

## FFAF40U60DN

### Features

- High voltage and high reliability
- High speed switching
- Low forward voltage

### Applications

- General purpose
- Switching mode power supply
- Free-wheeling diode for motor application
- Power switching circuits



## ULTRA FAST RECOVERY POWER RECTIFIER

### 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	$^\circ\text{C}/\text{W}$

### 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

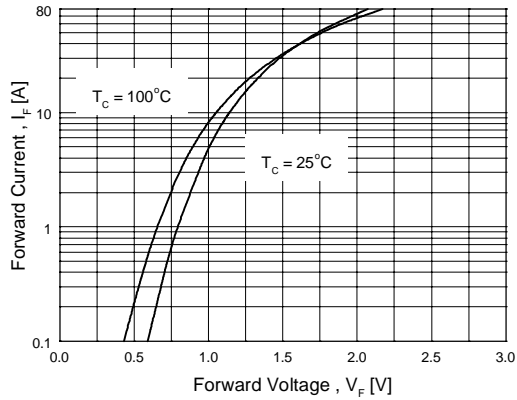


Figure 1. Typical Forward Voltage Drop vs. Forward Current

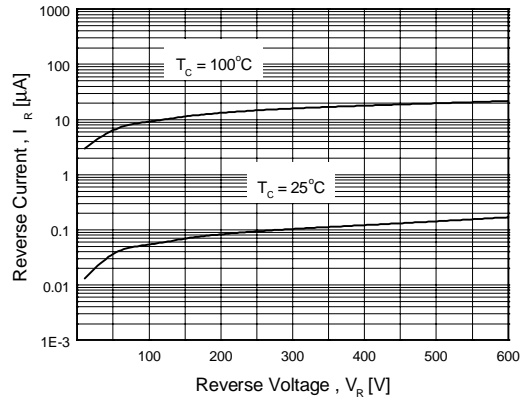


Figure 2. Typical Reverse Current vs. Reverse Voltage

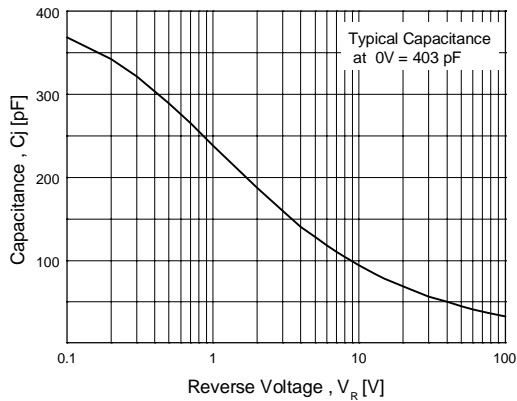


Figure 3. Typical Junction Capacitance

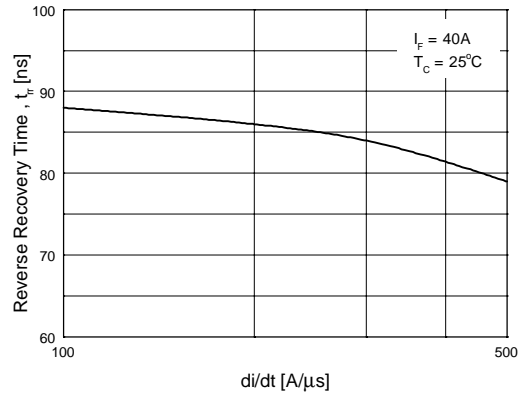


Figure 4. Typical Reverse Recovery Time vs. di/dt

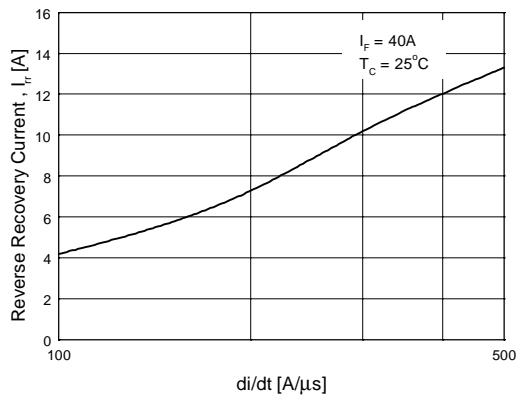


Figure 5. Typical Reverse Recovery Current vs. di/dt

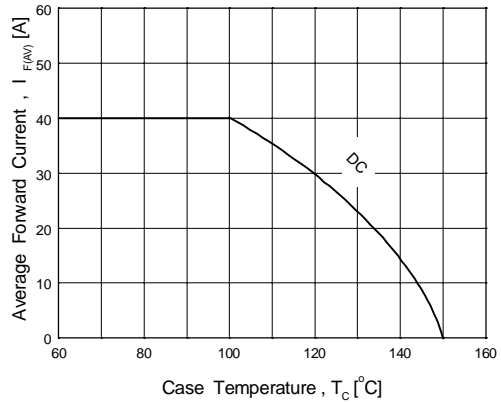


Figure 6. Forward Current Derating Curve



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