

8 A, 600 V, STEALTH II Diode

FFPF08S60ST

Description

The FFPF08S60S is STEALTH™ II diode with soft recovery characteristics. It is silicon nitride passivated ion-implanted epitaxial planar construction.

This device is intended for use as freewheeling or boost diode in switching power supplies and other power switching applications. Their low stored charge and hyperfast soft recovery minimize ringing and electrical noise in many power switching circuits reducing power loss in the switching transistors.

Features

- Stealth Recovery $t_{rr} = 30$ ns (@ $I_F = 8$ A)
 - Max Forward Voltage, $V_F = 3.4$ V (@ $T_C = 25^\circ\text{C}$)
- 600 V Reverse Voltage and High Reliability
- This Device is Pb-Free and are RoHS Compliant

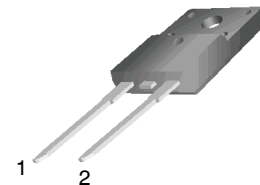
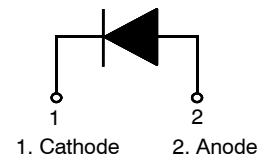
Applications

- General Purpose
- SMPS
- Boost Diode in Continuous Mode Power Factor Corrections
- Power Switching Circuits

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

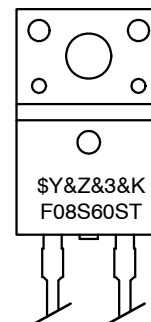
Symbol	Parameter	Value	Unit
V_{RRM}	Peak Repetitive Reverse Voltage	600	V
V_{RWM}	Working Peak Reverse Voltage	600	V
V_R	DC Blocking Voltage	600	V
$I_{F(AV)}$	Average Rectified Forward Current @ $T_C = 95^\circ\text{C}$	8	A
I_{FSM}	Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave	80	A
T_J, 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.



TO-220F-2L
CASE 221AS

MARKING DIAGRAM



$\$Y$ = onsemi Logo
 $\&Z\&3$ = Date Code (Year & Week)
 $\&K$ = Lot
 F08S60ST = Specific Device Code

ORDERING INFORMATION

Device	Package	Shipping
FFPF08S60STTU	TO-220F-2L	50 / Tube

THERMAL CHARACTERISTICS

Symbol	Parameter	Value	Unit
$R_{\theta JC}$	Maximum Thermal Resistance, Junction-to-Case	3.4	$^{\circ}\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS

Parameter	Conditions		Min.	Typ.	Max	Unit
V_{F1}	$I_F = 8\text{ A}$ $I_F = 8\text{ A}$	$T_C = 25\text{ }^{\circ}\text{C}$ $T_C = 125\text{ }^{\circ}\text{C}$	–	2.1 1.6	2.6 –	V V
I_{R1}	$V_R = 600\text{ V}$ $V_R = 600\text{ V}$	$T_C = 25\text{ }^{\circ}\text{C}$ $T_C = 125\text{ }^{\circ}\text{C}$	– –	– –	100 500	μA μA
t_{rr}	$I_F = 1\text{ A}$, $di_F/dt = 100\text{ A}/\mu\text{s}$, $V_R = 30\text{ V}$	$T_C = 25\text{ }^{\circ}\text{C}$	–	–	25	ns
T_{rr} I_{rr} S factor Q_{rr}	$I_F = 8\text{ A}$, $di_F/dt = 200\text{ A}/\mu\text{s}$, $V_R = 390\text{ V}$	$T_C = 25\text{ }^{\circ}\text{C}$	– – – –	19 2.2 0.6 21	30 – – –	ns A – nC
t_{rr} I_{rr} S factor	$I_F = 8\text{ A}$, $di_F/dt = 200\text{ A}/\mu\text{s}$, $V_R = 390\text{ V}$	$T_C = 125\text{ }^{\circ}\text{C}$	– – – –	58 4.3 1.3 125	– – – –	ns A – nC
W_{AVL}	Avalanche Energy ($L = 40\text{ mH}$)		20	–	–	mJ

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 μs , Duty Cycle = 2%

Test Circuit and Waveforms

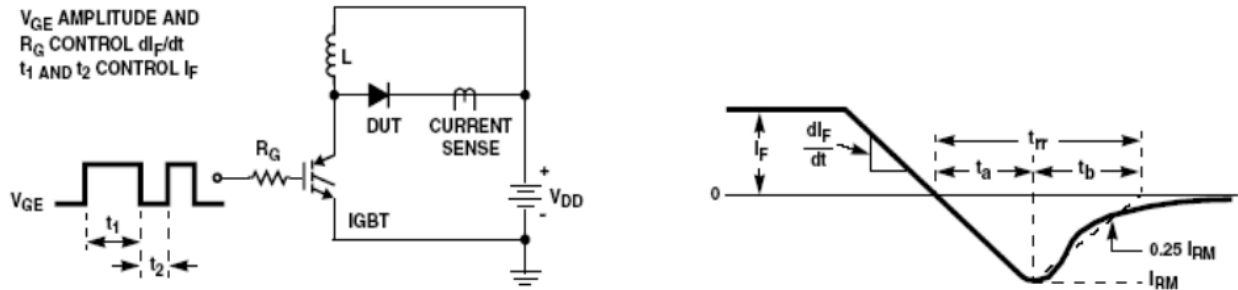


Figure 1. Diode Reverse Recovery Test Circuit & Waveform

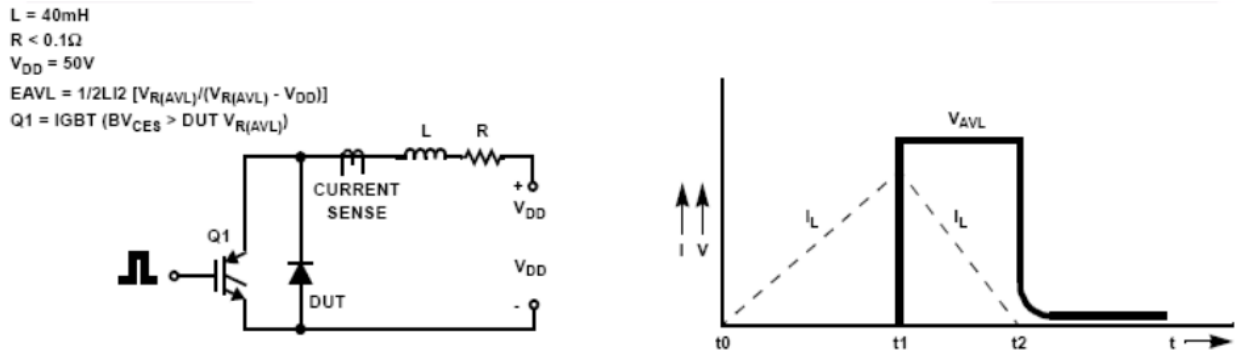


Figure 2. Unclamped Inductive Switching Test Circuit & Waveform

TYPICAL PERFORMANCE CHARACTERISTICS

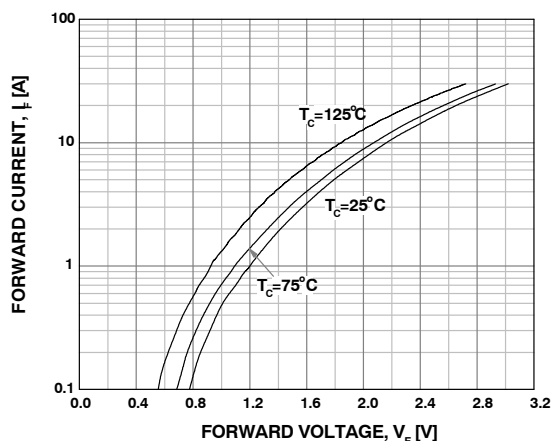
 $T_C = 25^\circ\text{C}$ unless otherwise noted

Figure 3. Typical Forward Voltage Drop

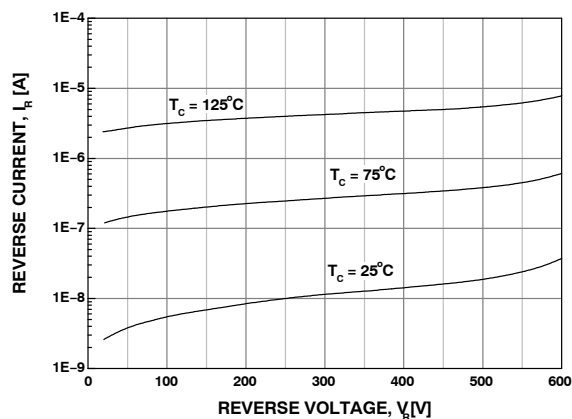


Figure 4. Typical Reverse Current

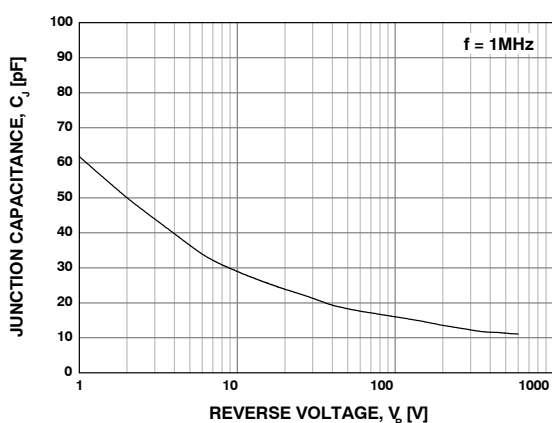


Figure 5. Typical Junction Capacitance

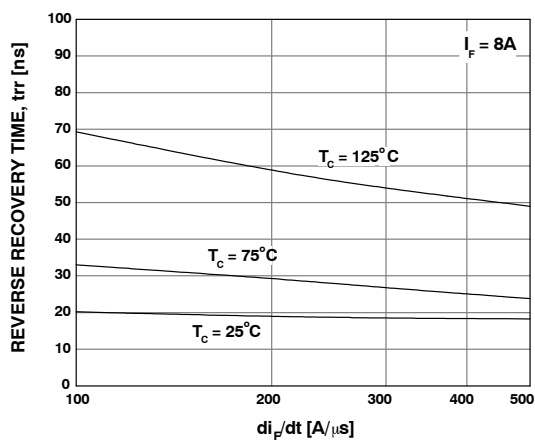


Figure 6. Typical Reverse Recovery Time

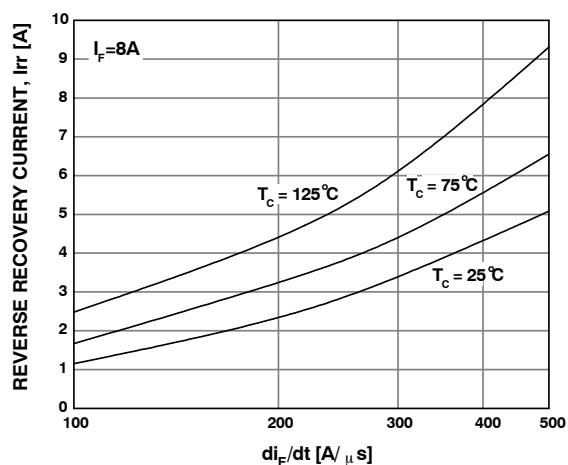


Figure 7. Typical Reverse Recovery Current

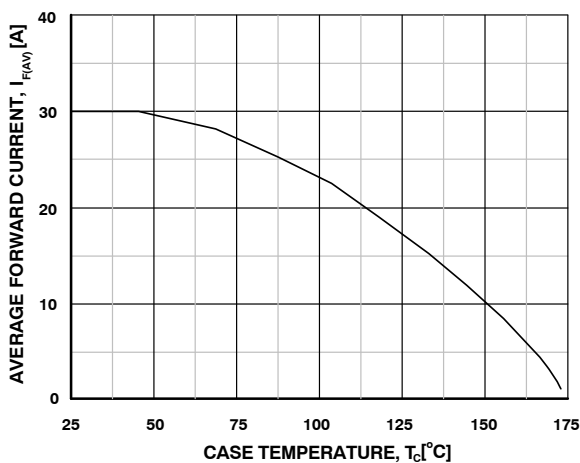


Figure 8. Forward Current Deration Curve

MECHANICAL CASE OUTLINE

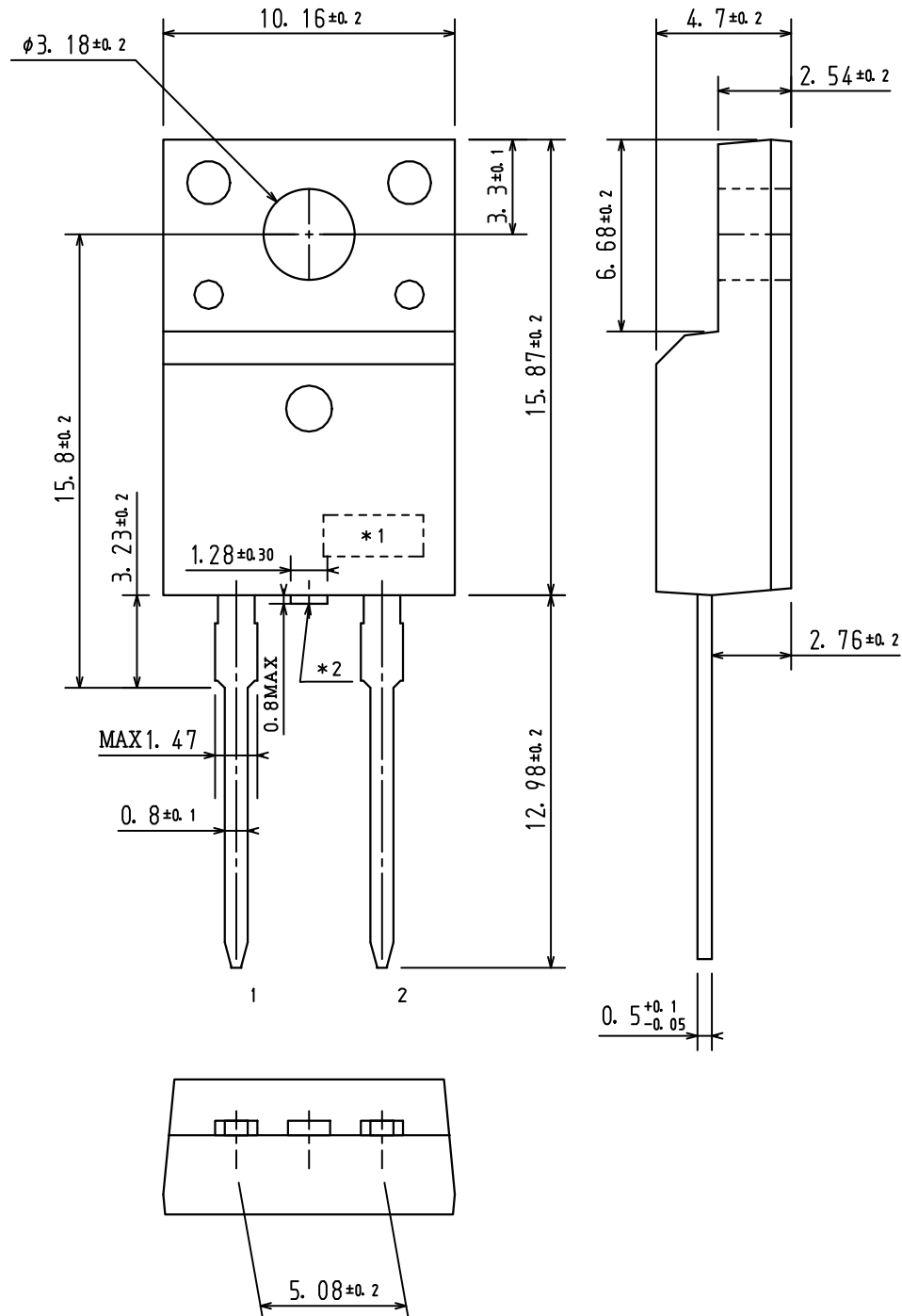
PACKAGE DIMENSIONS

ON Semiconductor®


ON

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

DATE 29 FEB 2012



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