FAIRCHILD SEMICONDUCTOR®

July 2005

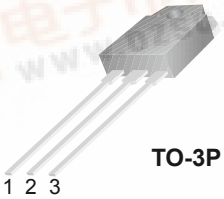
FFA60UP60DN
Ultrafast Recovery Power Rectifier

Features

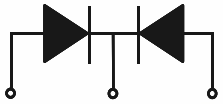
- High voltage and high reliability
- High speed switching
- Low forward voltage

Applications

- General purpose
- Switched mode power supply
- Free-wheeling diode for motor application
- Power switching Circuits



TO-3P



1. Anode 2.Cathode 3. Anode

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

Symbol	Parameter	Value	Units
V_{RRM}	Maximum Repetitive Reverse Voltage	600	V
$I_{F(AV)}$	Average Rectified Forward Current @ T_C = 80°C	30	A
I_{FSM}	Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave	180	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	1.03	°C/W

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

Symbol	Parameter		Min.	Typ.	Max.	Units
V_{FM} *	Maximum Instantaneous Forward Voltage I_F = 30A	 T_C = 25 °C T_C = 125 °C			 2.3 2.1	 V V
I_{RM} *	Maximum Instantaneous Reverse Current @ rated V_R	 T_C = 25 °C T_C = 125 °C			 15 150	 μA μA
t_{rr}	Maximum Reverse Recovery Time (I_F = 1A, di/dt = 100A/μs)				70	nS
t_{rr} t_{rr} I_{rr} Q_{rr}	Maximum Reverse Recovery Time (I_F = 30A, di/dt = 200A/μs)	T_C = 25 °C T_C = 100 °C T_C = 25 °C T_C = 25 °C			90 150 8 360	nS nS A nC
W_{AVL}	Avalanche Energy (L = 40mH)		20			mJ

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

Package Marking and Ordering Information

Device Marking	Device	Package	Reel Size	Tape Width	Quantity
F60UP60DN	FFA60UP60DN	TO-3P	-	-	30

Typical Performance Characteristics

Figure 1. Typical Forward Voltage Drop vs. Forward Current

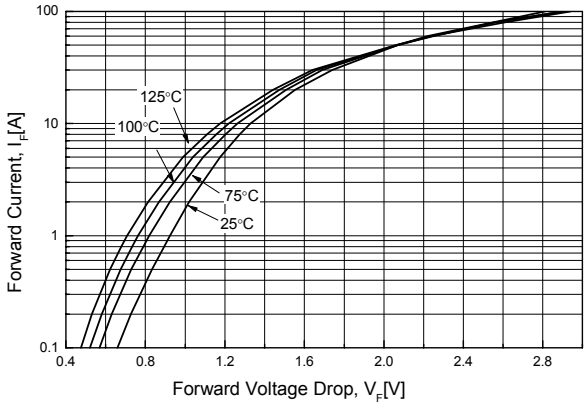


Figure 2. Typical Reverse Current vs. Reverse Voltage

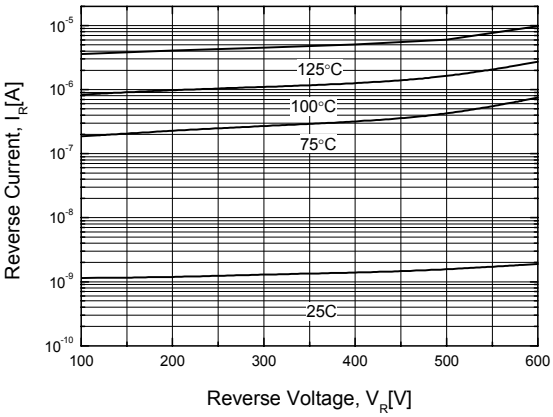


Figure 3. Typical Junction Capacitance

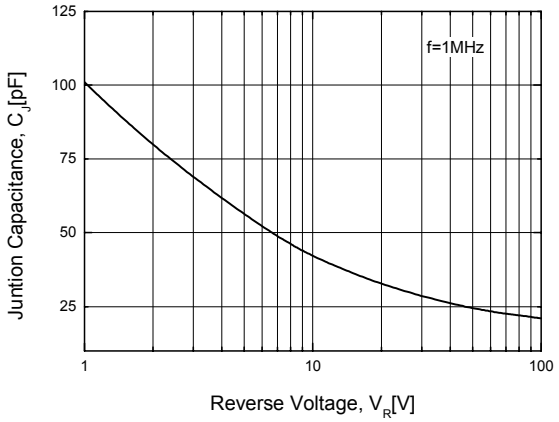


Figure 4. Typical Reverse Recovery Time vs. di/dt

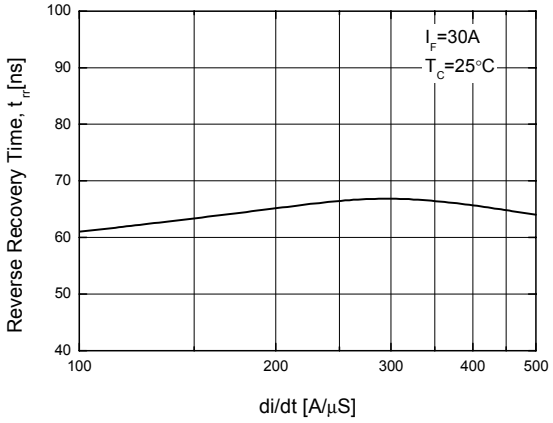


Figure 5. Typical Reverse Recovery Current vs. di/dt

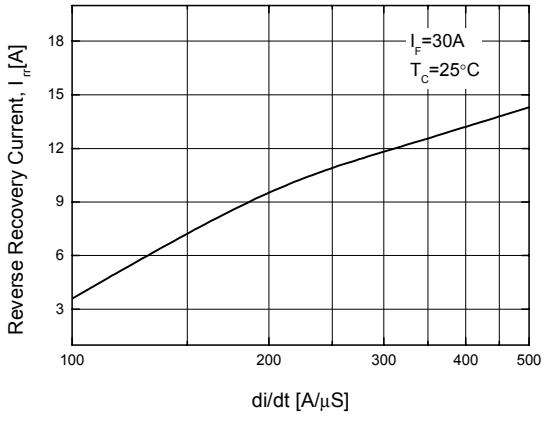
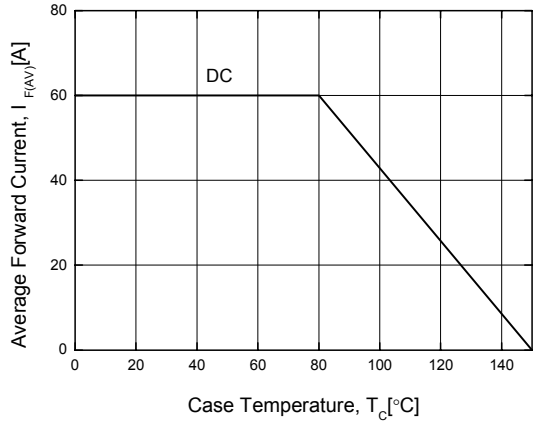
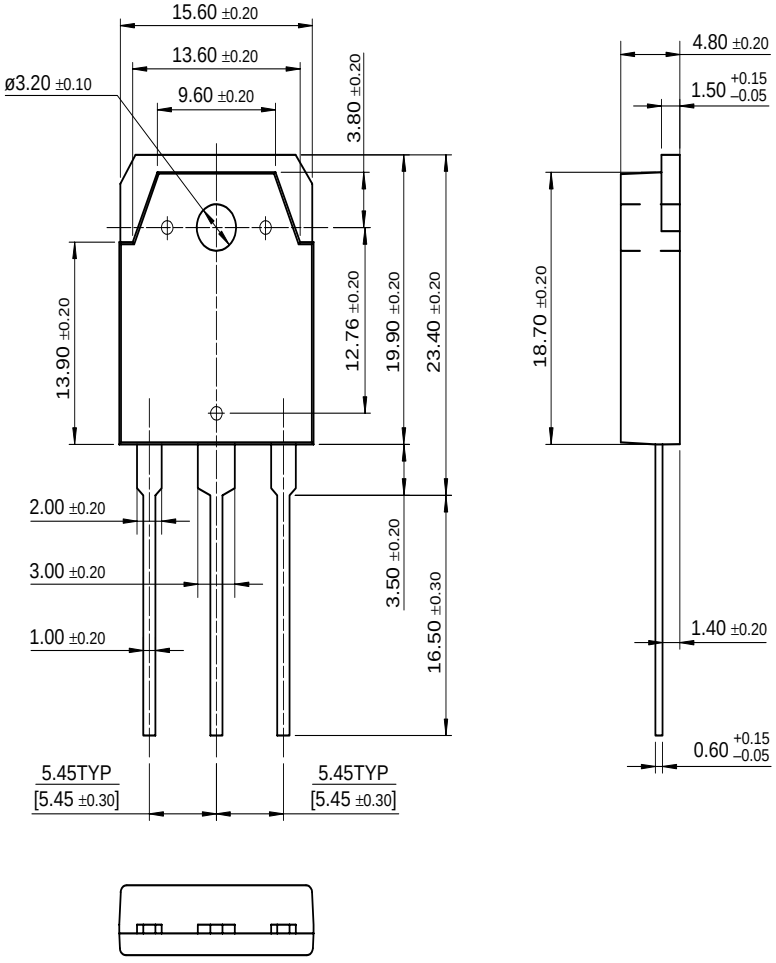


Figure 6. Forwrd Current Derating Curve



Mechanical Dimensions

TO-3P



Dimensions in Millimeters

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