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Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (_), the underscore (_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.onsemi.com. Please email any questions regarding the system integration to Fairchild_questions@onsemi.com.

FFD08S60S_F085

October 2010

STEALTH™ II 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

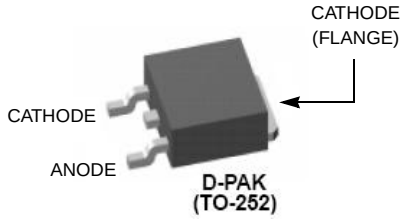
Applications

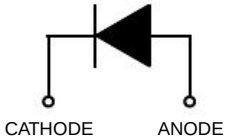
- General Purpose
- Switching Mode Power Supply
- Boost Diode in continuous mode power factor corrections
- Power switching circuits

8A, 600V Stealth2 Rectifier

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	FFD08S60S_F085	TO252	13”	12mm	2500

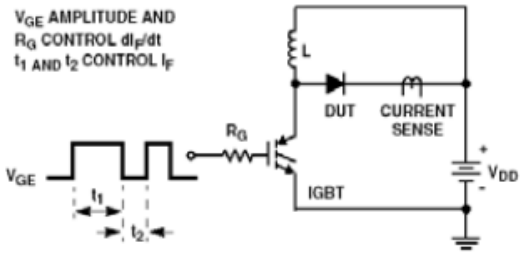
Electrical Characteristics T_C = 25°C unless otherwise noted

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

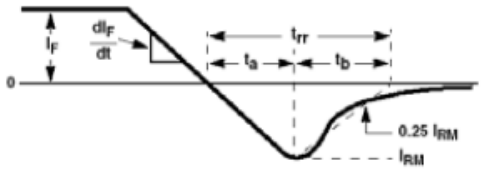
Notes:

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

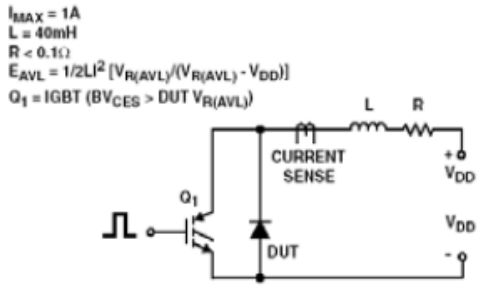
Test Circuit and Waveforms



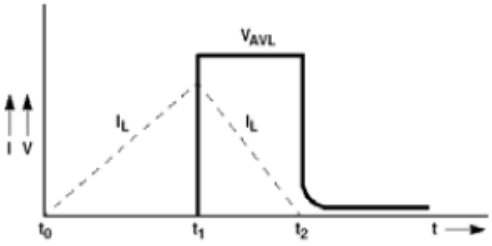
t_{rr} TEST CIRCUIT



t_{rr} WAVEFORMS AND DEFINITIONS



AVALANCHE ENERGY TEST CIRCUIT



AVALANCHE CURRENT AND VOLTAGE WAVEFORMS

Typical Performance Characteristics T_C = 25°C unless otherwise noted

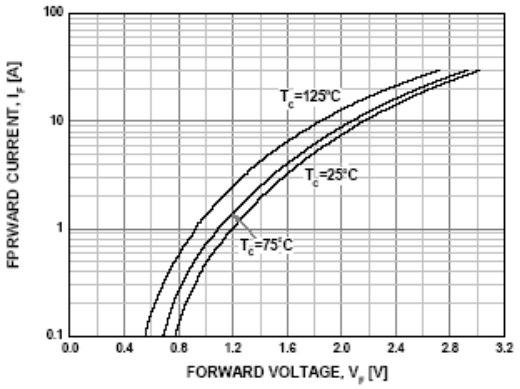


Figure 1. Typical Forward Voltage Drop

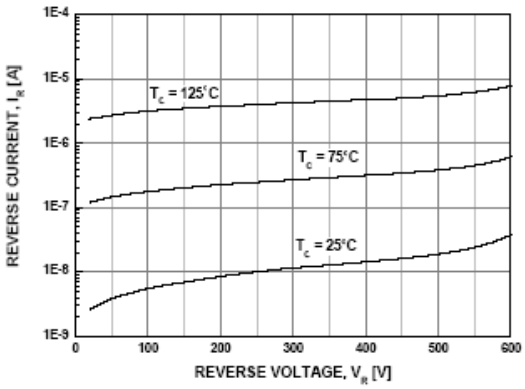


Figure 2. Typical Reverse Current

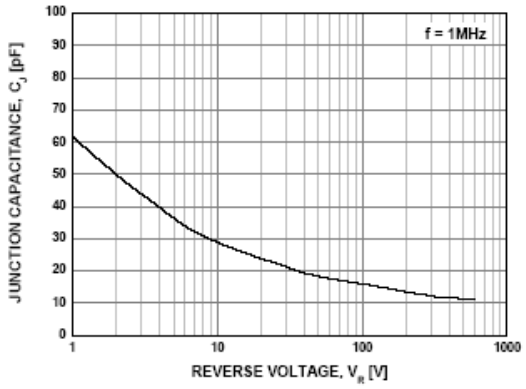


Figure 3. Typical Junction Capacitance

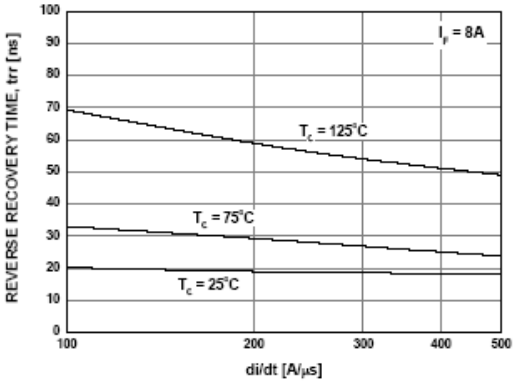


Figure 4. Typical Reverse Recovery Time

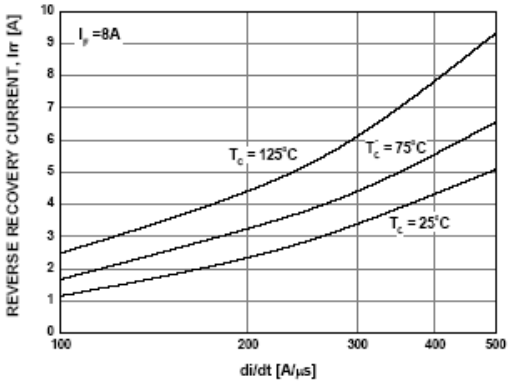


Figure 5. Typical Reverse Recovery Current

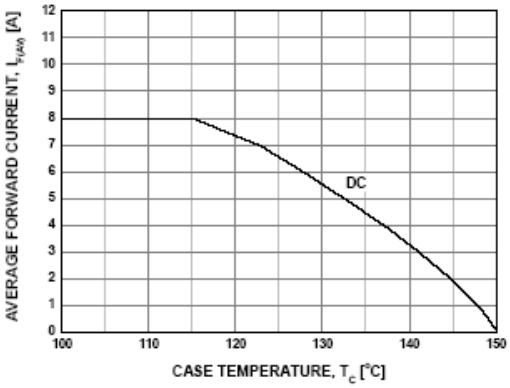
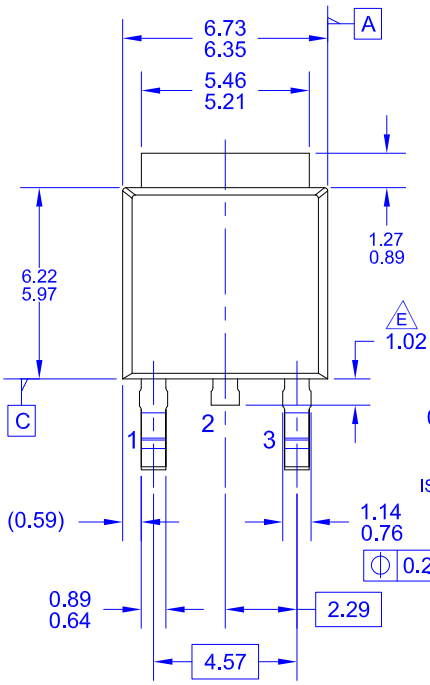
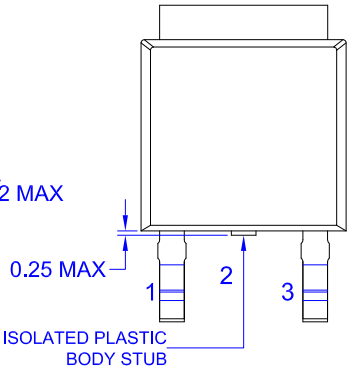


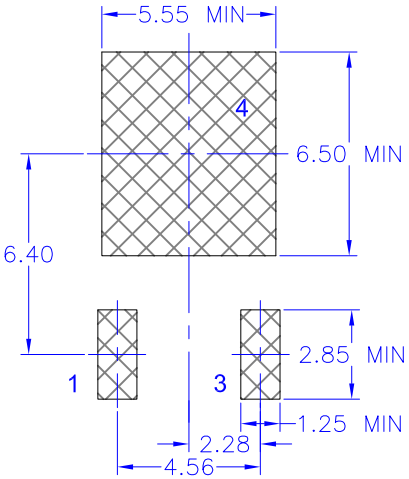
Figure 6. Forward Current Deration Curve



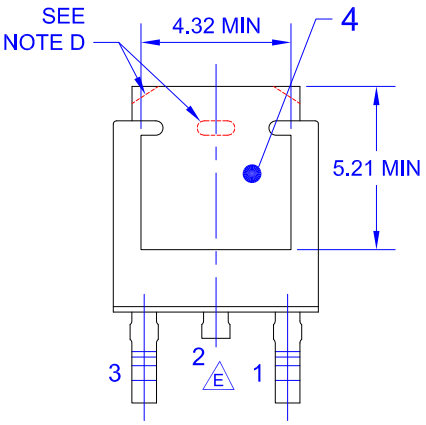
NON-DIODE PRODUCTS VERSION



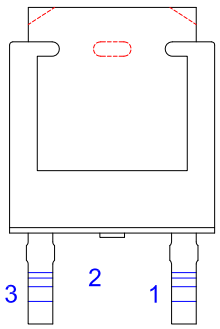
DIODE PRODUCTS VERSION



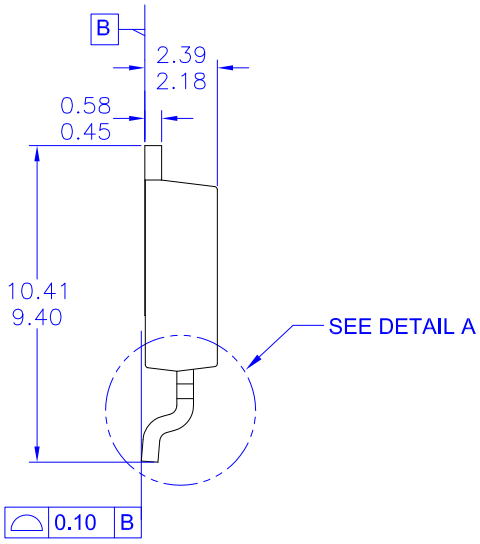
LAND PATTERN RECOMMENDATION



NON-DIODE PRODUCTS VERSION

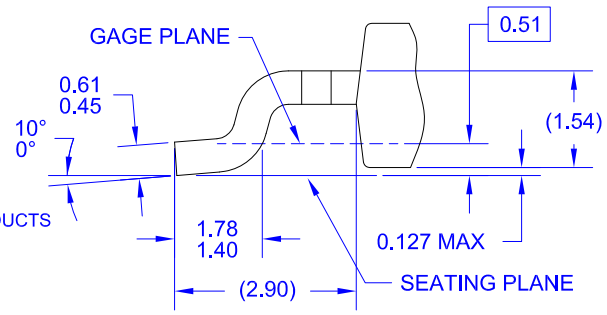


DIODE PRODUCTS VERSION



NOTES: UNLESS OTHERWISE SPECIFIED

A) THIS PACKAGE CONFORMS TO JEDEC, TO-252, ISSUE C, VARIATION AA.
B) ALL DIMENSIONS ARE IN MILLIMETERS.
C) DIMENSIONING AND TOLERANCING PER ASME Y14.5M-2009.
D) SUPPLIER DEPENDENT MOLD LOCKING HOLES OR CHAMFERED CORNERS OR EDGE PROTRUSION.
E) TRIMMED METAL CENTER LEAD IS PRESENT ON FOR NON-DIODE PRODUCTS
F) DIMENSIONS ARE EXCLUSIVE OF BURS, MOLD FLASH AND TIE BAR EXTRUSIONS.
G) LAND PATTERN RECOMMENDATION IS BASED ON IPC7351A STD TO228P991X239-3N.
H) DRAWING NUMBER AND REVISION: MKT-TO252A03REV11



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FAIRCHILD

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