

Pb Free Plating Product

## FFA60UA60DN



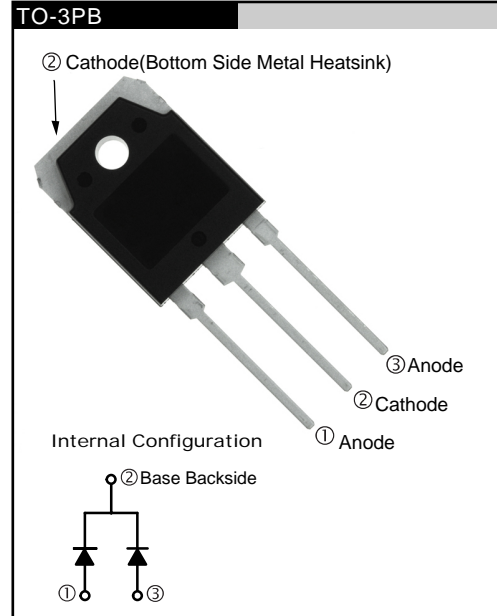
60Amperes,600Volts Planar Passivation Dual Ultra Fast Recovery Rectifiers

### APPLICATION

- Freewheeling, Snubber, Clamp
- Inversion Welder
- PFC
- Plating Power Supply
- Ultrasonic Cleaner and Welder
- Converter & Chopper
- UPS

### PRODUCT FEATURE

- Ultrafast Recovery Time
- Soft Recovery Characteristics
- Low Recovery Loss
- Low Forward Voltage
- High Surge Current Capability
- Low Leakage Current



## GENERAL DESCRIPTION

FFA60UA60DN using latest FRED FAB process(planar passivation chip) with ultrafast and soft recovery characteristic.

### 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 @ $T_C = 95^\circ\text{C}$	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	1.3	$^\circ\text{C/W}$

### Electrical Characteristics

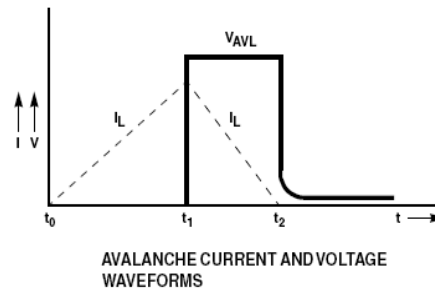
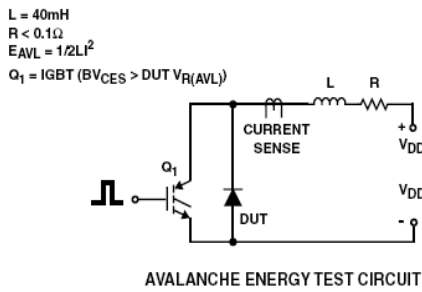
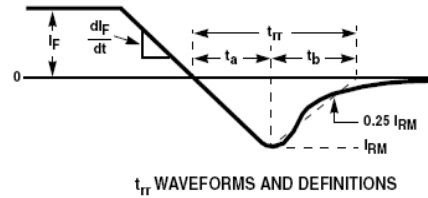
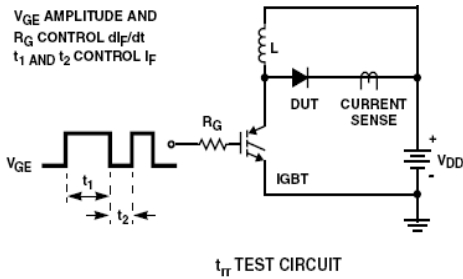
Per leg at  $T_C=25^\circ\text{C}$  unless otherwise noted

Symbol	Parameter	Min.	Typ.	Max.	Unit
$V_{F1}$	$I_F = 30\text{ A}$	-	-	2.2	V
	$I_F = 30\text{ A}$	-	-	2.0	
$I_{R1}$	$V_R = 600\text{ V}$	-	-	100	$\mu\text{A}$
	$V_R = 600\text{ V}$	-	-	150	
$t_{rr}$	$I_F = 30\text{ A}, di/dt = 200\text{ A}/\mu\text{s}$	-	-	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 $\mu\text{s}$ , Duty Cycle = 2%

**Test Circuit and Waveforms**



## Typical Performance Characteristics

Figure 1. Typical Forward Voltage Drop vs. Forward Current

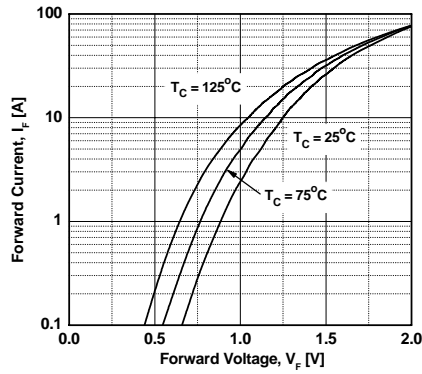


Figure 3. Typical Junction Capacitance

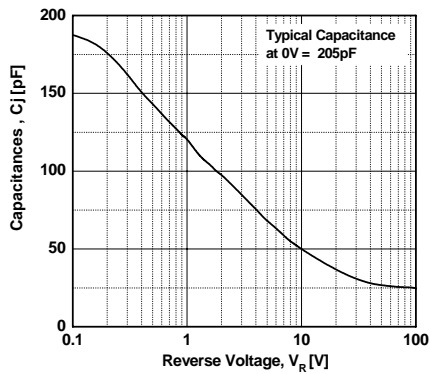


Figure 5. Typical Reverse Recovery Current vs. di/dt

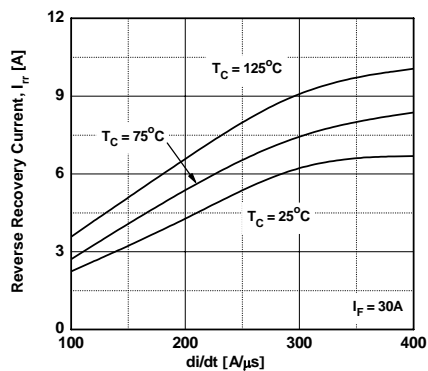


Figure 2. Typical Reverse Current vs. Reverse Voltage

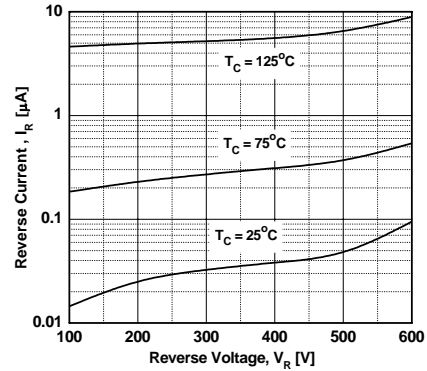


Figure 4. Typical Reverse Recovery Time vs. di/dt

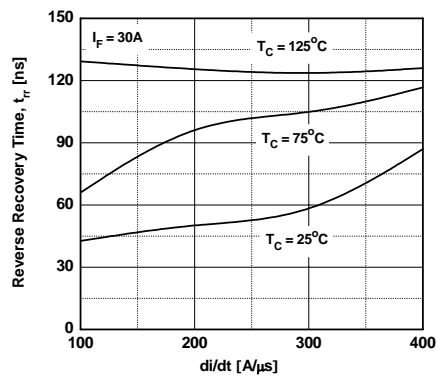
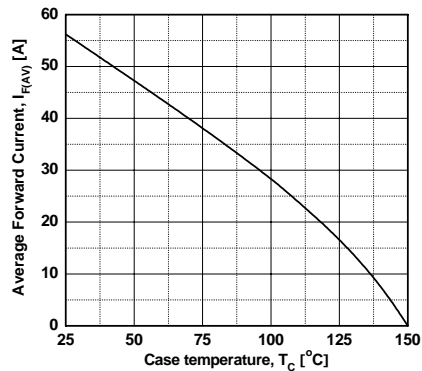
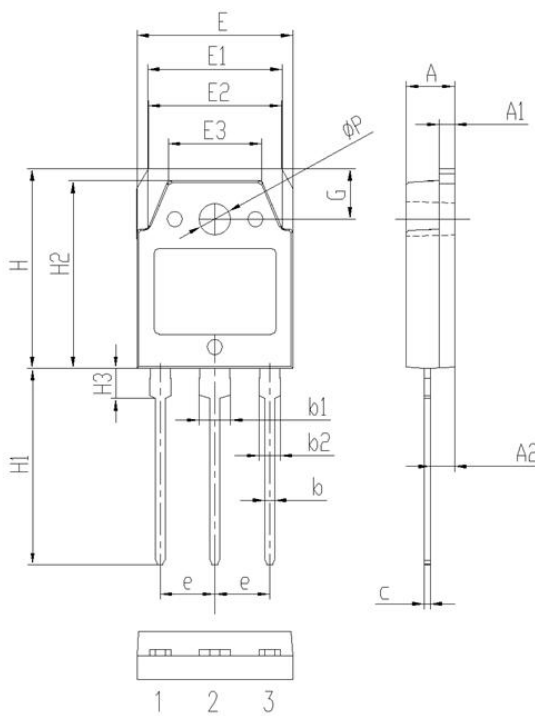


Figure 6. Forward Current Derating Curve



Package Information

TO-3PB PACKAGE



Symbol	Dimensions(millimeters)	
	Min.	Max.
A	4.60	5.00
A1	1.30	1.70
A2	2.20	2.60
b	0.80	1.20
b1	2.90	3.30
b2	1.90	2.30
c	0.40	0.80
e	5.25	5.65
E	15.3	15.7
E1	13.2	13.6
E2	13.1	13.5
E3	9.10	9.50
H	19.7	20.1
H1	19.1	20.1
H2	18.3	18.7
H3	2.80	3.20
G	4.80	5.20
ΦP	3.00	3.40