

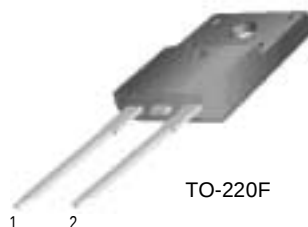
## FFPF06U20S

### Features

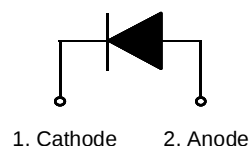
- Ultrafast with soft recovery
- Low forward voltage

### Applications

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



TO-220F



## ULTRA FAST RECOVERY RECTIFIER

### Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol         | Parameter                                                       | Value        | Units            |
|----------------|-----------------------------------------------------------------|--------------|------------------|
| $V_{RRM}$      | Peak Repetitive Reverse Voltage                                 | 200          | V                |
| $I_{F(AV)}$    | Average Rectified Forward Current @ $T_C = 100^\circ\text{C}$   | 6            | A                |
| $I_{FSM}$      | Non-repetitive Peak Surge Current<br>60Hz Single Half-Sine Wave | 60           | A                |
| $T_J, T_{STG}$ | Operating Junction and Storage Temperature                      | - 65 to +150 | $^\circ\text{C}$ |

### Thermal Characteristics

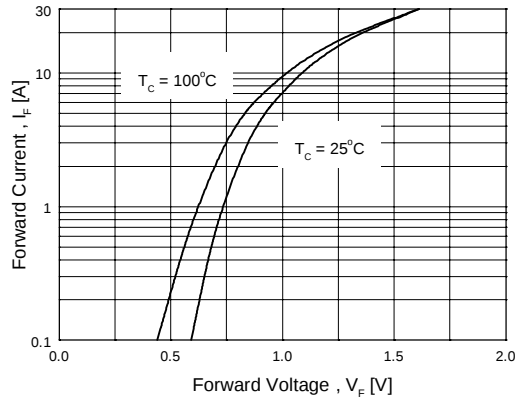
| Symbol          | Parameter                                    | Value | Units              |
|-----------------|----------------------------------------------|-------|--------------------|
| $R_{\theta JC}$ | Maximum Thermal Resistance, Junction to Case | 8.0   | $^\circ\text{C/W}$ |

### Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

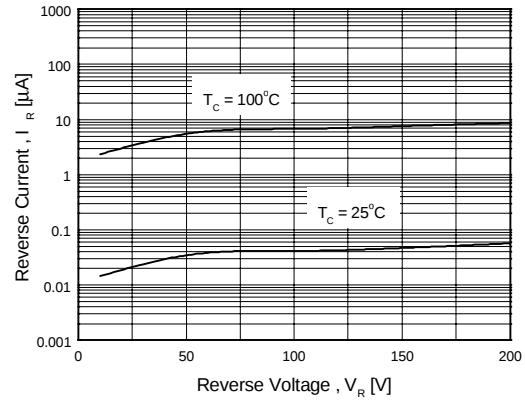
| Symbol     | Parameter                                                                                    | Min. | Typ. | Max. | Units         |
|------------|----------------------------------------------------------------------------------------------|------|------|------|---------------|
| $V_{FM}^*$ | Maximum Instantaneous Forward Voltage                                                        |      |      |      | V             |
|            | $I_F = 6\text{A}$                                                                            | -    | -    | 1.2  |               |
|            | $T_C = 25^\circ\text{C}$                                                                     | -    | -    | 1.0  |               |
| $I_{RM}^*$ | Maximum Instantaneous Reverse Current                                                        |      |      |      | $\mu\text{A}$ |
|            | @ rated $V_R$                                                                                | -    | -    | 6    |               |
|            | $T_C = 25^\circ\text{C}$                                                                     | -    | -    | 60   |               |
| $t_{rr}$   | Maximum Reverse Recovery Time                                                                | -    | -    | 35   | ns            |
| $I_{rr}$   | Maximum Reverse Recovery Current                                                             | -    | -    | 2.5  | A             |
| $Q_{rr}$   | Maximum Reverse Recovery Charge<br>( $I_F = 6\text{A}$ , $di/dt = 200\text{A}/\mu\text{s}$ ) | -    | -    | 45   | nC            |
| $W_{AVL}$  | Avalanche Energy                                                                             | 0.5  | -    | -    | mJ            |

\* Pulse Test: Pulse Width=300 $\mu\text{s}$ , Duty Cycle=2%

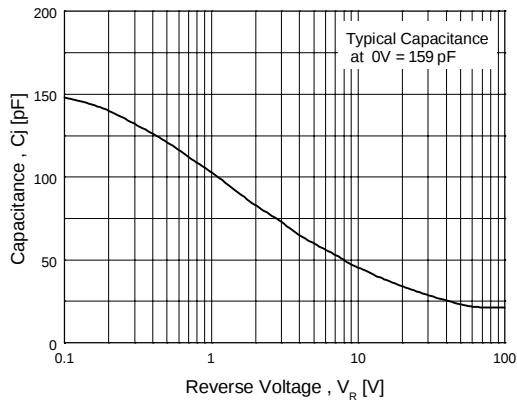
## Typical Characteristics



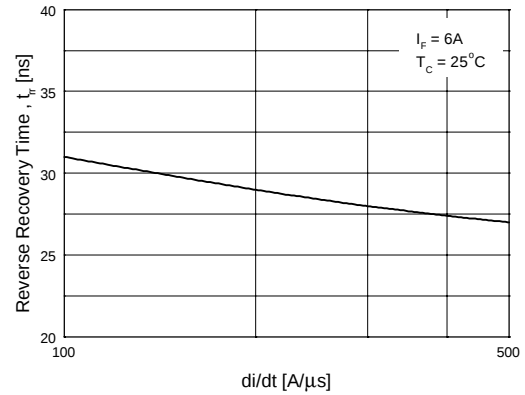
**Figure 1. Typical Forward Voltage Drop vs. Forward Current**



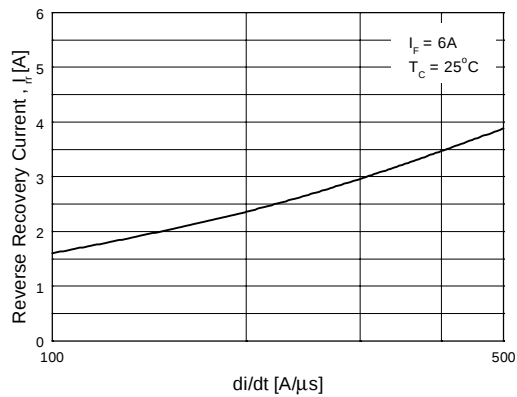
**Figure 2. Typical Reverse Current vs. Reverse Voltage**



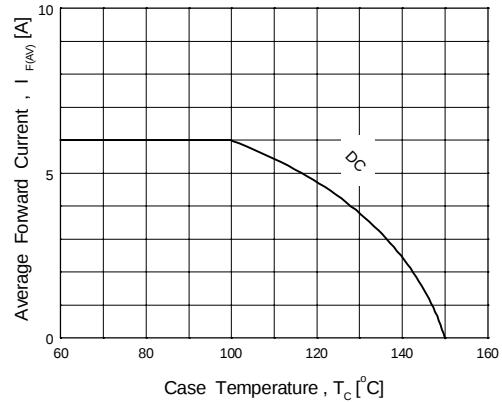
**Figure 3. Typical Junction Capacitance**



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



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

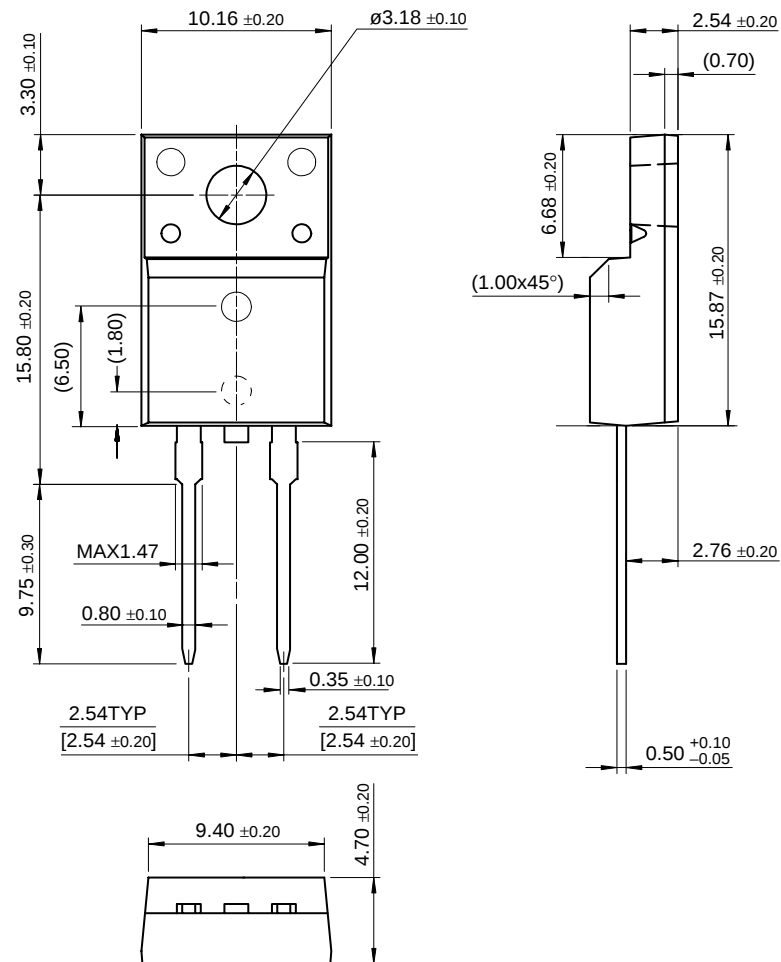


**Figure 6. Forward Current Derating Curve**

# Package Dimensions

## TO-220F 2L

FFPF06U20S



Dimensions in Millimeters

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| CoolFET™             | GTO™                | QT Optoelectronics™ |      |
| CROSSVOLT™           | HiSeC™              | Quiet Series™       |      |
| DOVE™                | ISOPLANAR™          | SuperSOT™-3         |      |
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| EnSigna™             | OPTOLOGIC™          | SuperSOT™-8         |      |
| FACT™                | OPTOPLANAR™         | SyncFET™            |      |
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