

FFB10UP20S

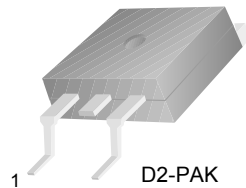
Ultrafast Recovery Power Rectifier

Features

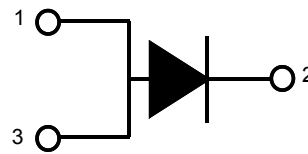
- Ultrafast with Soft Recovery : < 45ns
- High Reverse Voltage : $V_{RRM} = 200V$
- Avalanche Energy Rated
- Planar Construction
- RoHS Compliant

Applications

- Output Rectifiers
- Switching Mode Power Supply
- Free-wheeling diode for motor application
- Power switching circuits



1.Anode 2.Cathode 3.Anode



1. Anode 2. Cathode 3. Anode

Absolute Maximum Ratings (per diode) $T_a = 25^\circ C$ unless otherwise noted

| Symbol | Parameter | Value | Units |
|----------------|---|--------------|------------|
| V_{RRM} | Peak Repetitive Reverse Voltage | 200 | V |
| V_{RWM} | Working Peak Reverse Voltage | 200 | V |
| V_R | DC Blocking Voltage | 200 | V |
| $I_{F(AV)}$ | Average Rectified Forward Current @ $T_C = 120^\circ C$ | 10 | A |
| I_{FSM} | Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave | 100 | A |
| T_J, T_{STG} | Operating Junction and Storage Temperature | - 65 to +150 | $^\circ C$ |

Thermal Characteristics $T_a = 25^\circ C$ unless otherwise noted

| Symbol | Parameter | Max | Units |
|-----------------|--|-----|--------------|
| $R_{\theta JC}$ | Maximum Thermal Resistance, Junction to Case | 3.0 | $^\circ C/W$ |

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

| Symbol | Parameter | Min. | Typ. | Max. | Units | |
|----------------------------|--|---------------------------|------|------|-------|---------------|
| V_{FM}^* | $I_F = 10\text{A}$ $I_F = 10\text{A}$ | $T_C = 25^\circ\text{C}$ | - | - | 1.15 | V |
| | | $T_C = 150^\circ\text{C}$ | - | - | 1.0 | V |
| I_{RM}^* | $V_R = 200\text{V}$ $V_R = 200\text{V}$ | $T_C = 25^\circ\text{C}$ | - | - | 100 | μA |
| | | $T_C = 150^\circ\text{C}$ | - | - | 500 | μA |
| t_{rr} | $I_F = 1\text{A}, di/dt = 100\text{A}/\mu\text{s}, V_{CC} = 30\text{V}$ $I_F = 10\text{A}, di/dt = 200\text{A}/\mu\text{s}, V_{CC} = 130\text{V}$ | $T_C = 25^\circ\text{C}$ | - | - | 35 | ns |
| | | $T_C = 25^\circ\text{C}$ | - | - | 45 | ns |
| t_a t_b Q_{rr} | $I_F = 10\text{A}, di/dt = 200\text{A}/\mu\text{s}, V_{CC} = 130\text{V}$ | $T_C = 25^\circ\text{C}$ | - | 15 | - | ns |
| | | $T_C = 25^\circ\text{C}$ | - | 12 | - | ns |
| | | $T_C = 25^\circ\text{C}$ | - | 36 | - | nC |
| W_{AVL} | Avalanche Energy (L = 20mH) | 10 | - | - | mJ | |

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

Typical Performance Characteristics

Figure 1. Typical Forward Voltage Drop

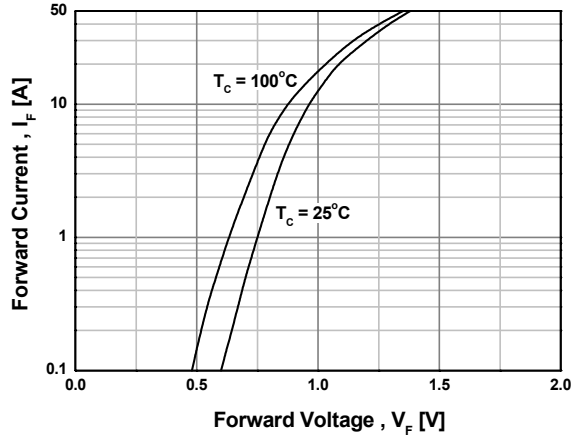


Figure 2. Typical Reverse Current

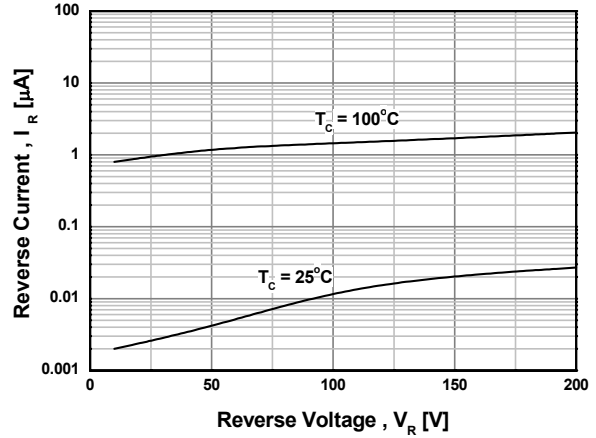


Figure 3. Typical Junction Capacitance

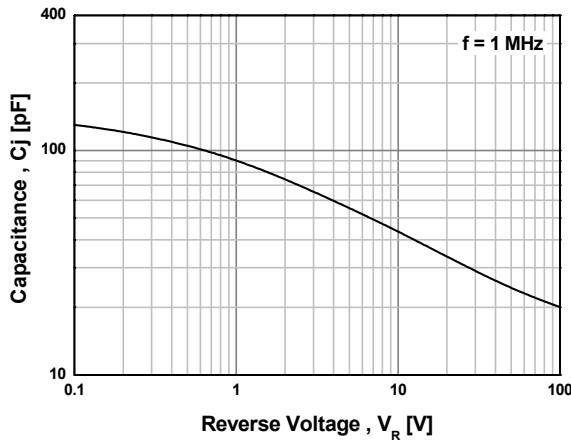


Figure 4. Typical Reverse Recovery Time

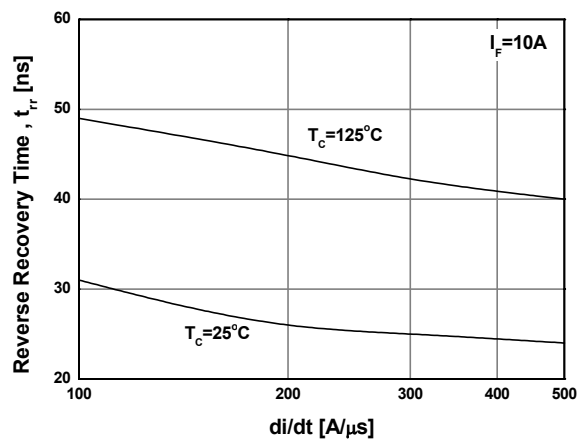


Figure 5. Typical Reverse Recovery Current

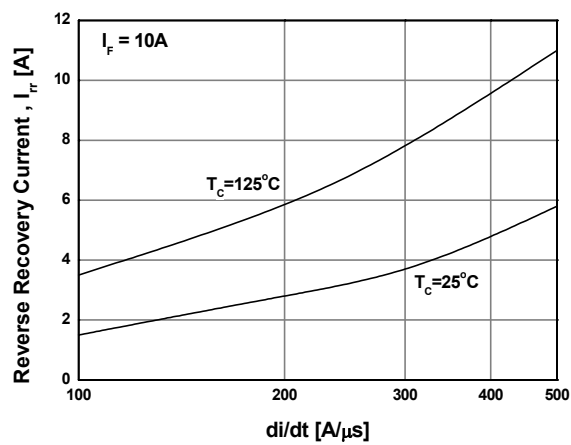
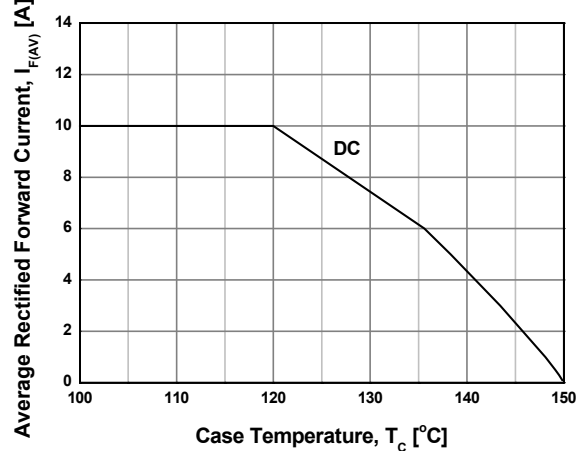
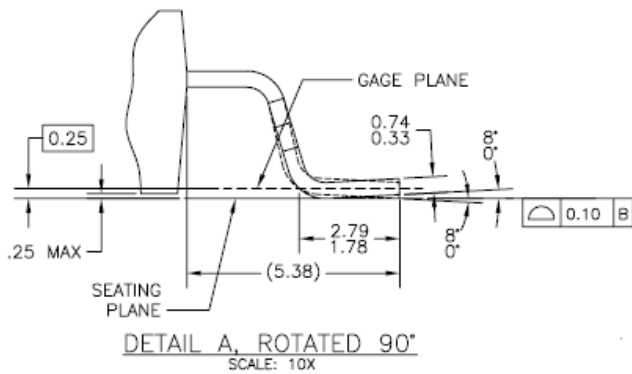
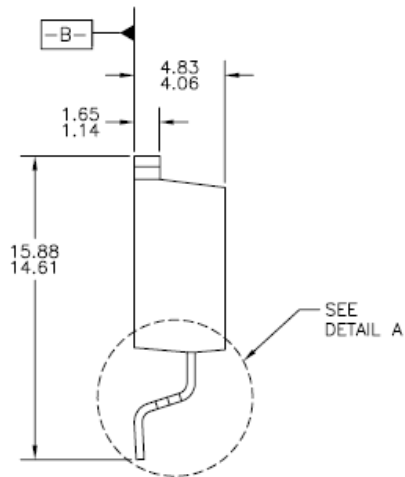
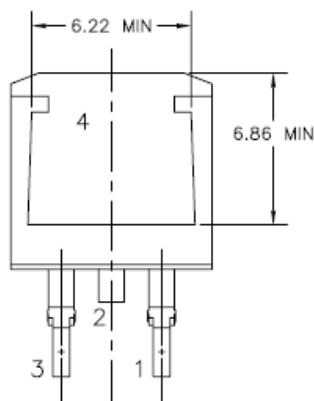
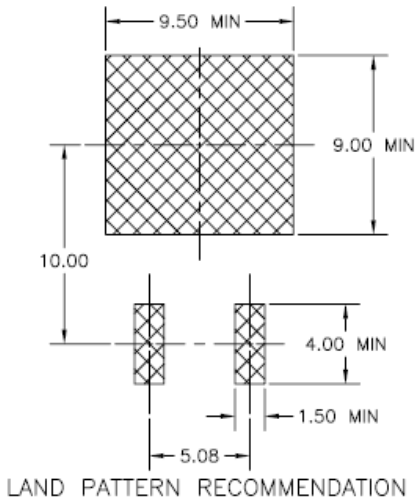
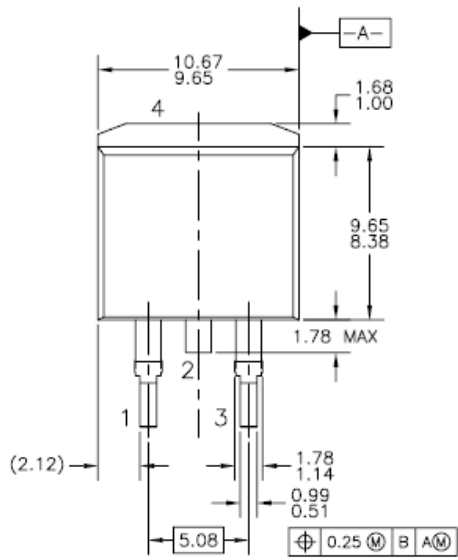


Figure 6. Forward Current Deration Curve



Mechanical Dimensions

D² - PAK



Dimensions in Millimeters


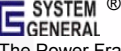


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