}$ | | 1.2 | V |
| Forward slope resistance | r_t | $T_J = 150\text{ }^\circ\text{C}$ | | 23.5 | $m\Omega$ |
| Threshold voltage | $V_{F(TO)}$ | | | 0.85 | V |
| Maximum reverse leakage current | I_{RM} | $T_J = 25\text{ }^\circ\text{C}$ | $V_R = \text{Rated } V_{RRM}$ | 0.1 | mA |
| | | $T_J = 150\text{ }^\circ\text{C}$ | | 3.0 | |

| RECOVERY CHARACTERISTICS | | | | |
|--------------------------|----------|----------------------------------------------------------------------|--------|---------------|
| PARAMETER | SYMBOL | TEST CONDITIONS | VALUES | UNITS |
| Reverse recovery time | t_{rr} | I_F at 10 Apk 25 A/ μs $25\text{ }^\circ\text{C}$ | 145 | ns |
| Reverse recovery current | I_{rr} | | 2.75 | A |
| Reverse recovery charge | Q_{rr} | | 0.32 | μC |
| 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) | 10ETF02 | |
| | | | 10ETF04 | |
| | | | 10ETF06 | |



10ETF.. Soft Recovery Series

Fast Soft Recovery
Rectifier Diode, 10 A

Vishay High Power Products

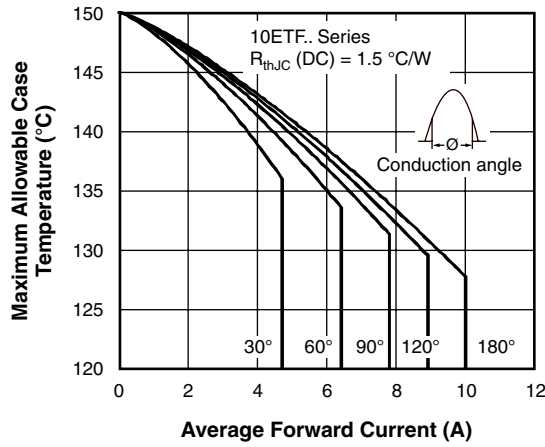


Fig. 1 - Current Rating Characteristics

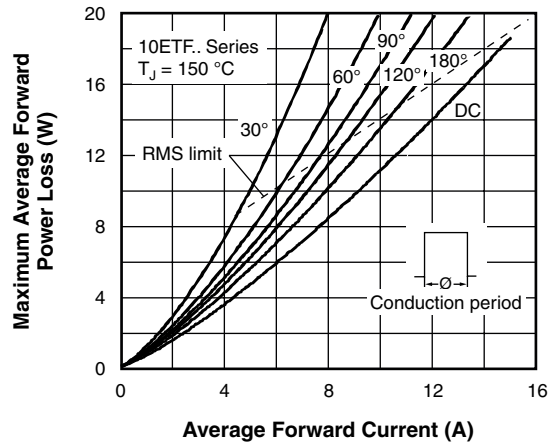


Fig. 4 - Forward Power Loss Characteristics

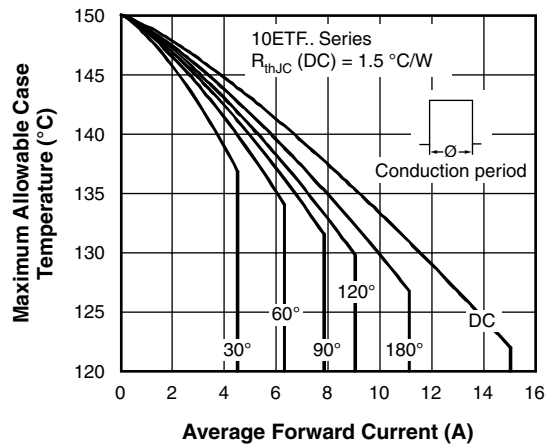


Fig. 2 - Current Rating Characteristics

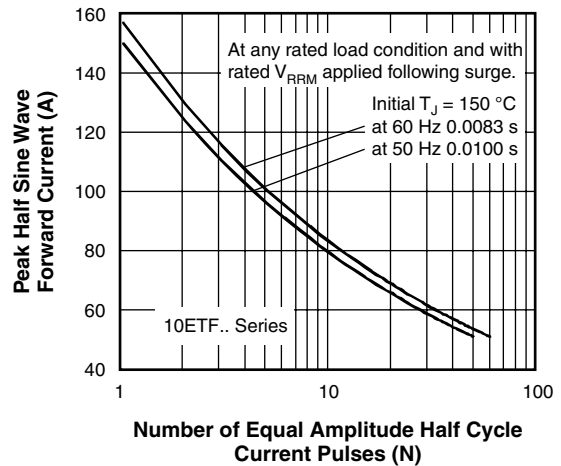


Fig. 5 - Maximum Non-Repetitive Surge Current

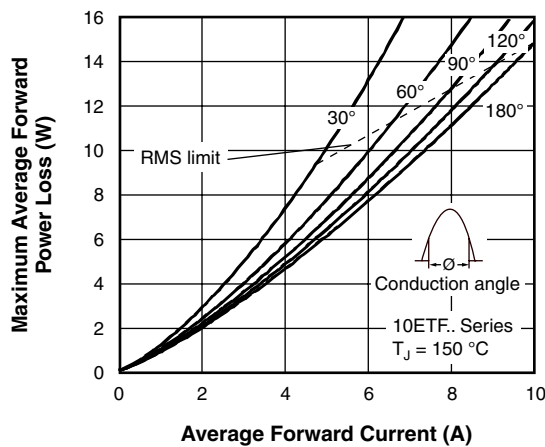


Fig. 3 - Forward Power Loss Characteristics

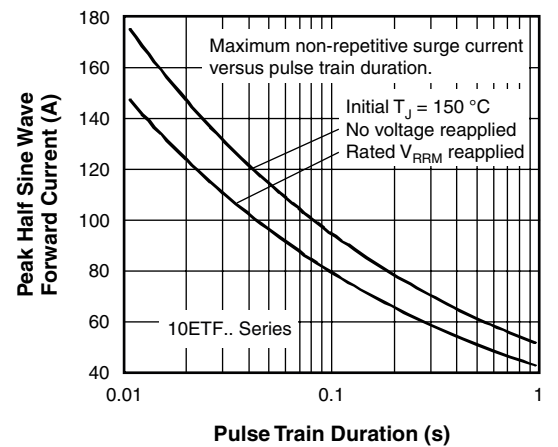


Fig. 6 - Maximum Non-Repetitive Surge Current

10ETF.. Soft Recovery Series

Vishay High Power Products

Fast Soft Recovery Rectifier Diode, 10 A

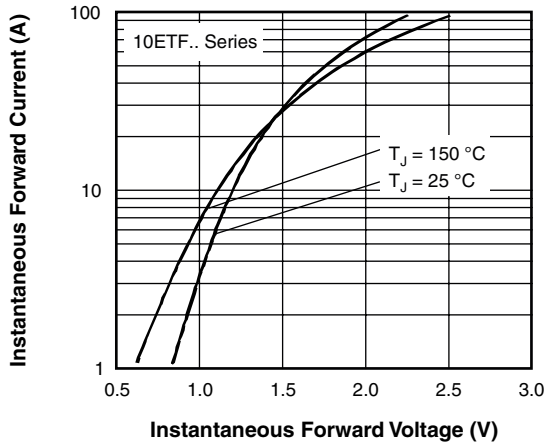


Fig. 7 - Forward Voltage Drop Characteristics

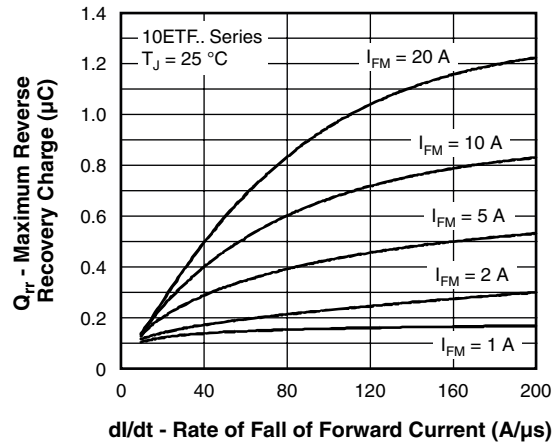


Fig. 10 - Recovery Charge Characteristics, $T_J = 25\text{ }^\circ\text{C}$

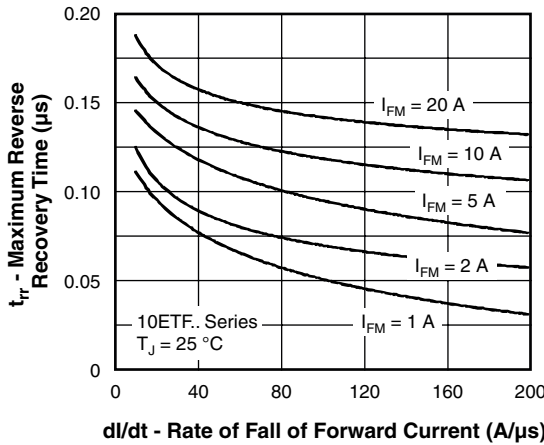


Fig. 8 - Recovery Time Characteristics, $T_J = 25\text{ }^\circ\text{C}$

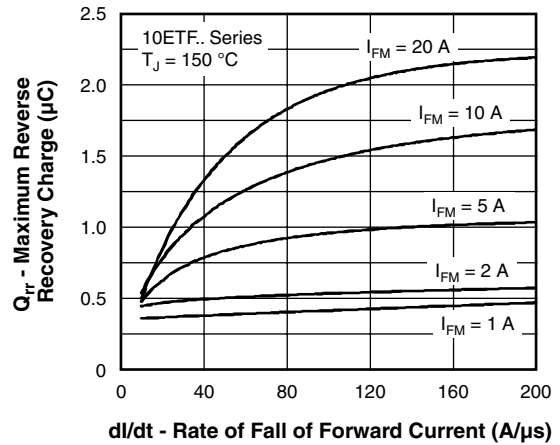


Fig. 11 - Recovery Charge Characteristics, $T_J = 150\text{ }^\circ\text{C}$

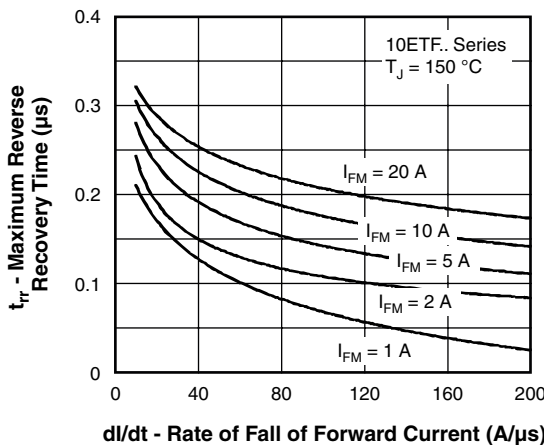


Fig. 9 - Recovery Time Characteristics, $T_J = 150\text{ }^\circ\text{C}$

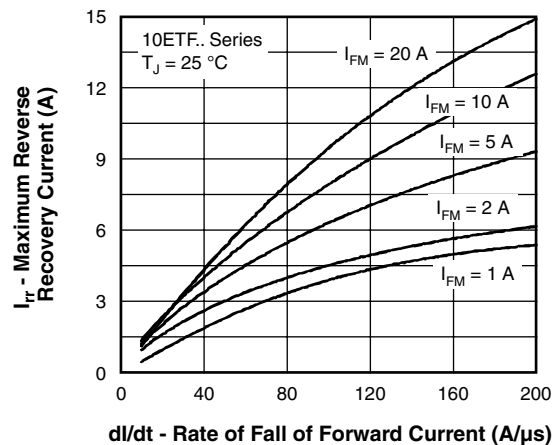


Fig. 12 - Recovery Current Characteristics, $T_J = 25\text{ }^\circ\text{C}$



10ETF.. Soft Recovery Series

Fast Soft Recovery Rectifier Diode, 10 A
Vishay High Power Products

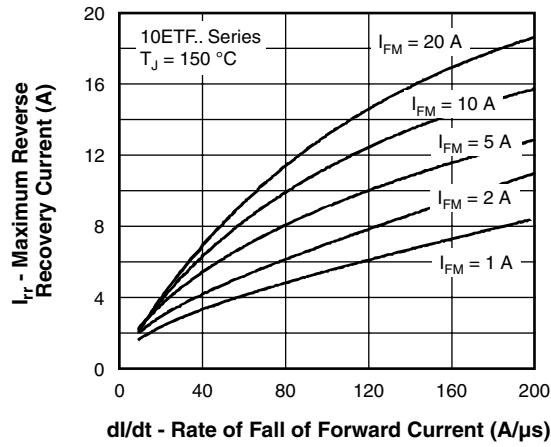


Fig. 13 - Recovery Current Characteristics, $T_J = 150\text{ }^\circ\text{C}$

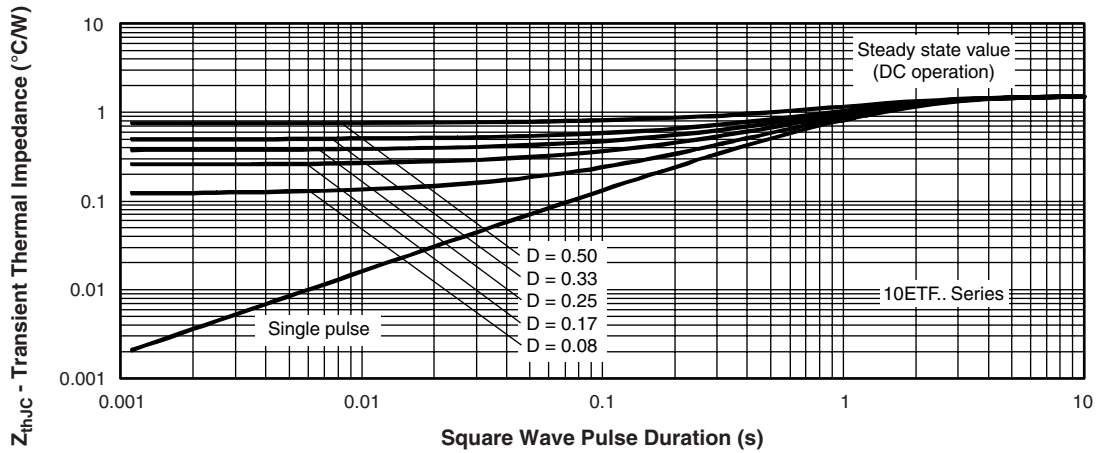


Fig. 14 - Thermal Impedance Z_{thJC} Characteristics



Notice

The products described herein were acquired by Vishay Intertechnology, Inc., as part of its acquisition of International Rectifier's Power Control Systems (PCS) business, which closed in April 2007. Specifications of the products displayed herein are pending review by Vishay and are subject to the terms and conditions shown below.

Specifications of the products displayed herein are subject to change without notice. Vishay Intertechnology, Inc., or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Vishay's terms and conditions of sale for such products, Vishay assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Vishay products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Vishay for any damages resulting from such improper use or sale.

International Rectifier®, IR®, the IR logo, HEXFET®, HEXSense®, HEXDIP®, DOL®, INTERO®, and POWIRTRAIN® are registered trademarks of International Rectifier Corporation in the U.S. and other countries. All other product names noted herein may be trademarks of their respective owners.