



FFPF10H60S Hyperfast 2 Rectifier

Features

- High Speed Switching ($t_{rr}=25\text{ns(Typ.)}$ @ $I_F=10\text{A}$)
- High Reverse Voltage and High Reliability
- Avalanche Energy Rated
- Low Forward Voltage($V_F=2.1\text{V(Typ.)}$ @ $I_F=10\text{A}$)

Applications

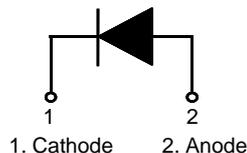
- General Purpose
- Switching Mode Power Supply
- Free-wheeling diode for motor application
- Power switching circuits

10A, 600V Hyperfast 2 Rectifier

The FFPF10H60S is hyperfast2 rectifier ($t_{rr}=25\text{ns(Typ.)}$ @ $I_F=10\text{A}$). it has half the recovery time of ultrafast rectifier and is silicon nitride passivated ion-implanted epitaxial planar construction.

This device is intended for use as freewheeling/clamping rectifiers 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 reducing power loss in the switching transistors.

Pin Assignments



Absolute Maximum Ratings $T_C = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	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 @ $T_C = 85^\circ\text{C}$	10	A
I_{FSM}	Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave	100	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	Units
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	3.4	$^\circ\text{C/W}$

Package Marking and Ordering Information

Device Marking	Device	Package	Reel Size	Tape Width	Quantity
F10H60S	FFPF10H60STU	TO-220F	-	-	50

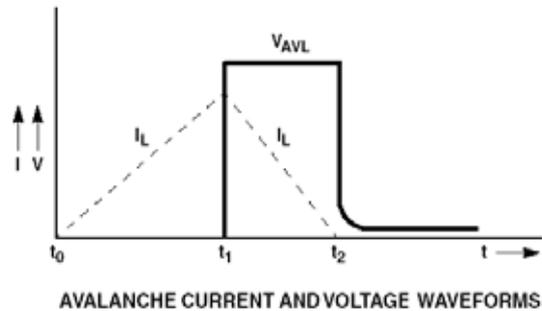
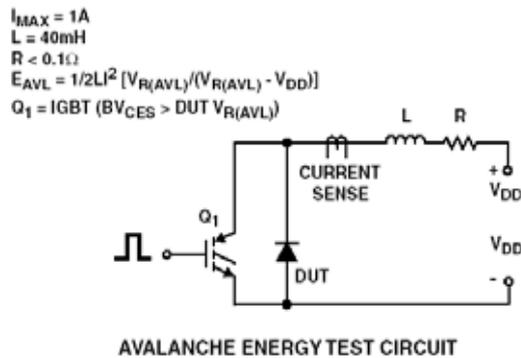
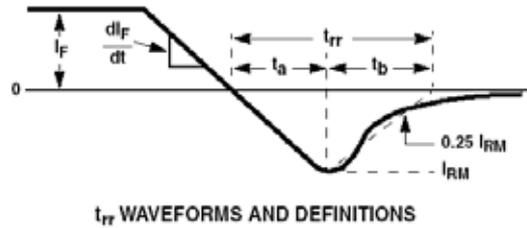
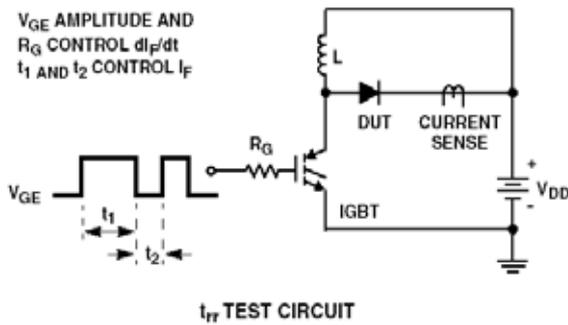
Electrical Characteristics $T_C = 25^\circ\text{C}$ unless otherwise noted

Parameter	Conditions	Min.	Typ.	Max	Units	
V_{FM}^1	$I_F = 10\text{A}$	$T_C = 25^\circ\text{C}$	-	2.1	2.5	V
	$I_F = 10\text{A}$	$T_C = 125^\circ\text{C}$	-	-	2.2	V
I_{RM}^1	$V_R = 600\text{V}$	$T_C = 25^\circ\text{C}$	-	-	1	mA
	$V_R = 600\text{V}$	$T_C = 125^\circ\text{C}$	-	-	2	mA
t_{rr}	$I_F = 1\text{A}, di/dt = 100\text{A}/\mu\text{s}, V_{CC} = 30\text{V}$	$T_C = 25^\circ\text{C}$	-	-	35	ns
	$I_F = 10\text{A}, di/dt = 50\text{A}/\mu\text{s}, V_{CC} = 390\text{V}$	$T_C = 25^\circ\text{C}$	-	25	40	ns
	$I_F = 10\text{A}, di/dt = 200\text{A}/\mu\text{s}, V_{CC} = 390\text{V}$	$T_C = 25^\circ\text{C}$	-	21	-	ns
t_a	$I_F = 10\text{A}, di/dt = 50\text{A}/\mu\text{s}, V_{CC} = 390\text{V}$	$T_C = 25^\circ\text{C}$	-	15	-	ns
t_b		$T_C = 25^\circ\text{C}$	-	10	-	ns
Q_{rr}		$T_C = 25^\circ\text{C}$	-	9.0	-	nC
W_{AVL}	Avalanche Energy (L = 40mH)	20	-	-	mJ	

Notes:

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

Test Circuit and Waveforms



Typical Performance Characteristics $T_c = 25^\circ\text{C}$ unless otherwise noted

Figure 1. Typical Forward Voltage Drop

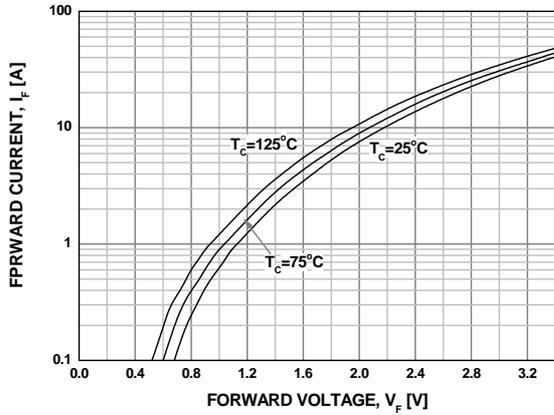


Figure 2. Typical Reverse Current

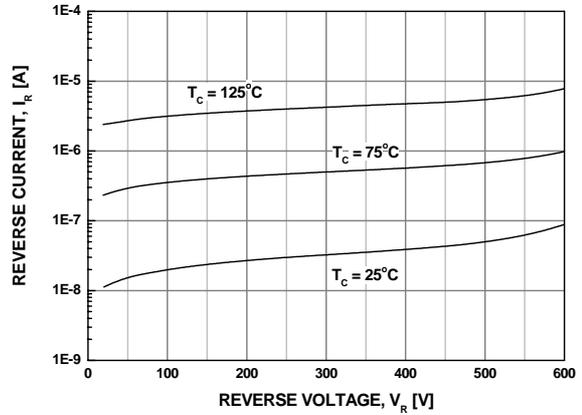


Figure 3. Typical Junction Capacitance

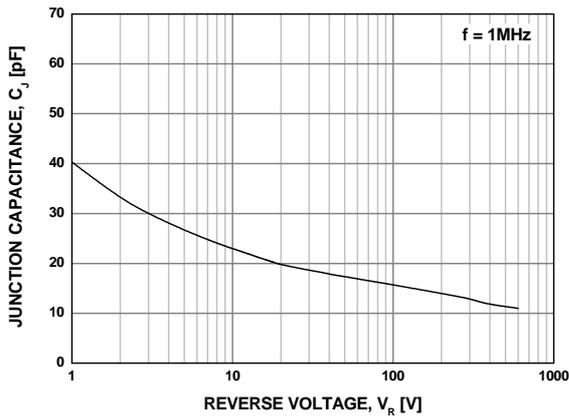


Figure 4. Typical Reverse Recovery Time

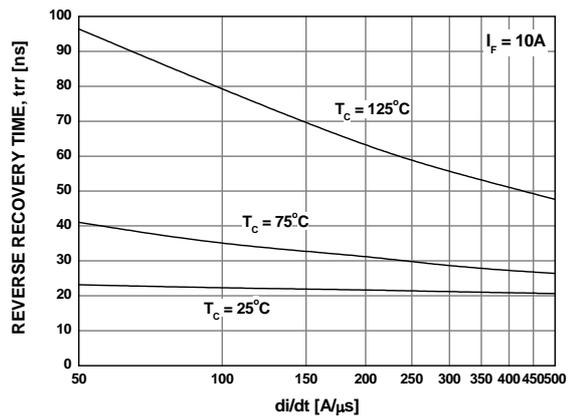


Figure 5. Typical Reverse Recovery Current

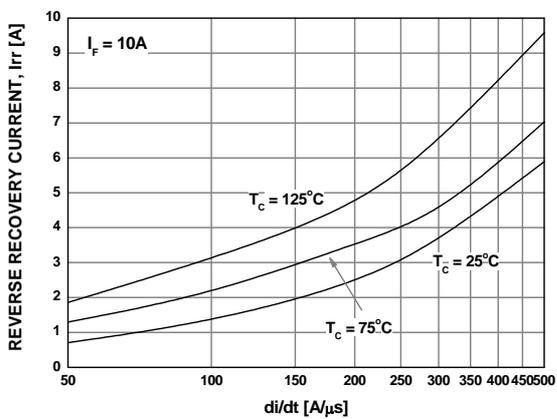
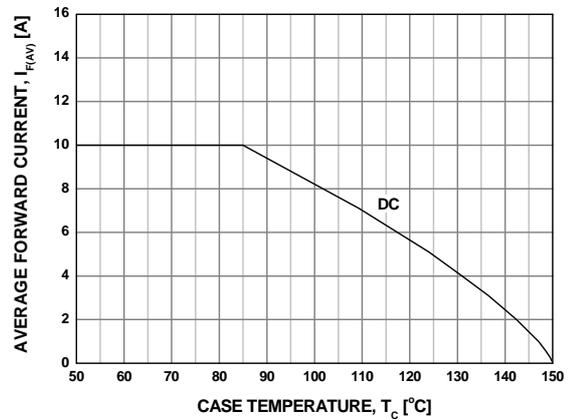
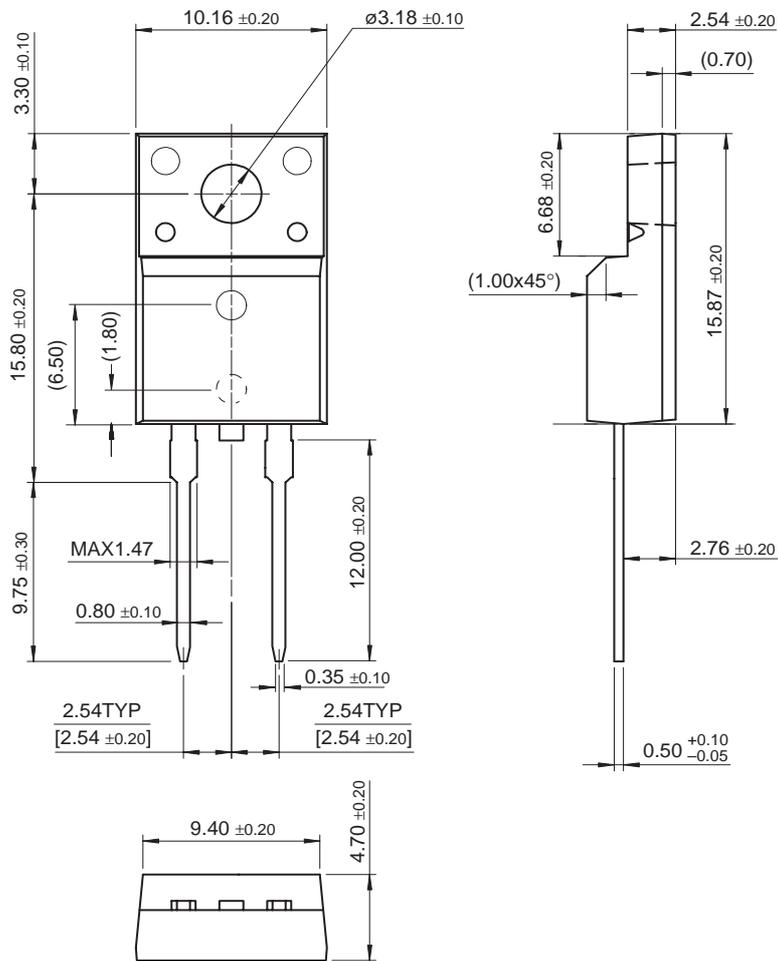


Figure 6. Forward Current Deration Curve



Mechanical Dimensions

TO-220F 2L



Dimensions in Millimeters



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PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This 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	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.

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FFPF10H60S

Hyperfast II Rectifier

Contents

- [General description](#)
- [Features](#)
- [Applications](#)
- [Product status/pricing/packaging](#)
- [Order Samples](#)
- [Qualification Support](#)

General description

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[back to top](#)

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[back to top](#)

Applications

- General Purpose

BUY

Datasheet

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This page

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- Switching Mode Power Supply
- Free-wheeling diode for motor application
- Power switching circuits

[back to top](#)

Product status/pricing/packaging

BUY

Product	Product status	Pb-free Status	Pricing*	Package type	Leads	Packing method	Package Marking Convention**
FFPF10H60STU	Full Production	 Full Production	\$0.78	TO-220F	2	RAIL	Line 1: \$Y (Fairchild logo) &Z (Asm. Plant Code) &E&3 (3-Digit Date Code) Line 2: F10H60S

* Fairchild 1,000 piece Budgetary Pricing

** A sample button will appear if the part is available through Fairchild's on-line samples program. If there is no sample button, please contact a [Fairchild distributor](#) to obtain samples



Indicates product with Pb-free second-level interconnect. For more information [click here](#).

Package marking information for product FFPF10H60S is available. [Click here for more information](#).

[back to top](#)

Qualification Support

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Product
FFPF10H60STU

[back to top](#)

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