FAIRCHILD SEMICONDUCTOR™

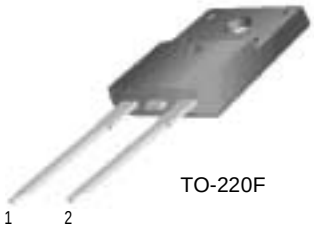
# FFPF06U40S

## Features

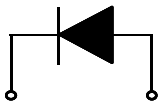
- Ultrafast with soft recovery
- Low forward voltage

## Applications

- Power switching circuits
- Output rectifiers
- Freewheeling diodes
- Switching mode power supply




TO-220F



1. Cathode 2. Anode

# ULTRA FAST RECOVERY RECTIFIER

## Absolute Maximum Ratings $T_C$=25°C unless otherwise noted

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $V_{RRM}$ | Peak Repetitive Reverse Voltage | 400 | V |
| $I_{F(AV)}$ | Average Rectified Forward Current @ $T_C$ = 100°C | 6 | 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 | 7.0 | °C/W |

## Electrical Characteristics $T_C$=25 °C unless otherwise noted

| Symbol | Parameter | | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|
| $V_{FM}$ * | Maximum Instantaneous Forward Voltage | | | | | V |
| | $I_F$ = 6A | $T_C$ = 25 °C | - | - | 1.4 | |
| | $I_F$ = 6A | $T_C$ = 100 °C | - | - | 1.3 | |
| $I_{RM}$ * | Maximum Instantaneous Reverse Current | | | | | µA |
| | @ rated $V_R$ | $T_C$ = 25 °C | - | - | 20 | |
| | | $T_C$ = 100 °C | - | - | 200 | |
| $t_{rr}$ | Maximum Reverse Recovery Time | | - | - | 50 | ns |
| $I_{rr}$ | Maximum Reverse Recovery Current | | - | - | 4.0 | A |
| $Q_{rr}$ | Maximum Reverse Recovery Charge ($I_F$ =6A, di/dt = 200A/µs) | | - | - | 100 | nC |
| $W_{AVL}$ | Avalanche Energy | | 1.0 | - | - | mJ |

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

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# Typical Characteristics

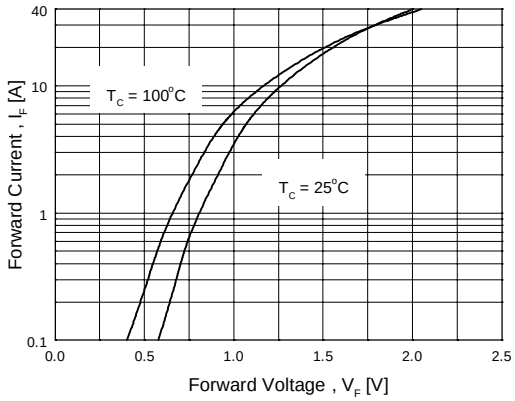



**Figure 1. Typical Forward Voltage Drop vs. Forward Current**

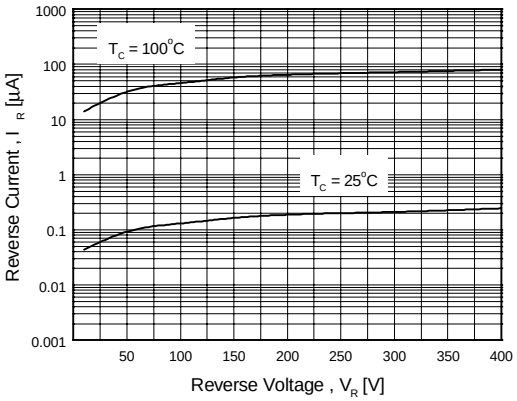



**Figure 2. Typical Reverse Current vs. Reverse Voltage**

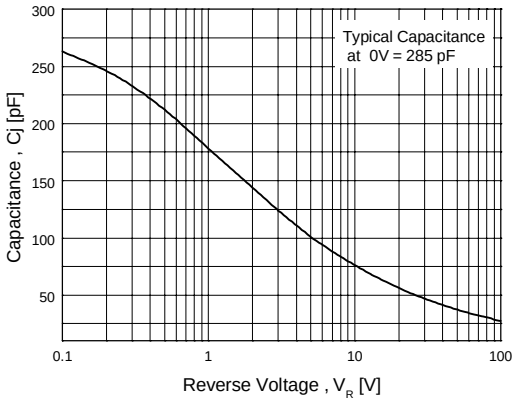



**Figure 3. Typical Junction Capacitance**

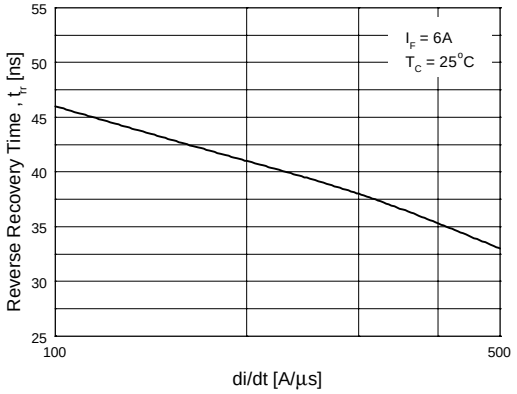



**Figure 4. Typical Reverse Recovery Time vs. di/dt**

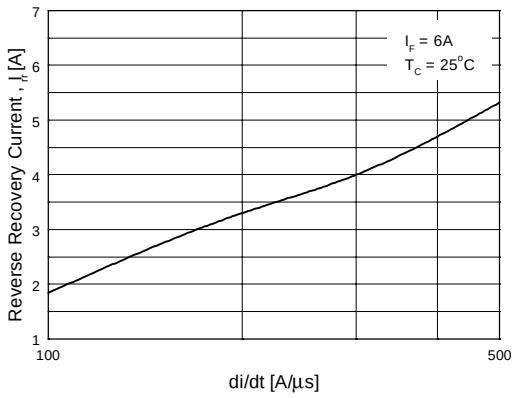



**Figure 5. Typical Reverse Recovery Current vs. di/dt**

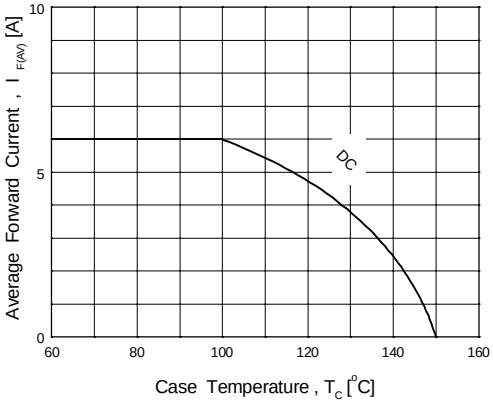
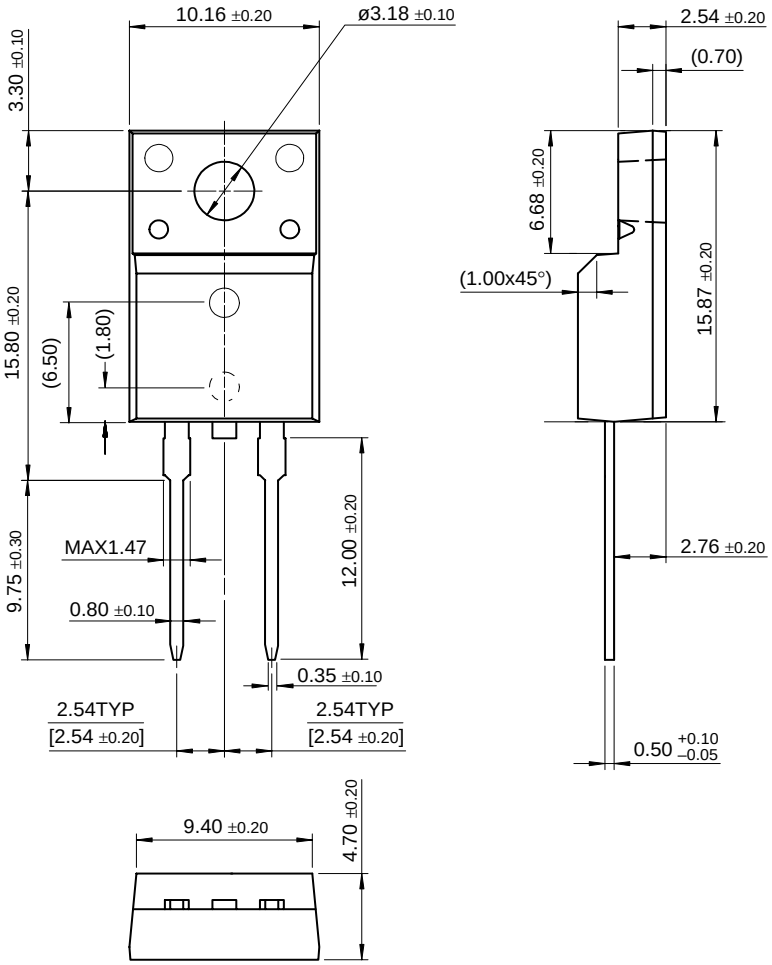



**Figure 6. Forward Current Derating Curve**

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## Package Dimensions

# TO-220F 2L




Dimensions in Millimeters

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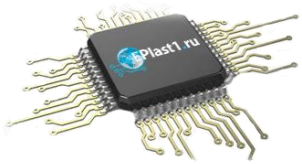
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