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FAIRCHILD

November 2014

FFH30S60S

30 A, 600 V STEALTH™ II Diode

Features

- Stealth Recovery, t_{rr} = 40 ns (@ I_F = 30 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

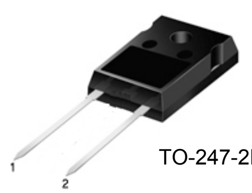
Applications

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

Description

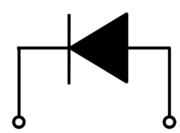
The FFH30S60S is STEALTH™ II diode with soft recovery characteristics using silicon nitride passivated ion-implanted epitaxial planar construction. This device is intended for use as a freewheeling boost diode in switching power supplies and other power switching applications. Their low stored charge and hyperfast soft recovery minimize ringing and electrical noise in power switching circuits, reducing power loss in switching transistors.

Pin Assigments



TO-247-2L

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 = 102°C	30	A
I_{FSM}	Non-Repetitive Peak Surge Current 60 Hz Single Half-Sine Wave	300	A
T_J, T_{STG}	Operating and Storage Temperature Range	-65 to +175	°C

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	1.1	°C/W

Package Marking and Ordering Information

Part Number	Top Mark	Package	Packing Method	Reel Size	Tape Width	Quantity
FFH30H60STU	F30H60S	TO-247	Tube	N/A	N/A	30

Electrical Characteristics T_C = 25°C unless otherwise noted.

Symbol	Parameter		Min.	Typ.	Max.	Unit
V_F1	I_F = 30 A I_F = 30 A	T_C = 25°C T_C = 125°C	- -	2.1 1.6	2.6 -	V
I_R1	V_R = 600 V V_R = 600 V	T_C = 25°C T_C = 125°C	- -	- -	100 500	µA
t_{rr}	I_F = 1 A, di_F/dt = 100 A/µs, V_R = 30 V	T_C = 25°C	-	25	35	ns
t_{rr} I_{rr} S factor Q_{rr}	I_F = 30 A, di_F/dt = 200 A/µs, V_R = 390 V	T_C = 25°C	- - - -	28 2.4 0.9 34	40 - - -	ns A nC
t_{rr} I_{rr} S factor Q_{rr}	I_F = 30 A, di_F/dt = 200 A/µs, V_R = 390 V	T_C = 125°C	- - - -	75 6.3 0.9 236	- - - -	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

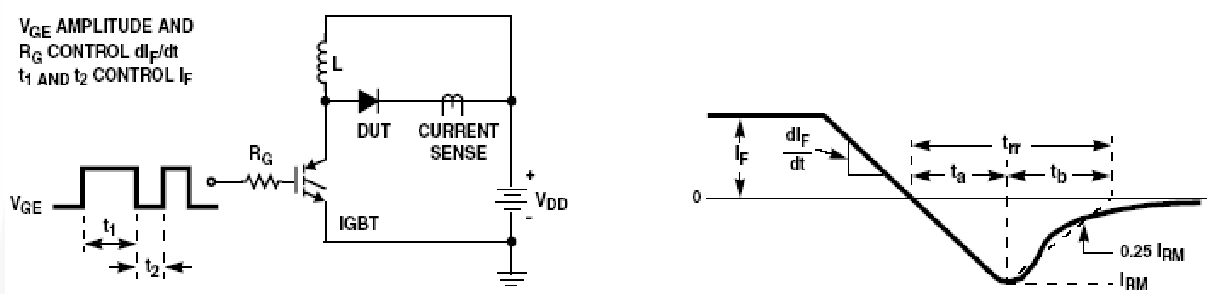


Figure 1. Diode Reverse Recovery Test Circuit & Waveform

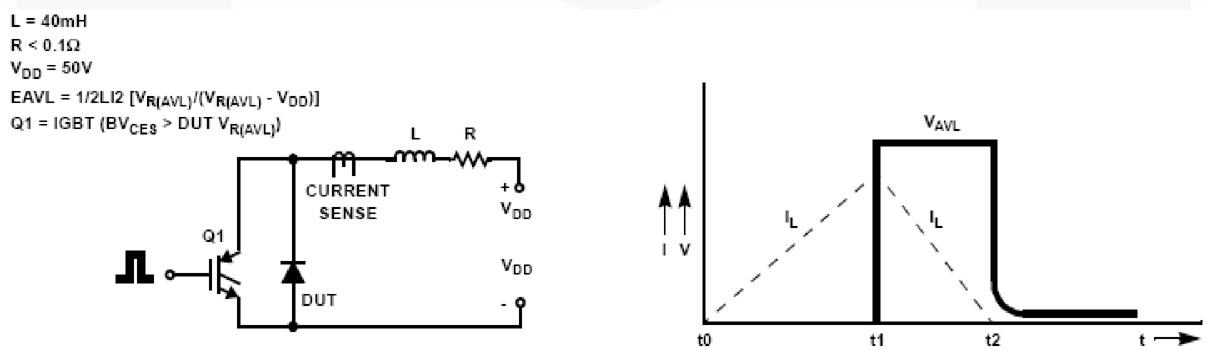


Figure 2. Unclamped Inductive Switching Test Circuit & Waveform

Typical Performance Characteristics

Figure 3. Typical Forward Voltage Drop vs. Forward Current

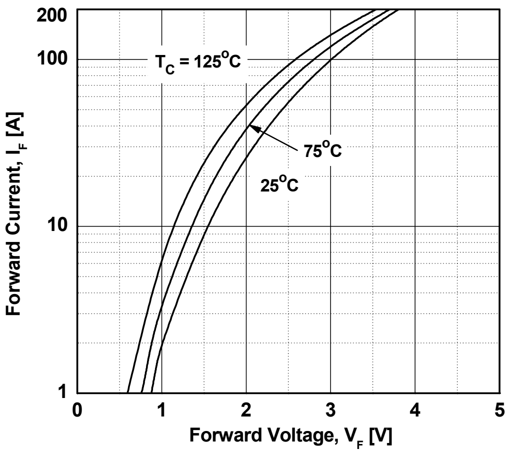


Figure 4. Typical Reverse Current vs. Reverse Voltage

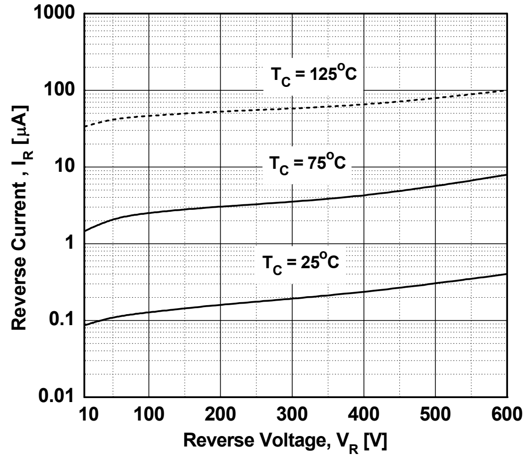


Figure 5. Typical Junction Capacitance

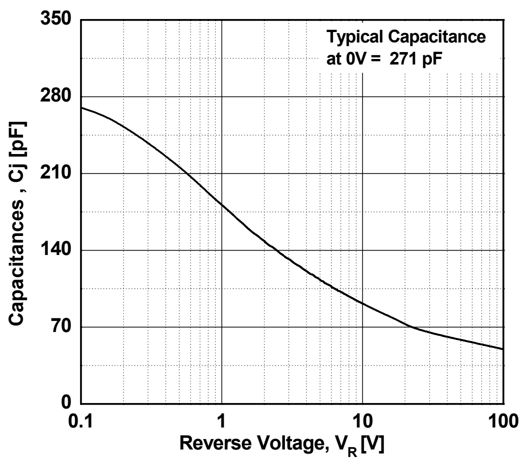


Figure 6. Typical Reverse Recovery Time vs. di_F/dt

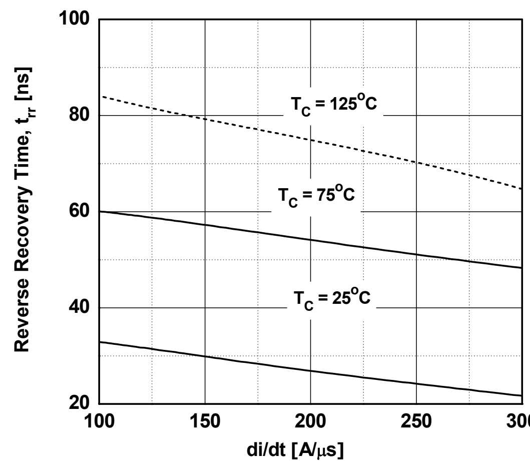


Figure 7. Typical Reverse Recovery Current vs. di_F/dt

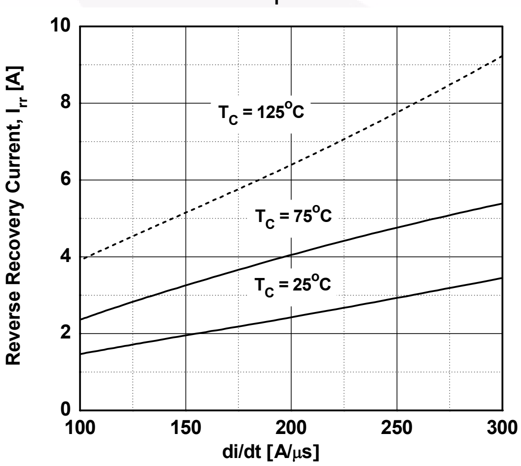
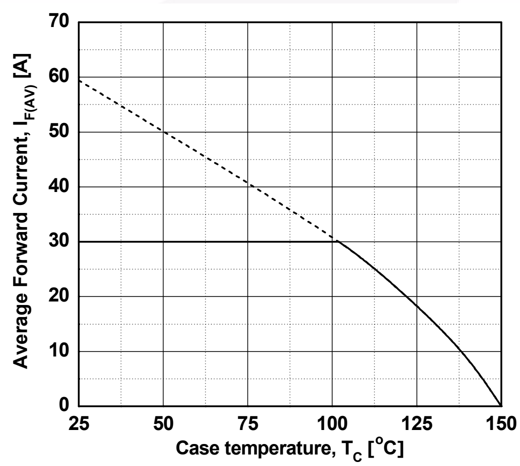
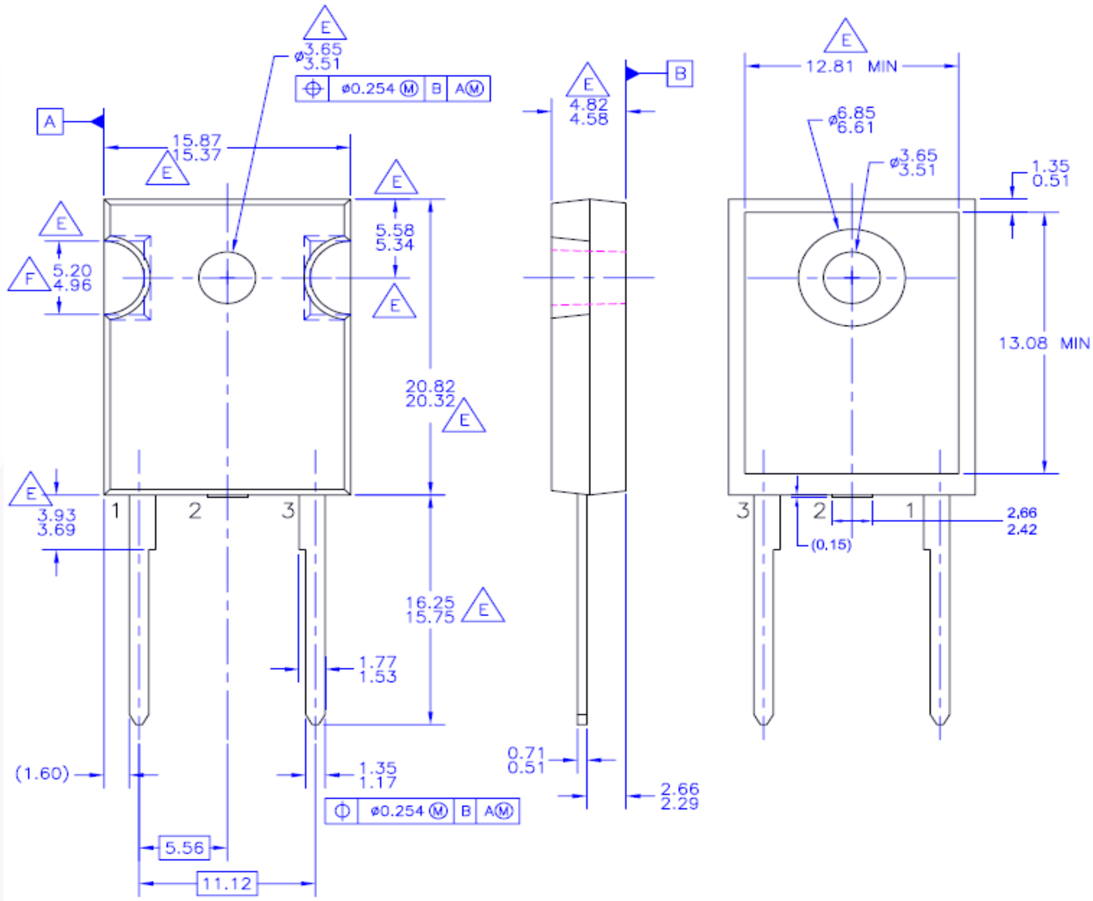


Figure 8. Forward Current Derating Curve



Mechanical Dimensions

TO-247 2L



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E. DOES NOT COMPLY JEDEC STANDARD VALUE

F. NOTCH MAY BE SQUARE

G. DRAWING FILENAME: MKT-TO247B02_REV02

Figure 9. TO-247,Molded, 2LD, Jedec Option AB

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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.
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Rev. I71

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