

FFH75H60S



Features

- Hyperfast Recovery $t_{rr} = 75 \text{ ns}$ (@ $I_F = 75 \text{ A}$)
- Max Forward Voltage, $V_F = 1.8 \text{ V}$ (@ $T_C = 25^\circ\text{C}$)
- 600V Reverse Voltage and High Reliability
- Avalanche Energy Rated
- RoHS Compliant

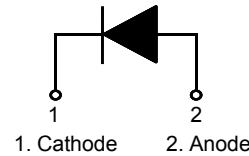
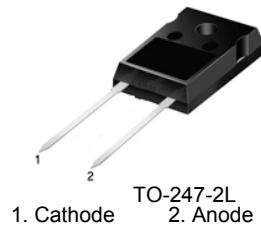
75 A, 600 V, Hyperfast Diode

The FFH75H60S is a hyperfast diode with soft recovery characteristics. It has the half recovery time of ultrafast diodes and is silicon nitride passivated ionimplanted epitaxial planar construction. These devices are intended to be used as freewheeling/ clamping diodes and diodes in a variety of switching power supplies and other power switching 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.

Applications

- General Purpose
- Switching Mode Power Supply
- Power Switching Circuits

Pin Assignments



Absolute Maximum Ratings $T_C = 25^\circ\text{C}$ 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 @ $T_C = 105^\circ\text{C}$	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	$^\circ\text{C}$

Thermal Characteristics $T_C = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Max	Unit
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	0.4	$^\circ\text{C/W}$

Package Marking and Ordering Information

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

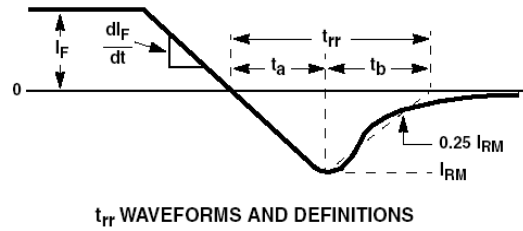
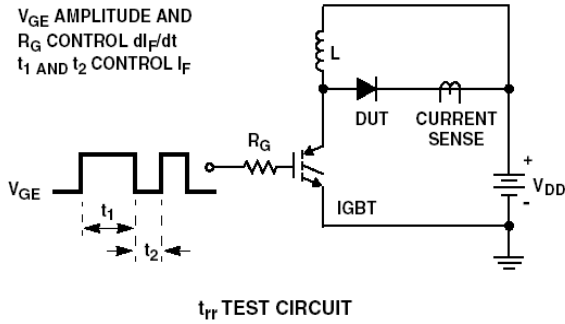
Electrical Characteristics $T_C = 25^\circ\text{C}$ unless otherwise noted

Parameter	Conditions	Min.	Typ.	Max	Unit	
V_F^{-1}	$I_F = 75\text{ A}$	$T_C = 25^\circ\text{C}$	-	1.8	2.2	V
	$I_F = 75\text{ A}$	$T_C = 125^\circ\text{C}$	-	1.6	2.0	V
I_R^{-1}	$V_R = 600\text{ V}$	$T_C = 25^\circ\text{C}$	-	-	100	μA
	$V_R = 600\text{ V}$	$T_C = 125^\circ\text{C}$	-	-	1.0	mA
t_{rr}	$I_F = 75\text{ A}, di/dt = 200\text{ A}/\mu\text{s}, V_{CC} = 390\text{ V}$	$T_C = 25^\circ\text{C}$	-	40	75	ns
		$T_C = 125^\circ\text{C}$	-	85	-	ns
t_a t_b Q_{rr}	$I_F = 75\text{ A}, di/dt = 200\text{ A}/\mu\text{s}, V_{CC} = 390\text{ V}$	$T_C = 25^\circ\text{C}$	-	23	-	ns
		$T_C = 25^\circ\text{C}$	-	17	-	ns
		$T_C = 25^\circ\text{C}$	-	80	-	nC
W_{AVL}	Avalanche Energy ($L = 40\text{ mH}$)	20	-	-	mJ	

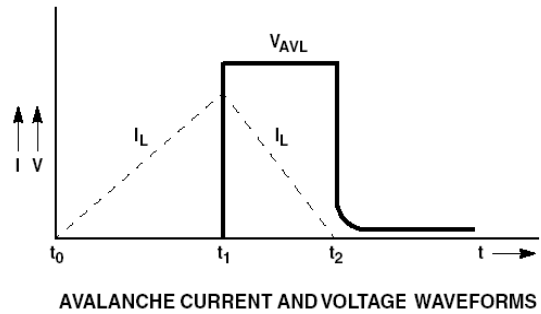
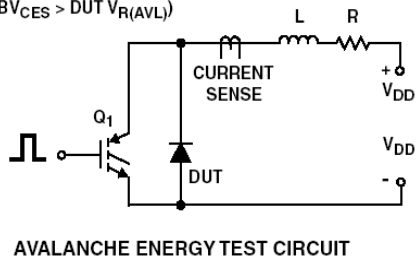
Notes:

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

Test Circuit and Waveforms



$I_{MAX} = 1\text{ A}$
 $L = 40\text{ mH}$
 $R < 0.1\Omega$
 $E_{AVL} = 1/2 L I^2 [V_{R(AVL)} / (V_{R(AVL)} - V_{DD})]$
 $Q_1 = \text{IGBT (} BV_{CES} > \text{DUT } V_{R(AVL)} \text{)}$



Typical Performance Characteristics

Figure 1. Typical Forward Voltage Drop vs. Forward Current

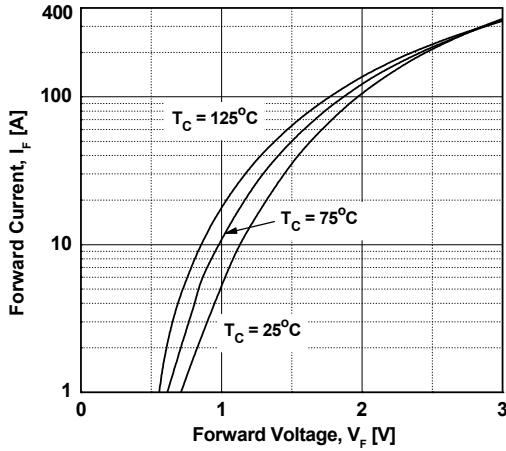


Figure 3. Typical Junction Capacitance

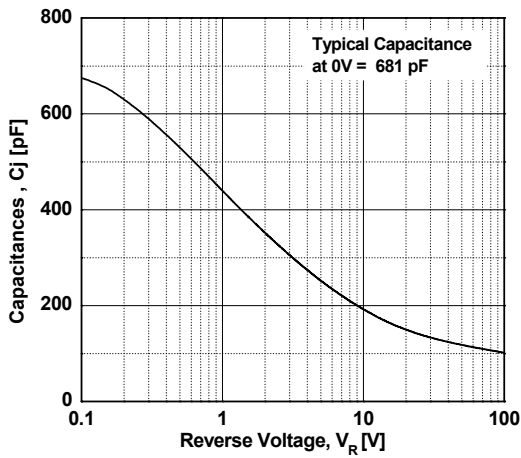


Figure 5. Typical Reverse Recovery Current vs. di/dt

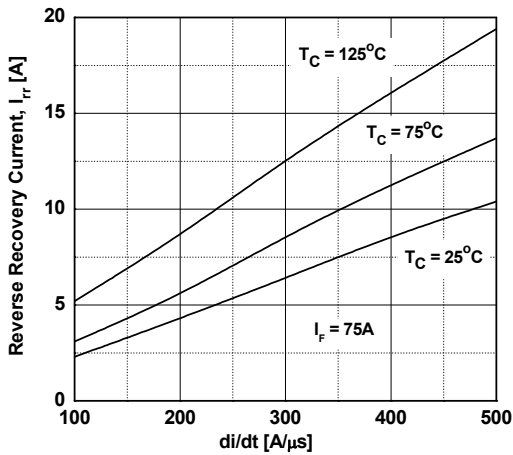


Figure 2. Typical Reverse Current vs. Reverse Voltage

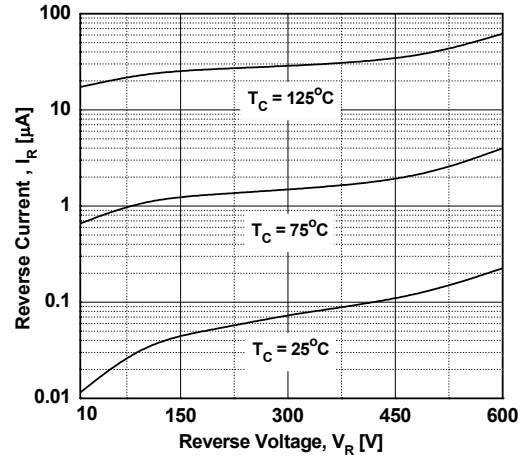


Figure 4. Typical Reverse Recovery Time vs. di/dt

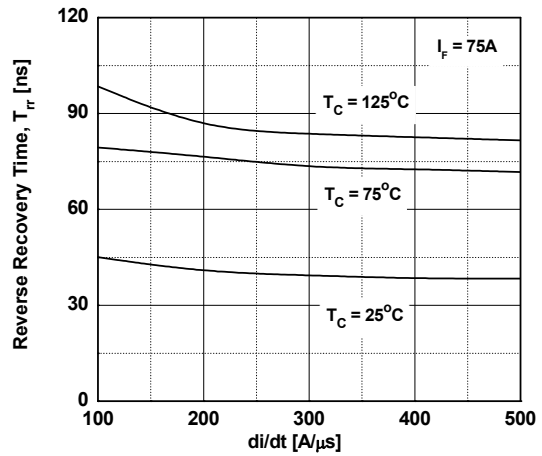
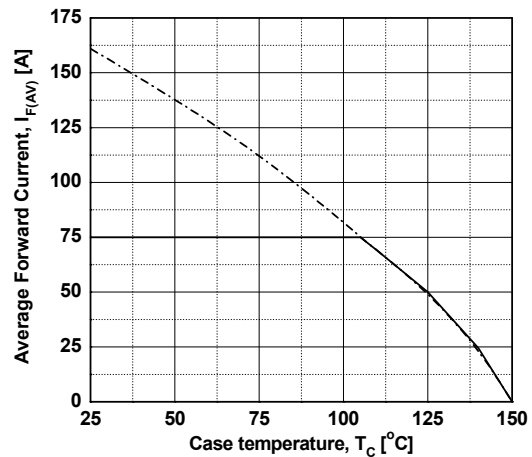
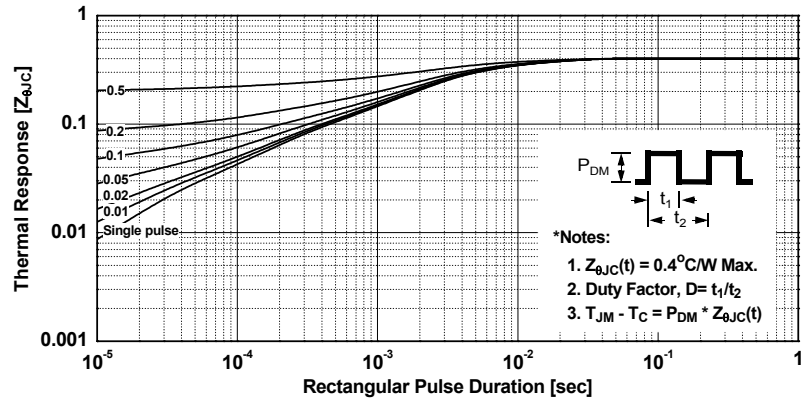


Figure 6. Forward Current Derating Curve



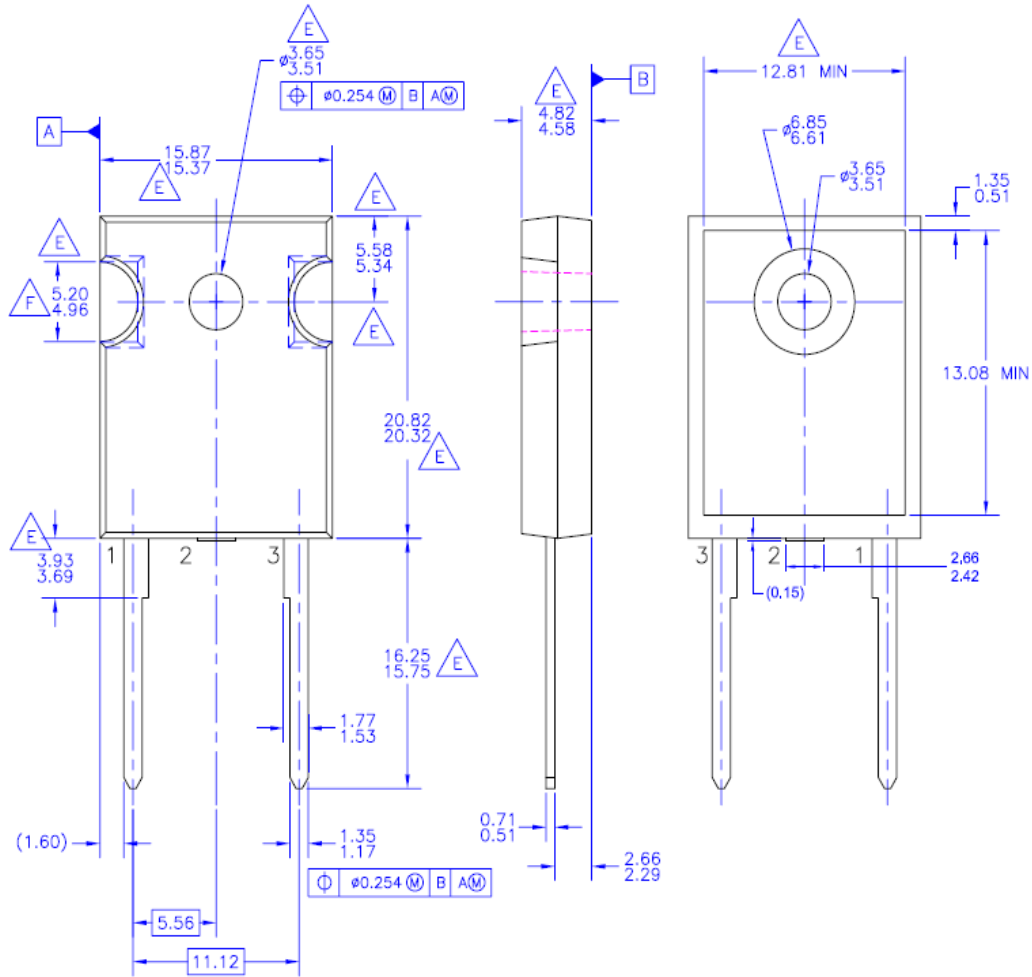
Typical Performance Characteristics (Continued)

Figure 7. Transient Thermal Response Curve



Mechanical Dimensions

TO-247-2L








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 - F.** NOTCH MAY BE SQUARE
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Dimensions in Millimeters



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