

Pb Free Plating Product

## F40U60DN



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

<p><b>APPLICATION</b></p> <ul style="list-style-type: none"> <li>• Freewheeling, Snubber, Clamp</li> <li>• Inversion Welder</li> <li>• PFC</li> <li>• Plating Power Supply</li> <li>• Ultrasonic Cleaner and Welder</li> <li>• Converter &amp; Chopper</li> <li>• UPS</li> </ul>	<p><b>TO-3PB(TO-3PN)</b></p> <p>Internal Configuration</p>
<p><b>PRODUCT FEATURE</b></p> <ul style="list-style-type: none"> <li>• Ultrafast Recovery Time</li> <li>• Soft Recovery Characteristics</li> <li>• Low Recovery Loss</li> <li>• Low Forward Voltage</li> <li>• High Surge Current Capability</li> <li>• Low Leakage Current</li> </ul>	

### GENERAL DESCRIPTION

F40U60DN using latest 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	$^\circ\text{C}$

### Thermal Characteristics

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

### 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 $I_F = 40\text{A}$ $I_F = 40\text{A}$	$T_C = 25^\circ\text{C}$	-	-	2.1	V
		$T_C = 100^\circ\text{C}$	-	-	1.9	
$I_{RM}^*$	Maximum Instantaneous Reverse Current @ rated $V_R$	$T_C = 25^\circ\text{C}$	-	-	20	$\mu\text{A}$
		$T_C = 100^\circ\text{C}$	-	-	200	
$t_{rr}$	Maximum Reverse Recovery Time	-	-	110	ns	
$I_{rr}$	Maximum Reverse Recovery Current	-	-	10	A	
$Q_{rr}$	Maximum Reverse Recovery Charge ( $I_F = 40\text{A}, di/dt = 200\text{A}/\mu\text{s}$ )	-	-	550	nC	
$W_{AVL}$	Avalanche Energy	1.0	-	-	mJ	

\* Pulse Test: Pulse Width=300 $\mu\text{s}$ , Duty Cycle=2%

### Typical Characteristics

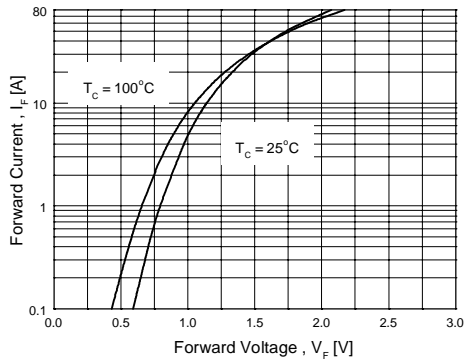


Figure 1. Typical Forward Voltage Drop vs. Forward Current

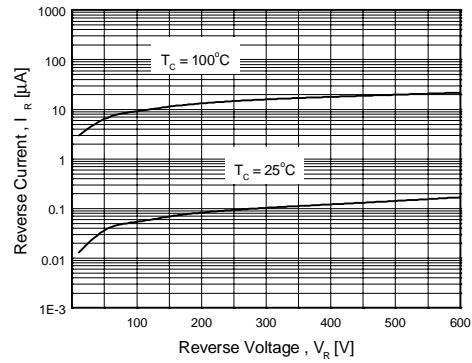


Figure 2. Typical Reverse Current vs. Reverse Voltage

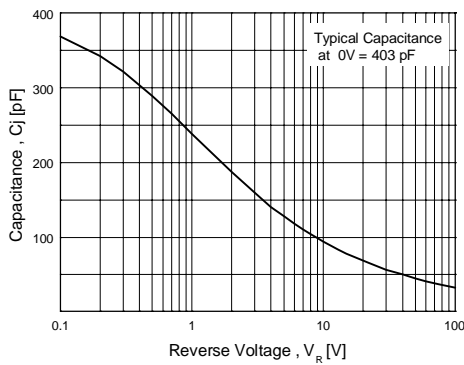


Figure 3. Typical Junction Capacitance

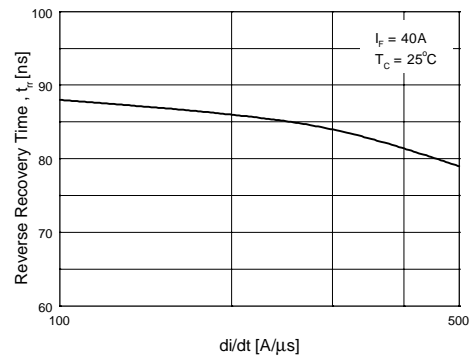


Figure 4. Typical Reverse Recovery Time vs. di/dt

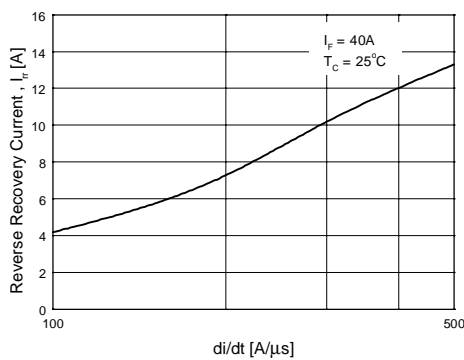


Figure 5. Typical Reverse Recovery Current vs. di/dt

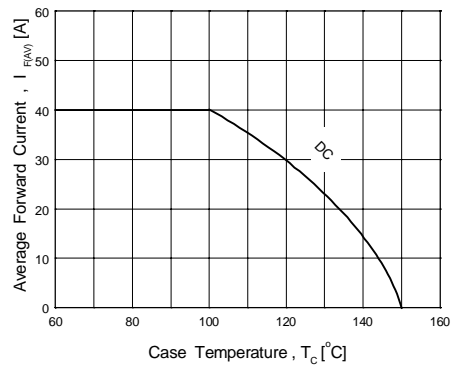
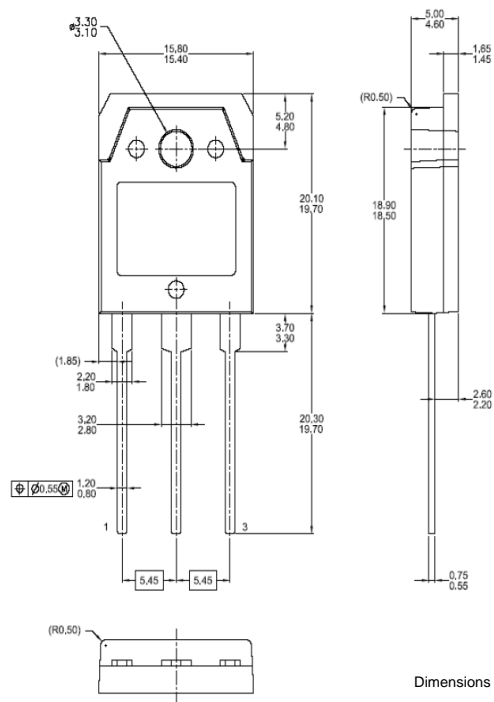


Figure 6. Forward Current Derating Curve

**Mechanical Dimensions**

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



Dimensions in Millimeters