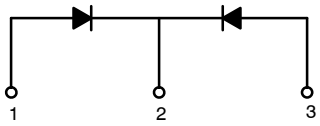
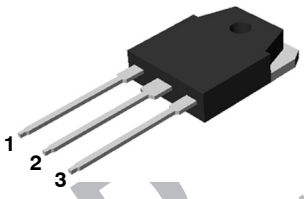
Ultrafast Dual Diode

60 A, 200 V

FFA60UP20DN



1.Anode 2. Cathode 3. Anode



1.Anode 2.Cathode 3.Anode

TO−3P−3LD / EIAJ SC−65, ISOLATED CASE 340BZ

Description

The FFA60UP20DN 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 applications as Welder and UPS application.

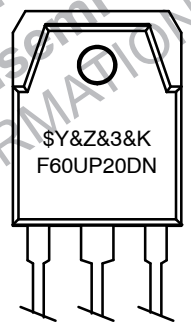
Features

- Ultrafast Recovery, T_{rr} < 32 ns (@ I_F = 30 A)
- Max. Forward Voltage, V_F = 1.15 V (@ T_C = 25°C)
- Reverse Voltage: V_{RRM} = 200 V
- Avalanche Energy Rated
- These Devices are Pb−Free and are RoHS Compliant

Applications

- Power Switching Circuits
- Output Rectifiers
- Free−Wheeling Diodes
- SMPS
- Welder
- UPS

MARKING DIAGRAM



$Y = Logo
&Z = Assembly Plant Code
&3 = Date Code
&K = Lot Run Traceability Code
F60UP20DN = Specific Device Code

ABSOLUTE MAXIMUM RATINGS

(per diode) T_C = 25°C unless otherwise noted

Parameter	Symbol	Value	Unit
DC Blocking Voltage	V_R	200	V
Peak Repetitive Reverse Voltage	V_{RRM}	200	V
Working Peak Reverse Voltage	V_{RWM}	200	V
Average Rectified Forward Current (@ T_C = 100°C)	$I_{F(AV)}$	30	A
Non−repetitive Peak Surge Current 60 Hz Single Half−Sine Wave	I_{FSM}	300	A
Operating Junction and Storage Temperature	T_J, T_{STG}	−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.

THERMAL CHARACTERISTICS

Parameter	Symbol	Value	Unit
Maximum Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.4	°C/W

ORDERING INFORMATION

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

ELECTRICAL CHARACTERISTICS

(per diode) T_C = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_F (Note 1)	Maximum Instantaneous Forward Voltage	I_F = 30 A, T_C = 25°C I_F = 30 A, T_C = 100°C	– –	– –	1.15 1.0	V
I_R (Note 1)	Maximum Instantaneous Reverse Current	V_R = 200 V, T_C = 25°C V_R = 200 V, T_C = 100°C	– –	– –	10 100	μA
t_{rr}	Reverse Recovery Time	I_F = 30 A, di_F/dt = 200 A/μs, V_R = 130 V	–	32	–	ns
I_{rr}	Reverse Recovery Current		–	2.4	–	A
Q_{rr}	Reverse Recovery Charge		–	38.4	–	nC
t_{rr}	Maximum Reverse Recovery Time	I_F = 1 A, di_F/dt = 100 A/μs	–	–	40	ns
W_{AVL}	Avalanche Energy	L = 40 mH	2	–	–	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%

TEST CIRCUIT AND WAVEFORMS

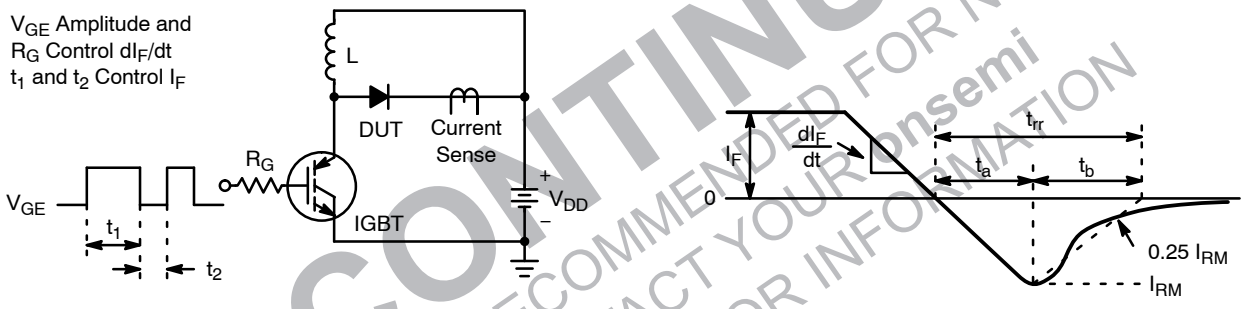


Figure 1. Diode Reverse Recovery Test Circuit & Waveform

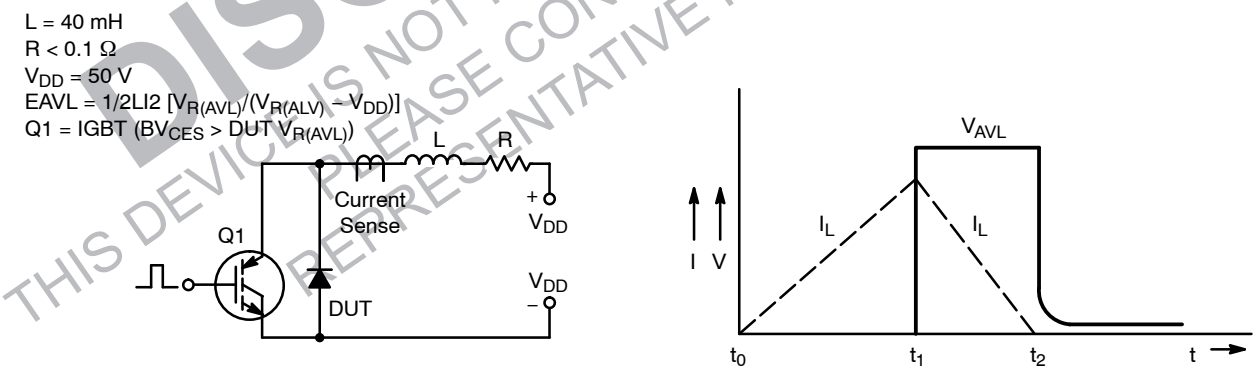


Figure 2. Unclamped Inductive Switching Test Circuit & Waveform

ORDERING INFORMATION

Part Number	Top Mark	Package	Shipping
FFA60UP20DNTU	F60UP20DN	TO−3P−3LD (Pb−Free)	30 Units / Tube

TYPICAL CHARACTERISTICS

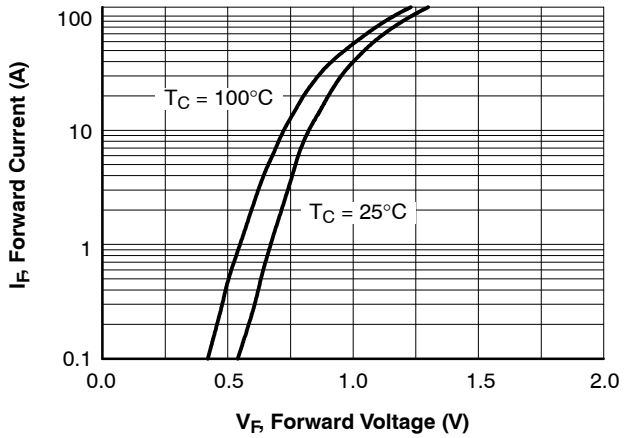


Figure 3. Typical Forward Voltage Drop vs. Forward Current

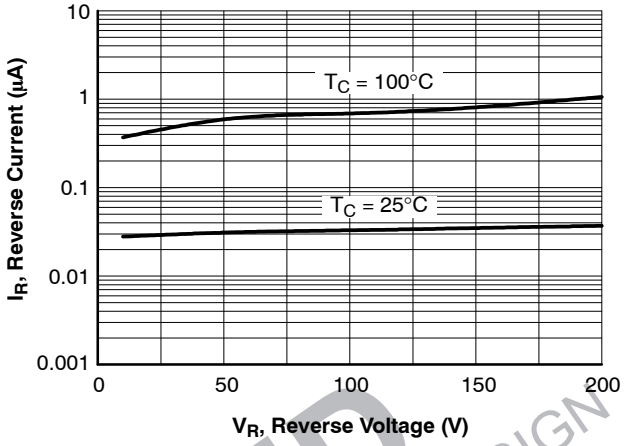


Figure 4. Typical Reverse Current vs. Reverse Voltage

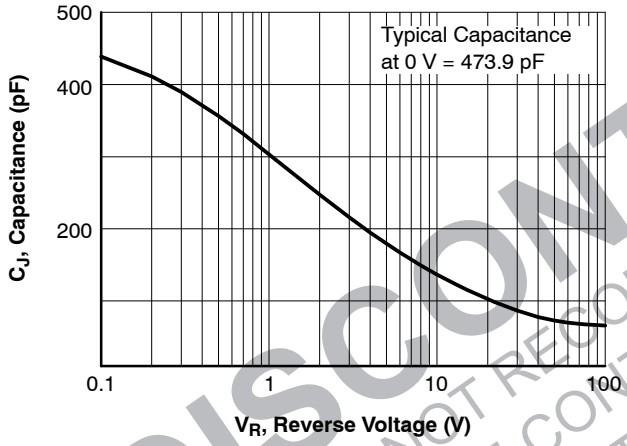


Figure 5. Typical Junction Capacitance

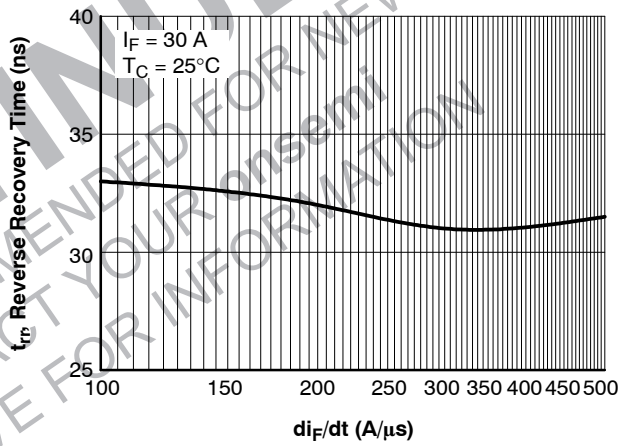


Figure 6. Typical Reverse Recovery Time vs. di_F/dt

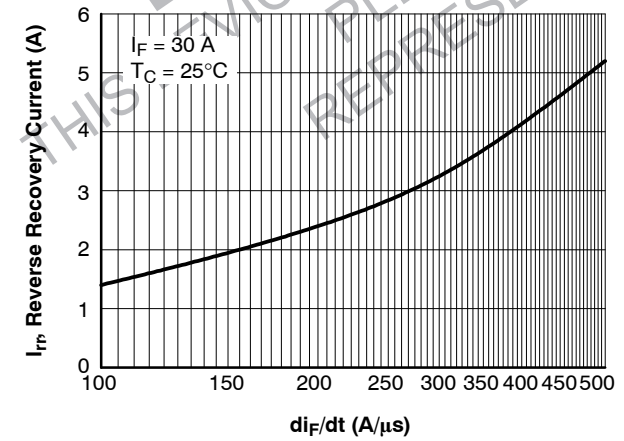


Figure 7. Typical Reverse Recovery Current vs. di_F/dt

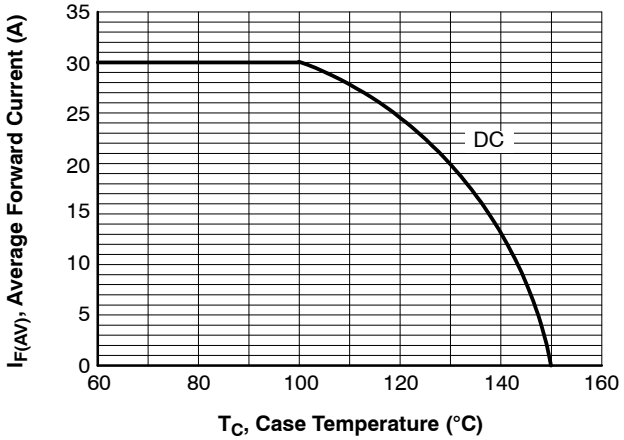
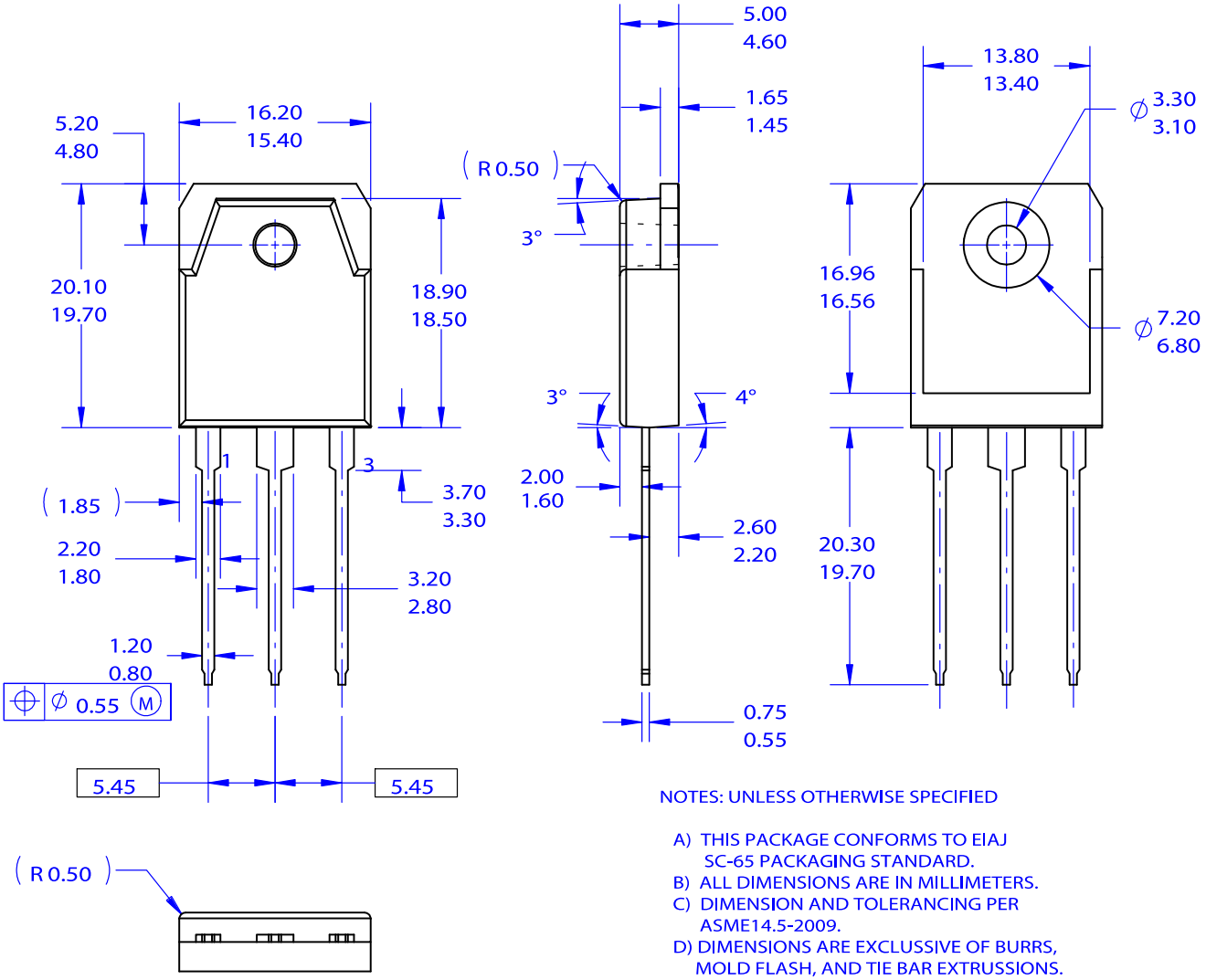


Figure 8. Forward Current Derating Curve

TO−3P−3LD / EIAJ SC−65, ISOLATED
CASE 340BZ
ISSUE O

DATE 31 OCT 2016



NOTES: UNLESS OTHERWISE SPECIFIED

A) THIS PACKAGE CONFORMS TO EIAJ SC-65 PACKAGING STANDARD.
B) ALL DIMENSIONS ARE IN MILLIMETERS.
C) DIMENSION AND TOLERANCING PER ASME14.5-2009.
D) DIMENSIONS ARE EXCLUSSIVE OF BURRS, MOLD FLASH, AND TIE BAR EXTRUSSIONS.

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DESCRIPTION:	**TO−3P−3LD / EIAJ SC−65, ISOLATED**		**PAGE 1 OF 1**

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