



April 2007

FFPF08H60S Hyperfast 2 Rectifier

Features

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

Applications

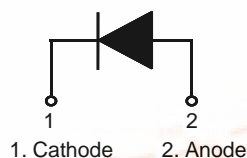
- General Purpose
- Switching Mode Power Supply
- Free-wheeling diode for motor application
- Power switching circuits

8A, 600V Hyperfast 2 Rectifier

The FFPF08H60S is hyperfast2 rectifier ($t_{rr}=45\text{ns}(\text{Max.})$ @ $I_F=8\text{A}$). 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 @ $T_C = 105^\circ\text{C}$	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	$^\circ\text{C}$

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	$^\circ\text{C}/\text{W}$

Package Marking and Ordering Information

Device Marking	Device	Package	Reel Size	Tape Width	Quantity
F08H60S	FFPF08H60STU	TO-220F	-	-	50

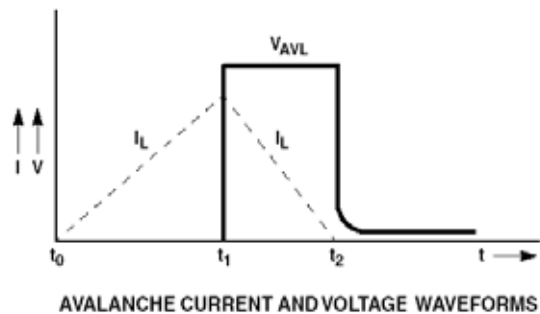
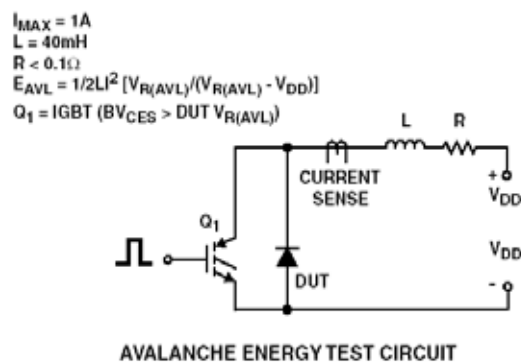
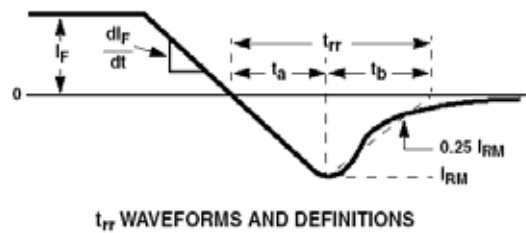
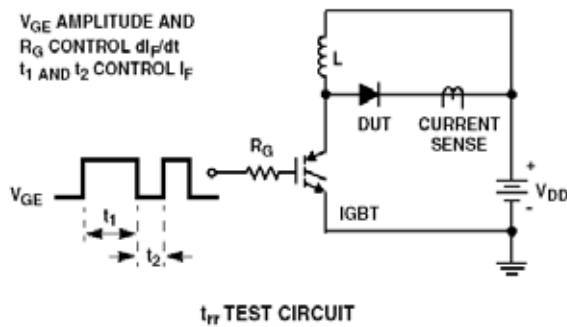
Electrical Characteristics $T_C = 25^\circ\text{C}$ unless otherwise noted

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

Notes:

1. Pulse : Test Pulse width = $300\mu\text{s}$, 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

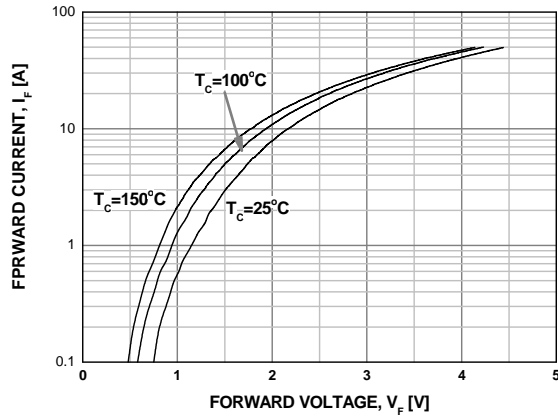


Figure 2. Typical Reverse Current

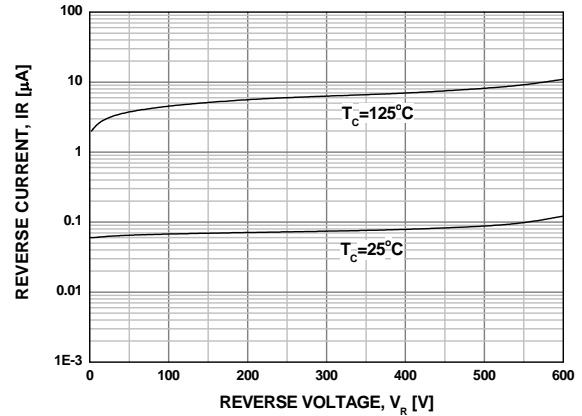


Figure 3. Typical Junction Capacitance

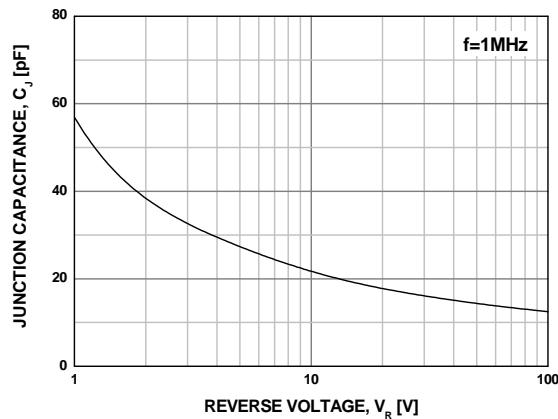


Figure 4. Typical Reverse Recovery Time

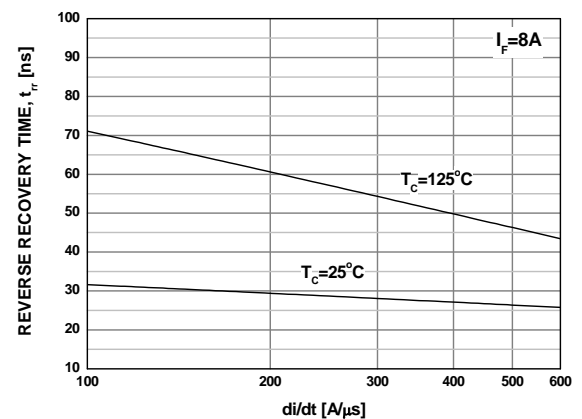


Figure 5. Typical Reverse Recovery Current

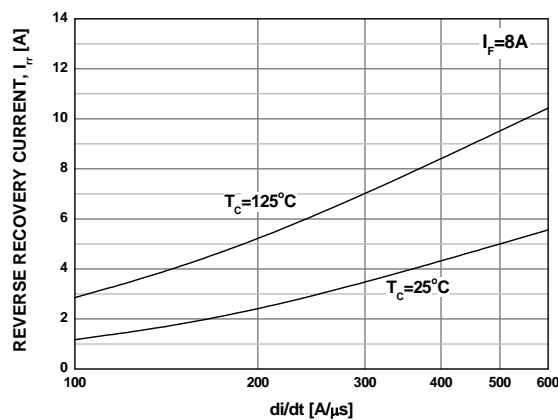
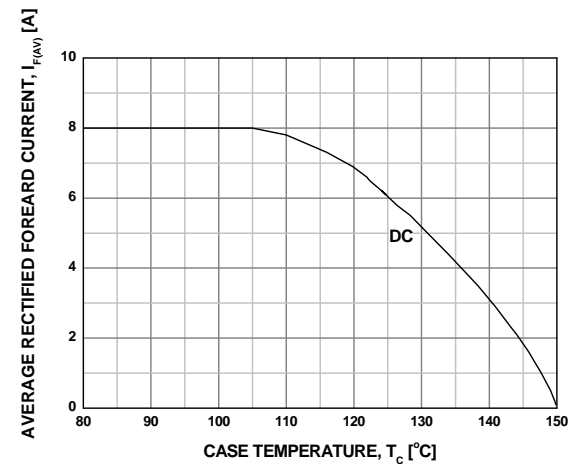


Figure 6. Forward Current Deration Curve




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