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November 2014

FFP08S60S
8 A, 600 V, STEALTH™ II Diode

Features

- Stealth Recovery t_{rr} = 30 ns (@ I_F = 8 A)
- Max Forward Voltage, V_F = 2.6 V (@ T_C = 25°C)
- 600 V Reverse Voltage and High Reliability
- Avalanche Energy Rated
- RoHS Compliant

Applications

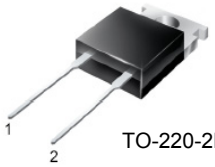
- General Purpose
- SMPS, Power Switching Circuits
- Boost Diode in Continuous Mode Power Factor Corrections

Description

The FFP08S60S is a STEALTH™ II diode with soft recovery characteristics. It is silicon nitride passivated ion-implanted epitaxial planar construction.

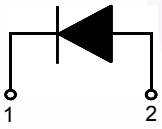
This device is intended for use as freewheeling of boost diode in switching power supplies and other power swithching applications. Their low stored charge and hyperfast soft recovery minimize ringing and electrical noise in many power switching circuits reducing power loss in the switching transistors.

Pin Assignments



TO-220-2L

1. Cathode 2. Anode



1. Cathode 2. Anode

Absolute Maximum Ratings

Symbol	Parameter	Rating	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 = 115 °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	°C

Thermal Characteristics

T_C = 25°C unless otherwise noted

Symbol	Parameter	Max.	Unit
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	2.5	°C/W

Package Marking and Ordering Information

Part Number	Top Mark	Package	Packing Method	Reel Size	Tape Width	Quantity
FFP08S60STU	F08S60S	TO-220-2L	Tube	N/A	N/A	50

Electrical Characteristics T_C = 25°C unless otherwise noted

Parameter	Conditions		Min.	Typ.	Max.	Unit
V_F[1]	I_F = 8 A I_F = 8 A	T_C = 25 °C T_C = 125 °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 A, di_F/dt = 100 A/μs, V_R= 30 V	T_C = 25 °C	-	-	25	ns
trr Irr S factor Q_{rr}	I_F =8 A, di_F/dt = 200 A/μs, V_R = 390 V	T_C = 25 °C	- - - -	19 2.2 0.6 21	30 - - -	ns A nC
trr Irr S factor Q_{rr}	I_F =8 A, di_F/dt = 200 A/μs, V_R= 390 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 = 300μs, Duty Cycle = 2%

Test Circuit and Waveforms

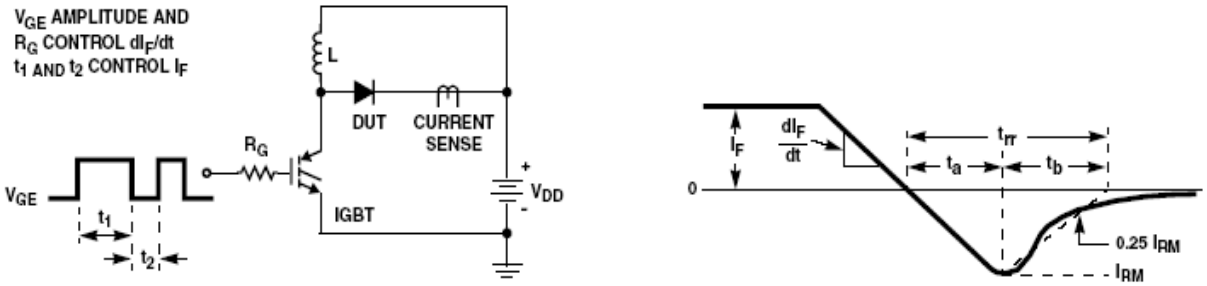


Figure 1. Diode Reverse Recovery Test Circuit & Waveform

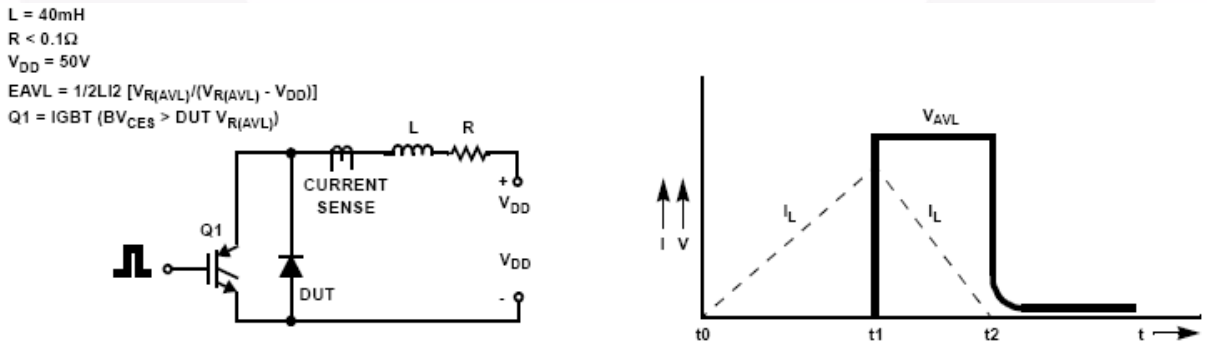


Figure 2. Unclamped Inductive Switching Test Circuit & Waveform

Typical Performance Characteristics T_C = 25°C unless otherwise noted

Figure 3. Typical Forward Voltage Drop

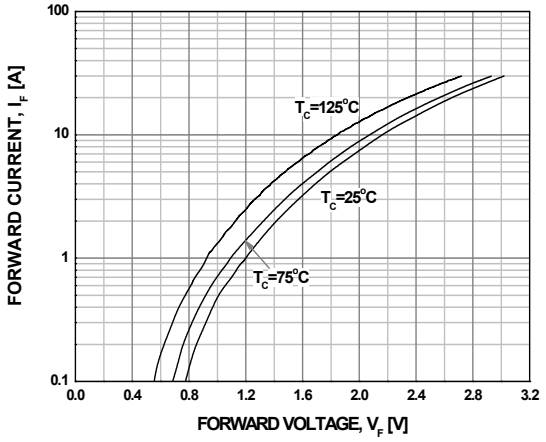


Figure 4. Typical Reverse Current

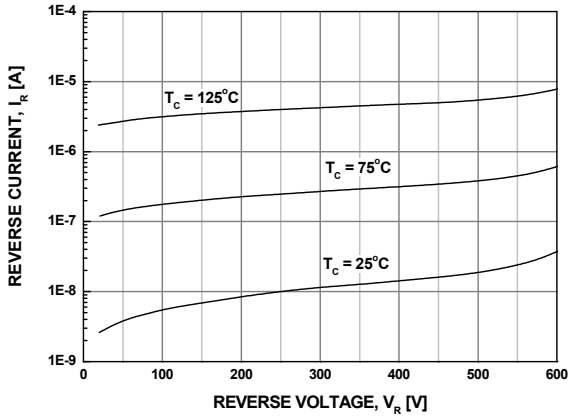


Figure 5. Typical Junction Capacitance

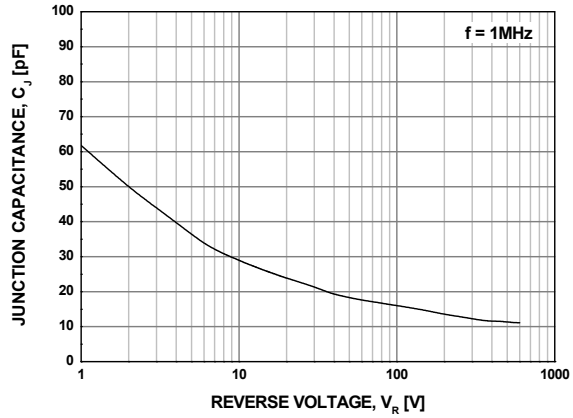


Figure 6. Typical Reverse Recovery Time

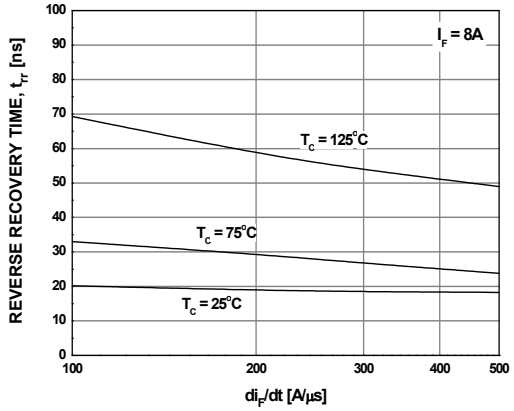


Figure 7. Typical Reverse Recovery Current

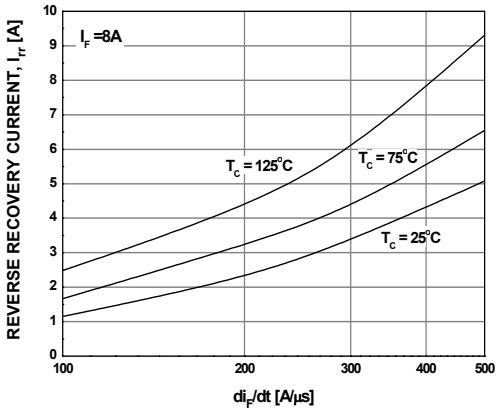
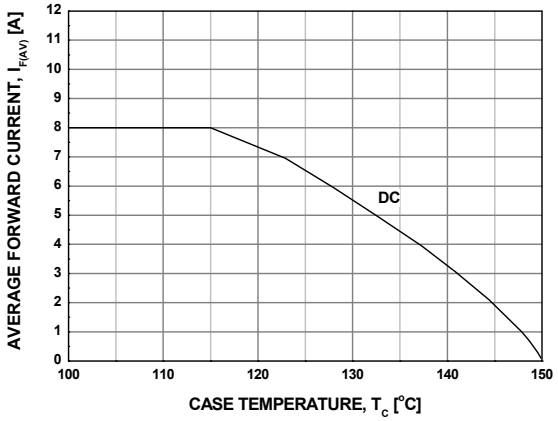


Figure 8. Forward Current Deration Curve



Mechanical Dimensions

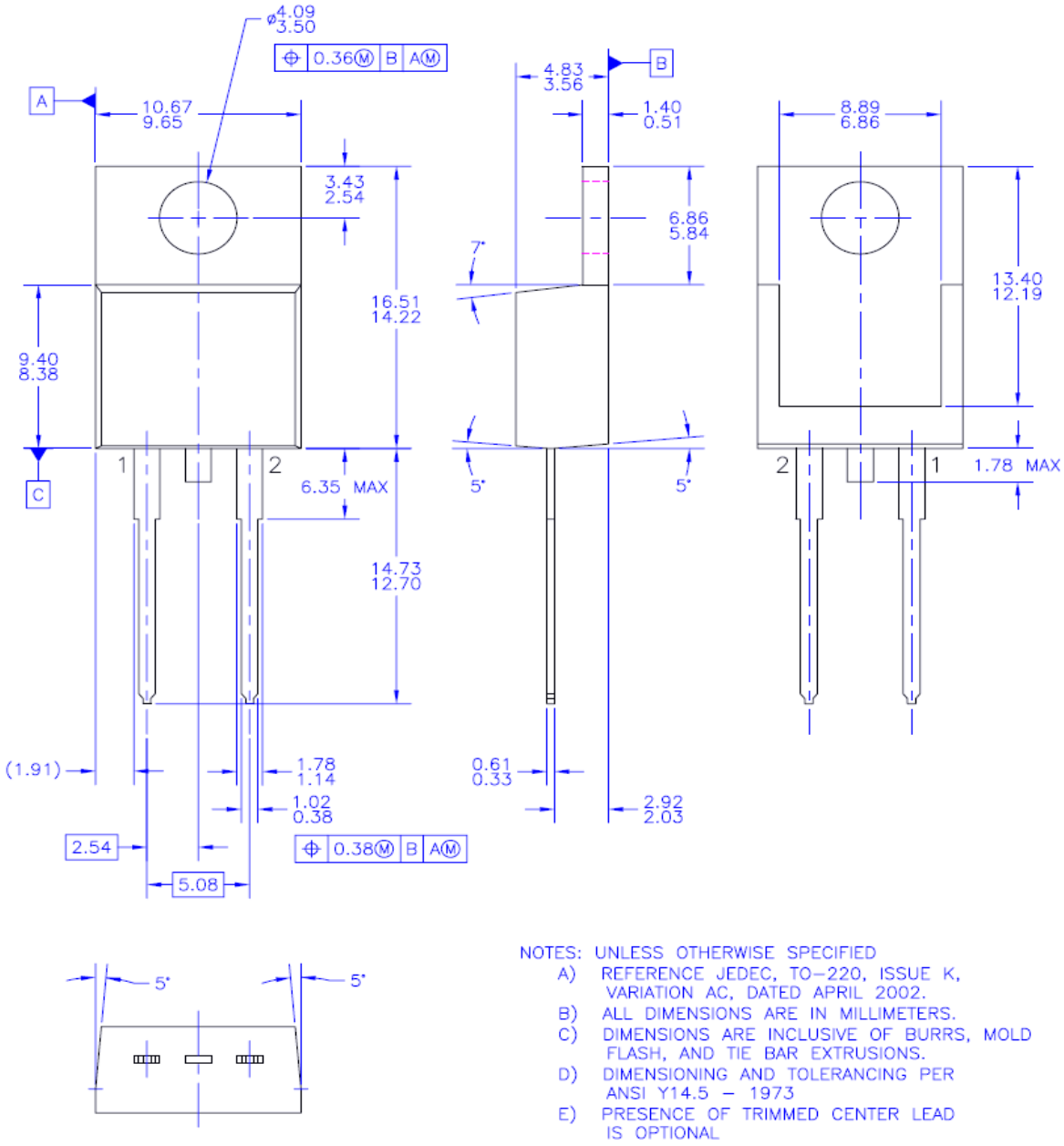


Figure 9. TO-220 2L - 2LD,TO220,JEDEC TO-220 VARIATION AC

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