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April 2016

# FFPF10F150S 10 A, 1500 V, Damper Diode

FFPF10F150S — Damper Diode

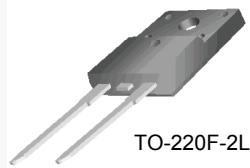
## Features

- 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

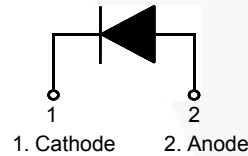
## Applications

- 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<sub>C</sub> = 25°C unless otherwise noted

Parameter	Conditions	Min.	Typ.	Max.	Unit
V <sub>F</sub> <sup>1</sup>	Maximum Instantaneous Forward Voltage I <sub>F</sub> = 10 A I <sub>F</sub> = 10 A	T <sub>C</sub> = 25 °C T <sub>C</sub> = 125 °C	- -	1.6 1.4	V
I <sub>R</sub> <sup>1</sup>	Maximum Instantaneous Reverse Current @ rated V <sub>R</sub>	T <sub>C</sub> = 25 °C T <sub>C</sub> = 125 °C	- -	10 80	μA
t <sub>rr</sub>	Maximum Reverse Recovery Time (I <sub>F</sub> = 1 A, di <sub>F</sub> /dt = 50 A/μs, V <sub>R</sub> = 30 V)			170	ns
t <sub>fr</sub>	Maximum Forward Recovery Time (I <sub>F</sub> = 6.5 A, di <sub>F</sub> /dt = 50 A/μs)			250	ns
V <sub>FRM</sub>	Maximum Forward Recovery Voltage			14	V

**Notes:**

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

### Test Circuit and Waveforms

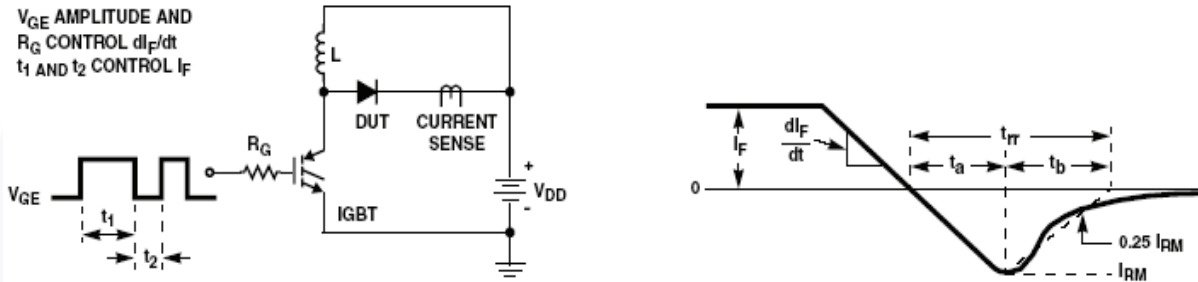


Figure 1. Diode Reverse Recovery Test Circuit & Waveform

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

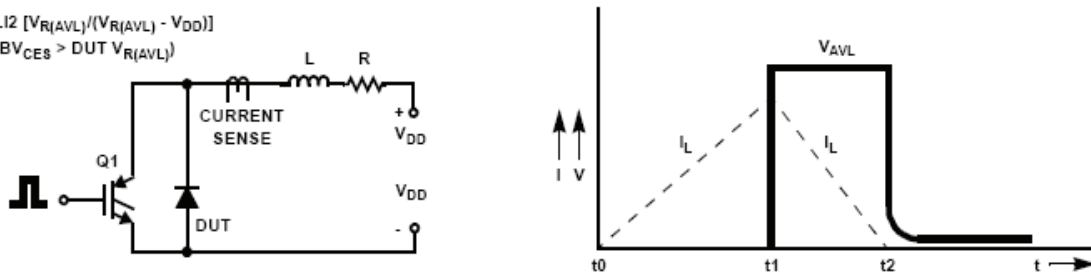
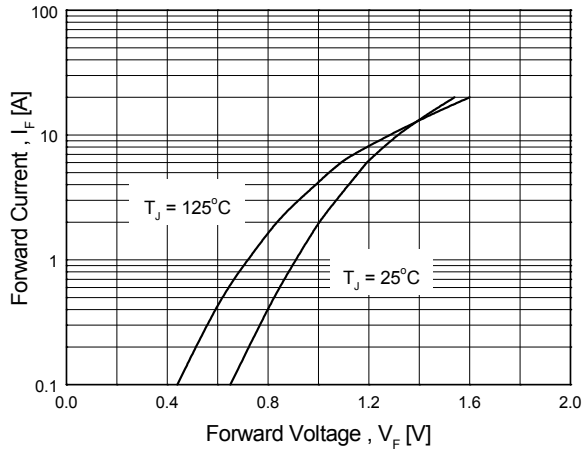


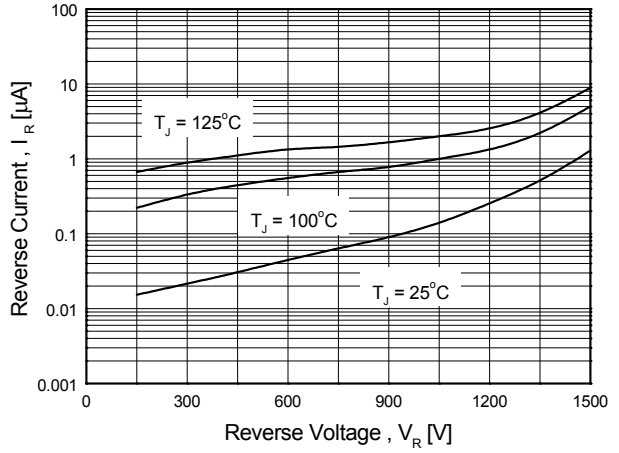
Figure 2. Unclamped Inductive Switching Test Circuit & Waveform

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

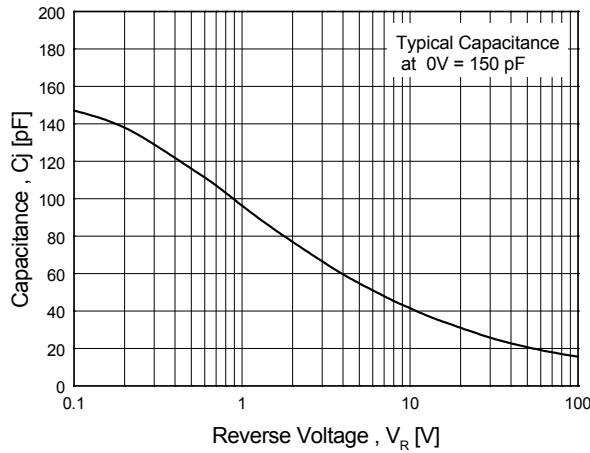
**Figure 3. Typical Forward Voltage Drop**



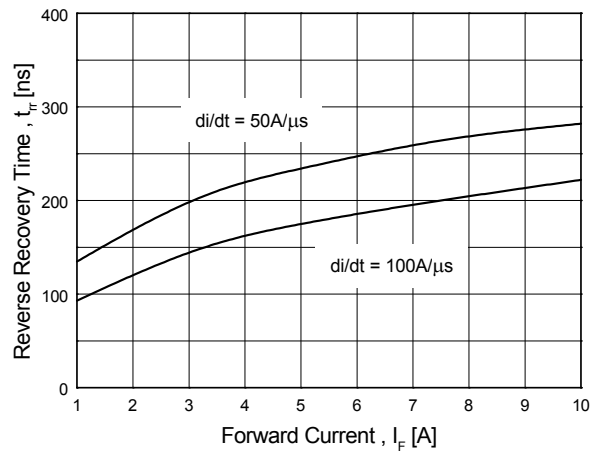
**Figure 4. Typical Reverse Current**



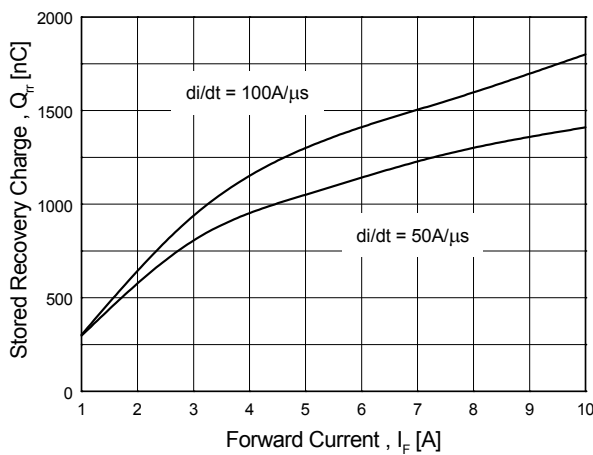
**Figure 5. Typical Junction Capacitance**



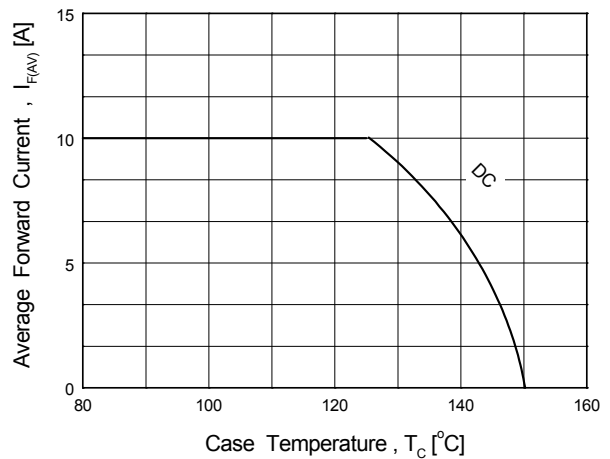
**Figure 6. Typical Reverse Recovery Time**



**Figure 7. Typical Stored Charge**



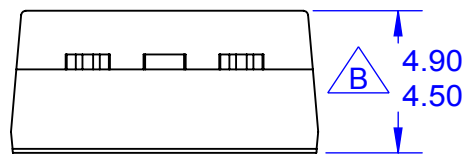
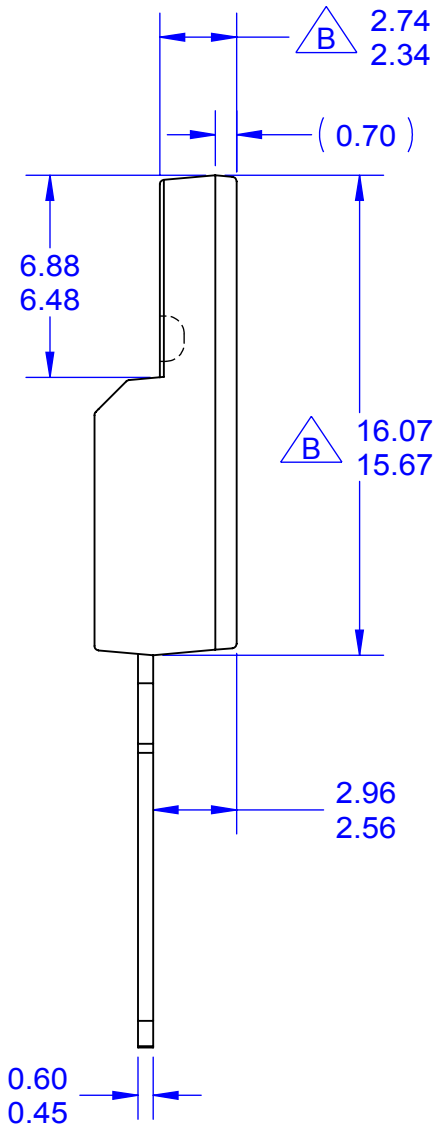
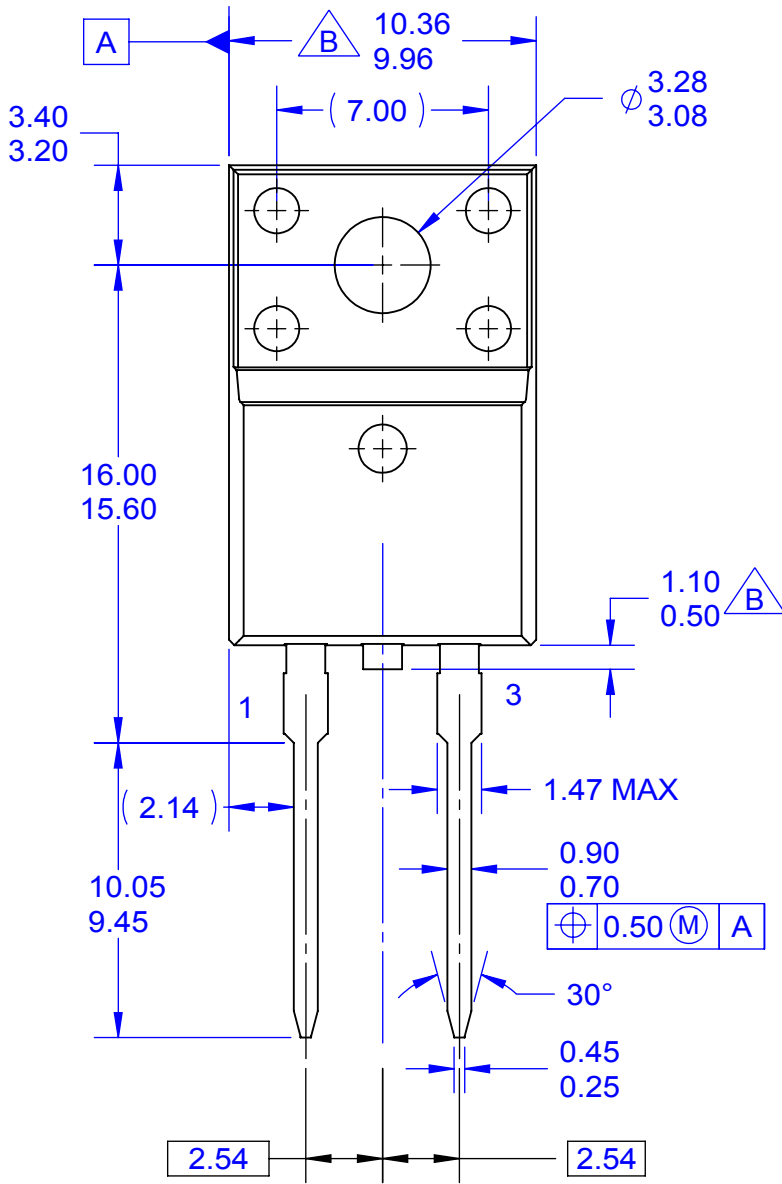
**Figure 8. Forward Current Deration Curve**



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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

APPROVALS		DATE				
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APPROVED: HOWARD ALLEN						
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