



FFAF60UA60DN

60 A, 600 V, Ultrafast II Dual Diode

Features

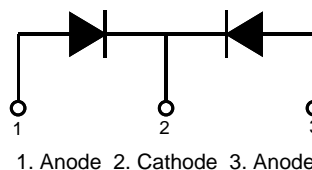
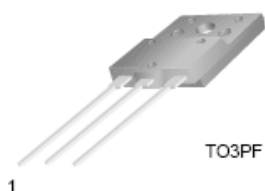
- Ultrafast Recovery, $T_{rr} < 90$ ns (@ $I_F = 30$ A)
- Max Forward Voltage, $V_F = 2.2$ V (@ $T_C = 25^\circ\text{C}$)
- 600V Reverse Voltage and High Reliability
- Avalanche Energy Rated
- RoHS Compliant

The FFAF60UA60DN is an ultrafast II dual diode with low forward voltage drop and rugged UIS capability. 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 applications as welder and UPS application.

Applications

- Boost Diode in PFC and Switching Mode Power Supply
- Welding, UPS and Motor Control Application

Pin Assignments



Absolute Maximum Ratings

Per leg at $T_C=25^\circ\text{C}$ 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 @ $T_C = 45^\circ\text{C}$	30	A
I_{FSM}	Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave	180	A
T_J, T_{STG}	Operating and Storage Temperature Range	-65 to +150	$^\circ\text{C}$

Thermal Characteristics

Per leg at $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Rating	Unit
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	2.4	$^\circ\text{C/W}$

Package Marking and Ordering Information

Device Marking	Device	Package	Reel Size	Tape Width	Quantity
F60UA60DN	FFAF60UA60DN	TO3PF	-	-	30

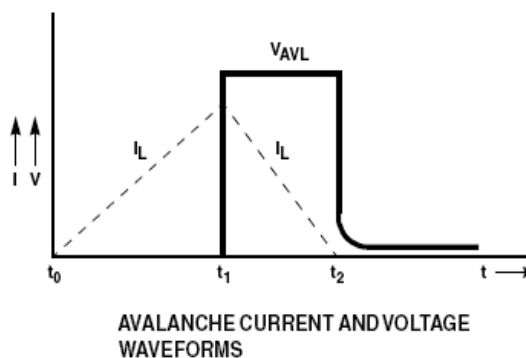
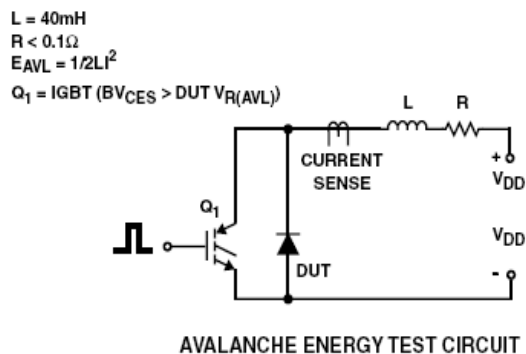
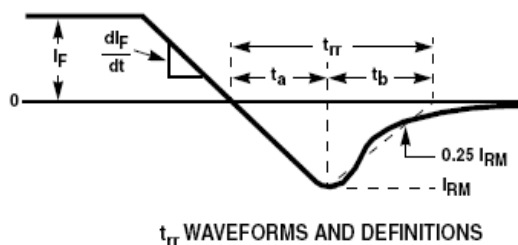
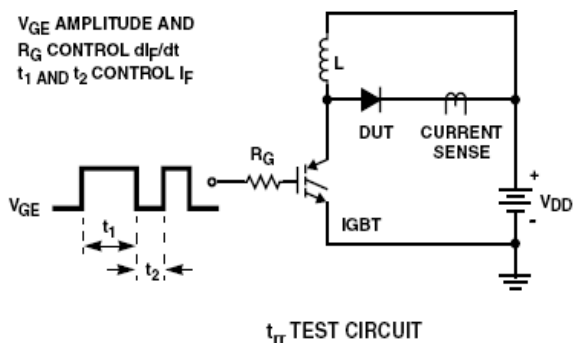
Electrical Characteristics Per leg at $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{F1}	$I_F = 30\text{ A}$ $I_F = 30\text{ A}$	-	-	2.2 2.0	V
I_{R1}	$V_R = 600\text{ V}$ $V_R = 600\text{ V}$	-	-	100 150	μA
t_{rr}	$I_F = 30\text{ A}$, $di/dt = 200\text{ A}/\mu\text{s}$	-	-	90	ns
I_{rr}		-	-	8	A
Q_{rr}		-	-	360	nC
W_{AVL}	Avalanche Energy ($L = 40\text{ mH}$)	20	-	-	mJ

Notes:

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

Test Circuit and Waveforms



Typical Performance Characteristics

Figure 1. Typical Forward Voltage Drop vs. Forward Current

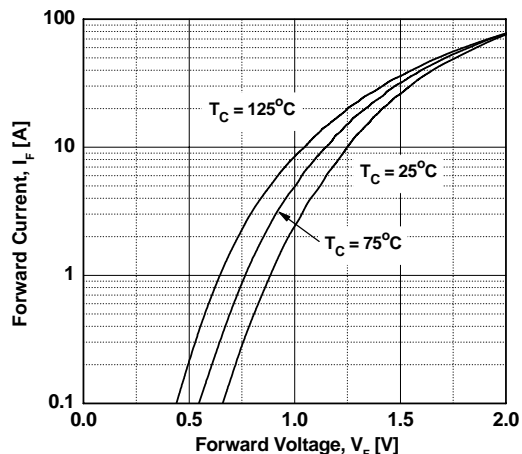


Figure 3. Typical Junction Capacitance

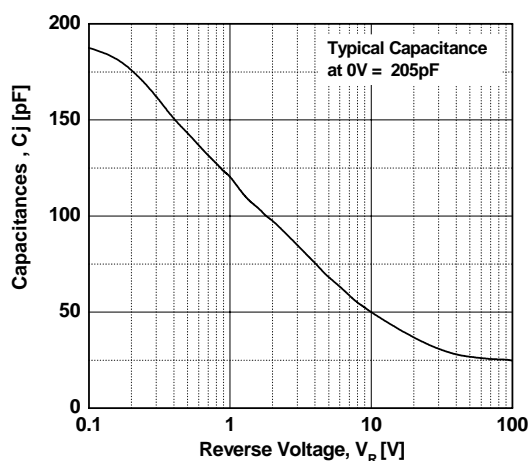


Figure 5. Typical Reverse Recovery Current vs. di/dt

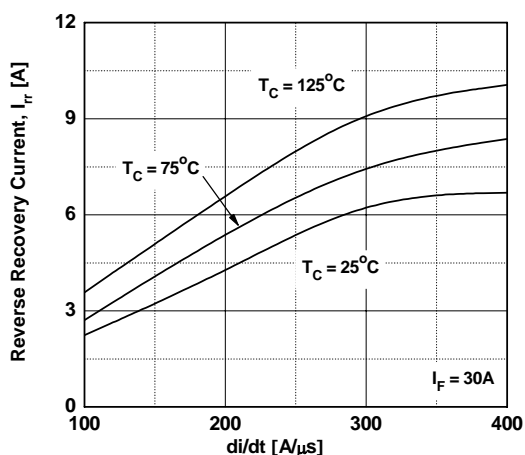


Figure 2. Typical Reverse Current vs. Reverse Voltage

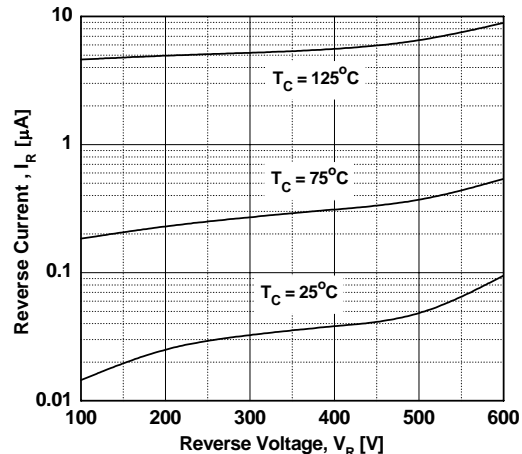


Figure 4. Typical Reverse Recovery Time vs. di/dt

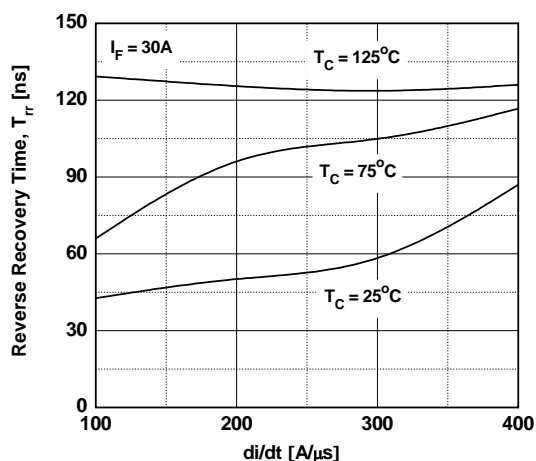
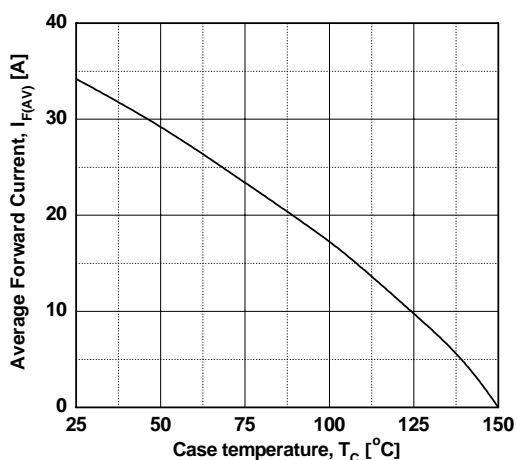
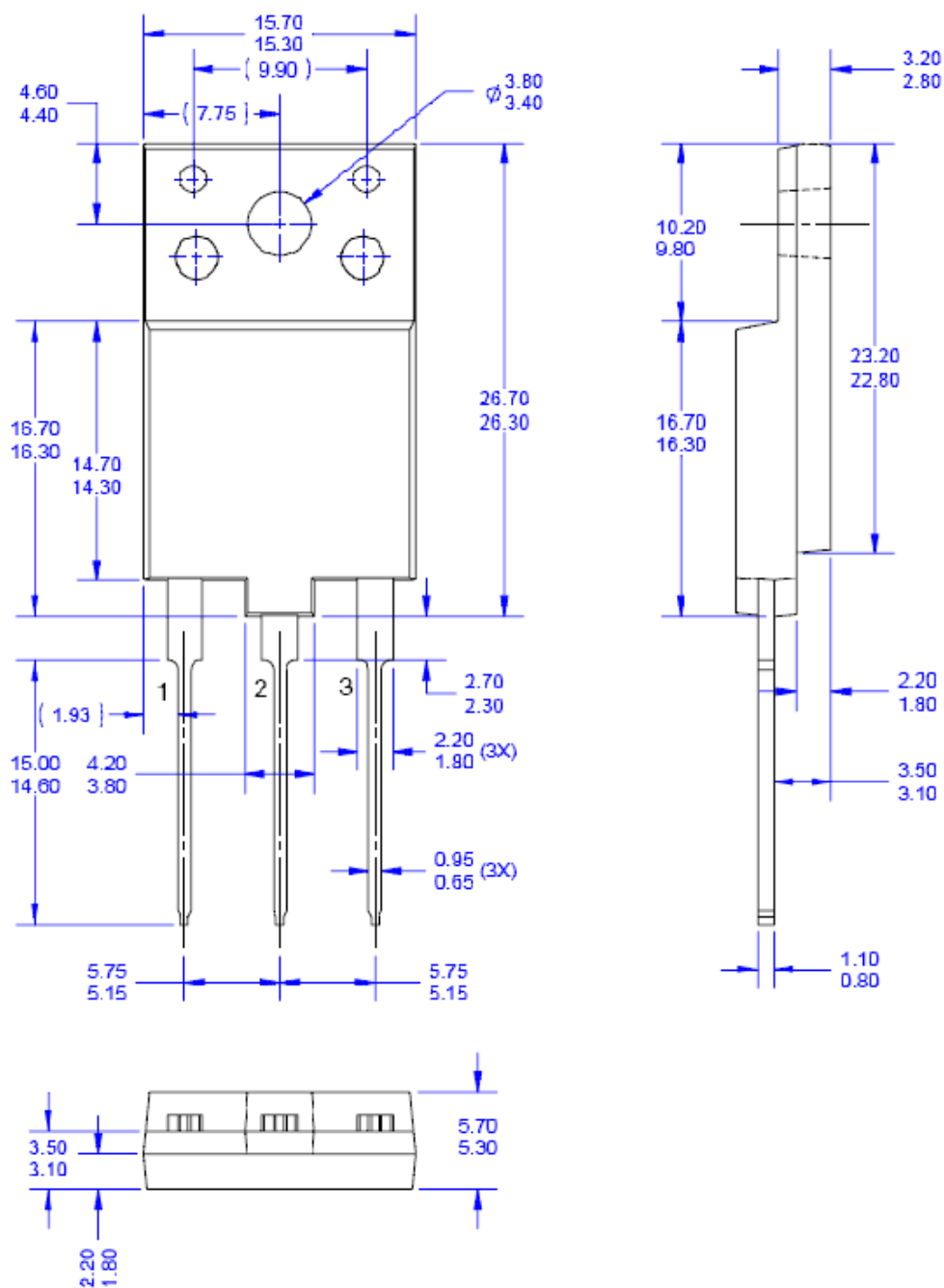


Figure 6. Forward Current Derating Curve



Mechanical Dimensions

TO-3PF







Dimensions in Millimeters



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