FAIRCHILD SEMICONDUCTOR®

September 2012

FFH75H60S
Hyperfast Recovery Power Rectifier

Features

- High Speed Switching (t_{rr}=40ns(Typ.) @ I_F=75A)
- High Reverse Voltage and High Reliability
- Avalanche Energy Rated
- Low Forward Voltage(V_F=1.8V(Typ.) @ I_F=75A)

Applications

- General Purpose
- Switching Mode Power Supply
- Power switching circuits

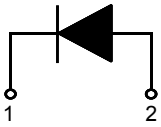
75A, 600V Hyperfast Rectifier

The FFH75H60S is a hyperfast diode with soft recovery characteristics (trr< 40ns). It has half the recovery time of ultrafast diodes and is of silicon nitride passivated ion-implanted epitaxial planar construction.This device is intended for use as a freewheeling/clamping diode and rectifier in a variety of switching power supplies and other power switching applications. Its low stored charge and hyperfast soft recovery minimize ringing and electrical noise in many power switching circuits, thus reducing powerloss in the switching transistors.

Pin Assignments



TO-247-2L
1. Cathode 2. Anode



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Absolute Maximum Ratings T_C = 25°C unless otherwise noted

Symbol	Parameter	Ratings	Units
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 = 105°C	75	A
I_{FSM}	Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave	750	A
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	Units
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	0.4	°C/W

Package Marking and Ordering Information

Device Marking	Device	Package	Reel Size	Tape Width	Quantity
FFH75H60S	FFH75H60S	TO-247-2L	-	-	30

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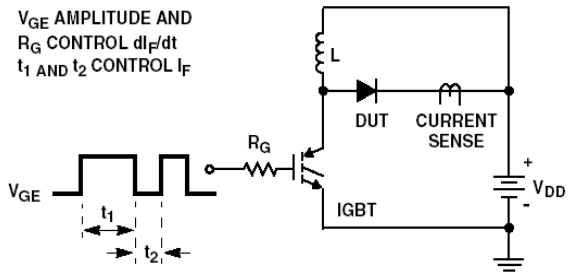
Electrical Characteristics T_C = 25°C unless otherwise noted

Parameter	Conditions		Min.	Typ.	Max	Units
V_{FM}[1]	I_F = 75A I_F = 75A	T_C = 25 °C T_C = 125 °C	- -	1.8 1.6	2.2 2.0	V V
I_{RM}[1]	V_R = 600V V_R = 600V	T_C = 25 °C T_C = 125 °C	- -	- -	100 1.0	μA mA
t_{rr}	I_F =75A, di/dt = 200A/μs, V_{CC} = 390V	T_C = 25 °C T_C = 125 °C	- -	40 85	75 -	ns ns
t_a t_b Q_{rr}	I_F =75A, di/dt = 200A/μs, V_{CC} = 390V	T_C = 25 °C T_C = 25 °C T_C = 25 °C	- - -	23 17 80	- - -	ns ns nC
W_{AVL}	Avalanche Energy (L = 40mH)		20	-	-	mJ

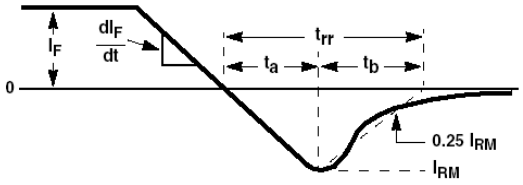
Notes:

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

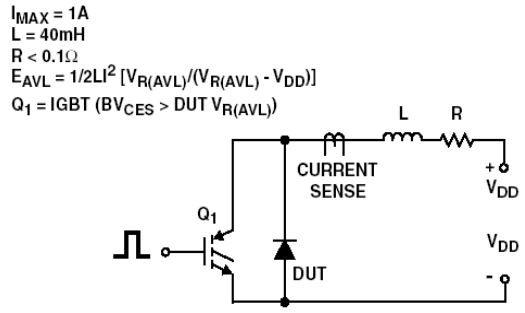
Test Circuit and Waveforms



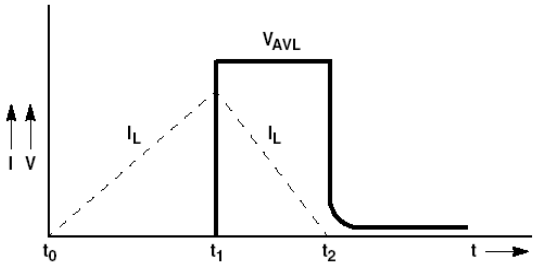
t_{rr} TEST CIRCUIT



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

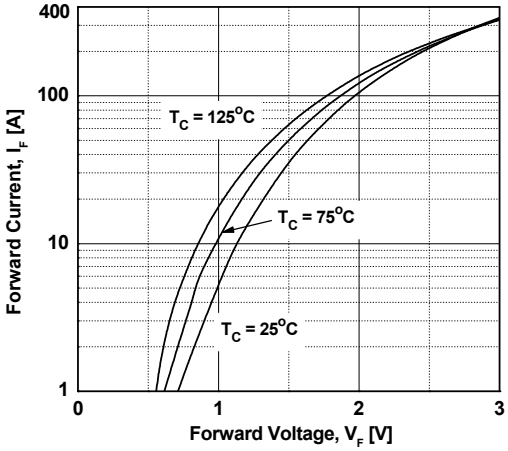


Figure 2. Typical Reverse Current vs. Reverse Voltage

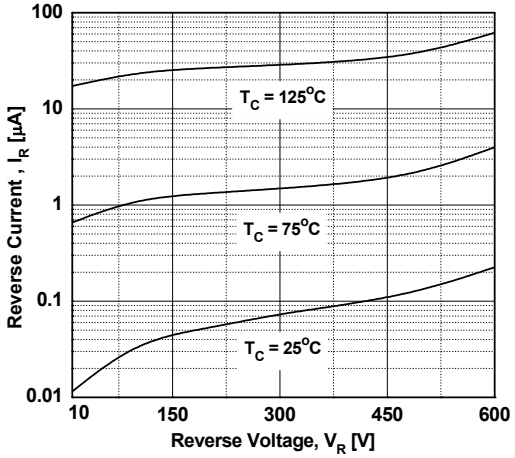


Figure 3.Typical Junction Capacitance

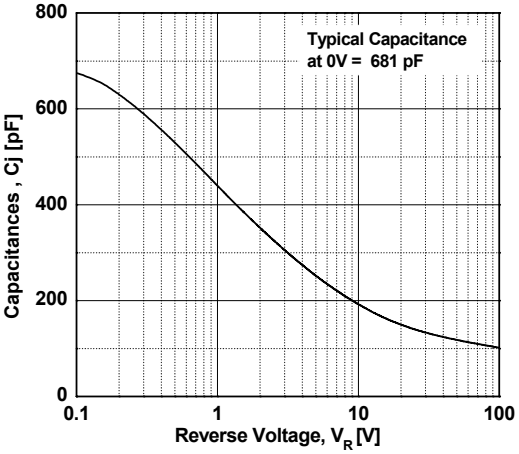


Figure 4. Typical Reverse Recovery Time vs. di/dt

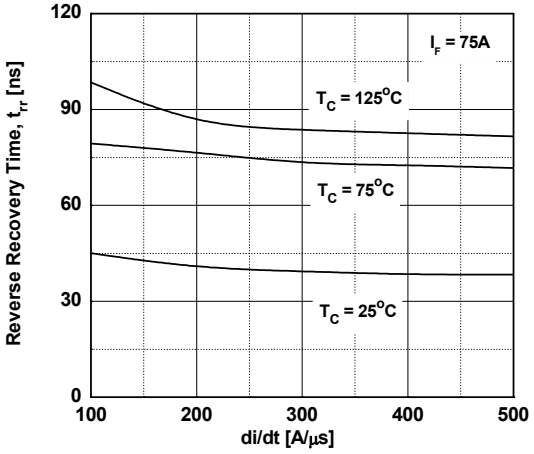


Figure 5. Typical Reverse Recovery Current vs. di/dt

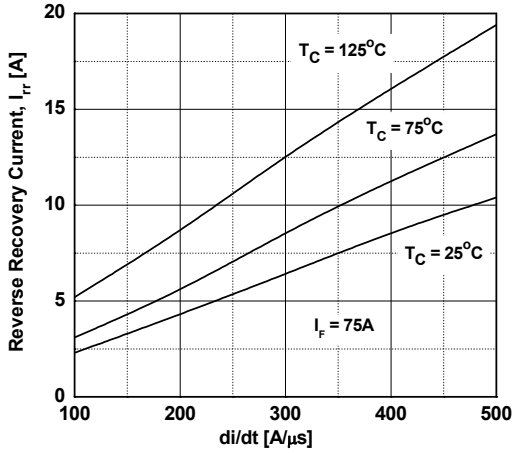
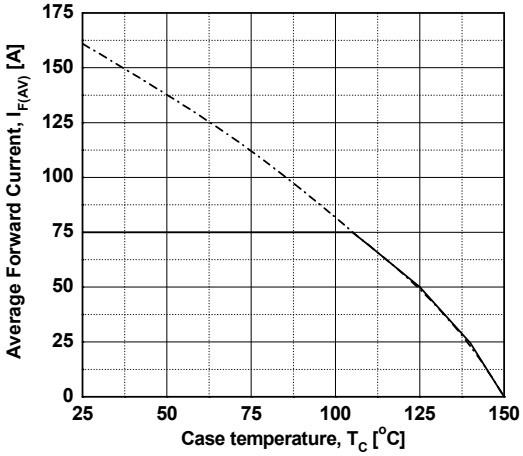
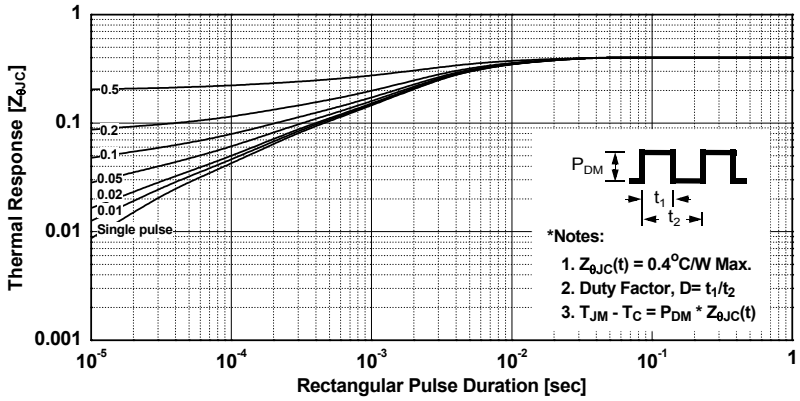


Figure 6. Forward Current Derating Curve



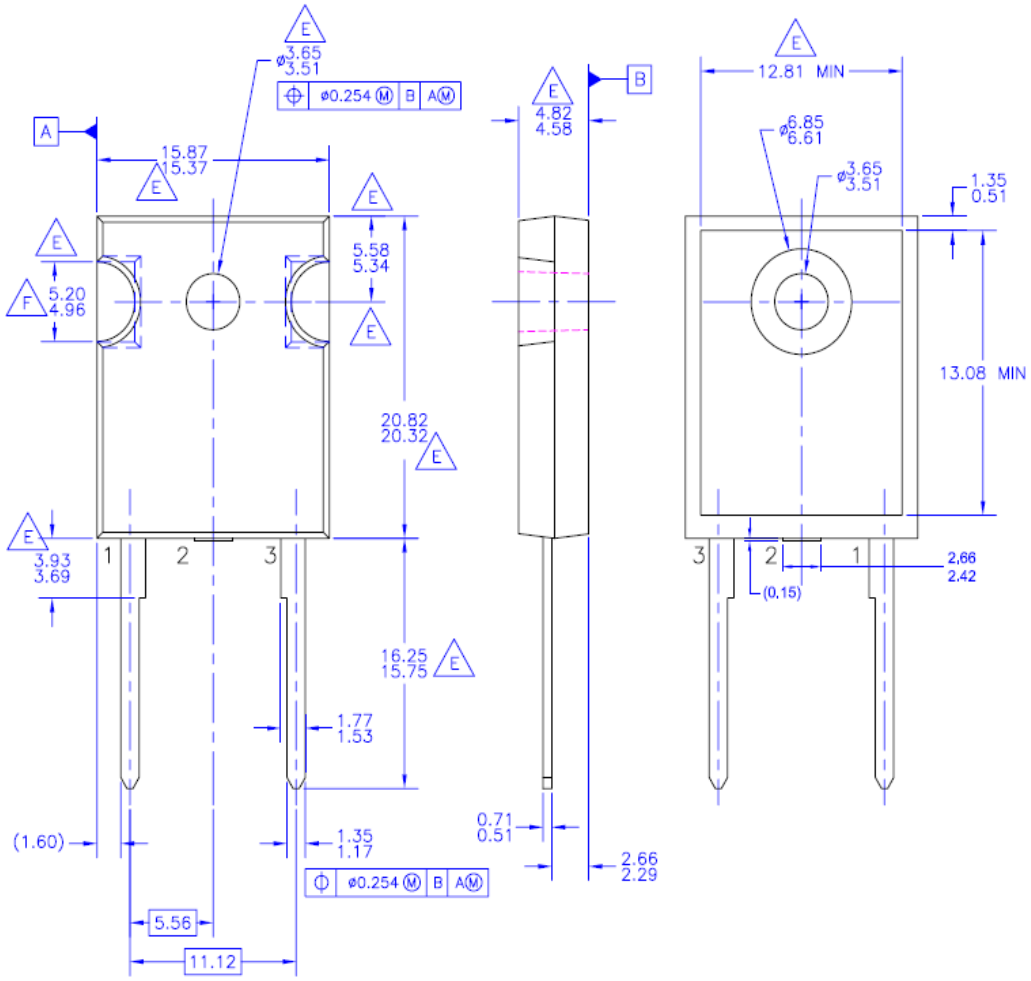
Typical Performance Characteristics (Continued)

Figure 7. Transient Thermal Response Curve



Mechanical Dimensions

TO-247-2L



NOTES: UNLESS OTHERWISE SPECIFIED

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E. DOES NOT COMPLY JEDEC STANDARD VALUE

F. NOTCH MAY BE SQUARE

G. DRAWING FILENAME: MKT-TO247B02_REV02

Dimensions in Millimeters

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