ON Semiconductor®

FFD08S60S-F085

STEALTH™ II Rectifier

8A, 600V Stealth2 Rectifier

Features

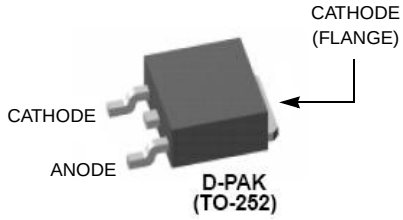
- High Speed Switching (Max. t_{rr}<30ns @ I_F = 8A)
- High Reverse Voltage and High Reliability
- Avalanche Energy Rated
- Qualified to AEC Q101
- RoHS Compliant

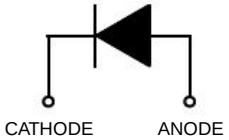
Applications

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

■The FFD08S60S-F085 is stealth 2 rectifier with soft recovery characteristics (t_{rr}<30ns). 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 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.

Pin Assignments





Absolute Maximum Ratings T_C = 25°C unless otherwise noted

Symbol	Parameter	Ratings	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 = 115°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	°C

Thermal Characteristics T_C = 25°C unless otherwise noted

$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	3.0	°C/W

Package Marking and Ordering Information

Device Marking	Device	Package	Reel Size	Tape Width	Quantity
F08S60S	FFD08S60-F085	TO252	13”	12mm	2500

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September-2017,Rev. 3

Publication Order Number:
FFD08S60-F085/D

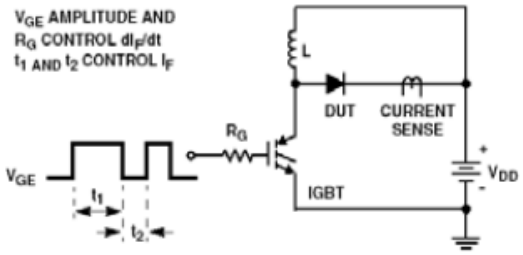
Electrical Characteristics T_C = 25°C unless otherwise noted

Parameter	Test Conditions		Min	Typ	Max	Units
V_{FM}[1]	I_F = 8A, I_F = 8A	T_C = 25°C T_C = 125°C	- -	2.1 1.6	2.6 -	V
I_{RM}[1]	V_R = 600V, V_R = 600V	T_C = 25°C T_C = 125°C	- -	- -	100 500	μA
t_{rr}	I_F = 1A, di/dt = 100A/s, V_R = 30V	T_C = 25°C	-	-	25	ns
t_{rr}	I_F = 8A, di/dt = 200A/s, 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/s, 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

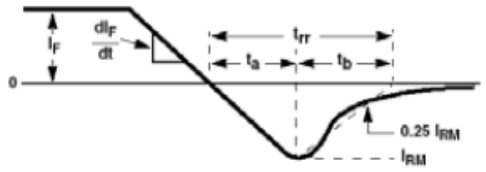
Notes:

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

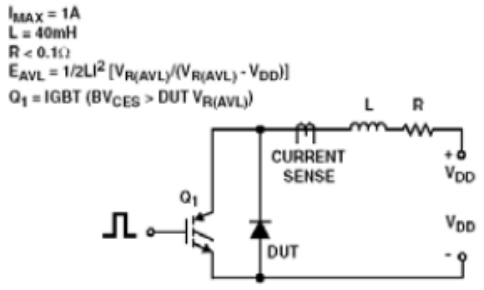
Test Circuit and Waveforms



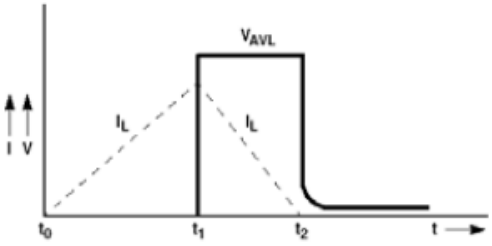
t_{rr} TEST CIRCUIT



t_{rr} WAVEFORMS AND DEFINITIONS



AVALANCHE ENERGY TEST CIRCUIT



AVALANCHE CURRENT AND VOLTAGE WAVEFORMS

Typical Performance Characteristics T_C = 25°C unless otherwise noted

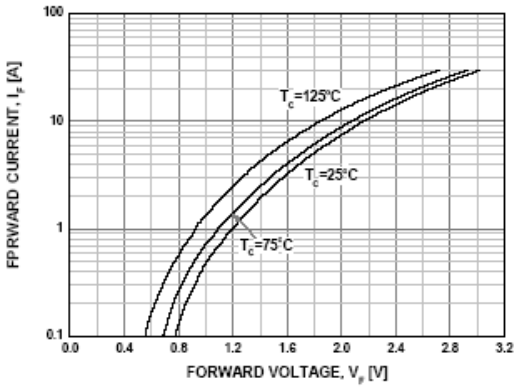


Figure 1. Typical Forward Voltage Drop

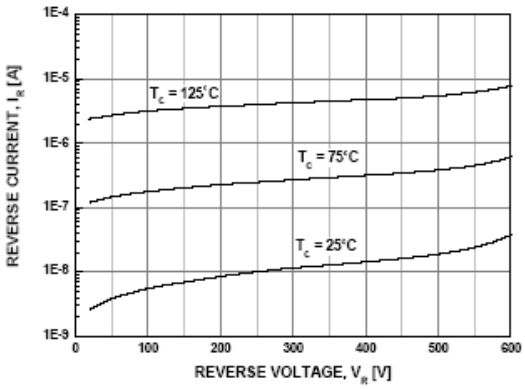


Figure 2. Typical Reverse Current

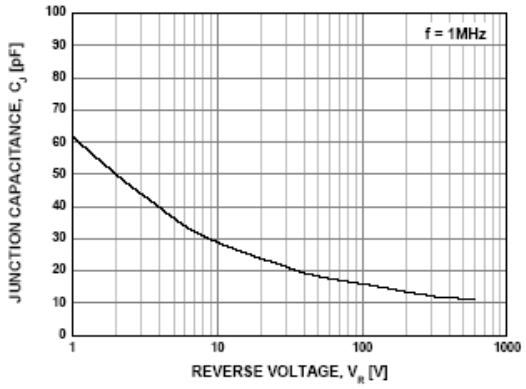


Figure 3. Typical Junction Capacitance

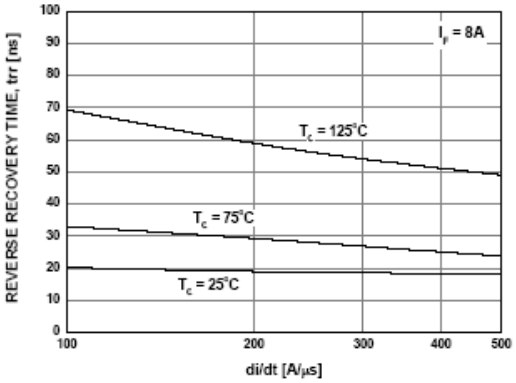


Figure 4. Typical Reverse Recovery Time

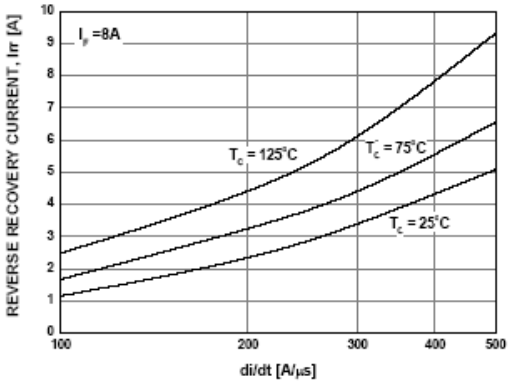


Figure 5. Typical Reverse Recovery Current

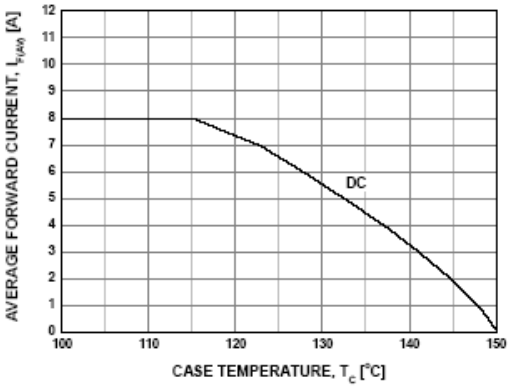


Figure 6. Forward Current Deration Curve

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