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December 2014

FFA60UP30DN

60 A, 300 V, Ultrafast Dual Diode

Features

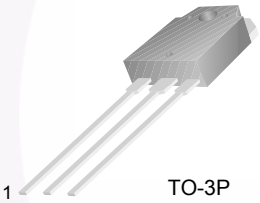
- Ultrafast Recovery, T_{rr} = 55 ns (@I_F = 30 A)
- Max. Forward Voltage, V_F = 1.5 V (@ T_C = 25°C)
- Reverse Voltage: V_{RRM} = 300 V
- Avalanche Energy Rated
- RoHS Compliant

Description

The FFA60UP30DN is an ultrafast 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 applicationa as welder and UPS application.

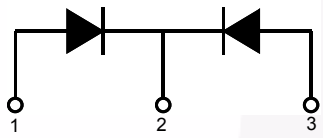
Applications

- General Purpose, Free-Wheeling Diode for Motor Application
- SMPS, Power Switching Circuits



TO-3P

1.Anode 2.Cathode 3.Anode



1. Anode 2. Cathode 3. Anode

Absolute Maximum Ratings (per diode) T_a = 25°C unless otherwise noted

Symbol	Parameter	Ratings	Unit
V_{RRM}	Peak Repetitive Reverse Voltage	300	V
V_{RWM}	Working Peak Reverse Voltage	300	V
V_R	DC Blocking Voltage	300	V
$I_{F(AV)}$	Average Rectified Forward Current @ T_C = 135°C	30	A
I_{FSM}	Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave	300	A
T_J, T_{STG}	Operating Junction and Storage Temperature	- 65 to +175	°C

Thermal Characteristics T_a = 25°C unless otherwise noted

Symbol	Parameter	Ratings	Unit
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	0.53	°C/W

Package Marking and Ordering Information

Part Number	Top Mark	Package	Packing Method	Reel Size	Tape Width	Quantity
FFA60UP30DNTU	F60UP30DN	TO-3P	Tube	N/A	N/A	30

Electrical Characteristics (per diode) T_a = 25°C unless otherwise noted

Symbol	Parameter		Min.	Typ.	Max.	Unit
V_F *	I_F = 30 A I_F = 30 A	T_C = 25 °C T_C = 150 °C	- -	- -	1.5 1.3	V V
I_R *	V_R = 300 V V_R = 300 V	T_C = 25 °C T_C = 150 °C	- -	- -	100 500	μA μA
t_{rr}	I_F =1 A, di_F/dt = 100 A/μs, V_R = 30 V I_F =30 A, di_F/dt = 200 A/μs, V_R = 195 V	T_C = 25 °C T_C = 25 °C	- -	- -	45 55	ns ns
t_a t_b Q_{rr}	I_F =30 A, di_F/dt = 200 A/μs, V_R = 195 V	T_C = 25 °C T_C = 25 °C T_C = 25 °C	- - -	17 15 50	- - -	ns ns nC
W_{AVL}	Avalanche Energy (L = 20 mH)		20	-	-	mJ

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

Test Circuit and Waveforms

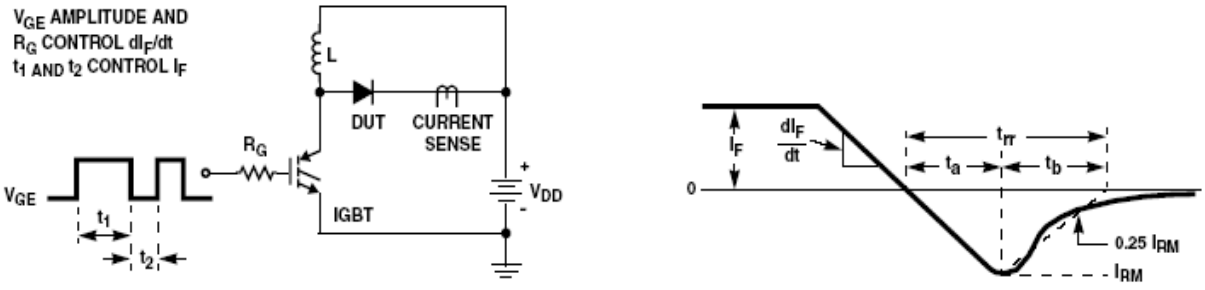


Figure 1. Diode Reverse Recovery Test Circuit & Waveform

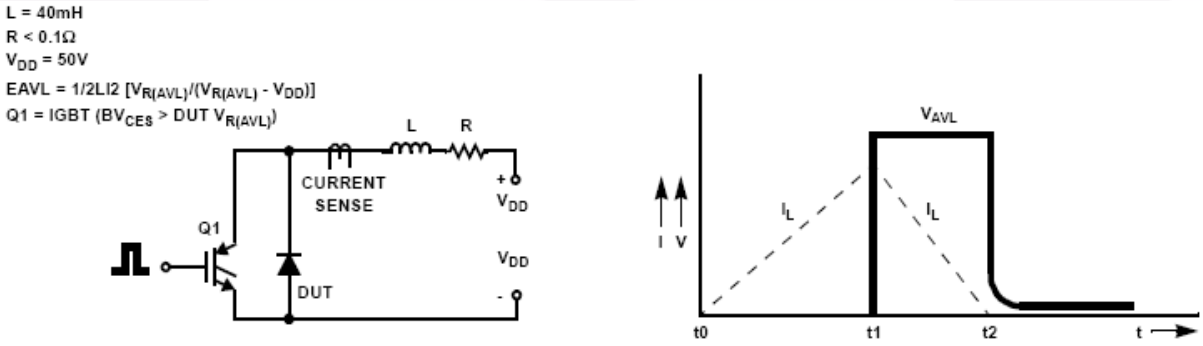


Figure 2. Unclamped Inductive Switching Test Circuit & Waveform

Typical Performance Characteristics

Figure 3. Typical Forward Voltage Drop

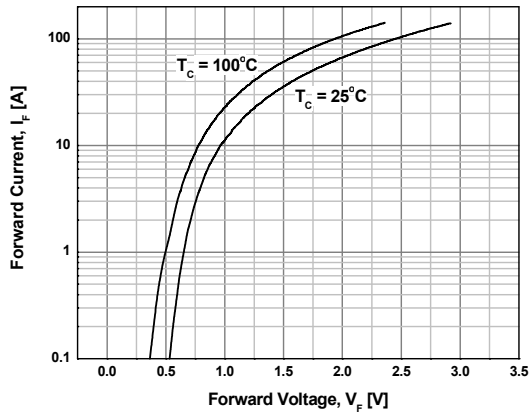


Figure 4. Typical Reverse Current

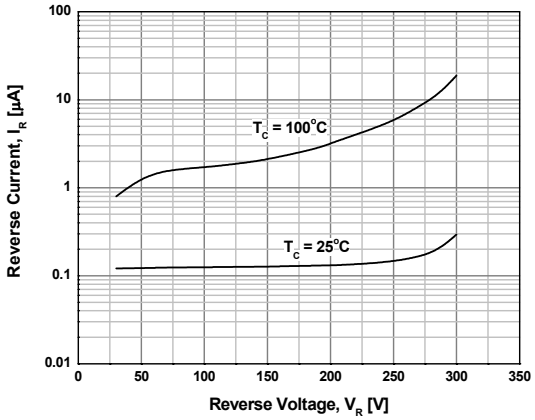


Figure 5. Typical Junction Capacitance

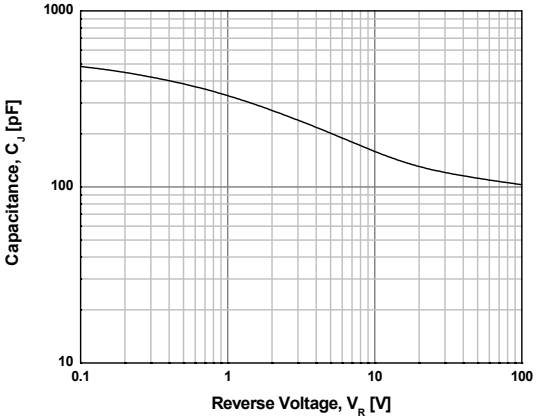


Figure 6. Typical Reverse Recovery Time

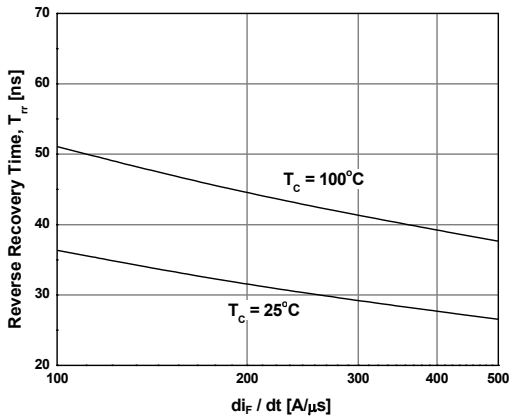


Figure 7. Typical Reverse Recovery Current

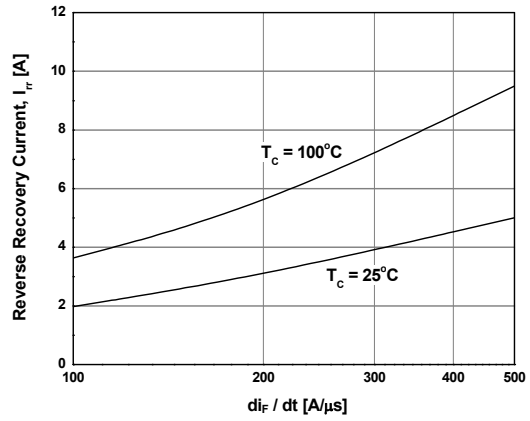
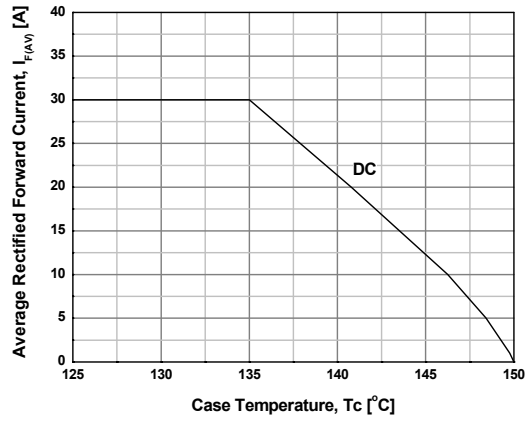


Figure 8. Forward Current Deration Curve



Mechanical Dimensions

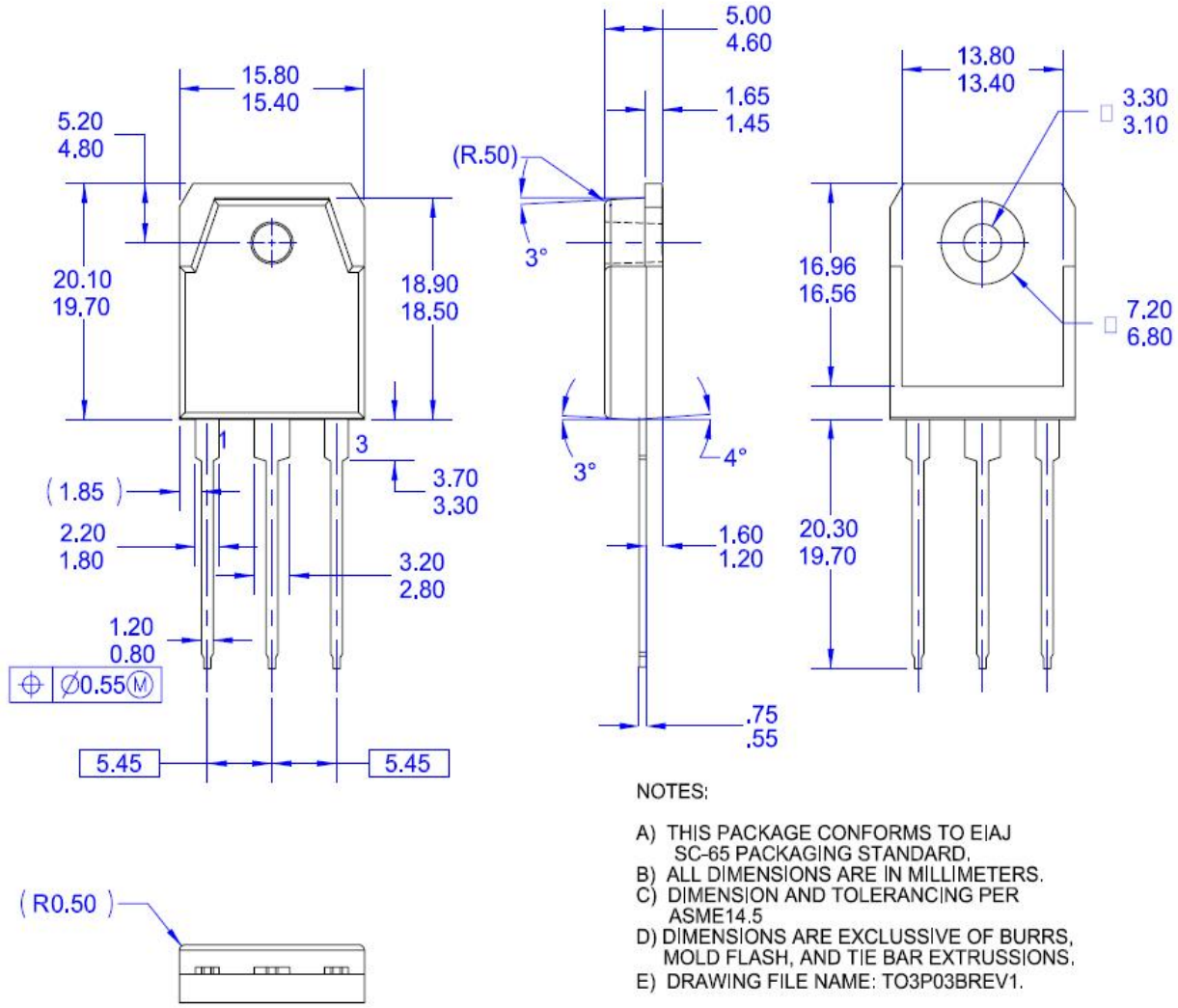


Figure 9. TO-3P 3L - 3LD, T03, PLASTIC, EIAJ SC-65

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