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April 2016

FFPF10F150S 10 A, 1500 V, Damper Diode

FFPF10F150S — Damper Diode

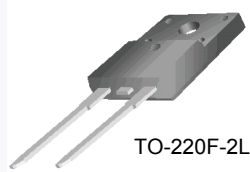
Features

- High Speed Recovery $t_{rr} = 170 \text{ ns}$ ($@ I_F = 1 \text{ A}$)
- Max Forward Voltage, $V_F = 1.6 \text{ V}$ ($@ T_C = 25^\circ\text{C}$)
- 1500 V Reverse Voltage and High Reliability
- Low Forward Voltage

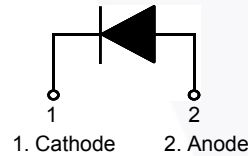
Applications

- Suitable for Damper Diode in Horizontal Deflection Circuits

Pin Assignments



1. Cathode 2. Anode



Absolute Maximum Ratings $T_C = 25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Rating | Unit |
|----------------|---|--------------|------------------|
| V_{RRM} | Peak Repetitive Reverse Voltage | 1500 | V |
| V_{RWM} | Working Peak Reverse Voltage | 1500 | V |
| $I_{F(AV)}$ | Average Rectified Forward Current @ $T_C = 125^\circ\text{C}$ | 10 | A |
| I_{FSM} | Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave | 100 | A |
| T_J, T_{STG} | Operating Junction and Storage Temperature | - 65 to +150 | $^\circ\text{C}$ |

Thermal Characteristics $T_C = 25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Max. | Unit |
|-----------------|--|------|--------------------|
| $R_{\theta JC}$ | Maximum Thermal Resistance, Junction to Case | 3.0 | $^\circ\text{C/W}$ |

Package Marking and Ordering Information

| Part Number | Top Mark | Package | Packing Method | Reel Size | Tape Width | Quantity |
|---------------|----------|------------|----------------|-----------|------------|----------|
| FFPF10F150STU | F10F150S | TO-220F-2L | Tube | N/A | N/A | 30 |

Electrical Characteristics T_C = 25°C unless otherwise noted

| Parameter | Conditions | Min. | Typ. | Max. | Unit |
|-----------------------------|---|---|--------|------------|------|
| V _F ¹ | Maximum Instantaneous Forward Voltage I _F = 10 A I _F = 10 A | T _C = 25 °C T _C = 125 °C | - - | 1.6 1.4 | V |
| I _R ¹ | Maximum Instantaneous Reverse Current @ rated V _R | T _C = 25 °C T _C = 125 °C | - - | 10 80 | μA |
| t _{rr} | Maximum Reverse Recovery Time (I _F = 1 A, di _F /dt = 50 A/μs, V _R = 30 V) | | | 170 | ns |
| t _{fr} | Maximum Forward Recovery Time (I _F = 6.5 A, di _F /dt = 50 A/μs) | | | 250 | ns |
| V _{FRM} | Maximum Forward Recovery Voltage | | | 14 | V |

Notes:

1. Pulse : Test Pulse Width = 300μs, Duty Cycle = 2%

Test Circuit and Waveforms

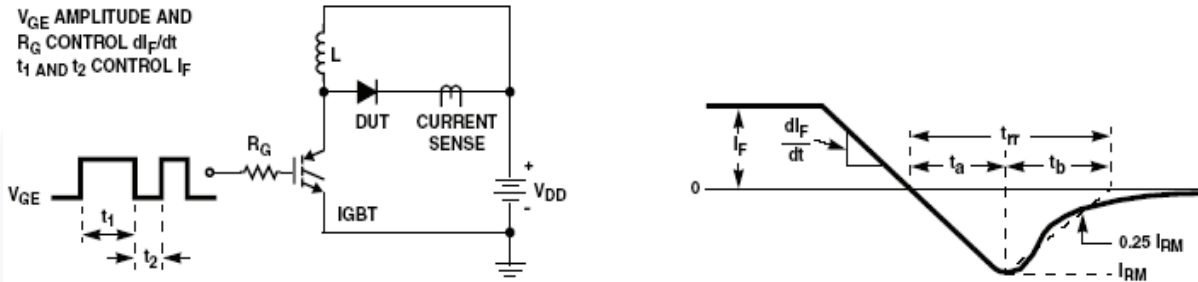


Figure 1. Diode Reverse Recovery Test Circuit & Waveform

L = 40mH
R < 0.1Ω
V_{DD} = 50V
 $E_{AVL} = 1/2LI_2 [V_{R(AVL)}/(V_{R(AVL)} - V_{DD})]$
Q1 = IGBT (BV_{CES} > DUT V_{R(AVL)})

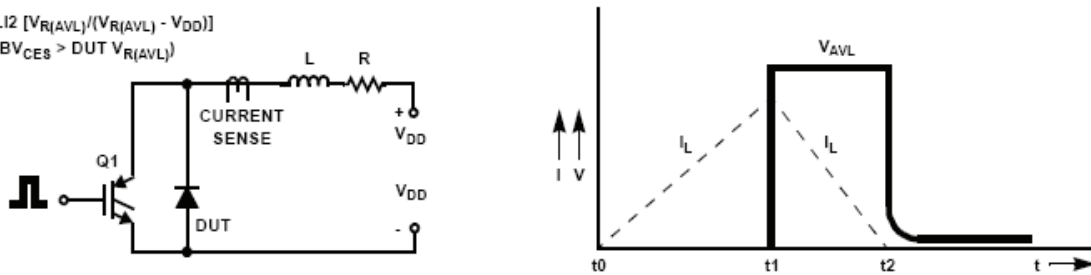


Figure 2. Unclamped Inductive Switching Test Circuit & Waveform

Typical Performance Characteristics $T_C = 25^\circ\text{C}$ unless otherwise noted

Figure 3. Typical Forward Voltage Drop

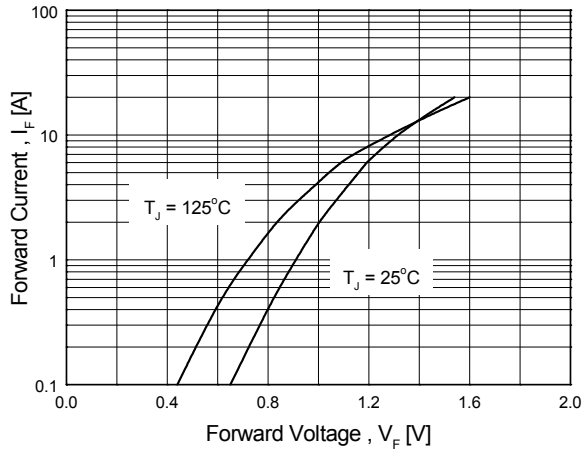


Figure 4. Typical Reverse Current

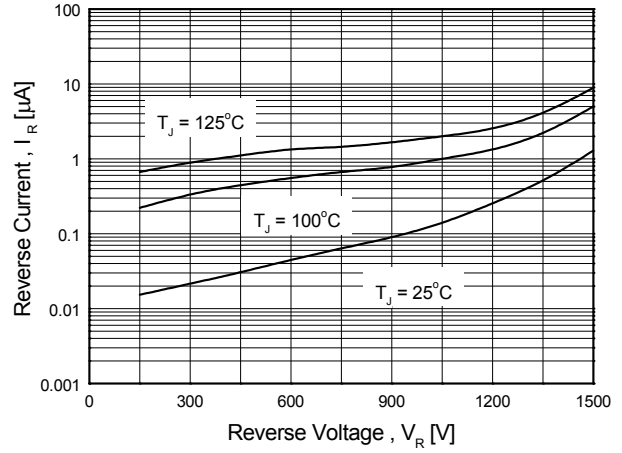


Figure 5. Typical Junction Capacitance

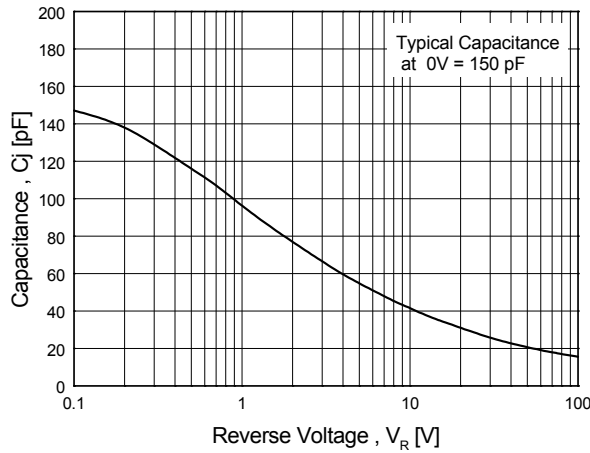


Figure 6. Typical Reverse Recovery Time

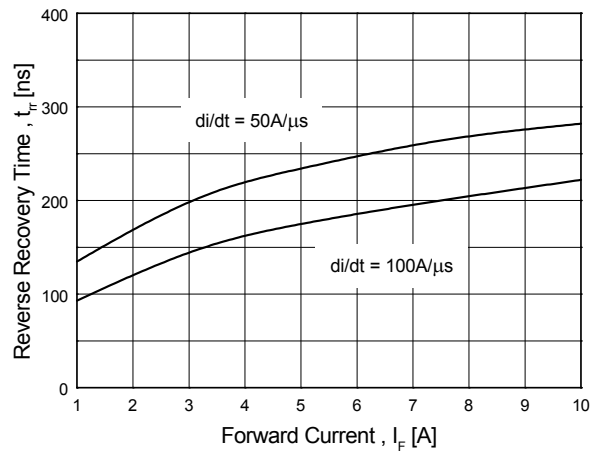


Figure 7. Typical Stored Charge

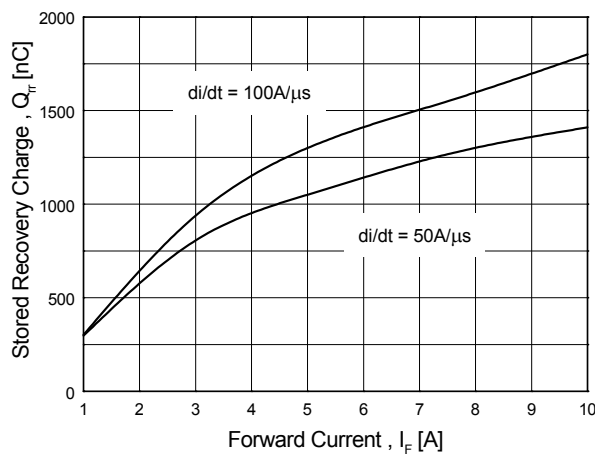
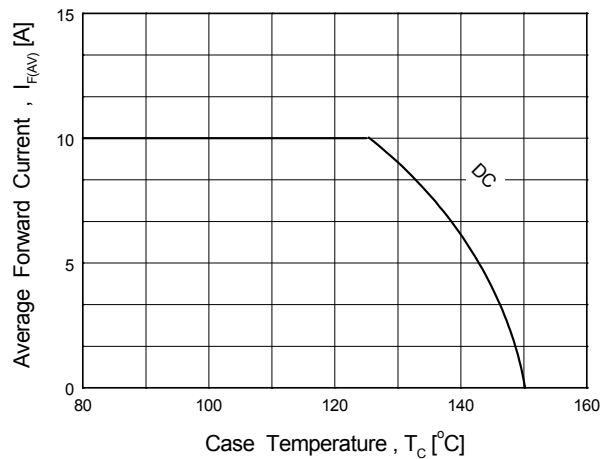


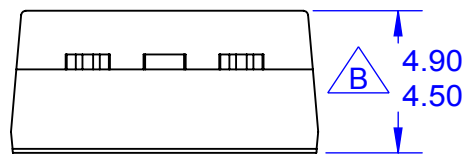
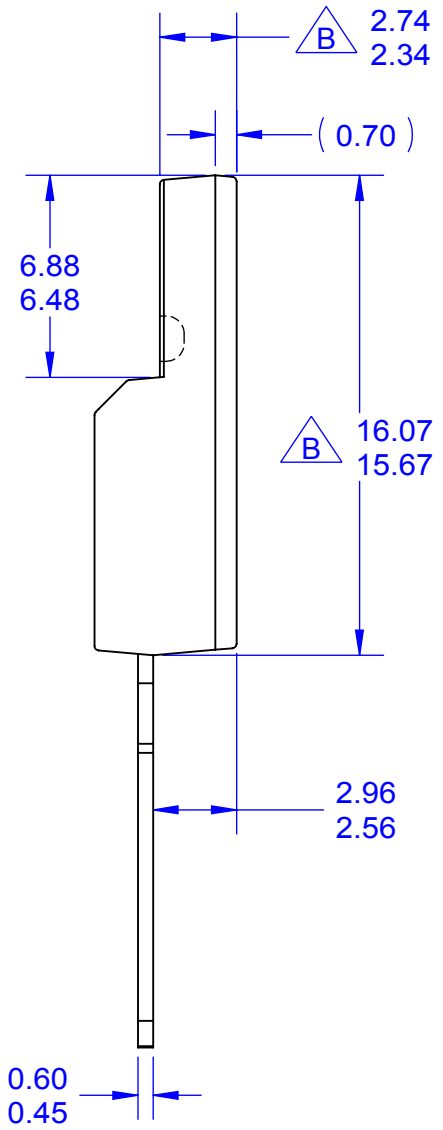
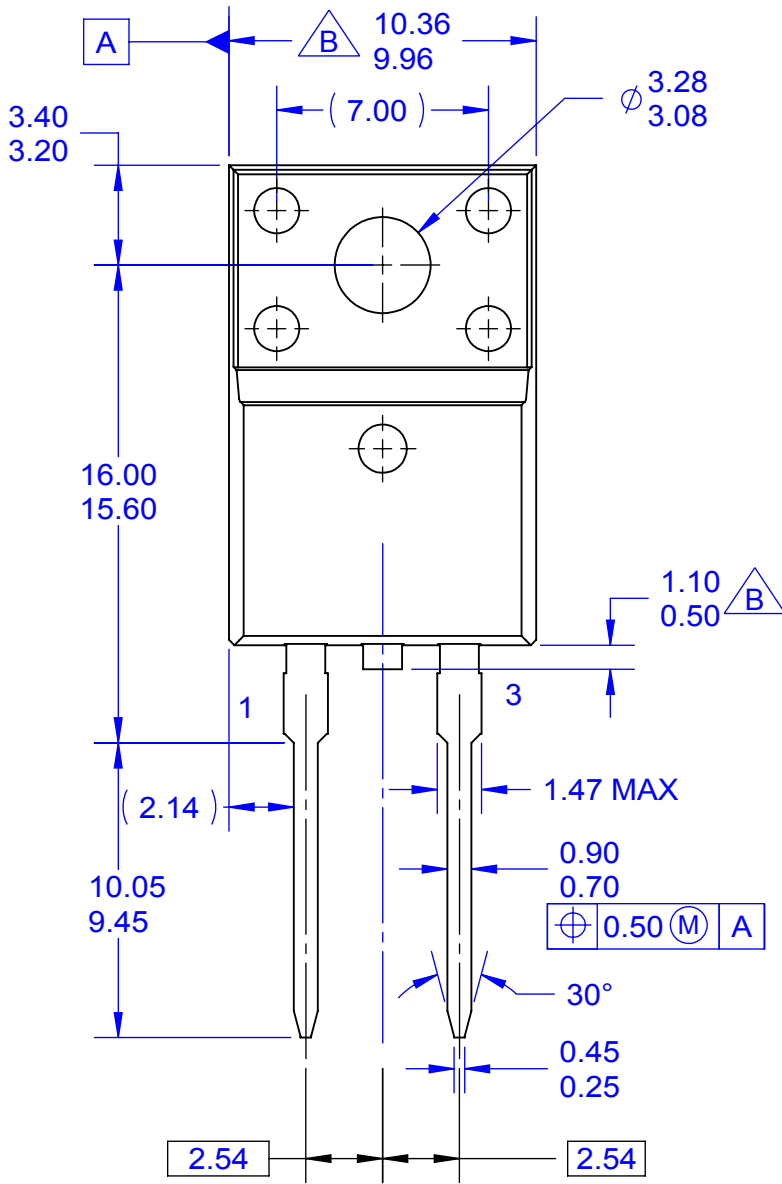
Figure 8. Forward Current Deration Curve



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REVISIONS

| NBR | DESCRIPTION | DATE | BY/APP'D |
|-----|-----------------|---------|----------------|
| 1 | RELEASED TO DCC | 08JUL08 | H.ALLEN.FSME |
| 2 | COMPLETE REDRAW | 14APR09 | KH LEE/ SUZHOU |



NOTES:

- A. EXCEPT WHERE NOTED CONFORMS TO EIAJ SC91A.
- B. DOES NOT COMPLY EIAJ STD. VALUE.
- C. ALL DIMENSIONS ARE IN MILLIMETERS.
- D. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR PROTRUSIONS.
- E. DIMENSION AND TOLERANCE AS PER ASME Y14.5-1994.
- F. DRAWING FILE NAME: TO220C02REV2

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| CHECKED: KH LEE | | | 2LD, TO220, MOLDED, FULL PACK | | | |
| APPROVED: BY HUANG | | | | | | |
| APPROVED: HOWARD ALLEN | | | | | | |
| PROJECTION | [MM] INCH | | SCALE 1:1 | SIZE N/A | DRAWING NUMBER MKT-TO220C02 | REV 2 |
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