FAIRCHILD SEMICONDUCTOR®

May 2010

Ultra Fast II Rectifier

FFPF10UA60ST

Features

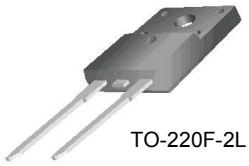
- High Speed Switching, t_{rr} < 120ns
- High Reverse Voltage and High Reliability
- Avalanche Energy Rated
- Max Forward Voltage, V_F <2.3V
- RoHS compliant

Applications

- Boost Diode in PFC and Switching Mode Power Supply

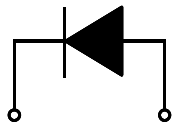
10A, 600V Ultra Fast II Rectifier

The FFPF10UA60ST is ultrafast rectifier with low forward voltage drop and rugged UIS capability. This device is intended for use as freewheeling and clamping rectifiers in a variety of switching power supplies and other power switching applications. It is specially suited for use in switching power supplies and industrial application.



TO-220F-2L

1. Cathode 2. Anode



1. Cathode 2. Anode

Absolute Maximum Ratings $T_C = 25^oC$ 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 @ $T_C = 25^oC$	10	A
I_{FSM}	Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave	50	A
T_J, T_{STG}	Operating and Storage Temperature Range	-65 to +150	^oC

Thermal Characteristics $T_C = 25^oC$ unless otherwise noted

Symbol	Parameter	Ratings	Units
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	6.3	$^oC/W$

Package Marking and Ordering Information

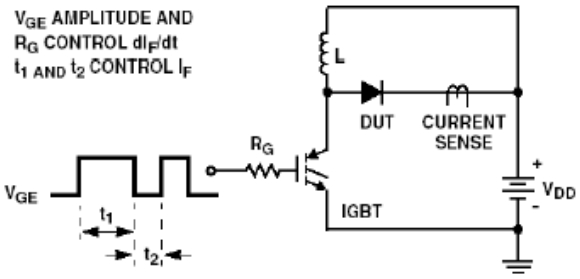
Device Marking	Device	Package	Reel Size	Tape Width	Quantity
FFPF10UA60ST	FFPF10UA60ST	TO-220F	-	-	50

Electrical Characteristics $T_C = 25^oC$ unless otherwise noted

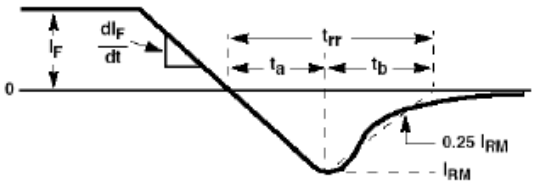
Symbol	Parameter		Min.	Typ.	Max.	Units
$V_{FM}1$	I_F = 10A I_F = 10A	$T_C = 25^oC$ $T_C = 125^oC$	- -	1.8 1.7	2.3 2.2	V
$I_{RM}1$	V_R = 600V V_R = 600V	$T_C = 25^oC$ $T_C = 125^oC$	- -	- -	100 500	μA
t_{rr} I_{rr} Q_{rr}	I_F = 10A, di/dt = 200A/μs	$T_C = 25^oC$		74 6 213	120 10 600	nS A nC
W_{AVL}	Avalanche Energy (L = 40mH)		10	-	-	mJ

Notes:
1: Pulse: Test Pulse width = 300μs, Duty Cycle = 2%

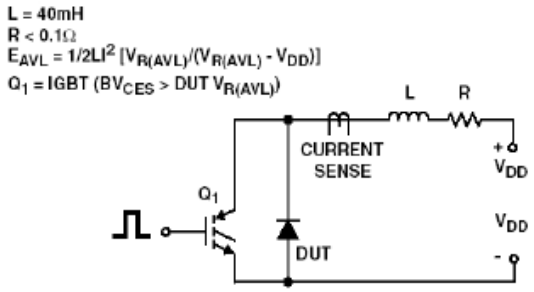
Test Circuit and Waveforms



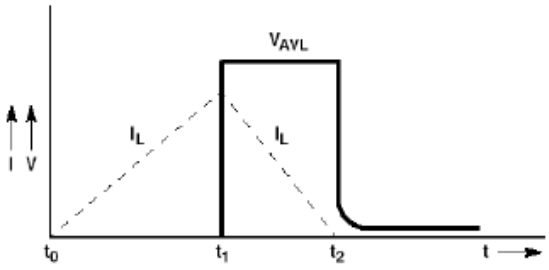
t_{rr} TEST CIRCUIT



t_{rr} WAVEFORMS AND DEFINITIONS



AVALANCHE ENERGY TEST CIRCUIT



AVALANCHE CURRENT AND VOLTAGE WAVEFORMS

Typical Performance Characteristics

Figure 1. Typical Forward Voltage Drop vs. Forward Current

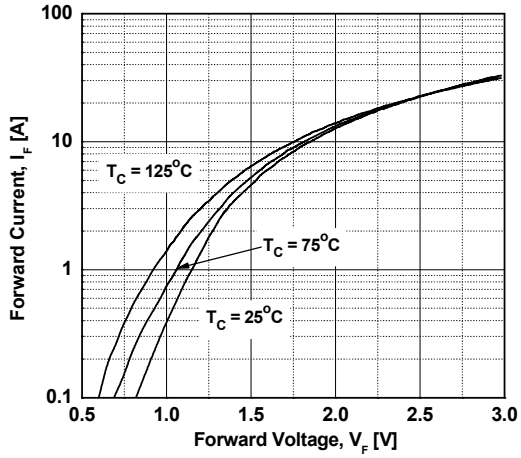


Figure 2. Typical Reverse Current vs. Reverse Voltage

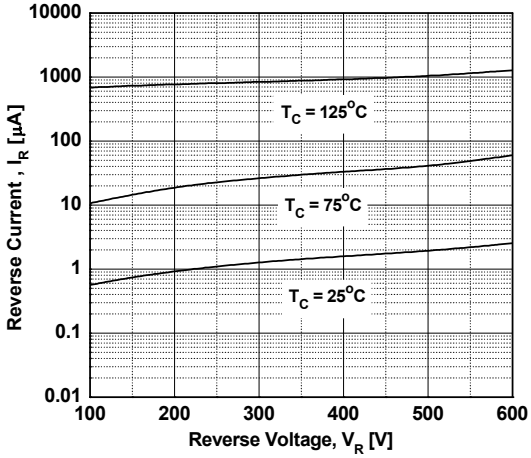


Figure 3. Typical Junction Capacitance

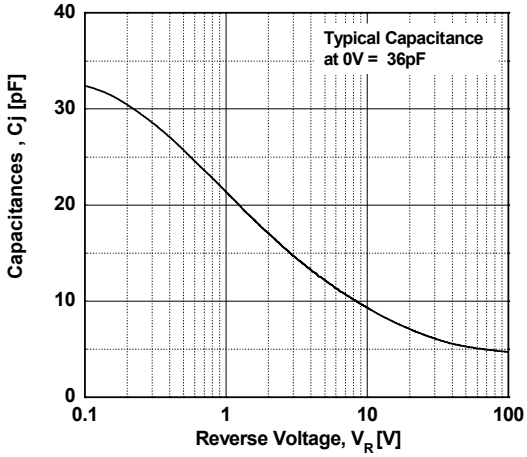


Figure 4. Typical Reverse Recovery Time vs. di/dt

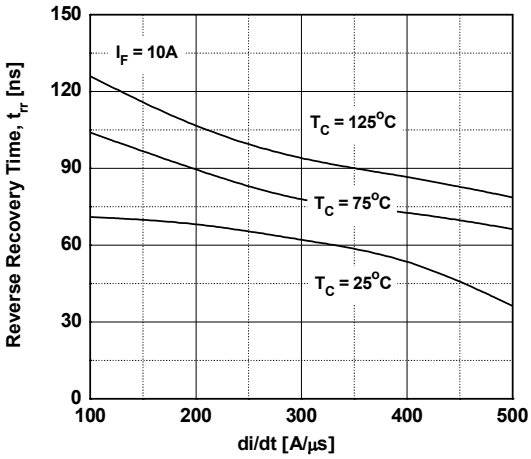


Figure 5. Typical Reverse Recovery Current vs. di/dt

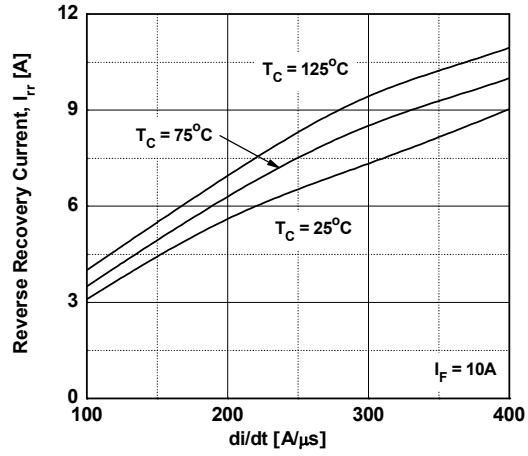
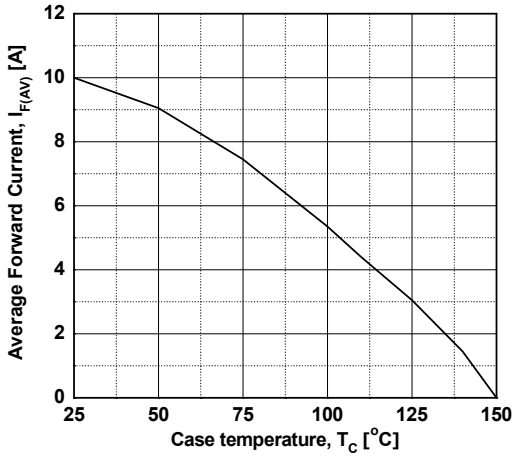
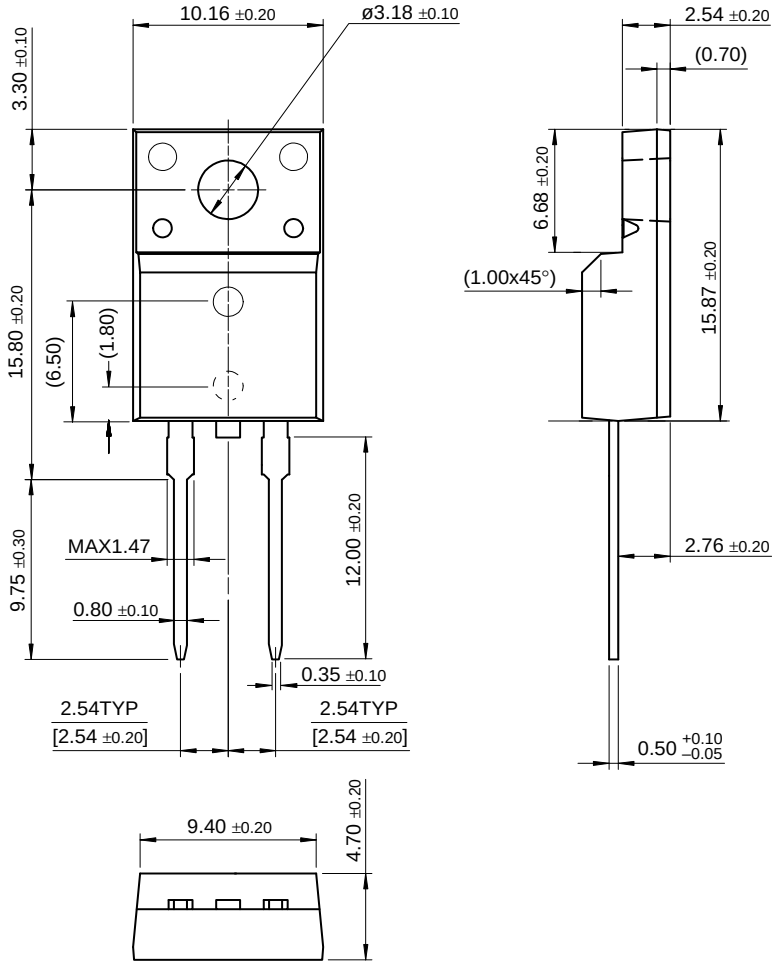


Figure 6. Forward Current Derating Curve



Mechanical Dimensions

TO-220F 2L



Dimensions in Millimeters

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