FR601 THRU FR607

FAST RECOVERY RECTIFIERS
Reverse Voltage: 50 to 1000 V
Forward Current: 6 A

Features
- Low forward voltage drop
- Low leakage
- High current capability
- High reliability
- High current surge
- Fast switching for high efficiency

Mechanical Data
- Case: Molded plastic, R-6
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Axial leads, solder per MIL-STD-202, method 208 guaranteed
- Polarity: Color band denotes cathode end
- Mounting Position: Any

Maximum Ratings and Electrical Characteristics
Ratings at 25 °C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load, for capacitive load, derate current by 20%

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbols</th>
<th>FR601</th>
<th>FR602</th>
<th>FR603</th>
<th>FR604</th>
<th>FR605</th>
<th>FR606</th>
<th>FR607</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Recurrent Peak Reverse Voltage</td>
<td>( V_{RRM} )</td>
<td>50</td>
<td>100</td>
<td>200</td>
<td>400</td>
<td>600</td>
<td>800</td>
<td>1000</td>
<td>V</td>
</tr>
<tr>
<td>Maximum RMS Voltage</td>
<td>( V_{RMS} )</td>
<td>35</td>
<td>70</td>
<td>140</td>
<td>280</td>
<td>420</td>
<td>560</td>
<td>700</td>
<td>V</td>
</tr>
<tr>
<td>Maximum DC Blocking Voltage</td>
<td>( V_{DC} )</td>
<td>50</td>
<td>100</td>
<td>200</td>
<td>400</td>
<td>600</td>
<td>800</td>
<td>1000</td>
<td>V</td>
</tr>
<tr>
<td>Maximum Average Forward Rectified Current</td>
<td>( I_{F(AV)} )</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Peak Forward Surge Current 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC Method)</td>
<td>( I_{FSM} )</td>
<td>300</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Maximum Instantaneous Forward Voltage at 6 A</td>
<td>( V_F )</td>
<td>1.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>Maximum DC Reverse Current at Rated DC Blocking Voltage</td>
<td>( I_R )</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>µA</td>
</tr>
<tr>
<td>Maximum Reverse Recovery Time 1)</td>
<td>( t_{tr} )</td>
<td>150</td>
<td>250</td>
<td>500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>°C</td>
</tr>
<tr>
<td>Typical Junction Capacitance 2)</td>
<td>( C_j )</td>
<td>150</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>pF</td>
</tr>
<tr>
<td>Operating and Storage Temperature Range</td>
<td>( T_{j}, T_{stg} )</td>
<td>-65 to +150</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>°C</td>
</tr>
</tbody>
</table>

1) Reverse recovery time test conditions: \( I_r = 0.5 \text{ A}, I_m = 1 \text{ A}, I_r = 0.25 \text{ A} \)
2) Measured at 1 MHz and applied reverse voltage of 4 V
FR601 THRU FR607

TYPICAL FORWARD CURRENT DERATING CURVE

AVERAGE FORWARD CURRENT (A)

Ambient Temperature Ta (°C)

TYPICAL FORWARD CHARACTERISTICS

INSTANTANEOUS FORWARD CURRENT (A)

FORWARD VOLTAGE (V)

Tj=25 °C
Pulse Width 300 ns
1% Duty Cycle

MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

PEAK FORWARD SURGE CURRENT (A)

NUMBER OF CYCLES AT 60 Hz

TYPICAL JUNCTION CAPACITANCE

JUNCTION CAPACITANCE (pF)

Tj=25 °C

TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTICS

Notes: 1. Rise time = 2 ns max. Input impedance = 1 megohm, 22 pF
2. Rise time = 10 ns max. Source impedance = 50 ohms.