

**Pb Free Plating Product****FFA40U60DNTU**

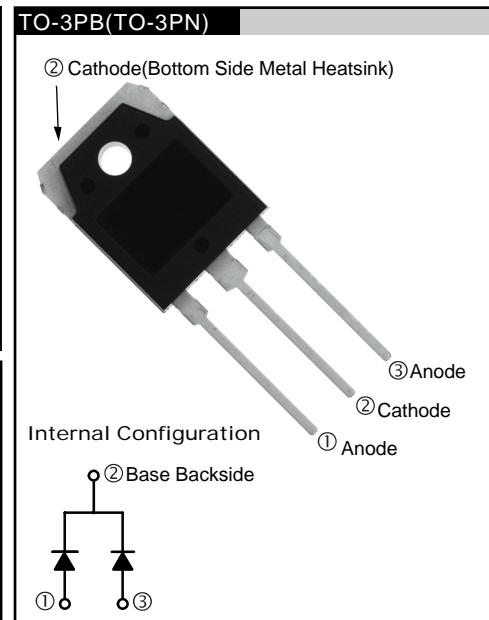
40Ampere,600Volt Planar Polyimide Passivated Ultra Fast Recovery Rectifier

**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**

FFA40U60DNTU using lastest FRED wafer FAB process(or planar passivated pellet) with ultrafast and soft recovery characteristics.

**Absolute Maximum Ratings (per diode)  $T_C=25^\circ\text{C}$  unless otherwise noted**

Symbol	Parameter	Value	Units
$V_{RRM}$	Peak Repetitive Reverse Voltage	600	V
$I_{F(AV)}$	Average Rectified Forward Current @ $T_C = 100^\circ\text{C}$	40	A
$I_{FSM}$	Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave	240	A
$T_J, T_{STG}$	Operating Junction and Storage Temperature	- 65 to +150	°C

**Thermal Characteristics**

Symbol	Parameter	Value	Units
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	0.7	°C/W

**Electrical Characteristics (per diode)  $T_C=25^\circ\text{C}$  unless otherwise noted**

Symbol	Parameter	Min.	Typ.	Max	Units	
$V_{FM} *$	Maximum Instantaneous Forward Voltage $I_F = 40\text{A}$ $I_F = 40\text{A}$	$T_C = 25^\circ\text{C}$ $T_C = 100^\circ\text{C}$	- -	- -	2.1 1.9	V
$I_{RM} *$	Maximum Instantaneous Reverse Current @ rated $V_R$	$T_C = 25^\circ\text{C}$ $T_C = 100^\circ\text{C}$	- -	- -	20 200	μA
$t_{rr}$ $I_{rr}$ $Q_{rr}$	Maximum Reverse Recovery Time Maximum Reverse Recovery Current Maximum Reverse Recovery Charge ( $I_F = 40\text{A}$ , $dI/dt = 200\text{A}/\mu\text{s}$ )	- - -	- - -	110 10 550	ns A nC	
$W_{AVL}$	Avalanche Energy	1.0	-	-	mJ	

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

## Typical Characteristics

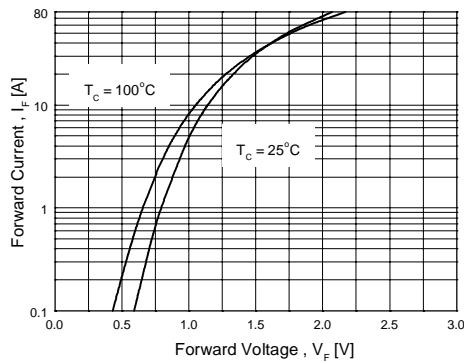


Figure 1. Typical Forward Voltage Drop  
vs. Forward Current

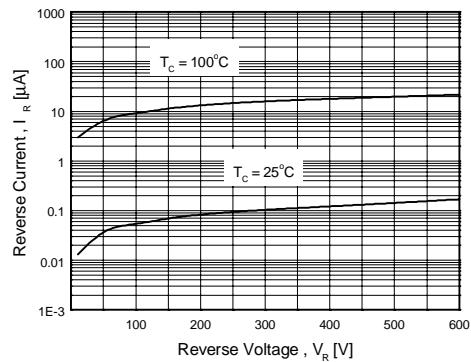


Figure 2. Typical Reverse Current  
vs. Reverse Voltage

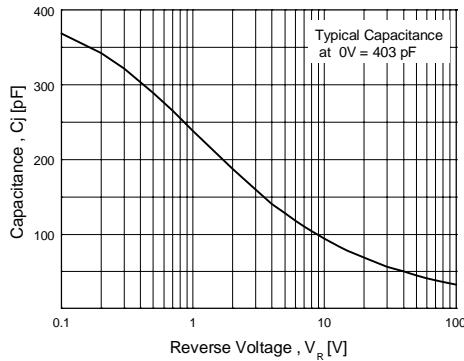


Figure 3. Typical Junction Capacitance

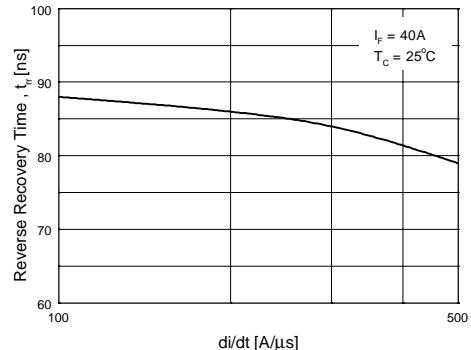


Figure 4. Typical Reverse Recovery Time  
vs. di/dt

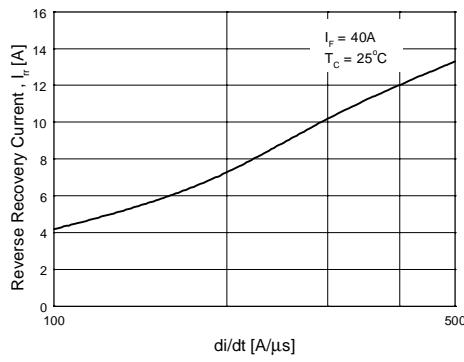


Figure 5. Typical Reverse Recovery Current  
vs. di/dt

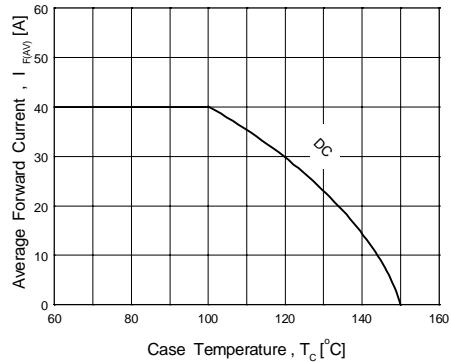
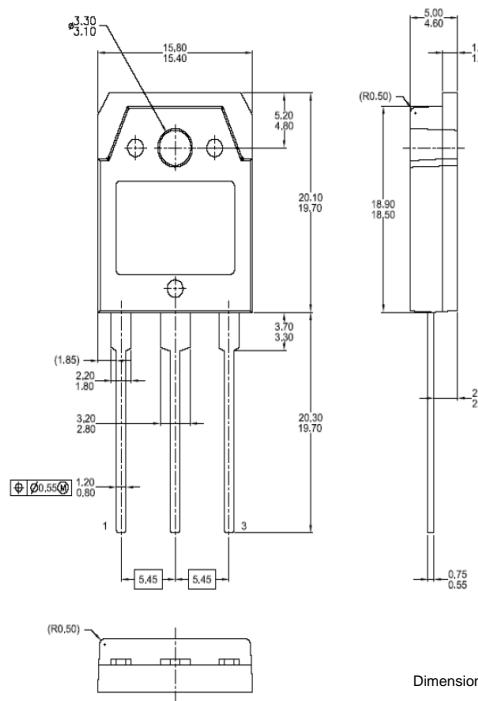


Figure 6. Forward Current Derating Curve

**Mechanical Dimensions****TO-3PB(TO-3PN)**

Dimensions in Millimeters