

FFA120UP60DN

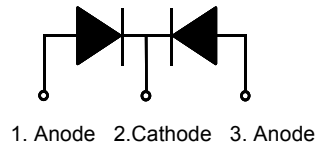
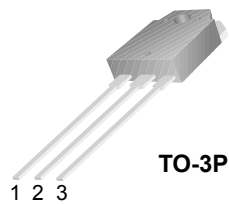
Ultrafast Recovery Power Rectifier

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



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

Symbol	Parameter	Value	Units
V_{RRM}	Peak Repetitive Reverse Voltage	600	V
$I_{F(AV)}$	Average Rectified Forward Current @ $T_C = 50^\circ\text{C}$	120	A
I_{FSM}	Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave	360	A
T_J, T_{STG}	Operating Junction and Storage Temperature	- 65 to +150	$^\circ\text{C}$

Thermal Characteristics $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$R_{\theta JC}$	Maximum Thermal Resistance, Junction to Case	0.88	$^\circ\text{C/W}$

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

Symbol	Parameter	Min.	Typ.	Max.	Units	
$V_{FM} *$	Maximum Instantaneous Forward Voltage $I_F = 60\text{A}$ $I_F = 60\text{A}$	$T_C = 25^\circ\text{C}$	-	-	2.2	V
		$T_C = 100^\circ\text{C}$	-	-	2.0	
$I_{RM} *$	Maximum Instantaneous Reverse Current @ rated V_R	$T_C = 25^\circ\text{C}$	-	-	25	μA
		$T_C = 100^\circ\text{C}$	-	-	250	
t_{rr}	Maximum Reverse Recovery Time	-	-	90	ns	
I_{rr}	Maximum Reverse Recovery Current	-	-	9	A	
Q_{rr}	Maximum Reverse Recovery Charge ($I_F = 60\text{A}$, $di/dt = 200\text{A}/\mu\text{s}$)	-	-	405	nC	
W_{AVL}	Avalanche Energy ($L = 40\text{mH}$)	20	-	-	mJ	

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

Typical Performance Characteristics

Figure 1. Typical Forward Voltage Drop vs. Forward Current

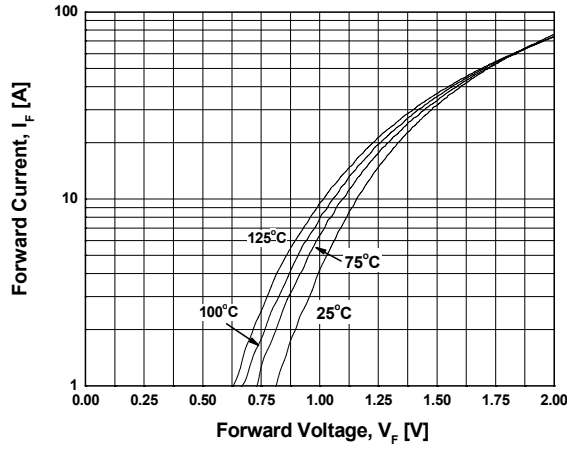


Figure 2. Typical Reverse Current vs. Reverse Voltage

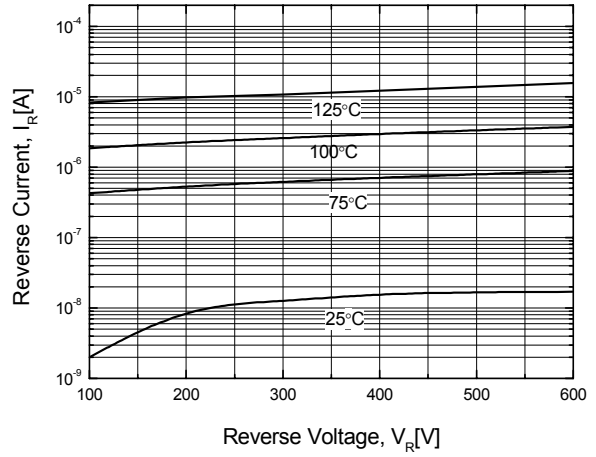


Figure 3. Typical Junction Capacitance

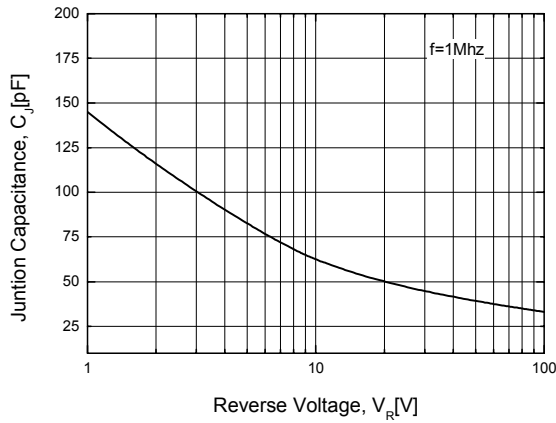


Figure 4. Typical Reverse Recovery Time vs. di/dt

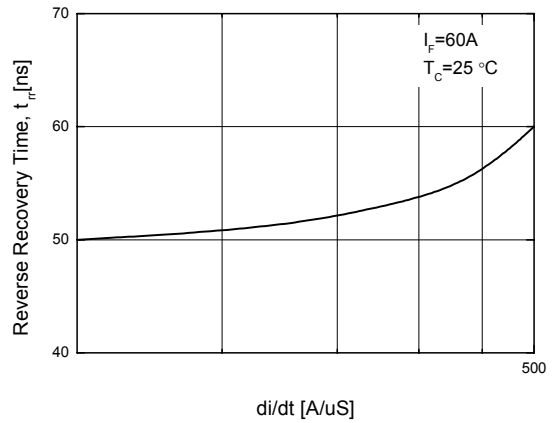


Figure 5. Typical Reverse Recovery Current vs. di/dt

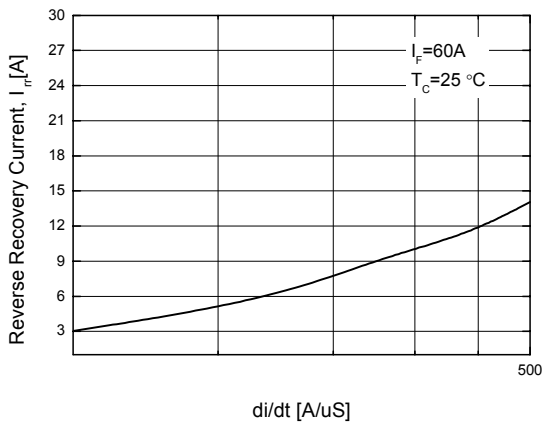
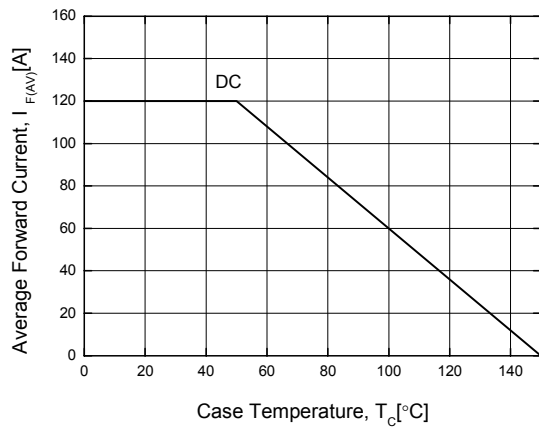
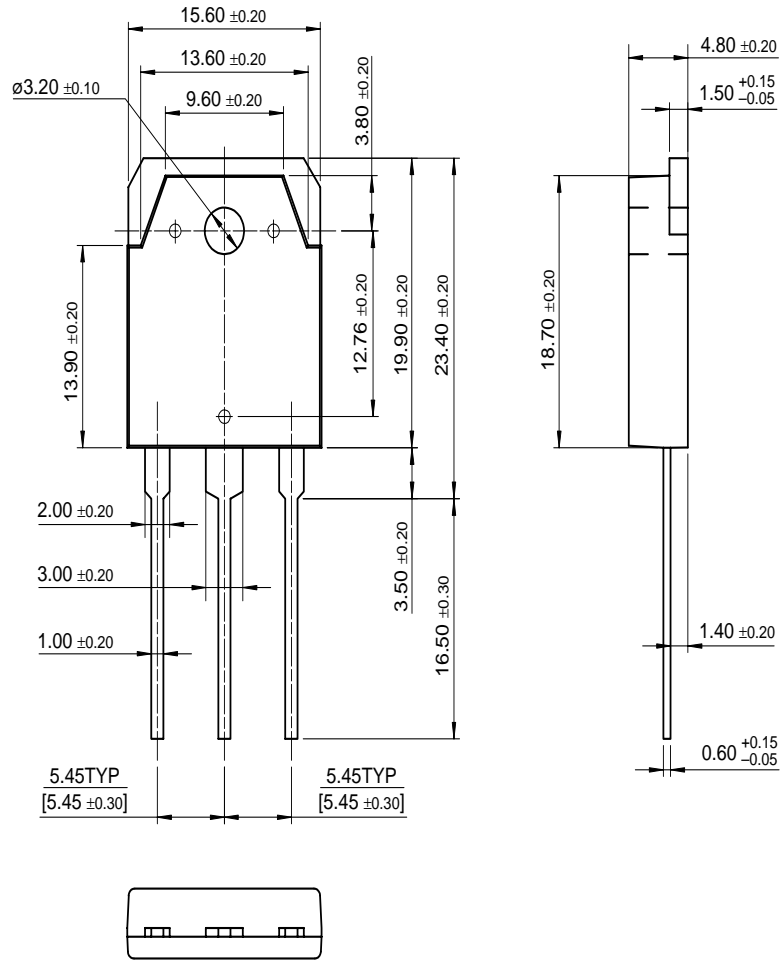


Figure 6. Forward Current Derating Curve



Mechanical Dimensions

TO-3P



Dimensions in Millimeters

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Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
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Rev. I15

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FFA120UP60DN

120A/600V Ultrafast Recovery Power Rectifier

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Product	Product status	Pb-free Status	Pricing*	Package type	Leads	Packing method	Package Marking Convention**
FFA120UP60DN	Full Production	Full Production	\$6.12	TO-3P	3	RAIL	Line 1: \$Y (Fairchild logo) &3 (3-Digit Date Code) Line 2: F120UP Line 3: 60DN
FFA120UP60DNTU	Full Production		\$3.24	TO-3P	3	RAIL	Line 1: \$Y (Fairchild logo) &3 (3-Digit Date Code) Line 2: F120UP Line 3: 60DN



* Fairchild 1,000 piece Budgetary Pricing

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Indicates product with Pb-free second-level interconnect. For more information [click here](#).

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Product
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