FFPF30UA60S

Ultrafast II Diode
30 A, 600 V

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Description

The FFPF30UA60S is a ultrafast II 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.

Features

- Ultrafast Recovery, t_{RR} = 90 ns (@ I_F = 30 A)
- Max Forward Voltage, V_F = 2.2 V (@ T_C = 25°C)
- 600 V Reverse Voltage and High Reliability
- Avalanche Energy Rated
- This Device is Pb−Free and is RoHS Compliant

Applications

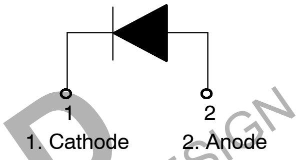
- Boost Diode in PFC and SMPS
- Welder, UPS and Motor Control Application

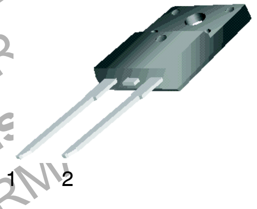
ABSOLUTE MAXIMUM RATINGS

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
$I_{F(AV)}$	Average Rectified Forward Current @ T_C = 43°C	30	A
I_{FSM}	Non−repetitive Peak Surge Current 60Hz Single Half−Sine Wave	180	A
T_J, T_{STG}	Operating Junction and Storage Temperature	− 65 to +175	°C

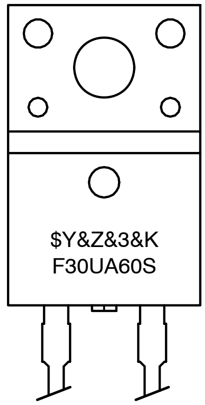
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.





TO−220, 2−Lead
CASE 221AS

MARKING DIAGRAM



$Y	= ON Semiconductor Logo
&Z&3	= Data Code (Year & Week)
&K	= Lot
F30UA60S	= Specific Device Code

ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

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August, 2024 − Rev. 4
Publication Order Number:
FFPF30UA60S/D

THERMAL CHARACTERISTICS T_C = 25°C unless otherwise noted

Symbol	Parameter	Max.	Unit
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	2.5	°C/W

PACKAGE MARKING AND ORDERING INFORMATION

Part Number	Top Mark	Package	Packing Method	Reel Size	Tape Width	Quantity
FFPF30UA60S	F30UA60S	TO−220F−2L	Tube	N/A	N/A	50

ELECTRICAL CHARACTERISTICS T_C = 25°C unless otherwise noted

Parameter	Conditions		Min.	Typ.	Max.	Unit
V_F (Note 1)	I_F = 30 A I_F = 30 A	T_C = 25°C T_C = 125°C	– –	– –	2.2 2.0	V
I_R (Note 1)	V_R = 600 V V_R = 600 V	T_C = 25°C T_C = 125°C	– –	– –	100 150	μA
t_{RR} I_{RR} Q_{RR}	I_F = 30 A, di_F/dt = 200 A/μs	T_C = 25°C	– – –	– – –	90 8 360	ns A nC
W_{AVL}	Avalanche Energy (L = 40 mH)		20	–	–	mJ

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

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

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Test Circuit and Waveforms

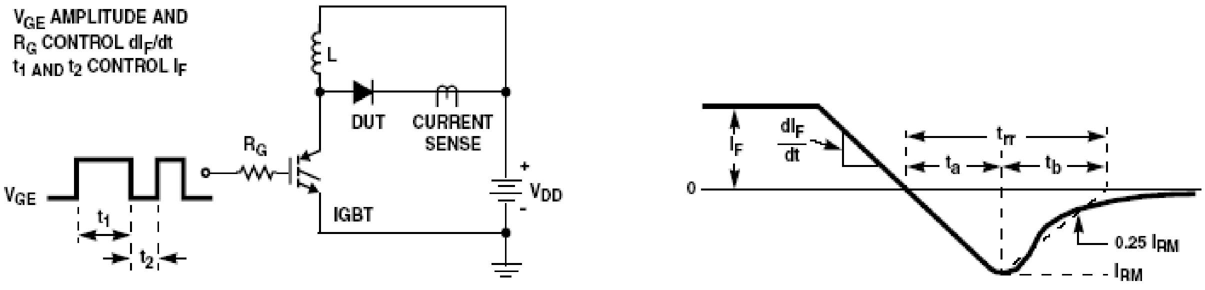

Figure 1. Diode Reverse Recovery Test Circuit & Waveform

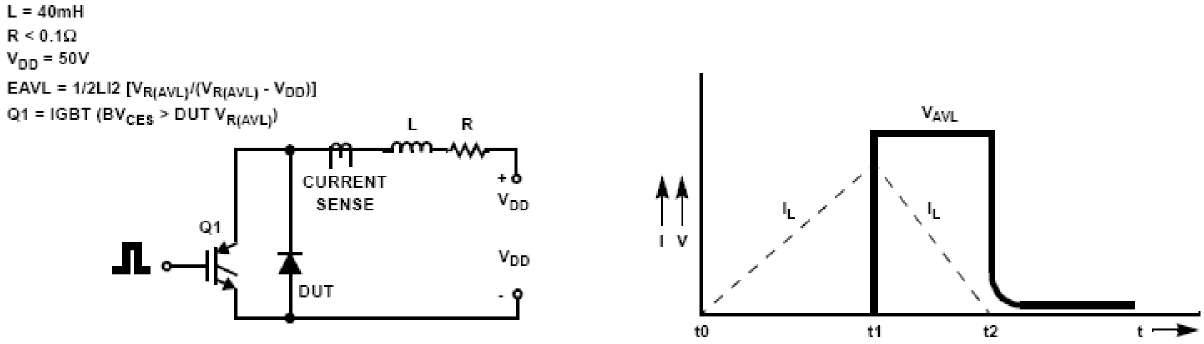

Figure 2. Unclamped Inductive Switching Test Circuit & Waveform

TYPICAL PERFORMANCE CHARACTERISTICS

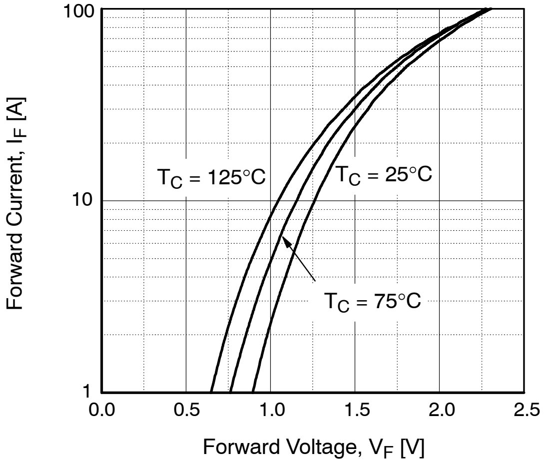

Figure 3. Typical Forward Voltage Drop vs. Forward Current

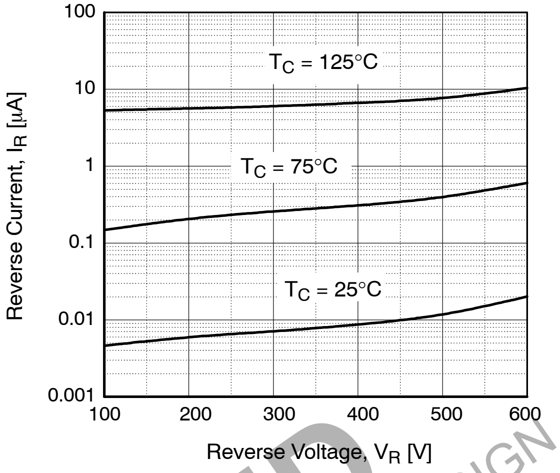

Figure 4. Typical Reverse Current vs. Reverse Voltage

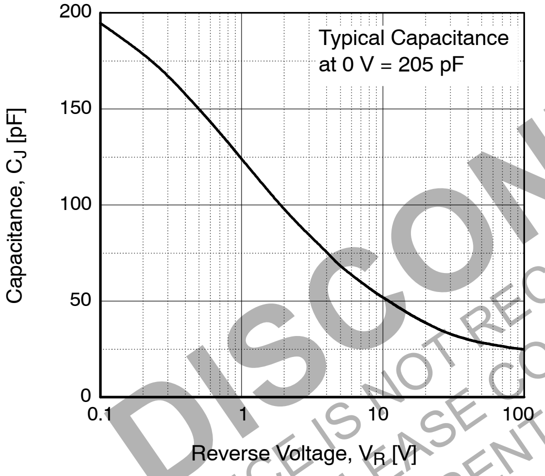

Figure 5. Typical Junction Capacitance

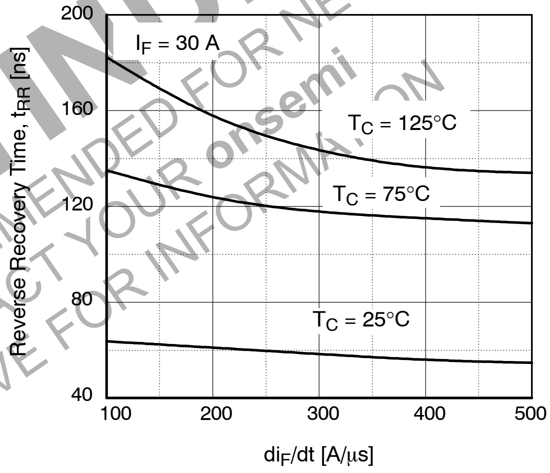

Figure 6. Typical Reverse Recovery Time vs. di_F/dt

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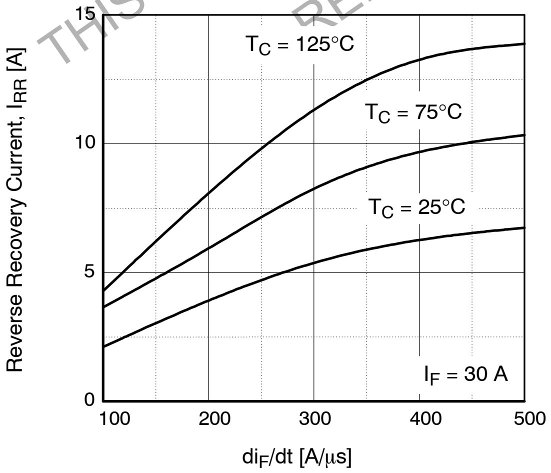

Figure 7. Typical Reverse Recovery Current vs. di_F/dt

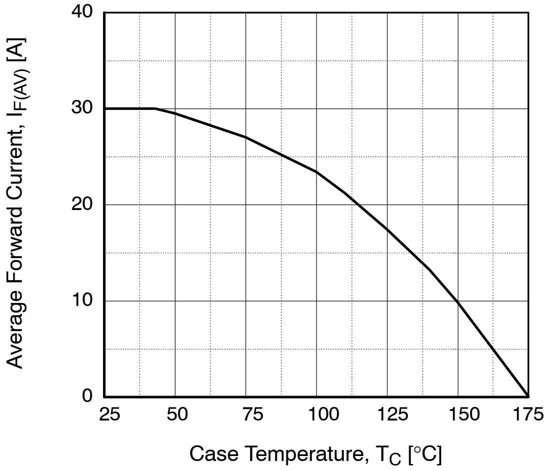

Figure 8. Forward Current Derating Curve

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MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

TO−220 Fullpack, 2−Lead / TO−220F−2FS
CASE 221AS
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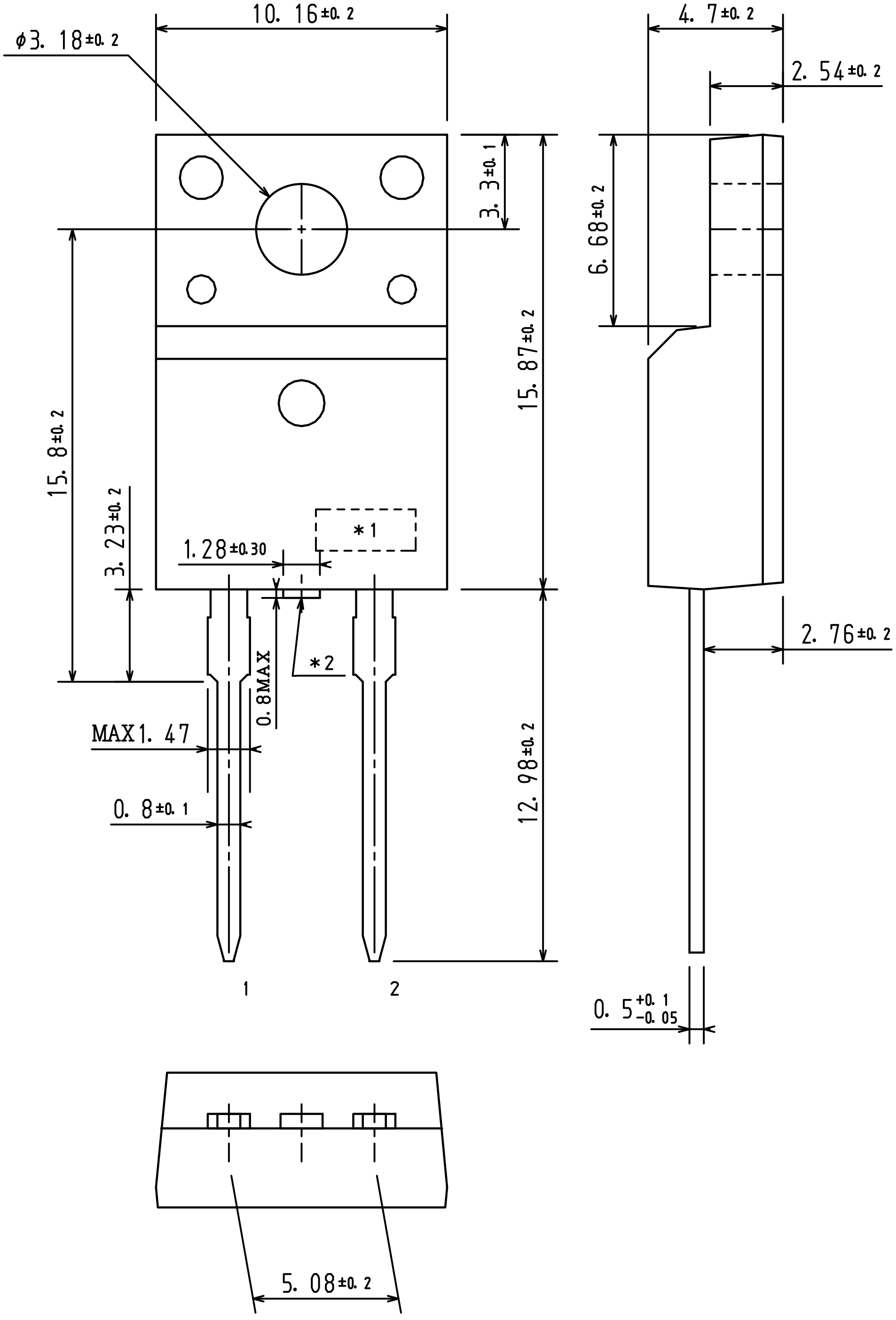

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DESCRIPTION:	**TO−220 FULLPACK, 2−LEAD / TO−220F−2FS**	**PAGE 1 OF 1**

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