

## FFPF06U40S

### Features

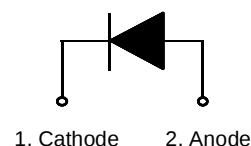
- Ultrafast with soft recovery
- Low forward voltage

### 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                                 | 400          | 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 | 7.0   | $^\circ\text{C/W}$ |

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

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

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

## Typical Characteristics

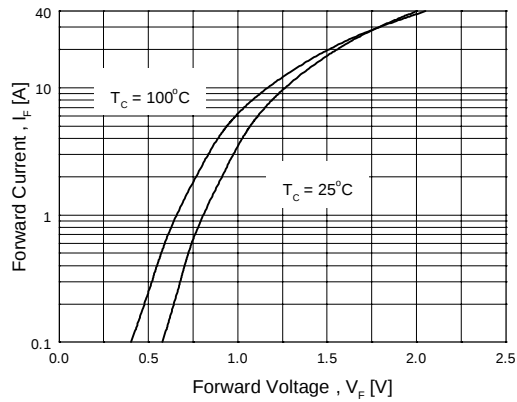


Figure 1. Typical Forward Voltage Drop vs. Forward Current

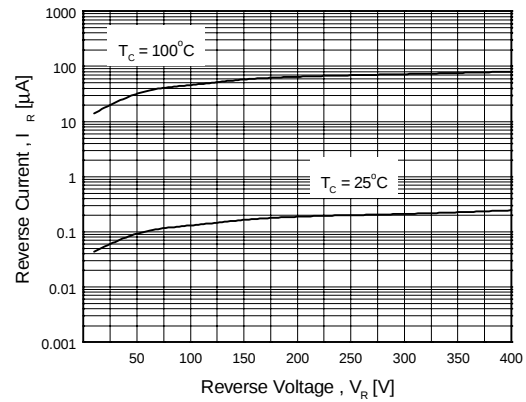


Figure 2. Typical Reverse Current vs. Reverse Voltage

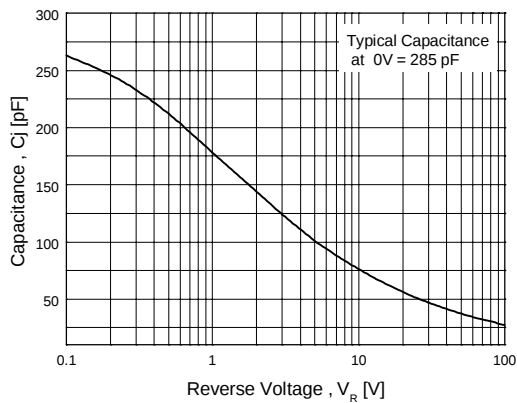


Figure 3. Typical Junction Capacitance

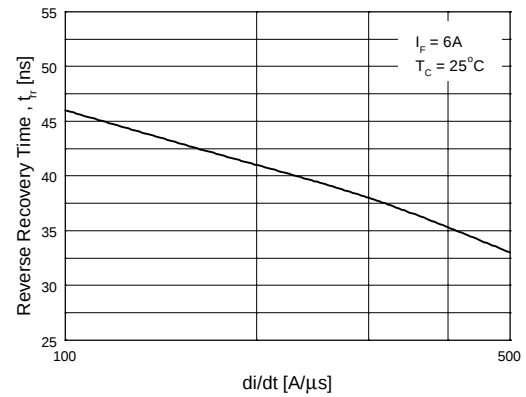


Figure 4. Typical Reverse Recovery Time vs.  $di/dt$

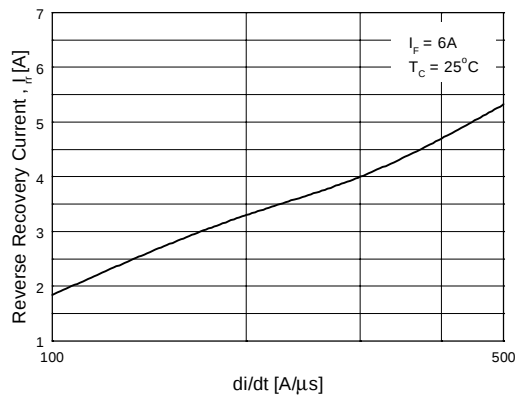


Figure 5. Typical Reverse Recovery Current vs.  $di/dt$

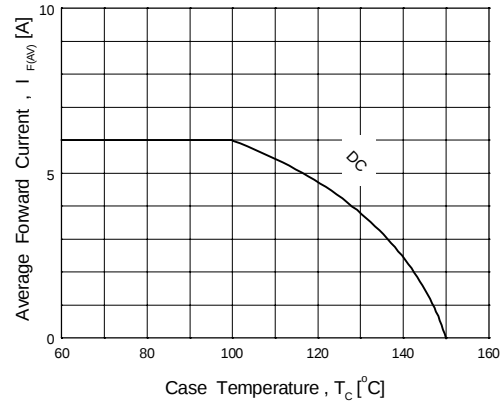
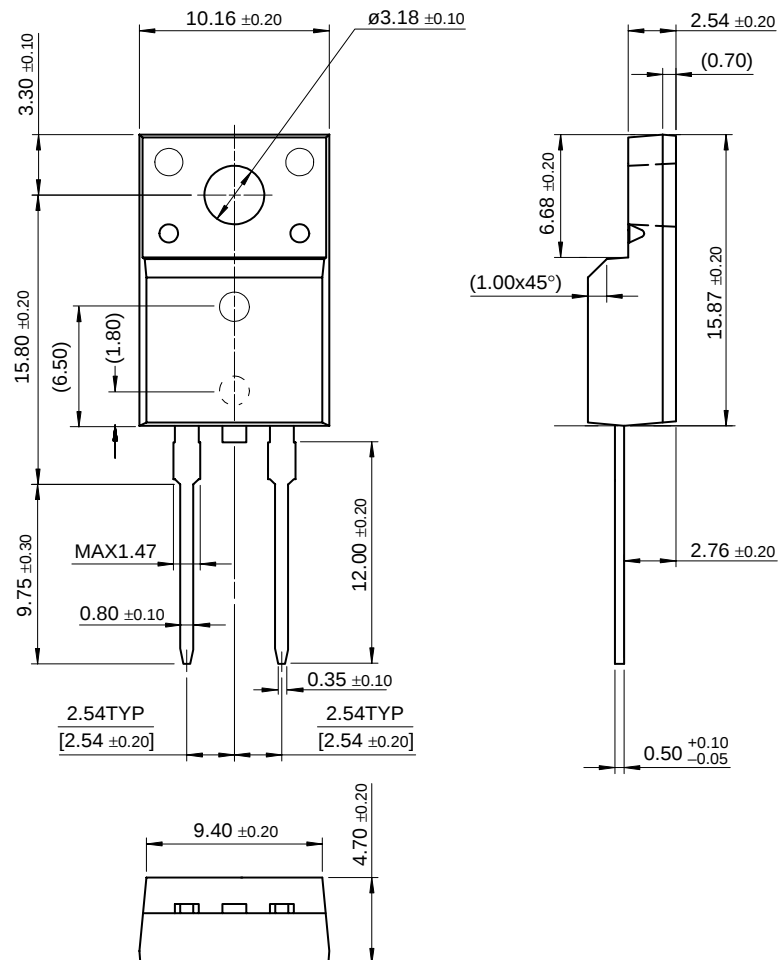


Figure 6. Forward Current Derating Curve

# Package Dimensions

FFPF06U40S

## TO-220F 2L



Dimensions in Millimeters

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| CoolFET™             | GTO™                | QT Optoelectronics™ |      |
| CROSSVOLT™           | HiSeC™              | Quiet Series™       |      |
| DOVE™                | ISOPANAR™           | SuperSOT™-3         |      |
| E <sup>2</sup> CMOS™ | MICROWIRE™          | SuperSOT™-6         |      |
| EnSigna™             | OPTOLOGIC™          | SuperSOT™-8         |      |
| FACT™                | OPTOPLANAR™         | SyncFET™            |      |
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