November 2013

FFPF20UP60DN
20 A, 600 V, Ultrafast Dual Diode

Features

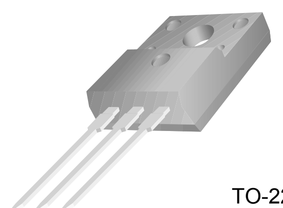
- Ultrafast Recovery t_{rr} = 70 ns (@ I_F = 10 A)
- Max Forward Voltage, V_F = 2.2 V (@ T_C = 25°C)
- 600 V Reverse Voltage and High Reliability
- Avalanche Energy Rated
- RoHS Compliant

Applications

- General Purpose
- SMPS, Power Switching Circuits
- Boost Diode in Continuous Mode Power Factor Corrections

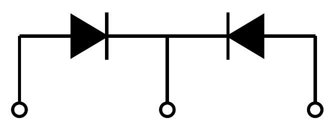
Description

The FFPF20UP60DN is a ultrafast dual diode with low forward voltage drop. This device is intended for use as freewheeling and clamping diodes 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.



1 2 3

TO-220F



1 2 3

1. Anode 2. Cathode 3. Anode

Absolute Maximum Ratings T_C = 25°C unless otherwise noted

Symbol	Parameter	Rating	Unit
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 = 103°C	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	°C

Thermal Characteristics

Symbol	Parameter	Max.	Unit
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	7	°C/W

Package Marking and Ordering Information

Part Number	Top Mark	Package	Packing Method	Reel Size	Tape Width	Quantity
FFPF20UP60DNTU	FFPF20UP60DN	TO-220F	Tube	N/A	N/A	50

Electrical Characteristics T_C = 25°C unless otherwise noted

Symbol	Parameter		Min.	Typ.	Max.	Unit
V_F1	I_F = 10 A I_F = 10 A	T_C = 25°C T_C = 100°C	- -	- -	2.2 2.0	V
I_R1	V_R = 600 V V_R = 600 V	T_C = 25°C T_C = 100°C	- -	- -	100 500	μA
t_{rr}	I_F = 10 A, dI_F/dt = 200 A/μs, V_R = 390 V	T_C = 25°C	-	53	70	ns
t_{rr} I_{rr} Q_{rr}	I_F = 1 A, dI_F/dt = 100 A/μs, V_R = 30 V	T_C = 25°C	- - -	30 1.5 20	40 2 30	ns A nC
W_{AVL}	Avalanche Energy (L = 40 mH)		10	-	-	mJ

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

Test Circuit and Waveforms

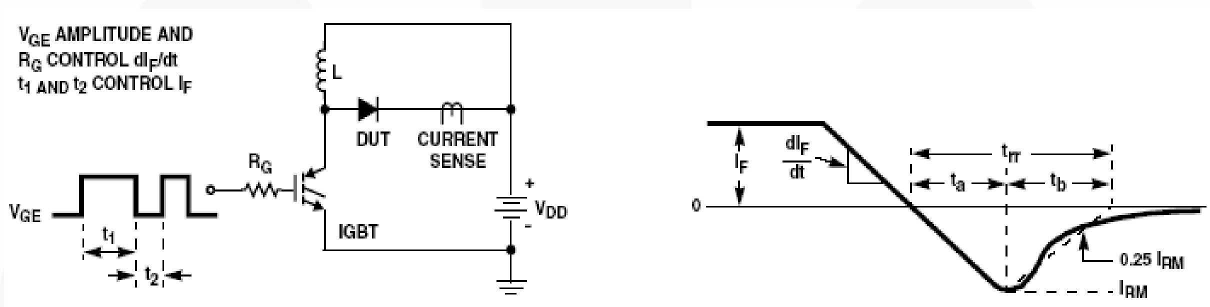


Figure 1. Diode Reverse Recovery Test Circuit & Waveform

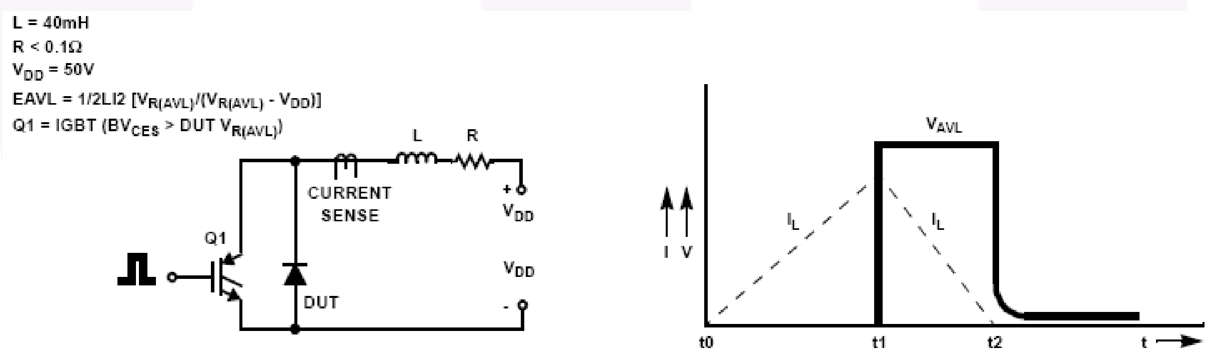


Figure 2. Unclamped Inductive Switching Test Circuit & Waveform

Typical Performance Characteristics

Figure 3. Typical Forward Voltage Drop vs. Forward Current

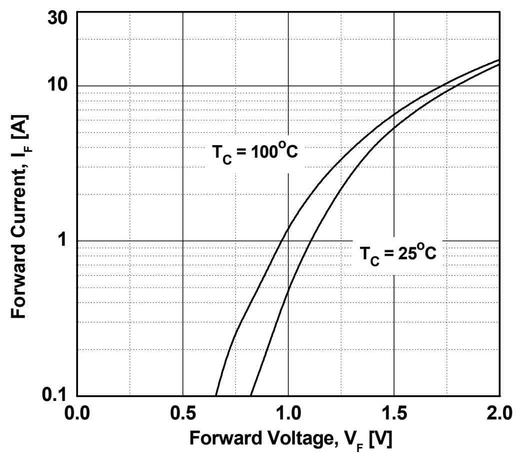


Figure 4. Typical Reverse Current vs. Reverse Voltage

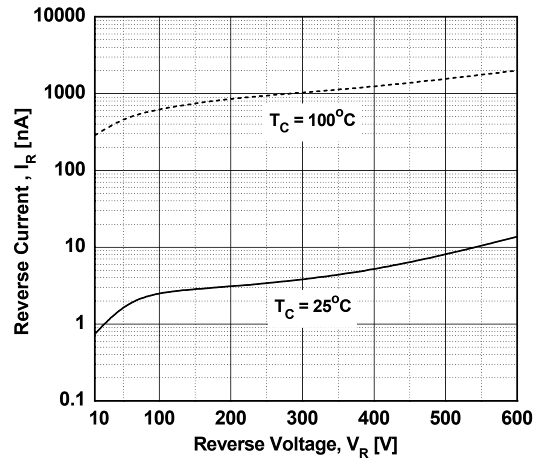


Figure 5. Typical Junction Capacitance

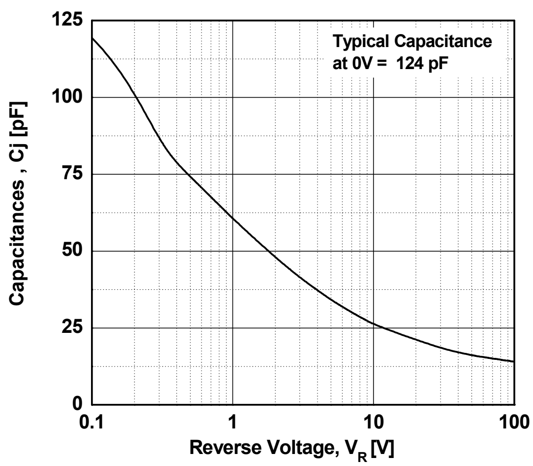


Figure 6. Typical Reverse Recovery Time vs. di_F/dt

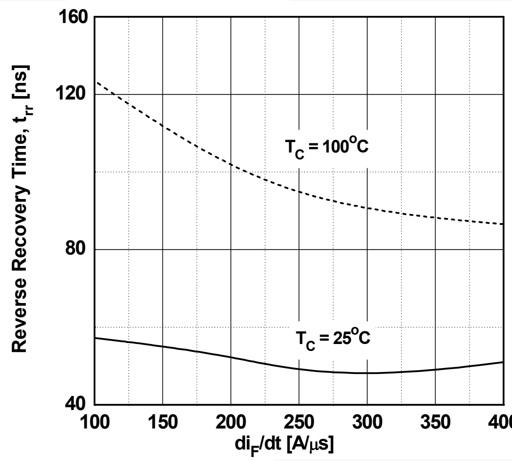


Figure 7. Typical Reverse Recovery Current vs. di_F/dt

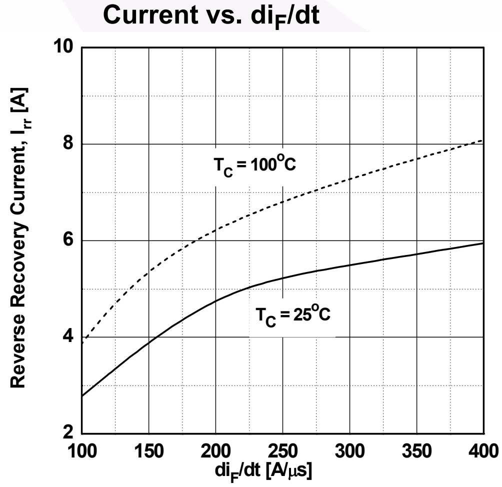
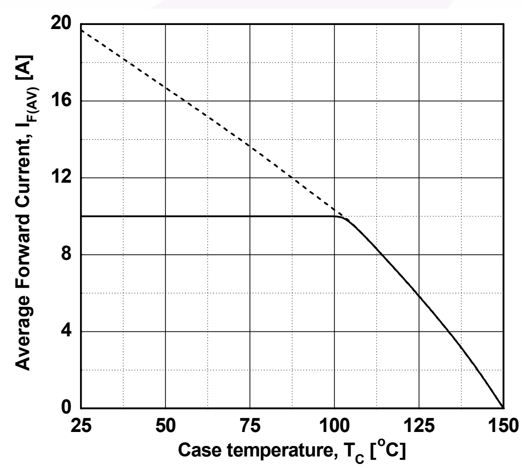


Figure 8. Forward Current Derating Curve



Package Dimensions

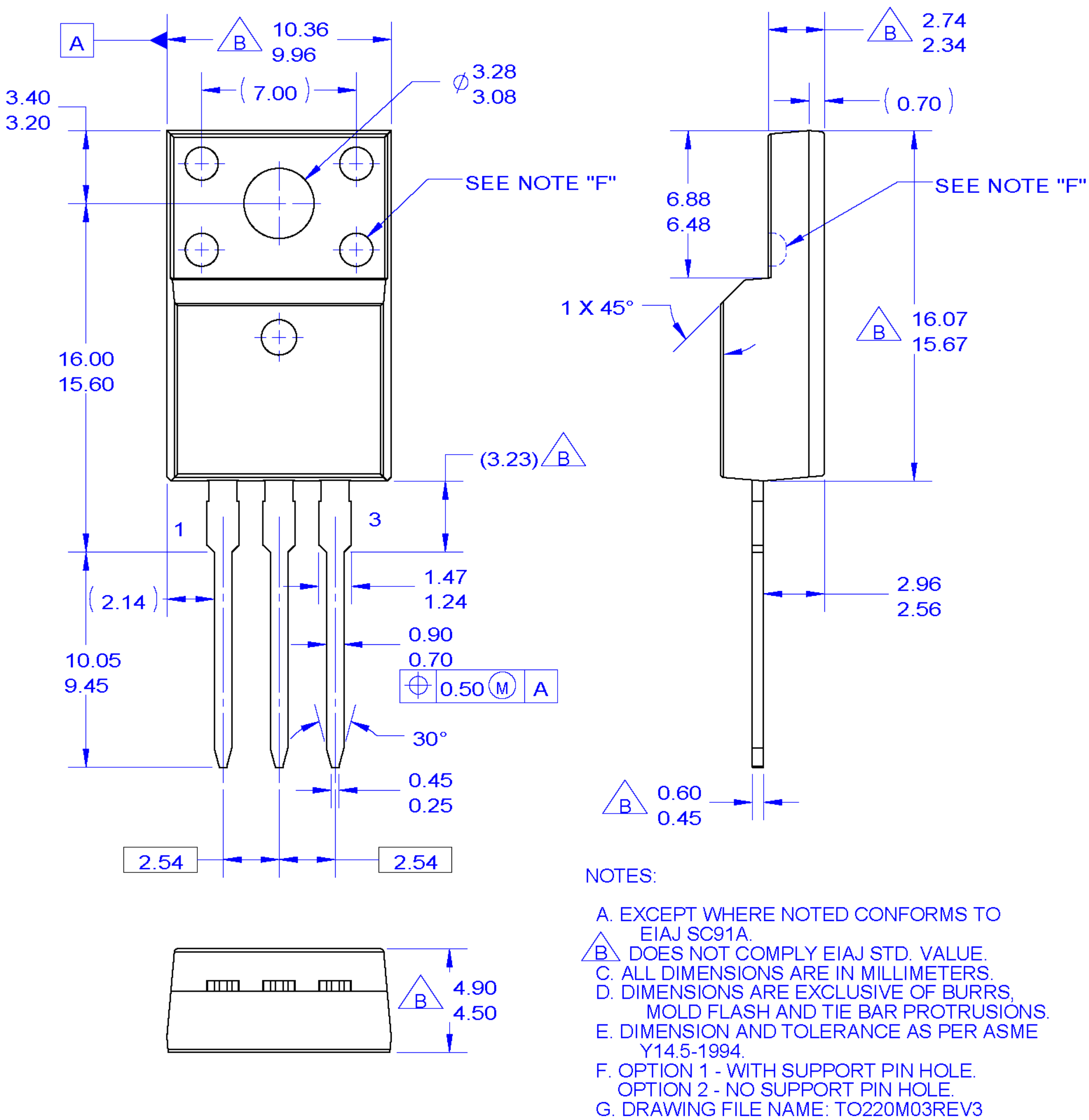


Figure 9. TO-220F 3L - TO220, MOLDED, 3LD, FULL PACK, EIAJ SC91, STRAIGHT LEAD

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