

FFPF08S60S Stealth 2 Rectifier

Features

- High Speed Switching (Max. $t_{rr} < 30\text{ns}$ @ $I_F = 8\text{A}$)
- High Reverse Voltage and High Reliability
- Avalanche Energy Rated

Applications

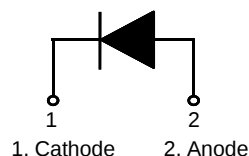
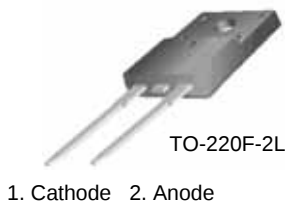
- General Purpose
- Switching Mode Power Supply
- Boost Diode in continuous mode power factor corrections
- Power switching circuits

8A, 600V Stealth 2 Rectifier

The FFPF08S60S is stealth2 rectifier with soft recovery characteristics ($t_{rr} < 30\text{ns}$). They has half the recovery time of hyperfast rectifier and are silicon nitride passivated ion-implanted epitaxial planar construction.

This device is intended for use as freewheeling of boost diode in switching power supplies and other power swithching 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.

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 @ $T_C = 95^\circ\text{C}$	8	A
I_{FSM}	Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave	80	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
F08S60S	FFPF08S60STU	TO-220F-2L	-	-	50

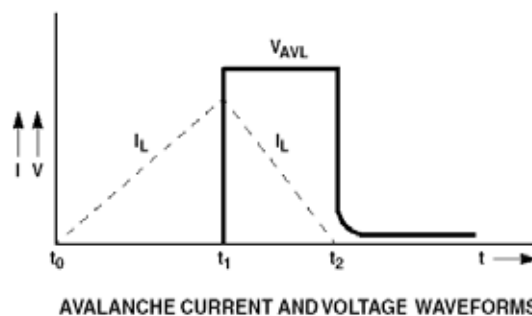
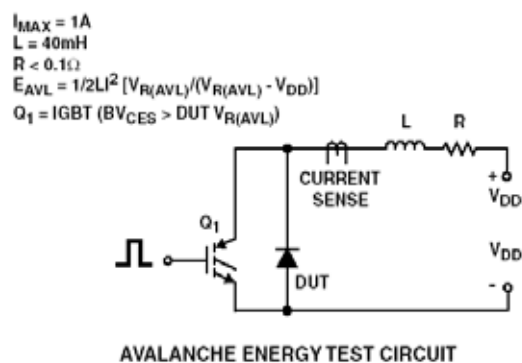
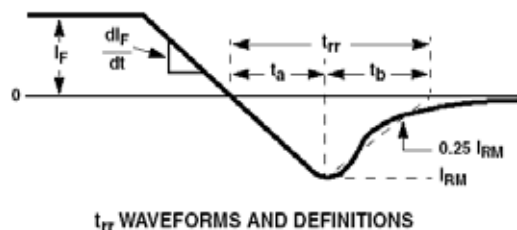
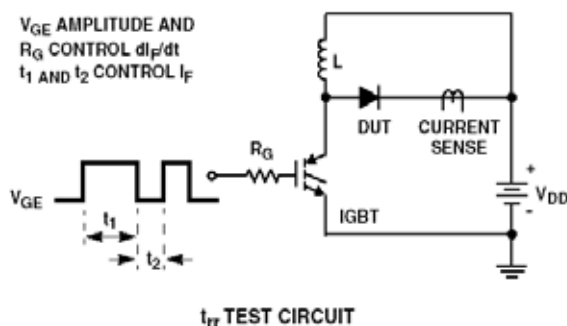
Electrical Characteristics $T_C = 25^\circ\text{C}$ unless otherwise noted

Parameter	Conditions		Min.	Typ.	Max	Units
V _{FM} ¹	I _F = 8A	T _C = 25 °C	-	2.1	2.6	V
	I _F = 8A	T _C = 125 °C	-	1.6	-	V
I _{RM} ¹	V _R = 600V	T _C = 25 °C	-	-	100	μA
	V _R = 600V	T _C = 125 °C	-	-	500	μA
t _{rr}	I _F =1A, di/dt = 100A/μs, V _R = 30V	T _C = 25 °C	-	-	25	ns
t _{rr}	I _F =8A, di/dt = 200A/μs, V _R = 390V	T _C = 25 °C	-	19	30	ns
I _{rr}			-	2.2	-	A
S factor			-	0.6	-	-
Q _{rr}			-	21	-	nC
t _{rr}	I _F =8A, di/dt = 200A/μs, V _R = 390V	T _C = 125 °C	-	58	-	ns
I _{rr}			-	4.3	-	A
S factor			-	1.3	-	-
Q _{rr}			-	125	-	nC
W _{AVL}	Avalanche Energy (L = 40mH)		20	-	-	mJ

Notes:

- 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

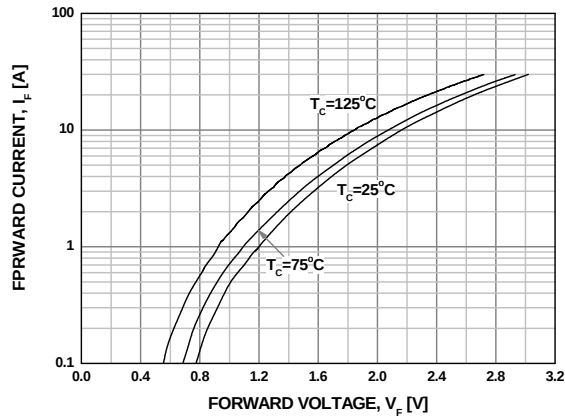


Figure 2. Typical Reverse Current

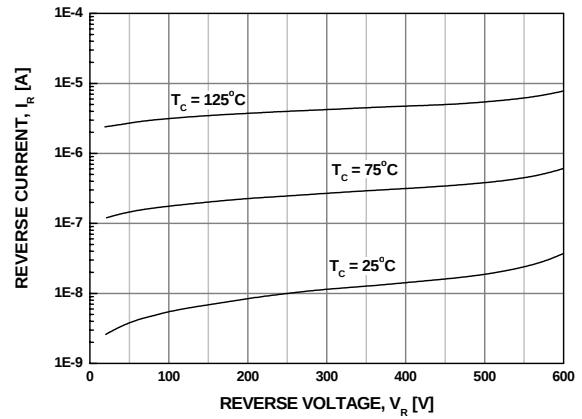


Figure 3. Typical Junction Capacitance

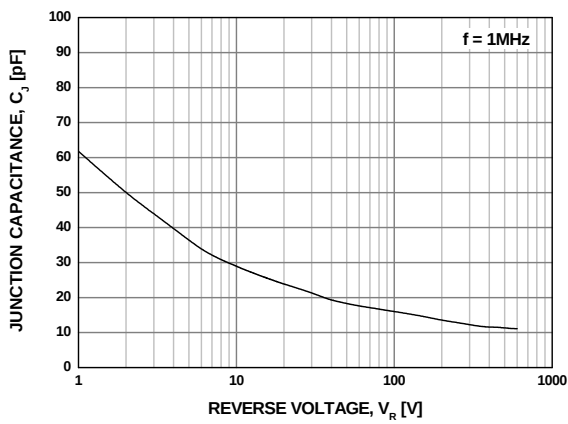


Figure 4. Typical Reverse Recovery Time

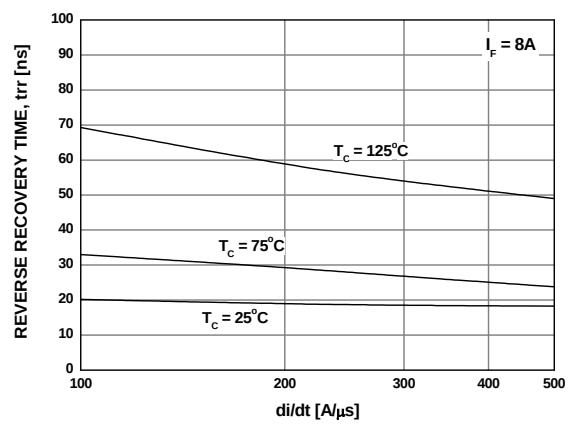


Figure 5. Typical Reverse Recovery Current

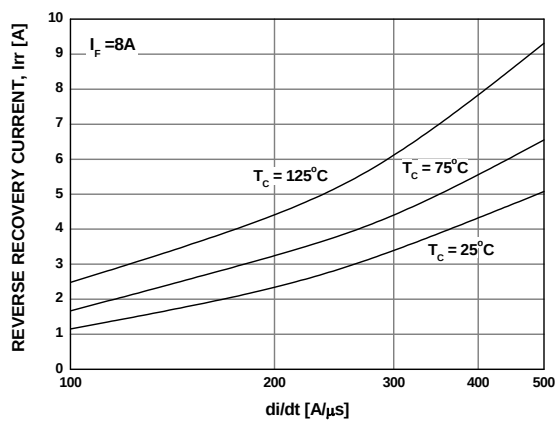
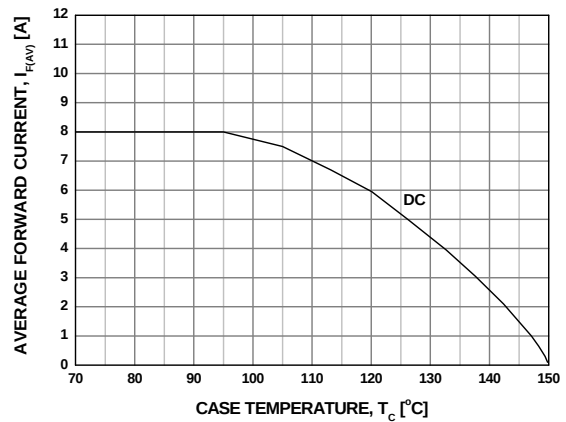


Figure 6. Forward Current Deration Curve



Technical drawing of a 2.54TYP connector showing front, side, and bottom views with dimensions.

Front View Dimensions:

- Overall width: 10.16 ± 0.20
- Top section height: 3.30 ± 0.10
- Central section height: 15.80 ± 0.20
- Bottom section height: 9.75 ± 0.30
- Pin spacing (center-to-center): 2.54 TYP (range $[2.54 \pm 0.20]$)
- Pin diameter: $\varnothing 3.18 \pm 0.10$
- Pin length (from top of central section): 12.00 ± 0.20
- Pin tip diameter: 0.35 ± 0.10
- Pin tip radius: 0.80 ± 0.10
- Pin tip angle: $\text{MAX } 1.47^\circ$
- Pin tip thickness: $0.50^{+0.10}_{-0.05}$

Side View Dimensions:

- Overall height: 15.87 ± 0.20
- Top section height: 6.68 ± 0.20
- Pin length (from top of side section): 12.00 ± 0.20
- Pin tip diameter: 0.35 ± 0.10
- Pin tip radius: 0.80 ± 0.10
- Pin tip angle: $\text{MAX } 1.47^\circ$
- Pin tip thickness: $0.50^{+0.10}_{-0.05}$

Bottom View Dimensions:

- Overall width: 9.40 ± 0.20
- Overall height: 4.70 ± 0.20

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