

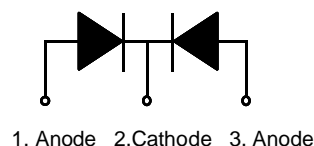
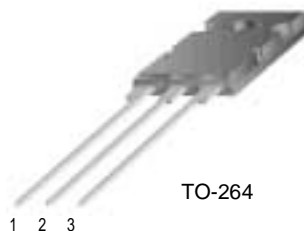
## FFL25U120DN

### 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



## ULTRA 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                                 | 1200         | V                |
| $I_{F(AV)}$    | Average Rectified Forward Current @ $T_C = 100^\circ\text{C}$   | 25           | A                |
| $I_{FSM}$      | Non-repetitive Peak Surge Current<br>60Hz Single Half-Sine Wave | 150          | A                |
| $T_J, T_{STG}$ | Operating Junction and Storage Temperature                      | - 65 to +150 | $^\circ\text{C}$ |

### Thermal Characteristics

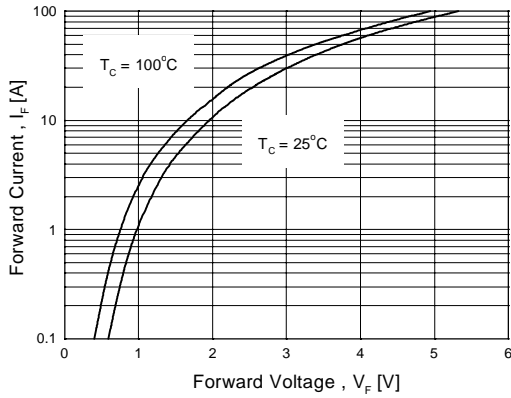
| Symbol          | Parameter                                    | Value | Units              |
|-----------------|--|-------|--------------------|
| $R_{\theta JC}$ | Maximum Thermal Resistance, Junction to Case | 0.72  | $^\circ\text{C/W}$ |

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

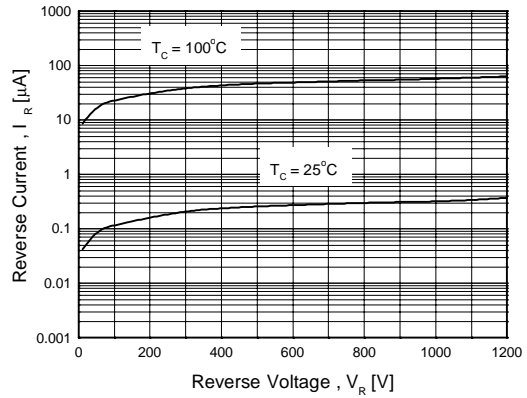
| Symbol     | Parameter   | Min.                      | Typ. | Max. | Units |               |
|------------|---|---------------------------|------|------|-------|---------------|
| $V_{FM}^*$ | Maximum Instantaneous Forward Voltage<br>$I_F = 25\text{A}$                                   | $T_C = 25^\circ\text{C}$  | -    | -    | 3.5   | V             |
|            |   | $T_C = 100^\circ\text{C}$ | -    | -    | 3.2   |               |
| $I_{RM}^*$ | Maximum Instantaneous Reverse Current<br>@ rated $V_R$  | $T_C = 25^\circ\text{C}$  | -    | -    | 25    | $\mu\text{A}$ |
|            |   | $T_C = 100^\circ\text{C}$ | -    | -    | 1.5   | mA            |
| $t_{rr}$   | Maximum Reverse Recovery Time   | -                         | -    | 120  | ns    |               |
| $I_{rr}$   | Maximum Reverse Recovery Current  | -                         | -    | 11   | A     |               |
| $Q_{rr}$   | Maximum Reverse Recovery Charge<br>( $I_F = 25\text{A}$ , $di/dt = 200\text{A}/\mu\text{s}$ ) | -                         | -    | 550  | nC    |               |
| $W_{AVL}$  | Avalanche Energy  | 1.0                       | -    | -    | mJ    |               |

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

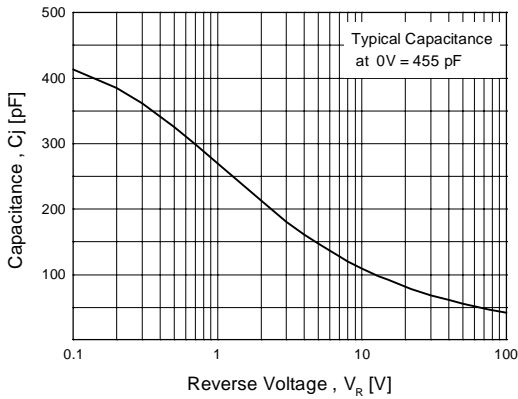
# Typical Characteristics



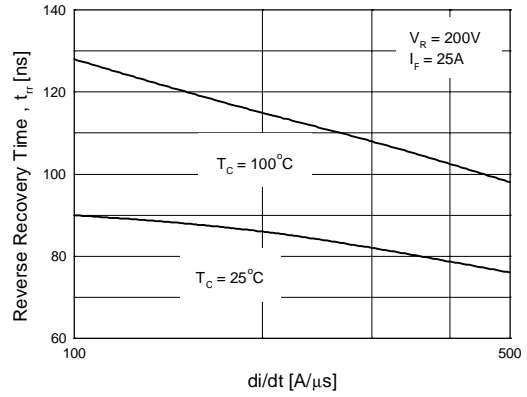
**Figure 1. Typical Forward Voltage Drop vs. Forward Current**



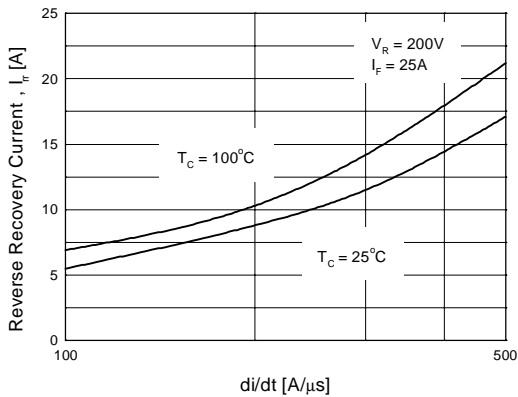
**Figure 2. Typical Reverse Current vs. Reverse Voltage**



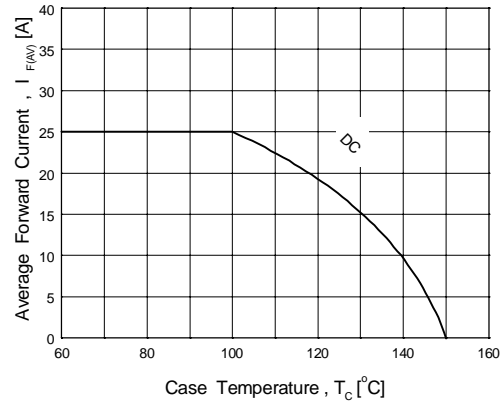
**Figure 3. Typical Junction Capacitance**



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



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



**Figure 6. Forward Current Derating Curve**



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| CoolFET <sup>TM</sup>             | GTO <sup>TM</sup>                    | QT Optoelectronics <sup>TM</sup> |                   |
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