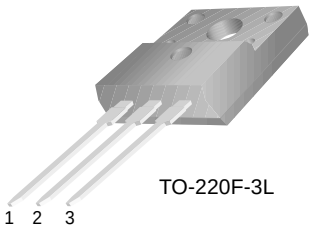
FAIRCHILD SEMICONDUCTOR®

Stealth™ Rectifier

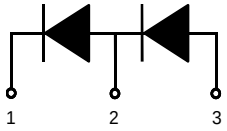
FFPF60SA60DS

Features

- Soft Recovery (t_b / t_a > 1.2)
- Fast Recovery (t_{rr} < 25ns)
- Reverse Voltage, 600V
- Forward Voltage (@ T_C = 125°C), < 2.0 V
- Enhanced Avalanche Energy



TO-220F-3L



Applications

- Switch Mode Power Supplies
- Hard Swithed PFC Boost Diode
- UPS Free wheeling Diode
- Motor Drive FWD
- SMPS FWD
- Snubber Diode

Absolute Maximum Ratings (per leg) 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 = 95 °C	8	A
I_{FSM}	Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave	80	A
P_D	Power Dissipation	26	W
W_{AVL}	Avalanche Energy (1A, 40mH)	20	mJ
$T_{J,}$ T_{STG}	Operating Junction and Storage Temperature	- 65 to +150	°C

Thermal Characteristics

Symbol	Parameter	Value	Units
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	3.125	°C/W
$R_{\theta JA}$	Maximum Thermal Resistance, Junction to Ambient	62.5	°C/W

Electrical Characteristics (per leg) T_C=25 °C unless otherwise noted

Symbol	Parameter		Min.	Typ.	Max.	Units
V_{FM} *	Maximum Instantaneous Forward Voltage					V
	I_F = 8A	T_C = 25 °C	-	2.0	2.4	
	I_F = 8A	T_C = 125 °C	-	1.6	2.0	
I_{RM} *	Maximum Instantaneous Reverse Current					µA
	@ rated V_R	T_C = 25 °C	-	-	100	
		T_C = 125 °C	-	-	1000	
t_{rr}	Maximum Reverse Recovery Time (I_F =1A, di/dt = 100A/µs, V_R = 30V)		-	-	25	ns
t_{rr}	Maximum Reverse Recovery Time (I_F =8A, di/dt = 100A/µs, V_R = 30V)		-	-	30	ns
t_{rr}	Reverse Recovery Time		-	39	-	ns
I_{rr}	Reverse Recovery Current		-	2	-	A
Q_{rr}	Reverse Recovery Charge (I_F =8A, di/dt = 200A/µs, V_R = 390V)		-	39	-	nC

* Pulse Test: Pulse Width=300µs, Duty Cycle=2%

Typical Characteristics

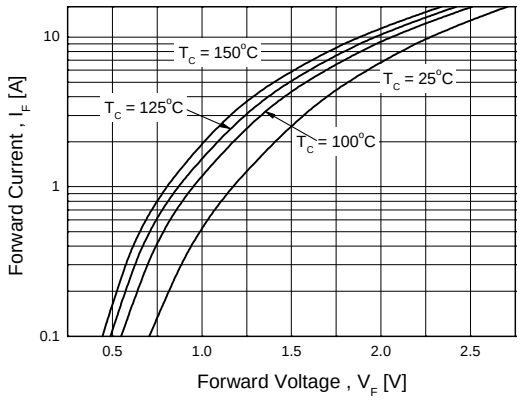


Figure 1. Typical Forward Voltage Drop vs. Forward Current

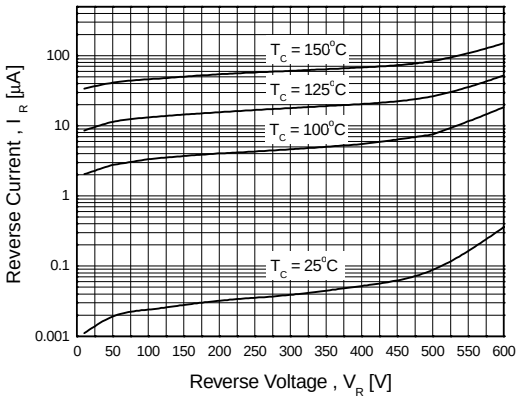


Figure 2. Typical Reverse Current vs. Reverse Voltage

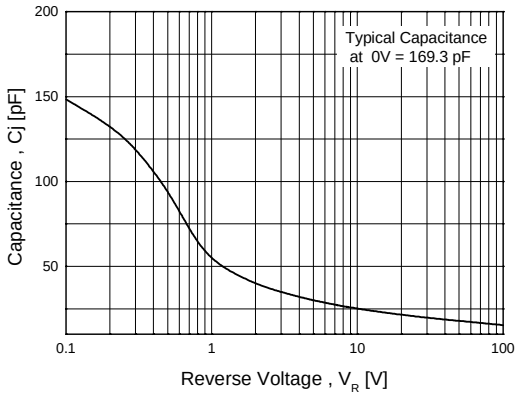


Figure 3. Typical Junction Capacitance

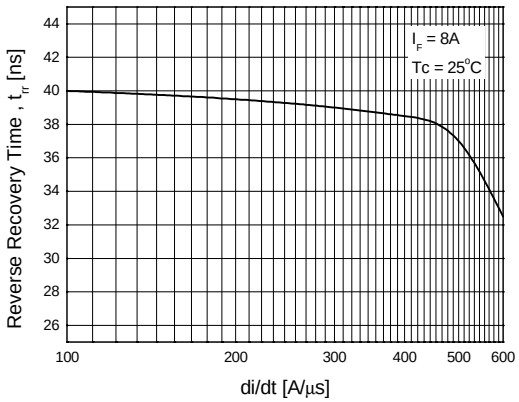


Figure 4. Typical Reverse Recovery Time vs. di/dt

Typical Characteristics (Continued)

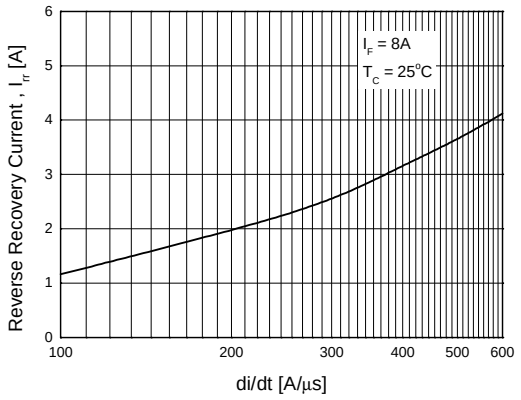


Figure 5. Typical Reverse Recovery Current vs. di/dt

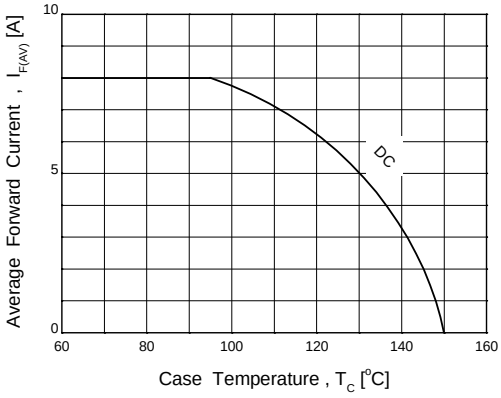


Figure 6. Forward Curent Derating Curve

Test Circuits and Waveforms

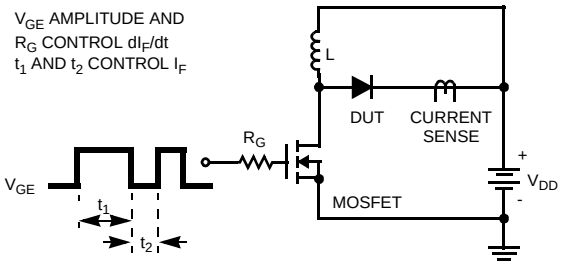


Figure 7. t_{rr} Test Circuit

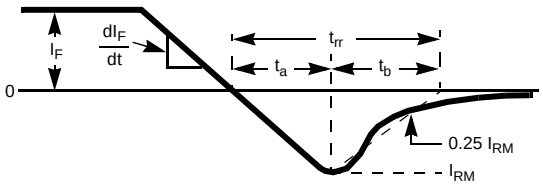


Figure 8. t_{rr} Waveforms and Definitions

I = 1A
L = 40mH
R < 0.1Ω
V_{DD} = 50V
$E_{AVL} = 1/2LI^2 [V_{R(AVL)}/(V_{R(AVL)} - V_{DD})]$
Q_1 = IGBT (BV_{CES} > DUT $V_{R(AVL)}$)

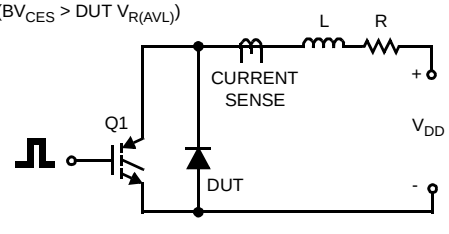


Figure 9. Avalanche Energy Test Circuit

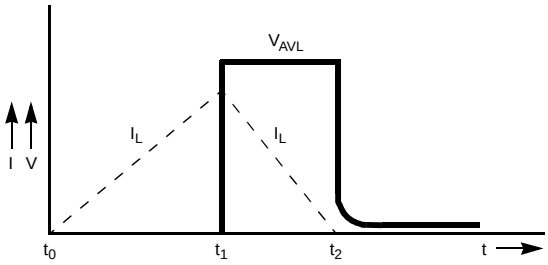
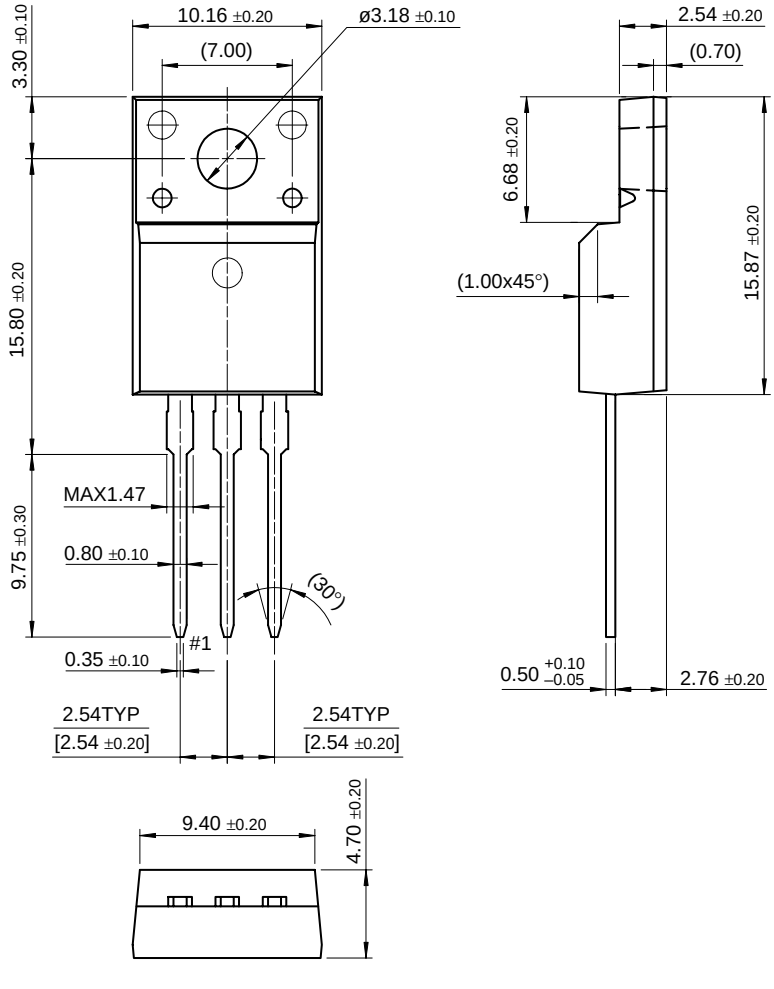


Figure 10. Avalanche Current and Voltage Waveforms

Package Dimensions

TO-220F



Dimensions in Millimeters

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CROSSVOLT™	GlobalOptoisolator™	MicroPak™	QFET®	SuperSOT™-8
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EcoSPARK™	HiSeC™	MSX™	QT Optoelectronics™	TinyLogic®
E^2CMOS™	I^2C™	MSXPro™	Quiet Series™	TINYOPTO™
EnSigna™	*i-Lo*™	OCX™	RapidConfigure™	TruTranslation™
FACT™	ImpliedDisconnect™	OCXPro™	RapidConnect™	UHC™
FACT Quiet Series™		OPTOLOGIC®	µSerDes™	UltraFET®
Across the board. Around the world.™		OPTOPLANAR™	SILENT SWITCHER®	VCX™
The Power Franchise®		PACMAN™	SMART START™	
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2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

PRODUCT STATUS DEFINITIONS

Definition of Terms

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.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.

FFPF60SA60DS

8A, 600V Stealth Dual Series Diode

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Features

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- Fast Recovery (t_{rr} < 25ns)
- Reverse Voltage, 600V
- Forward Voltage (@ T_C = 125°C), < 2.0 V
- Enhanced Avalanche Energy

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- Snubber Diode

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Product status/pricing/packaging BUY

Product	Product status	Pb-free Status	Pricing*	Package type	Leads	Packing method	Package Marking Convention**
FFPF60SA60DSTU	Full Production		$1.72	TO-220F	3	RAIL	Line 1: **$Y** (Fairchild logo) Line 2: F60SA60DS Line 3: &3

		Full Production					

* Fairchild 1,000 piece Budgetary Pricing
** A sample button will appear if the part is available through Fairchild's on-line samples program. If there is no sample button, please contact a Fairchild distributor to obtain samples

Indicates product with Pb-free second-level interconnect. For more information click here.

Package marking information for product FFPF60SA60DS is available. Click here for more information .

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Models

Package & leads	Condition	Temperature range	Vcc range	Software version	Revision date
PSPICE					
TO-220F-3	Electrical	25°C to 150°C	0V to 600V	9.2	Aug 9, 2005

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Qualification Support

Click on a product for detailed qualification data

Product
FFPF60SA60DSTU

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