FAIRCHILD SEMICONDUCTOR®

April 2007

FFP08H60S
Hyperfast 2 Rectifier

Features

- High Speed Switching (t_{rr}=45ns(Max.) @ I_F=8A)
- High Reverse Voltage and High Reliability
- Avalanche Energy Rated
- Low Forward Voltage(V_F=2.1V(Max.) @ I_F=8A)

Applications

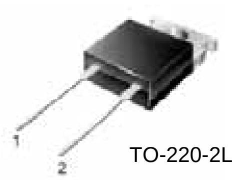
- General Purpose
- Switching Mode Power Supply
- Free-wheeling diode for motor application
- Power switching circuits

8A, 600V Hyperfast 2 Rectifier

The FFP08H60S is hyperfast2 rectifier (t_{rr}=45ns(Max.) @ I_F=8A). it has half the recovery time of ultrafast rectifier and is silicon nitride passivated ion-implanted epitaxial planar construction.

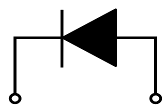
This device is intended for use as freewheeling/clamping rectifiers in a variety of switching power supplies and other power swithching applications. Its low stored charge and hyperfast soft recovery minimize ringing and electrical noise in many power switching circuits reducing power loss in the switching transistors.

Pin Assignments



TO-220-2L

1. Cathode 2. Anode



1 2

1. Cathode 2. Anode

Absolute Maximum Ratings T_C = 25°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 = 105 °C	8	A
I_{FSM}	Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave	60	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	2.5	°C/W

Package Marking and Ordering Information

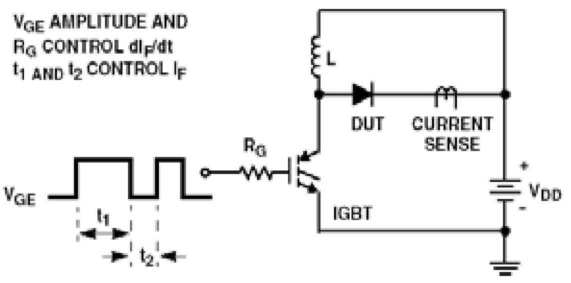
Device Marking	Device	Package	Reel Size	Tape Width	Quantity
08H60S	FFP08H60STU	TO-220	-	-	50

Electrical Characteristics T_C = 25°C unless otherwise noted

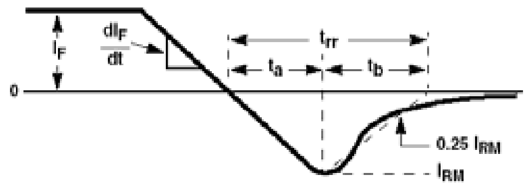
Parameter	Conditions		Min.	Typ.	Max	Units
V_{FM}[1]	I_F = 8A I_F = 8A	T_C = 25 °C T_C = 125 °C	- -	- -	2.1 1.7	V V
I_{RM}[1]	V_R = 600V V_R = 600V	T_C = 25 °C T_C = 125 °C	- -	- -	100 200	µA µA
t_{rr}	I_F =1A, di/dt = 100A/µs, V_{CC} = 30V I_F =8A, di/dt = 100A/µs, V_{CC} = 390V	T_C = 25 °C T_C = 25 °C	- -	- -	35 45	ns ns
t_a t_b Q_{rr}	I_F =8A, di/dt = 100A/µs, V_{CC} = 390V	T_C = 25 °C T_C = 25 °C T_C = 25 °C	- - -	15 16 18.6	- - -	ns ns nC
W_{AVL}	Avalanche Energy (L = 40mH)		20	-	-	mJ

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

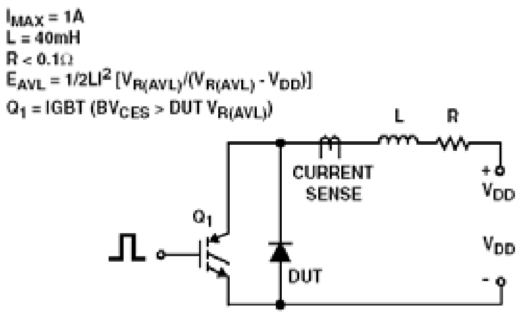
Test Circuit and Waveforms



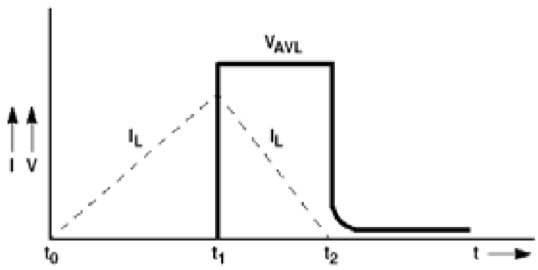
t_{rr} TEST CIRCUIT



t_{rr} WAVEFORMS AND DEFINITIONS



AVALANCHE ENERGY TEST CIRCUIT



AVALANCHE CURRENT AND VOLTAGE WAVEFORMS

Typical Performance Characteristics T_C = 25°C unless otherwise noted

Figure 1. Typical Forward Voltage Drop

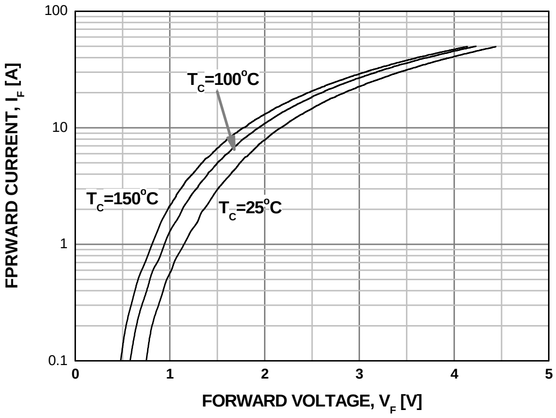


Figure 2. Typical Reverse Current

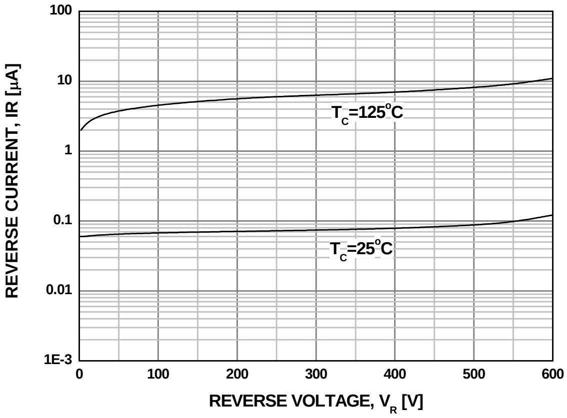


Figure 3. Typical Junction Capacitance

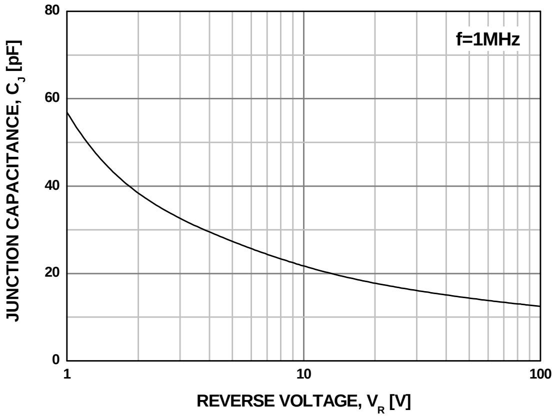


Figure 4. Typical Reverse Recovery Time

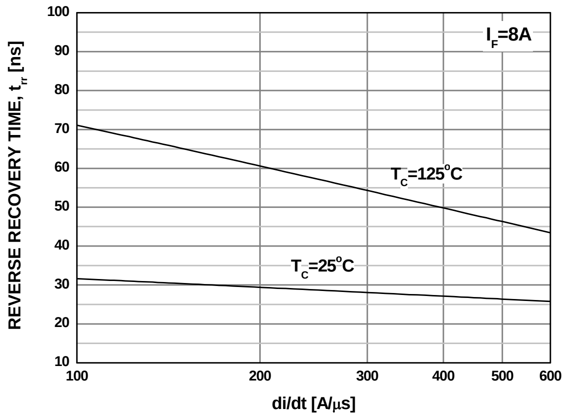


Figure 5. Typical Reverse Recovery Current

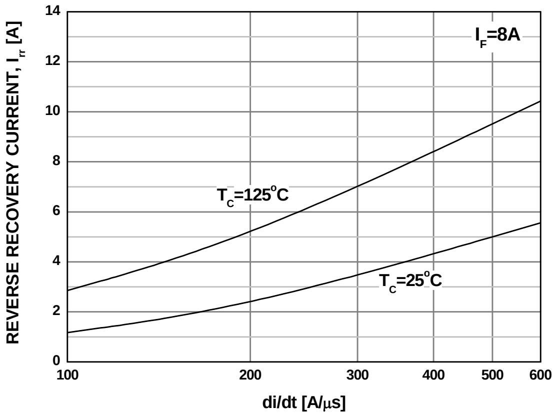
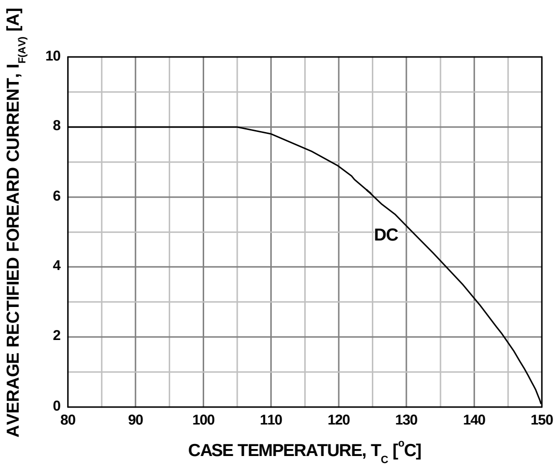
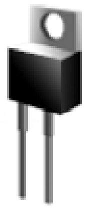


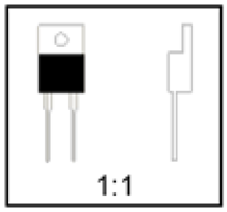
Figure 6. Forward Current Deration Curve



Package Demensions

TO-220AC

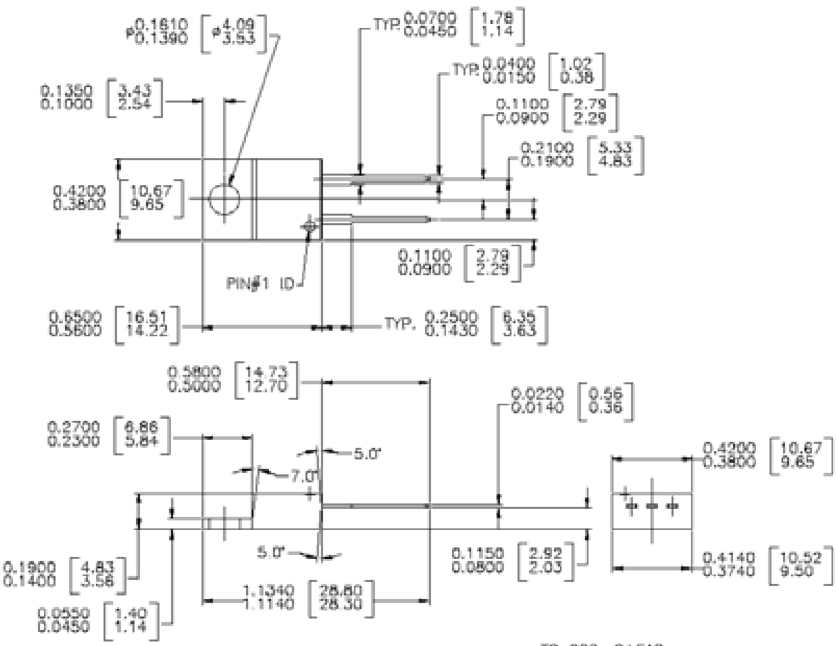




Scale 1:1 on letter size paper

Dimensions shown below are in:
inches [millimeters]

Part Weight per unit (gram): 2.24



NOTE : UNLESS OTHERWISE SPECIFIED

1. STANDARD LEAD FINISH :
200 MICROINCHES / 5.08 MICRON MINIMUM
LEAD / TIN 15/85 ON OLIN 194 COPPER OR EQUIVALENT

2. DIMENSION BASED ON JEDEC STANDARD TO-220
VARIATION AB, ISSUE J, DATED 3/24/87

Dimensions in Millimeters

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PowerSaver™
PowerTrench®
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ScalarPump™
SMART START™
SPM®
STEALTH™
SuperFET™
SuperSOT™-3
SuperSOT™-6
SuperSOT™-8
SyncFET™
TCM™
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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.
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