FAIRCHILD SEMICONDUCTOR®

January 2007

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)
- 600V Reverse Voltage and High Reliability
- Avalanche Energy Rated
- RoHS Compliant

Applications

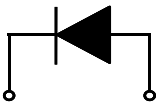
- General Purpose
- Switching Mode Power Supply
- Boost Diode in Continuous Mode Power Factor Corrections
- Power Switching Circuits

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 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 = 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 +150	°C

Thermal Characteristics

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

Package Marking and Ordering Information

Device Marking	Device	Package	Reel Size	Tape Width	Quantity
F08S60S	FFP08S60STU	TO-220-2L	-	-	50

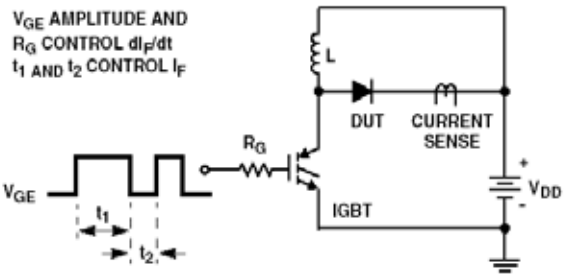
Electrical Characteristics T_C = 25°C unless otherwise noted

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/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/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/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

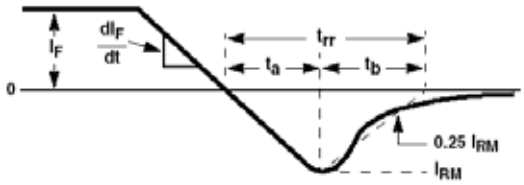
Notes:

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

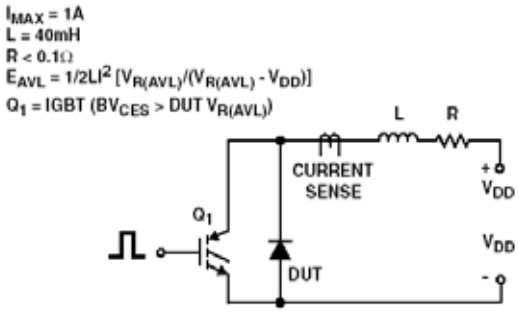
Test Circuit and Waveforms



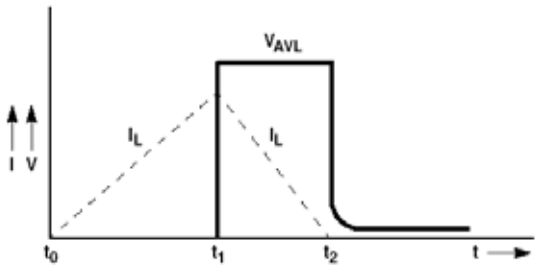
t_{rr} TEST CIRCUIT



t_{rr} WAVEFORMS AND DEFINITIONS



AVALANCHE ENERGY TEST CIRCUIT



AVALANCHE CURRENT AND VOLTAGE WAVEFORMS

Typical Performance Characteristics T_C = 25°C unless otherwise noted

Figure 1. Typical Forward Voltage Drop

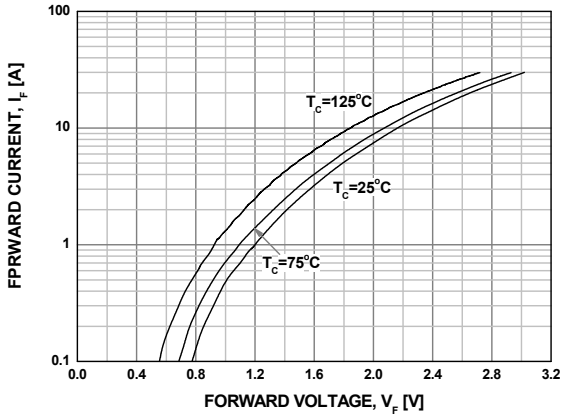


Figure 2. Typical Reverse Current

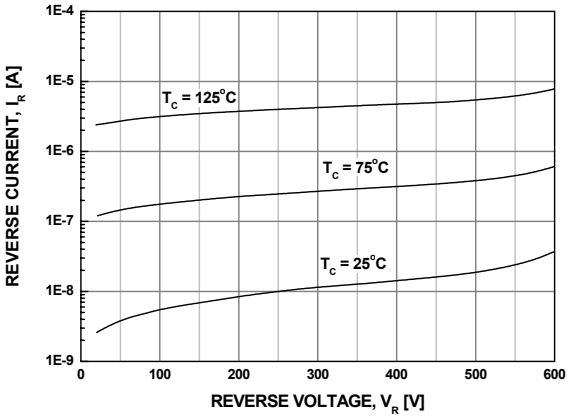


Figure 3. Typical Junction Capacitance

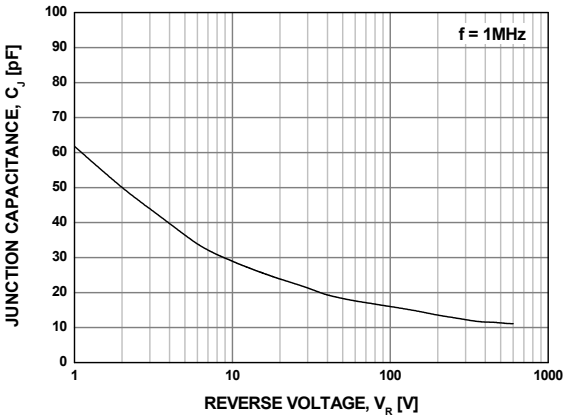


Figure 4. Typical Reverse Recovery Time

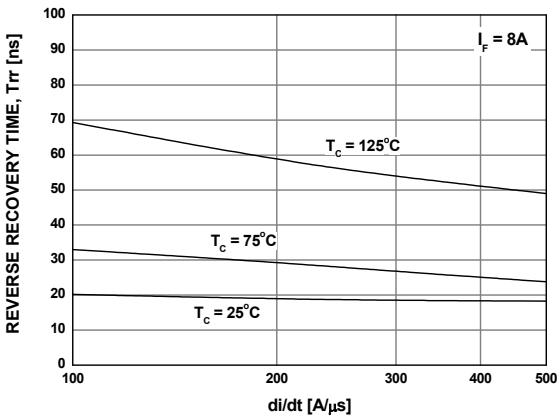


Figure 5. Typical Reverse Recovery Current

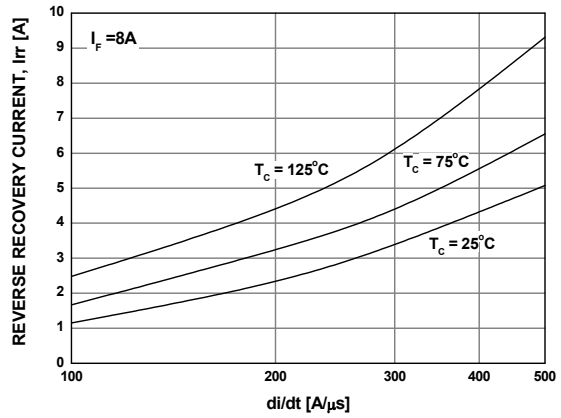
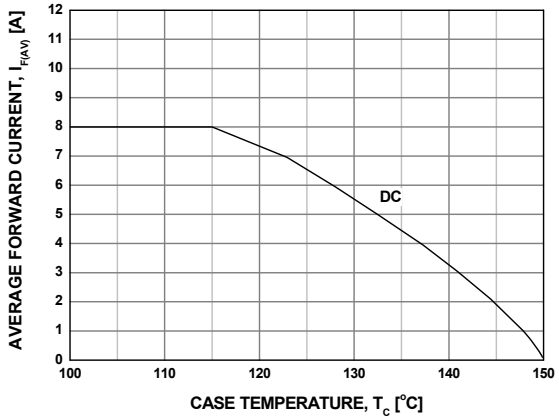
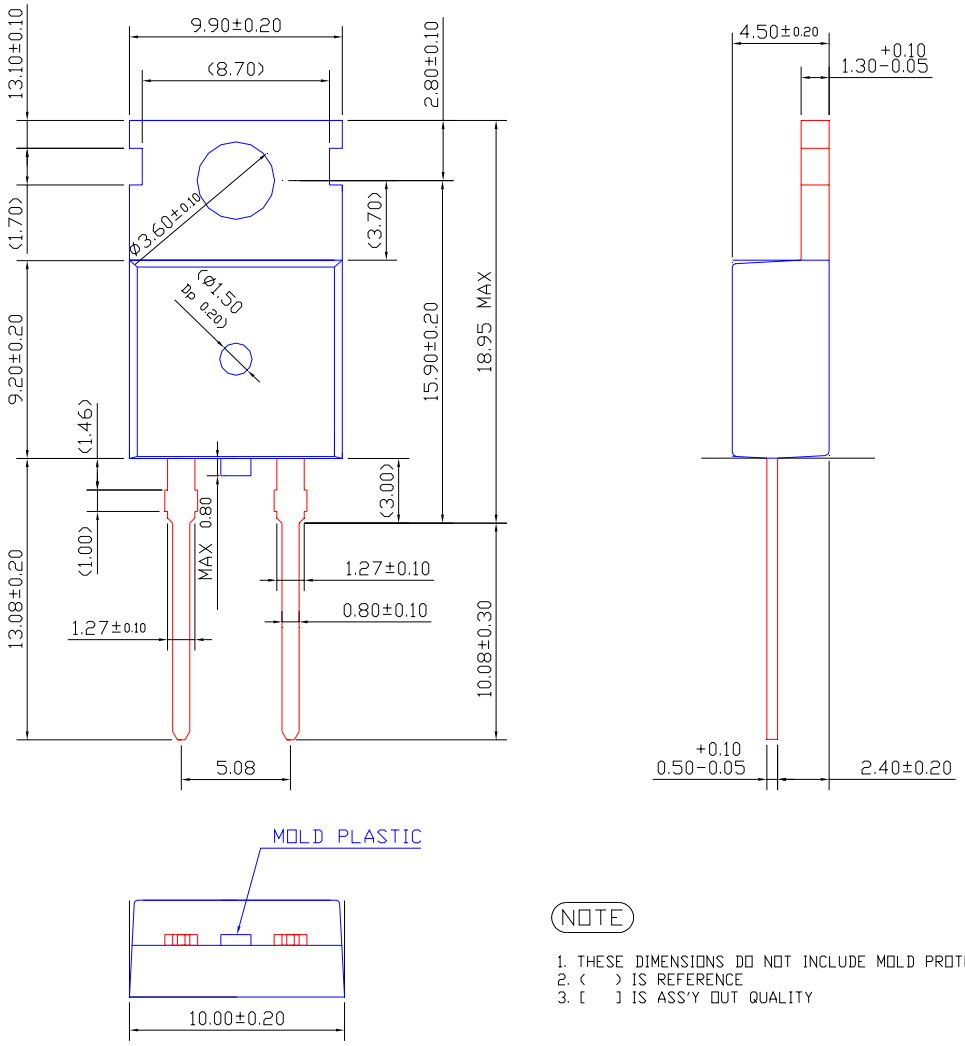


Figure 6. Forward Current Deration Curve



Mechanical Dimensions

TO-220-2L



NOTE

1. THESE DIMENSIONS DO NOT INCLUDE MOLD PROTRUSION.
2. ( ) IS REFERENCE
3. [ ] IS ASS'Y OUT QUALITY

Dimensions in Millimeters

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