

November 2013

FFPF08S60S

8 A, 600 V, STEALTH™ II Diode

Features

- Stealth Recovery $t_{rr} = 30 \text{ ns } (\text{@ } I_F = 8 \text{ A})$
- Max Forward Voltage, V_F = 3.4 V (@ T_C = 25°C)
- · 600 V Reverse Voltage and High Reliability
- RoHS Compliant

Applications

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

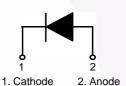
Description

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 of 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.

Pin Assignments







Absolute Maximum Ratings T_C = 25°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 °C	8	Α
I _{FSM}	Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave	80	Α
T _{J,} T _{STG}	Operating Junction and Storage Temperature	- 65 to +150	°C

Thermal Characteristics T_C = 25°C unless otherwise noted

Symbol	Parameter	Max	Unit	
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	3.4	°C/W	

Package Marking and Ordering Information

Device Marking	Device	Package	Reel Size	Tape Width	Quantity	
F08S60S	FFPF08S60STU	TO-220F-2L	-	-	50	

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

Parameter	Conditions			Тур.	Max	Unit
V _F ¹	I _F = 8 A I _F = 8 A	$T_C = 25 ^{\circ}C$ $T_C = 125 ^{\circ}C$	-	2.1 1.6	2.6	V V
I _R ¹	V _R = 600 V V _R = 600 V	$T_C = 25$ °C $T_C = 125$ °C	-	-	100 500	μA μA
t _{rr}	$I_F = 1 \text{ A}, \text{ di}_F/\text{dt} = 100 \text{ A/}\mu\text{s}, \text{ V}_R = 30 \text{ V}$	T _C = 25 °C	-	-	25	ns
trr Irr 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 °C		19 2.2 0.6 21	30 - - -	ns A nC
trr Irr 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 = 125 °C		58 4.3 1.3 125	- - -	ns A nC
W _{AVL}	Avalanche Energy (L = 40 mH)		20	-	-	mJ

Notes:

1. Pulse : Test Pulse width = 300 μ s, Duty Cycle = 2%

Test Circuit and Waveforms

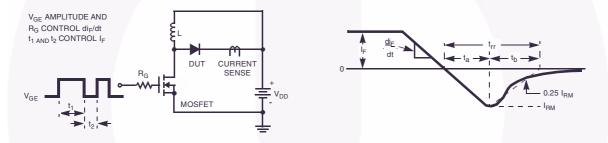


Figure 1. Diode Reverse Recovery Test Circuit & Waveform

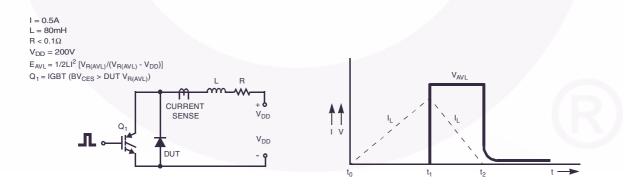


Figure 2. Unclamped Inductive Switching Test Circuit & Waveform

Typical Performance Characteristics T_C = 25°C unless otherwise noted

Figure 3. Typical Forward Voltage Drop

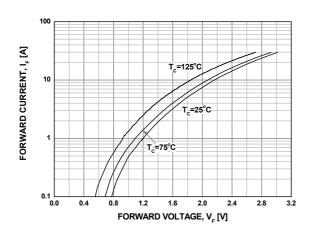


Figure 4. Typical Reverse Current

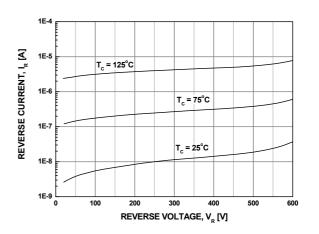


Figure 5. Typical Junction Capacitance

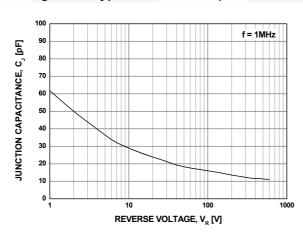


Figure 6. Typical Reverse Recovery Time

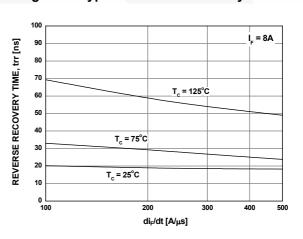


Figure 7. Typical Reverse Recovery Current

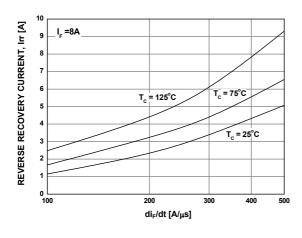
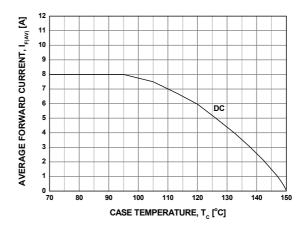


Figure 8. Forward Current Deration Curve



Mechanical Dimensions

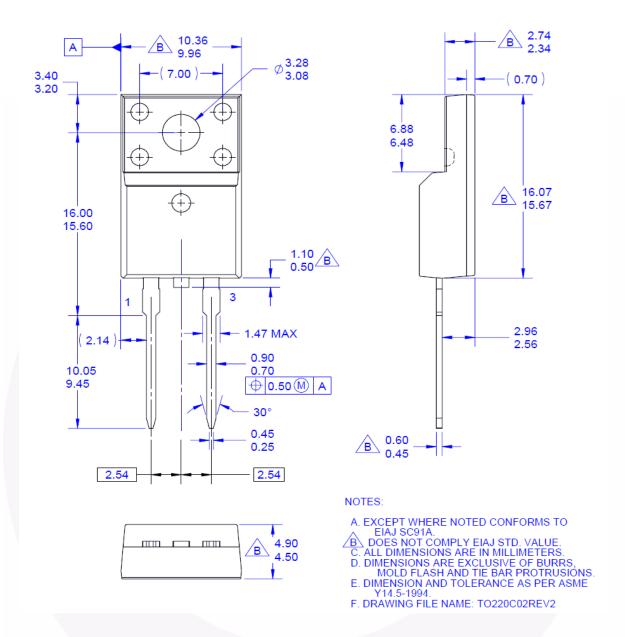


Figure 16. TO-220F 2L - 2LD; TO220; MOLDED; FULL PACK

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