

# FFPF10F150S

## 10 A, 1500 V, 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
- This Device is Pb-Free and is RoHS Compliant

### Applications

- Suitable for Damper Diode in Horizontal Deflection Circuits

### ABSOLUTE MAXIMUM RATINGS

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

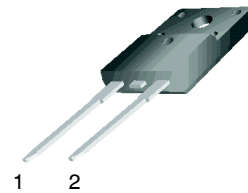
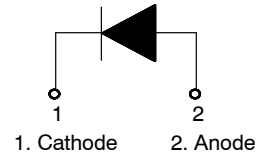
Symbol	Parameter	Rating	Unit
VRRM	Peak Repetitive Reverse Voltage	1500	V
VRWM	Working Peak Reverse Voltage	1500	V
$I_{F(AV)}$	Average Rectified Forward Current @ $T_C = 125^\circ\text{C}$	10	A
IFSM	Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave	100	A
$T_J, T_{STG}$	Operating Junction and Storage Temperature	- 65 to +175	$^\circ\text{C}$

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.



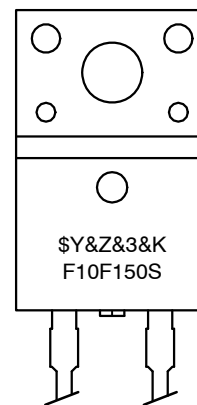
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TO-220, 2-Lead  
CASE 221AS

### MARKING DIAGRAM



\$Y                    = ON Semiconductor Logo  
&Z&3                = Data Code (Year & Week)  
&K                    = Lot  
F10F150S           = Specific Device Code

### ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

# FFPF10F150S

## 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	$^\circ\text{C}/\text{W}$

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

Parameter	Conditions	Min.	Typ.	Max.	Unit	
$V_F$ (Note 1)	Maximum Instantaneous Forward Voltage $I_F = 10\text{ A}$ $I_F = 10\text{ A}$	$T_C = 25^\circ\text{C}$ $T_C = 125^\circ\text{C}$	- -	- -	1.6 1.4	V
$I_R$ (Note 1)	Maximum Instantaneous Reverse Current @ rated $V_R$	$T_C = 25^\circ\text{C}$ $T_C = 125^\circ\text{C}$	- -	- -	10 80	$\mu\text{A}$
$t_{RR}$	Maximum Reverse Recovery Time ( $I_F = 1\text{ A}$ , $di_F/dt = 50\text{ A}/\mu\text{s}$ , $V_R = 30\text{ V}$ )		-	-	170	ns
$t_{FR}$	Maximum Forward Recovery Time ( $I_F = 6.5\text{ A}$ , $di_F/dt = 50\text{ A}/\mu\text{s}$ )		-	-	250	ns
$V_{FRM}$	Maximum Forward Recovery Voltage		-	-	14	V

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

1. Pulse: Test Pulse Width = 300  $\mu\text{s}$ , Duty Cycle = 2%

## Test Circuit and Waveforms

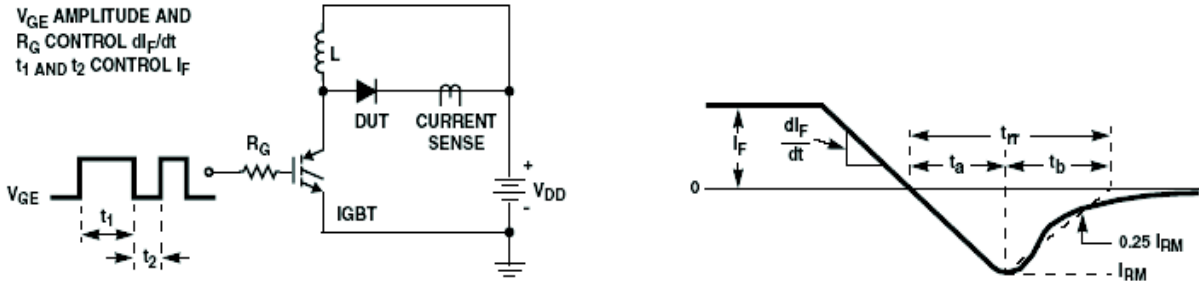


Figure 1. Diode Reverse Recovery Test Circuit & Waveform

$L = 40\text{mH}$   
 $R < 0.1\Omega$   
 $V_{DD} = 50\text{V}$

$E_{AVL} = 1/2LI^2 [V_{R(AVL)}/(V_{R(AVL)} - V_{DD})]$   
 $Q1 = \text{IGBT } (BV_{CES} > \text{DUT } V_{R(AVL)})$

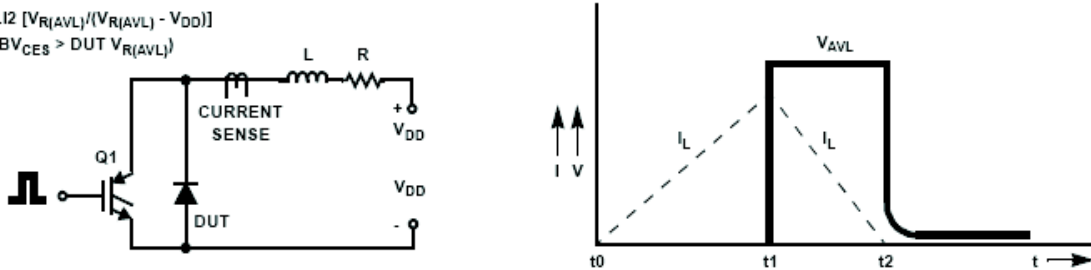


Figure 2. Unclamped Inductive Switching Test Circuit & Waveform

# FFPF10F150S

## TYPICAL CHARACTERISTICS

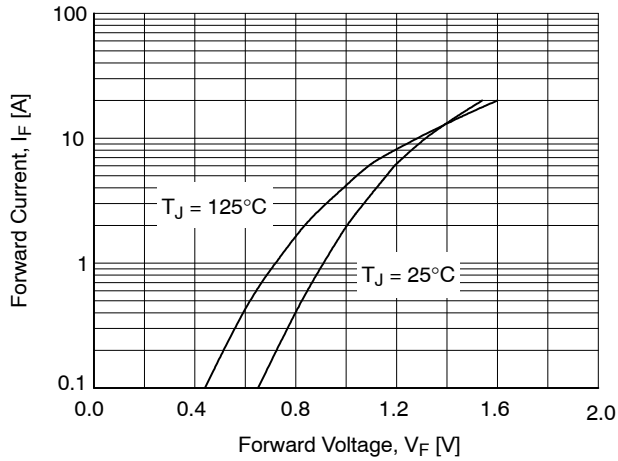


Figure 3. Typical Forward Voltage Drop

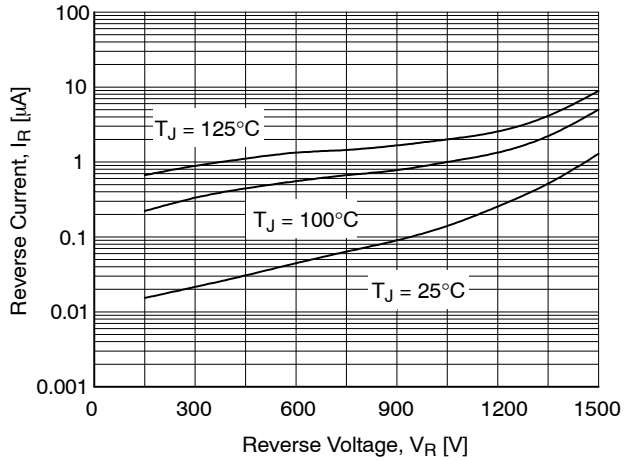


Figure 4. Typical Reverse Current

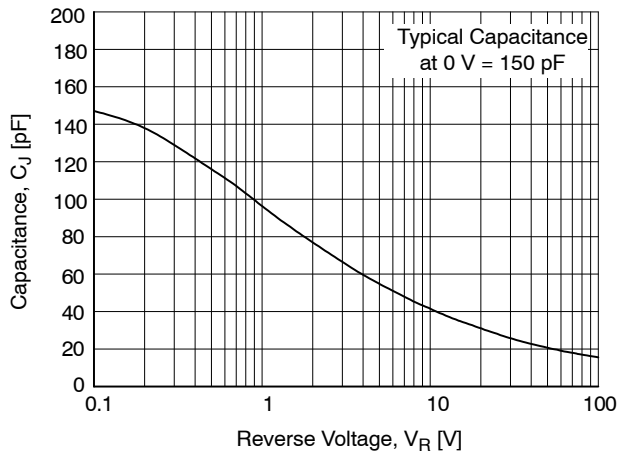


Figure 5. Typical Junction Capacitance

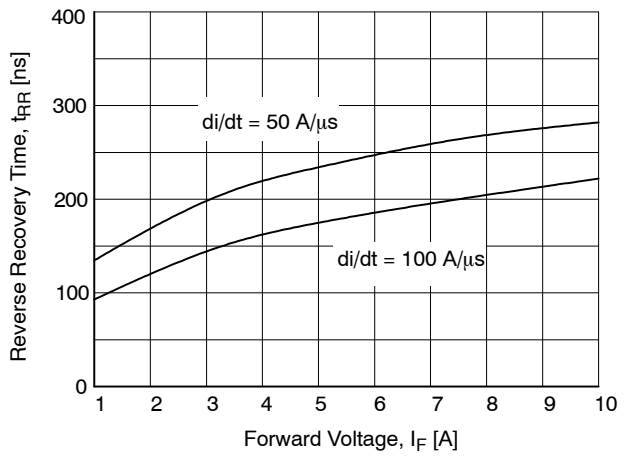


Figure 6. Typical Reverse Recovery Time

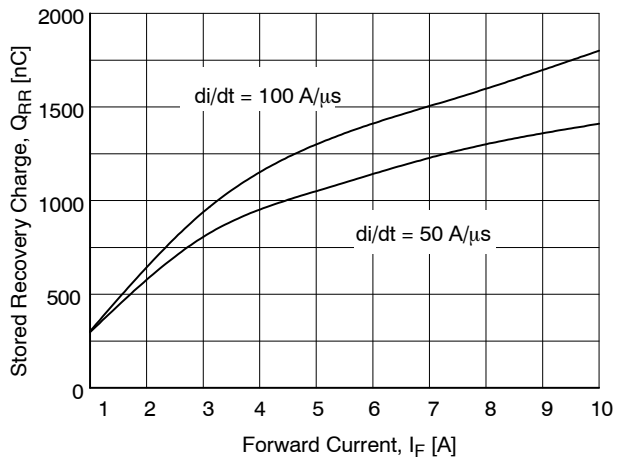


Figure 7. Typical Stored Charge

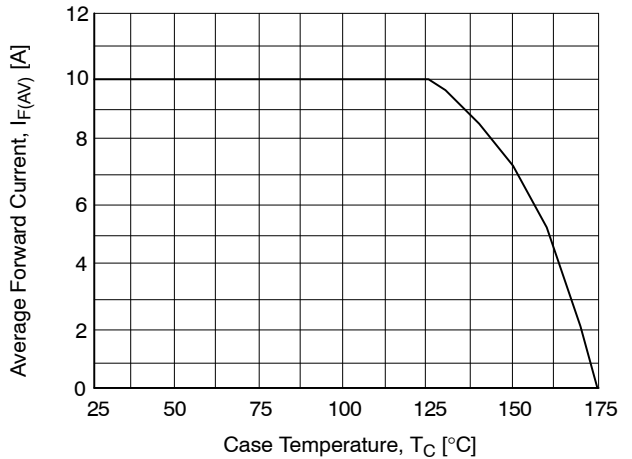


Figure 8. Forward Current Deration Curve

# MECHANICAL CASE OUTLINE

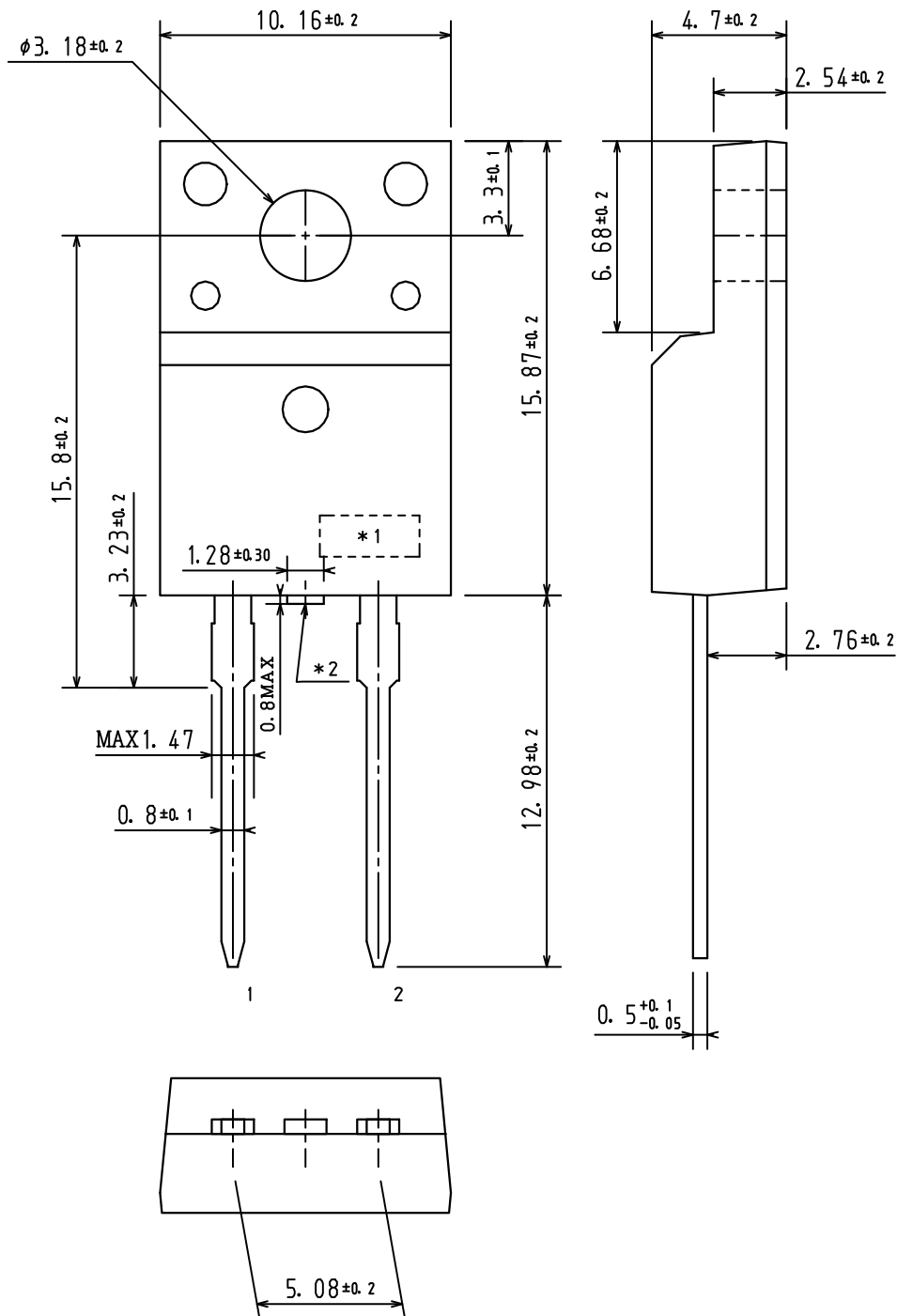
## PACKAGE DIMENSIONS

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TO-220 Fullpack, 2-Lead / TO-220F-2FS  
CASE 221AS  
ISSUE O

DATE 29 FEB 2012



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