FFPF10F150S
10 A, 1500 V, Damper Diode

Features
- High Speed Recovery $t_r = 170$ ns (@ $I_F = 1$ A)
- Max Forward Voltage, $V_F = 1.6$ V (@ $T_C = 25^\circ$C)
- 1500 V Reverse Voltage and High Reliability
- Low Forward Voltage

Applications
- Suitable for Damper Diode in Horizontal Deflection Circuits

Pin Assignments

Absolute Maximum Ratings $T_C = 25^\circ$C unless otherwise noted

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Ratings</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>$V_{RRM}$</td>
<td>Peak Repetitive Reverse Voltage</td>
<td>1500</td>
<td>V</td>
</tr>
<tr>
<td>$V_{WRM}$</td>
<td>Working Peak Reverse Voltage</td>
<td>1500</td>
<td>V</td>
</tr>
<tr>
<td>$I_{F(AV)}$</td>
<td>Average Rectified Forward Current @ $T_C = 125^\circ$C</td>
<td>10</td>
<td>A</td>
</tr>
<tr>
<td>$I_{FSM}$</td>
<td>Non-repetitive Peak Surge Current 60Hz Single Half-Sine Wave</td>
<td>100</td>
<td>A</td>
</tr>
<tr>
<td>$T_J, T_{STG}$</td>
<td>Operating Junction and Storage Temperature</td>
<td>-65 to +150</td>
<td>°C</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Max.</th>
<th>Unit</th>
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</thead>
<tbody>
<tr>
<td>$R_{JC}$</td>
<td>Maximum Thermal Resistance, Junction to Case</td>
<td>3.0</td>
<td>°C/W</td>
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Package Marking and Ordering Information

<table>
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<tr>
<th>Part Number</th>
<th>Top Mark</th>
<th>Package</th>
<th>Packing Method</th>
<th>Reel Size</th>
<th>Tape Width</th>
<th>Quantity</th>
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<tr>
<td>FFPF10F150STU</td>
<td>FFPF10F150S</td>
<td>TO-220F-2L</td>
<td>Tube</td>
<td>N/A</td>
<td>N/A</td>
<td>30</td>
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**Electrical Characteristics**  \( T_C = 25^\circ\text{C} \) unless otherwise noted

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Conditions</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
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<tbody>
<tr>
<td>( V_F )  (^1)</td>
<td>Maximum Instantaneous Forward Voltage</td>
<td>( T_C = 25^\circ\text{C} )</td>
<td>( T_C = 125^\circ\text{C} )</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>( I_F = 10 \text{ A} )</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>( I_F = 10 \text{ A} )</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( I_R )  (^1)</td>
<td>Maximum Instantaneous Reverse Current</td>
<td>( T_C = 25^\circ\text{C} )</td>
<td>( T_C = 125^\circ\text{C} )</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>( @ \text{ rated } V_R )</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( t_{rr} )</td>
<td>Maximum Reverse Recovery Time</td>
<td>( (I_F = 1 \text{ A}, \frac{diF}{dt} = 50 \text{ A/\mu s}, V_R = 30 \text{ V}) )</td>
<td>-</td>
<td>-</td>
<td>170</td>
</tr>
<tr>
<td>( t_{fr} )</td>
<td>Maximum Forward Recovery Time</td>
<td>( (I_F = 6.5 \text{ A}, \frac{diF}{dt} = 50 \text{ A/\mu s}) )</td>
<td>-</td>
<td>-</td>
<td>250</td>
</tr>
<tr>
<td>( V_{FRM} )</td>
<td>Maximum Forward Recovery Voltage</td>
<td>-</td>
<td>-</td>
<td>14</td>
<td>V</td>
</tr>
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**Notes:**
1. Pulse : Test Pulse Width = 300\( \mu\text{s} \), Duty Cycle = 2%

**Test Circuit and Waveforms**

**Figure 1. Diode Reverse Recovery Test Circuit & Waveform**

**Figure 2. Unclamped Inductive Switching Test Circuit & Waveform**
Typical Performance Characteristics  \( T_C = 25^\circ C \) unless otherwise noted

**Figure 3. Typical Forward Voltage Drop**

- Forward Voltage vs. Forward Current
- Typical Capacitance at 0V = 150 pF
- \( T_J = 25^\circ C \)
- \( T_J = 125^\circ C \)

**Figure 4. Typical Reverse Current**

- Reverse Voltage vs. Reverse Current
- \( T_J = 25^\circ C \)
- \( T_J = 100^\circ C \)
- \( T_J = 125^\circ C \)

**Figure 5. Typical Junction Capacitance**

- Capacitance vs. Reverse Voltage
- Typical Capacitance at 0V = 150 pF
- \( T_J = 25^\circ C \)
- \( T_J = 125^\circ C \)

**Figure 6. Typical Reverse Recovery Time**

- Reverse Recovery Time vs. Forward Current
- \( \frac{dI}{dt} = 100 A/\mu s \)
- \( \frac{dI}{dt} = 50 A/\mu s \)

**Figure 7. Typical Stored Charge**

- Stored Recovery Charge vs. Forward Current
- \( \frac{dI}{dt} = 100 A/\mu s \)
- \( \frac{dI}{dt} = 50 A/\mu s \)

**Figure 8. Forward Current Deration Curve**

- Average Forward Current vs. Case Temperature
- \( \Phi \)
Mechanical Dimensions

Figure 9. TO-220F 2L - 2LD; TO220; MOLDED; FULL PACK

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