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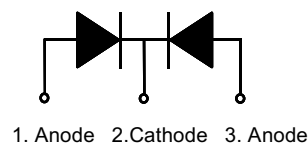
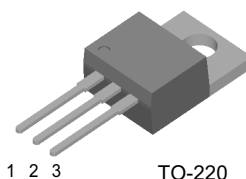
## FFP06U20DN

### Features

- Ultrafast with soft recovery.
- Low forward voltage.

### Applications

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



## FAST RECOVERY POWER RECTIFIER

### Absolute Maximum Ratings (per diode) $T_C=25^\circ\text{C}$ 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

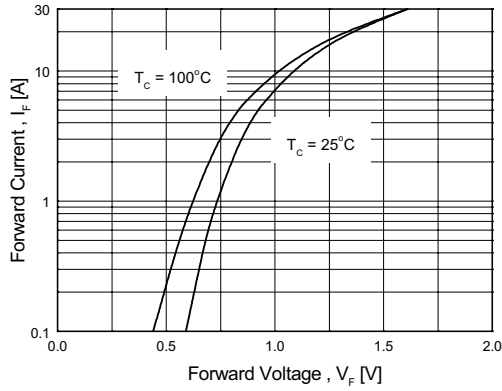
| Symbol          | Parameter                                    | Value | Units              |
|-----------------|--|-------|--------------------|
| $R_{\theta JC}$ | Maximum Thermal Resistance, Junction to Case | 7.2   | $^\circ\text{C/W}$ |

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

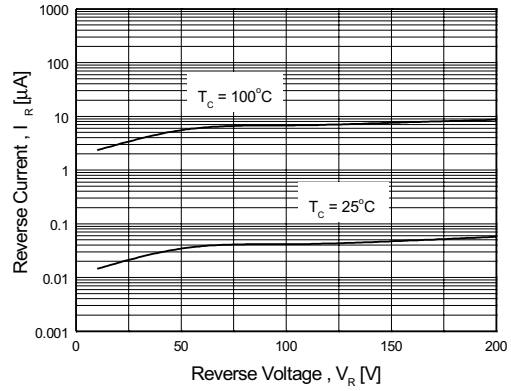
| Symbol     | Parameter  | Min.                      | Typ. | Max. | Units |               |
|------------|--|---------------------------|------|------|-------|---------------|
| $V_{FM}^*$ | Maximum Instantaneous Forward Voltage<br>$I_F = 6\text{A}$                                   | $T_C = 25^\circ\text{C}$  | -    | -    | 1.2   | V             |
|            |  | $T_C = 100^\circ\text{C}$ | -    | -    | 1.0   |               |
| $I_{RM}^*$ | Maximum Instantaneous Reverse Current<br>@ rated $V_R$                                       | $T_C = 25^\circ\text{C}$  | -    | -    | 6     | $\mu\text{A}$ |
|            |  | $T_C = 100^\circ\text{C}$ | -    | -    | 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%

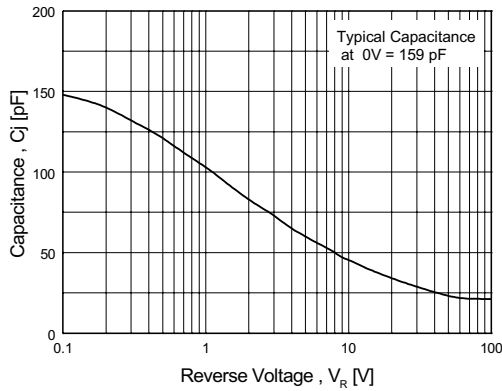
**Typical Characteristics**



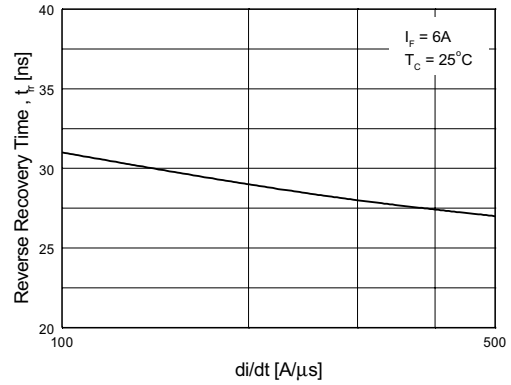
**Figure 1. Typical Forward Voltage Drop vs. Forward Current**



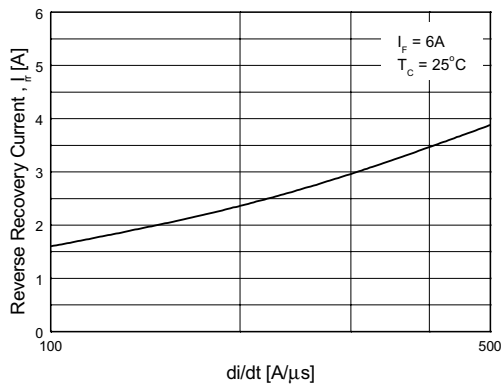
**Figure 2. Typical Reverse Current vs. Reverse Voltage**



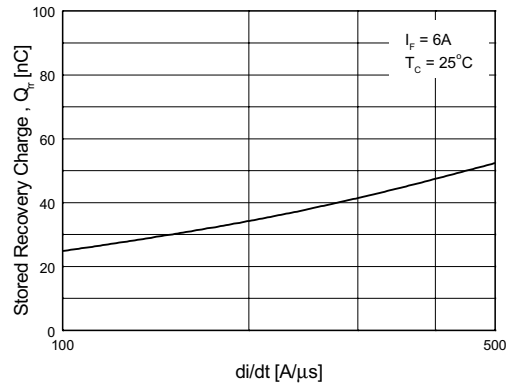
**Figure 3. Typical Junction Capacitance**



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



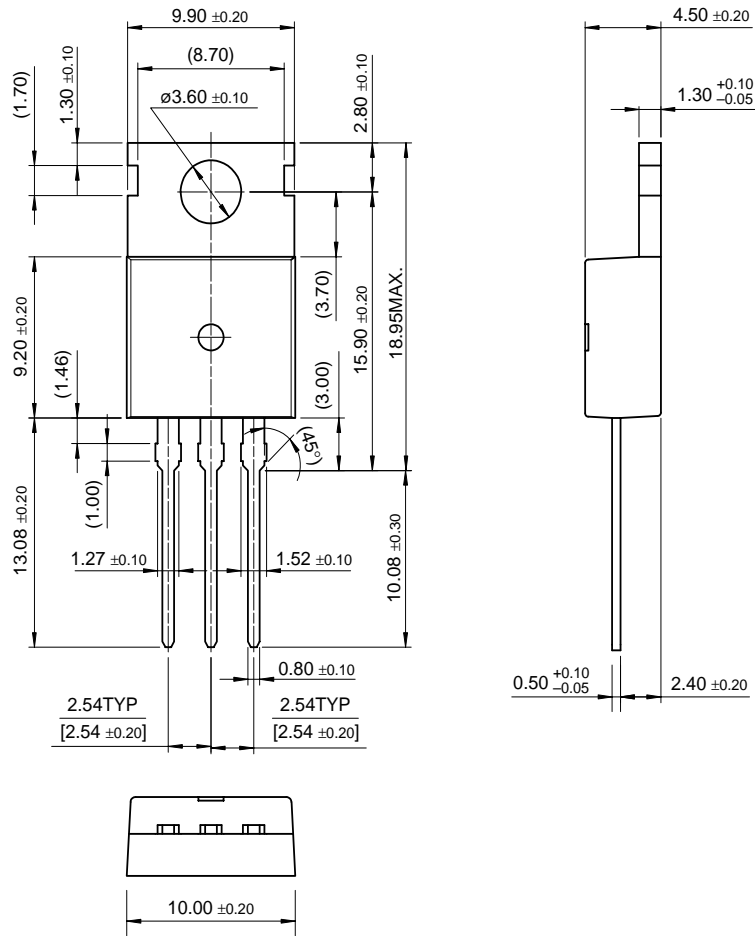
**Figure 5. Typical Reverse Recovery Current vs. di/dt**



**Figure 6. Typical Stored Charge vs. di/dt**

Package Dimensions

TO-220



Dimensions in Millimeters

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| Bottomless™          | ISOPANAR™     | SyncFET™    |
| CoolFET™             | MICROWIRE™    | TinyLogic™  |
| CROSSVOLT™           | POP™          | UHC™        |
| E <sup>2</sup> CMOS™ | PowerTrench®  | VCX™        |
| FACT™                | QFET™         |             |
| FACT Quiet Series™   | QS™           |             |
| FAST®                | Quiet Series™ |             |
| FAST <sub>r</sub> ™  | SuperSOT™-3   |             |
| GTO™                 | SuperSOT™-6   |             |

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