FAIRCHILD SEMICONDUCTOR™

# FFA10U120DN

## Features

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

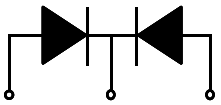
## Applications

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



TO-3P

1 2 3



1. Anode 2.Cathode 3. Anode

# ULTRA FAST RECOVERY POWER RECTIFIER

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

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $V_{RRM}$ | Peak Repetitive Reverse Voltage | 1200 | V |
| $I_{F(AV)}$ | Average Rectified Forward Current @ $T_C$ = 100°C | 10 | A |
| $I_{FSM}$ | Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave | 60 | 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 | 1.5 | °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 | | | | | V |
| | $I_F$ = 10A | $T_C$ = 25 °C | - | - | 3.5 | |
| | $I_F$ = 10A | $T_C$ = 100 °C | - | - | 3.2 | |
| $I_{RM}$ * | Maximum Instantaneous Reverse Current | | | | | μA |
| | @ rated $V_R$ | $T_C$ = 25 °C | - | - | 10 | |
| | | $T_C$ = 100 °C | - | - | 800 | |
| $t_{rr}$ | Maximum Reverse Recovery Time | | - | - | 100 | ns |
| $I_{rr}$ | Maximum Reverse Recovery Current | | - | - | 8 | A |
| $Q_{rr}$ | Maximum Reverse Recovery Charge ($I_F$ =10A, di/dt = 200A/μs) | | - | - | 360 | nC |
| $W_{AVL}$ | Avalanche Energy | | 1.0 | - | - | mJ |

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

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# Typical Characteristics

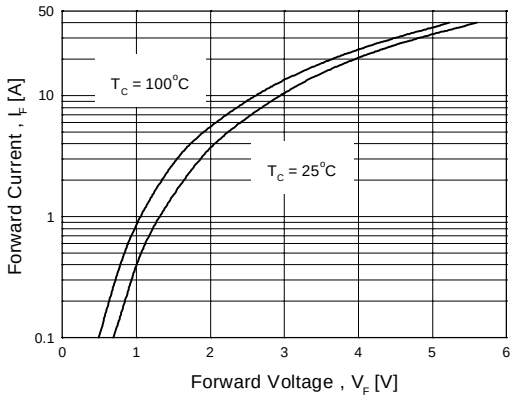



**Figure 1. Typical Forward Voltage Drop vs. Forward Current**

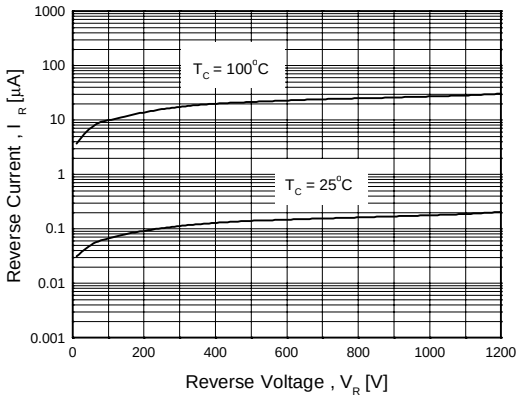



**Figure 2. Typical Reverse Current vs. Reverse Voltage**

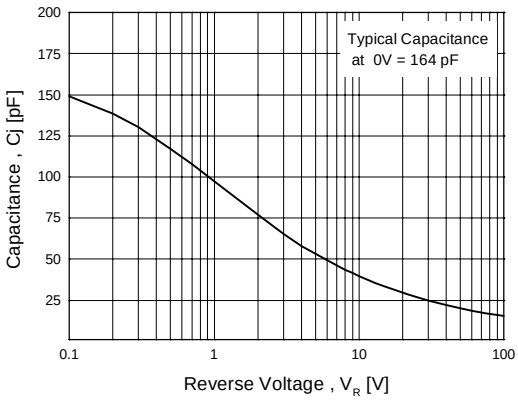



**Figure 3. Typical Junction Capacitance**

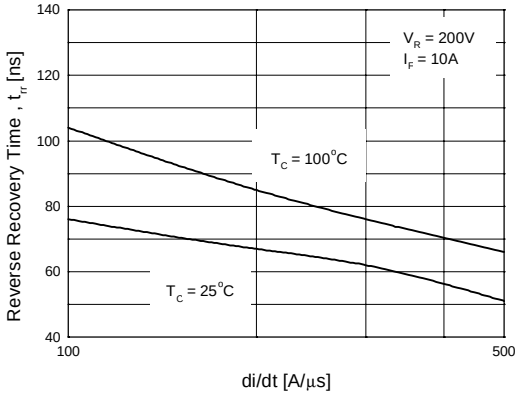



**Figure 4. Typical Reverse Recovery Time vs. di/dt**

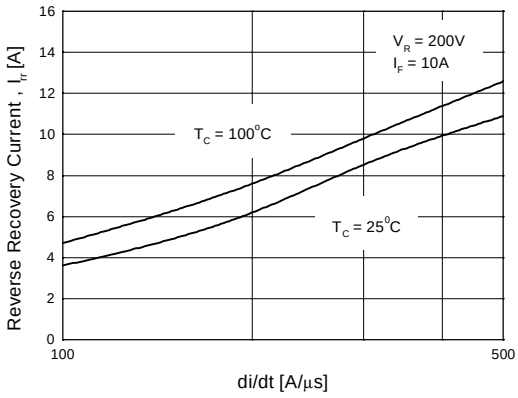



**Figure 5. Typical Reverse Recovery Current vs. di/dt**

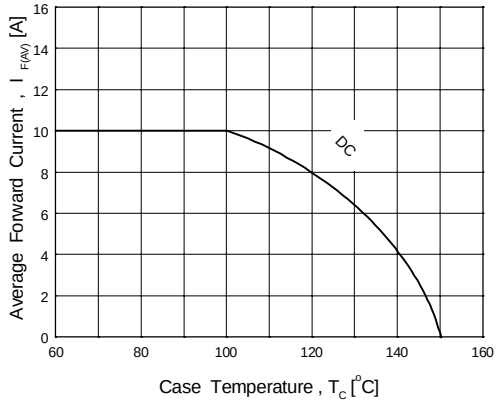
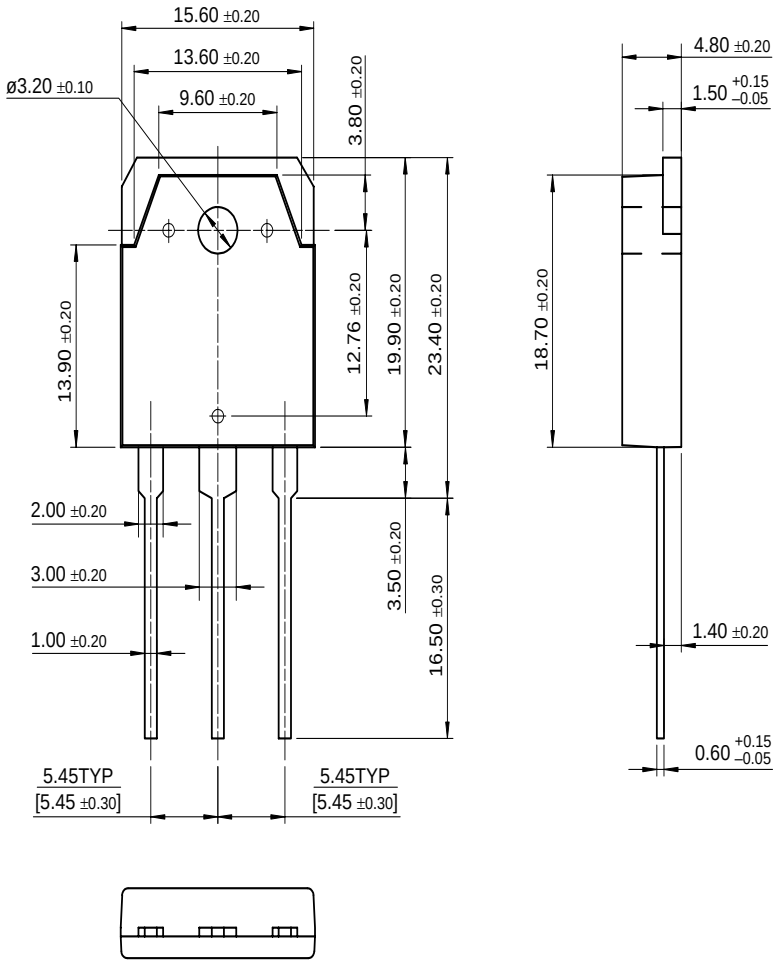



**Figure 6. Forward Current Derating Curve**

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## Package Dimensions

TO-3P




Dimensions in Millimeters

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