FAIRCHILD SEMICONDUCTOR®

May 2008

FFP08S60SN

8 A, 600 V, STEALTH™ II Diode

Features

- Stealth Recovery t_{rr} = 25 ns (@ I_F = 8 A)
- Max Forward Voltage, V_F = 3.4 V (@ T_C = 25°C)
- 600V Reverse Voltage and High Reliability
- Improved dv/dt Capability
- RoHS Compliant

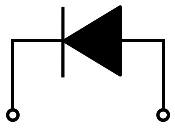
Applications

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

The FFP08S60SN 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.

TO-220-2L

1. Cathode 2. Anode



1. Cathode 2. Anode

Absolute Maximum Ratings T_C = 25°C unless otherwise noted

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 = 89°C	8	A
I_{FSM}	Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave	60	A
T_J, T_{STG}	Operating and Storage Temperature Range	-65 to +150	°C

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	3.6	°C/W

Package Marking and Ordering Information

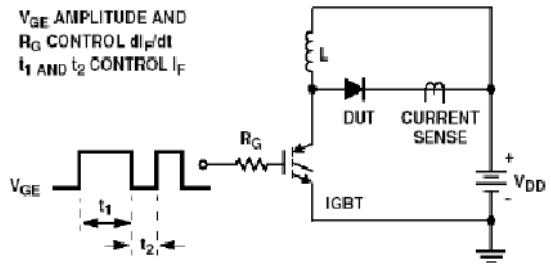
Device Marking	Device	Package	Reel Size	Tape Width	Quantity
F08S60SN	FFP08S60SNTU	TO220-2L	-	-	50

Electrical Characteristics $T_C = 25^oC$ unless otherwise noted

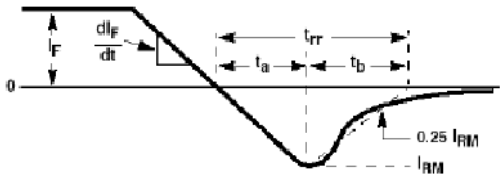
Symbol	Parameter		Min.	Typ.	Max.	Unit
V_F1	I_F = 8 A I_F = 8 A	$T_C = 25^oC$ $T_C = 125^oC$	- -	2.7 2.1	3.4 -	V
I_R1	V_R = 600 V V_R = 600 V	$T_C = 25^oC$ $T_C = 125^oC$	- -	- -	100 500	μA
t_{rr}	I_F = 1 A, di/dt = 100 A/μs, V_R = 30 V	$T_C = 25^oC$	-	13	-	ns
t_{rr} I_{rr} S factor Q_{rr}	I_F = 8 A, di/dt = 200 A/μs, V_R = 390 V	$T_C = 25^oC$	- - - -	15 2.5 0.4 19	25 - - -	ns A nC
t_{rr} I_{rr} S factor Q_{rr}	I_F = 8 A, di/dt = 200 A/μs, V_R = 390 V	$T_C = 125^oC$	- - - -	32 3.8 0.7 62	- - - -	ns A nC
W_{AVL}	Avalanche Energy (L = 40 mH)		10	-	-	mJ

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

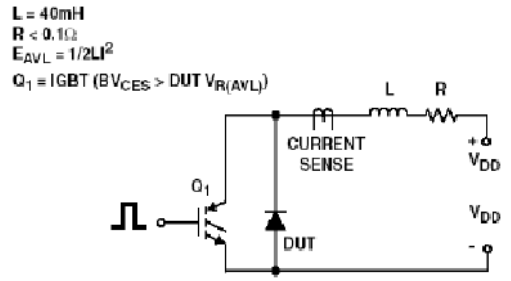
Test Circuit and Waveforms



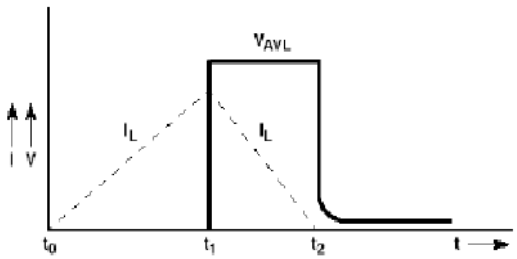
t_{rr} TEST CIRCUIT



t_{rr} WAVEFORMS AND DEFINITIONS



AVALANCHE ENERGY TEST CIRCUIT



AVALANCHE CURRENT AND VOLTAGE WAVEFORMS

Typical Performance Characteristics

Figure 1. Typical Forward Voltage Drop vs. Forward Current

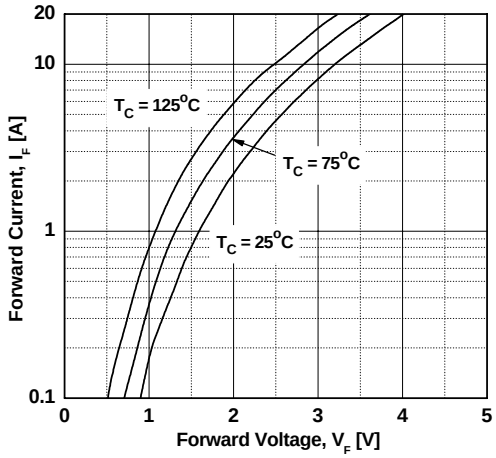


Figure 2. Typical Reverse Current vs. Reverse Voltage

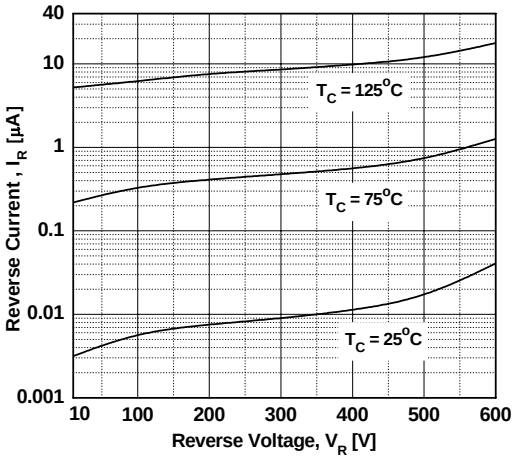


Figure 3.Typical Junction Capacitance

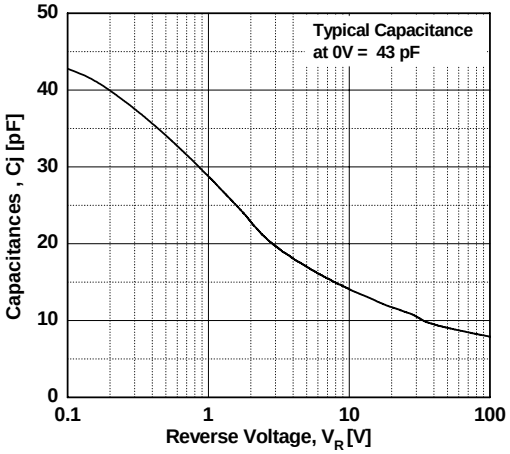


Figure 4. Typical Reverse Recovery Time vs. di/dt

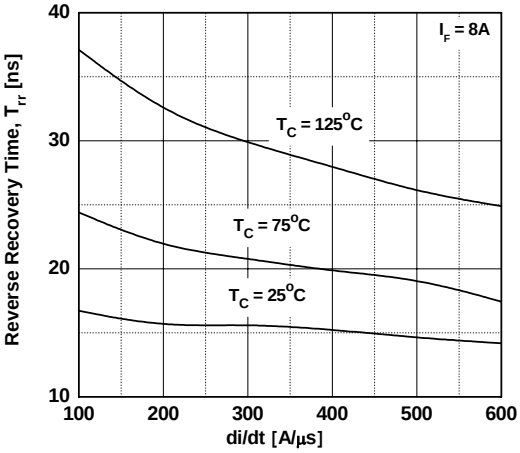


Figure 5. Typical Reverse Recovery Current vs. di/dt

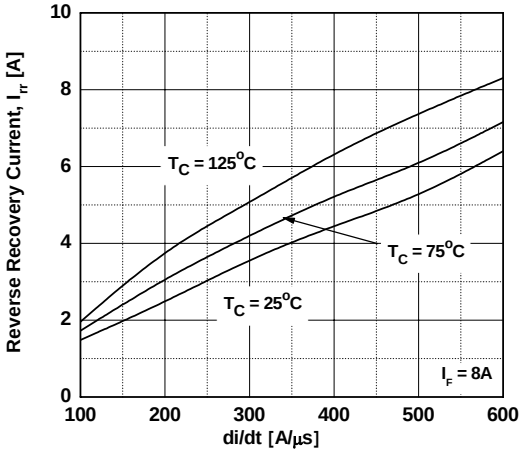
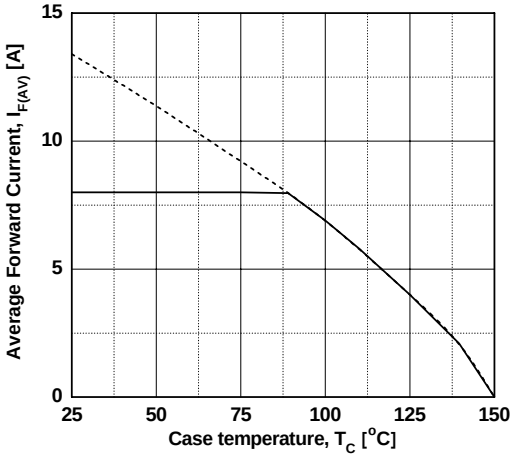
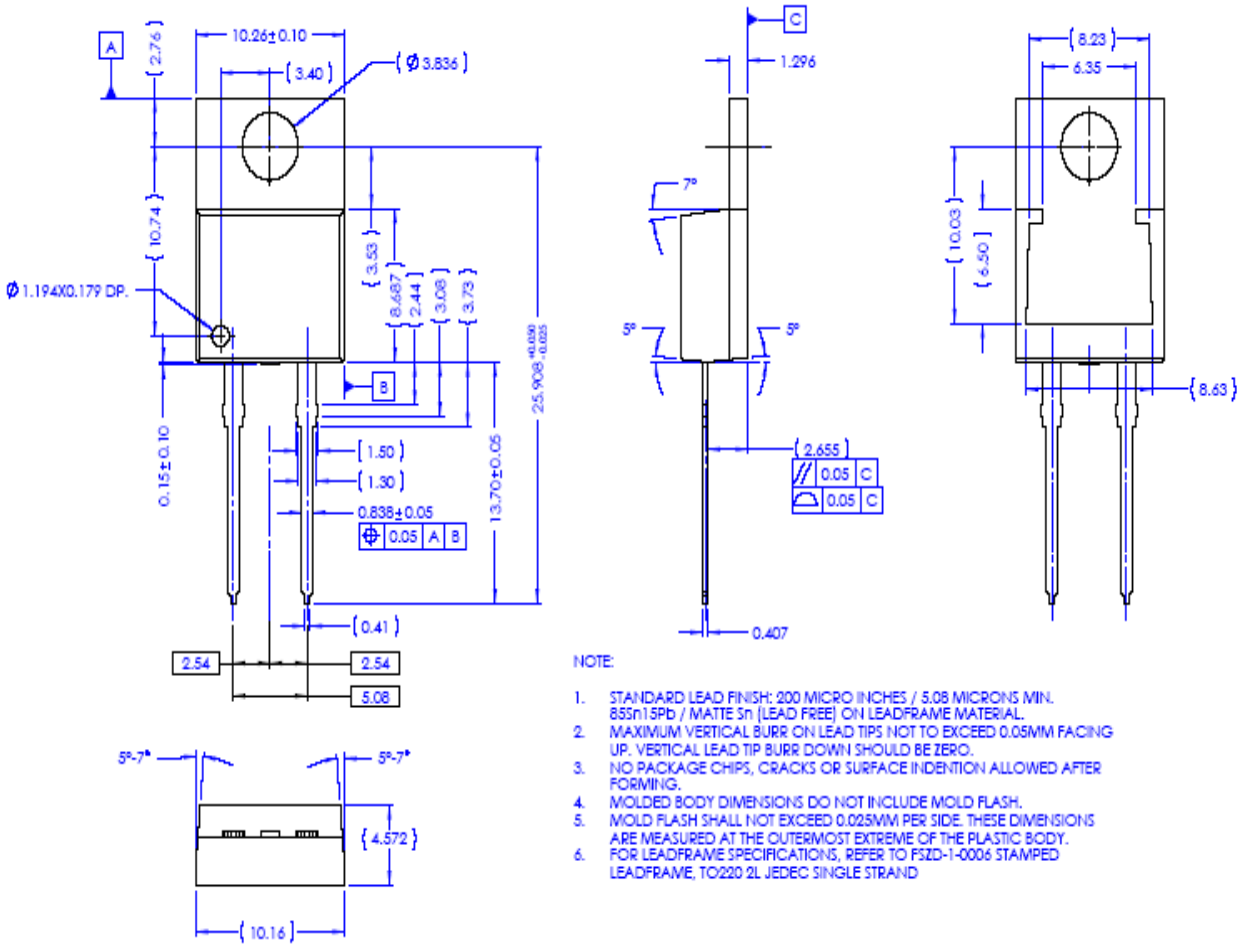


Figure 6. Forward Current Derating Curve



Mechanical Dimensions

TO220 2L



NOTE:

1. STANDARD LEAD FINISH: 200 MICRO INCHES / 5.08 MICRONS MIN. 85Sn15Pb / MATTE Sn (LEAD FREE) ON LEADFRAME MATERIAL.
2. MAXIMUM VERTICAL BURR ON LEAD TIPS NOT TO EXCEED 0.05MM FACING UP. VERTICAL LEAD TIP BURR DOWN SHOULD BE ZERO.
3. NO PACKAGE CHIPS, CRACKS OR SURFACE INDENTION ALLOWED AFTER FORMING.
4. MOLDED BODY DIMENSIONS DO NOT INCLUDE MOLD FLASH.
5. MOLD FLASH SHALL NOT EXCEED 0.025MM PER SIDE. THESE DIMENSIONS ARE MEASURED AT THE OUTERMOST EXTREME OF THE PLASTIC BODY.
6. FOR LEADFRAME SPECIFICATIONS, REFER TO FSZD-1-0006 STAMPED LEADFRAME, TO220 2L JEDEC SINGLE STRAND

Dimensions in Millimeters

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Preliminary	First Production	Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
Obsolete	Not In Production	Datasheet contains specifications on a product that is discontinued by Fairchild Semiconductor. The datasheet is for reference information only.

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