1F1 THRU 1F7

MINIATURE FAST RECOVERY RECTIFIER
Reverse Voltage - 50 to 1000 V
Forward Current - 1 A

Features
• High current capability
• High reliability
• Low forward voltage drop
• Low leakage
• High switching capability

Mechanical Data
• Case: Molded plastic, R-1
• Epoxy: UL 94V-0 rate flame retardant
• Lead: Axial leads, solderable per MIL-STD-202, Method 208 guaranteed
• Polarity: color band denotes cathode end
• Mounting Position: Any

Absolute Maximum Ratings and 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>1F1</th>
<th>1F2</th>
<th>1F3</th>
<th>1F4</th>
<th>1F5</th>
<th>1F6</th>
<th>1F7</th>
<th>Units</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 0.375&quot; (9.5 mm) Lead Length at ( T_A = 55 ) °C</td>
<td>( I_{AV} )</td>
<td>1</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>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Maximum Forward Voltage at 1 A DC</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 Reverse Current at Rated DC Blocking Voltage</td>
<td>( I_R )</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>( \mu A )</td>
</tr>
<tr>
<td>Typical Junction Capacitance 1)</td>
<td>( C_J )</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>pF</td>
</tr>
<tr>
<td>Typical Thermal Resistance 2)</td>
<td>( R_{thJA} )</td>
<td>67</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>°C/W</td>
</tr>
<tr>
<td>Maximum Reverse Recovery Time 3)</td>
<td>( t_{rr} )</td>
<td>150</td>
<td>250</td>
<td>500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>nS</td>
</tr>
<tr>
<td>Operating and Storage Temperature Range</td>
<td>( T_J, T_{stg} )</td>
<td>- 55 to + 150</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>°C</td>
</tr>
</tbody>
</table>

1) Measured at 1 MHz and applied reverse voltage of 4 V DC.
2) Thermal resistance from junction to ambient 0.375" (9.5 mm) lead length P.C.B. mounted with 0.22 X 0.22" (5.5 X 5.5 mm) copper pads.
3) Reverse recovery test conditions: \( I_F = 0.5 \) A, \( I_R = 1 \) A, \( I_{rr} = 0.25 \) A
FIG.1 - MAXIMUM TYPICAL FORWARD CURRENT DERATING CURVE

Single Phase
Half Wave 60Hz
Resistive or
Inductive Load
0.370" (9.5mm)
Lead Length

AMBIENT TEMPERATURE (°C)

FIG.2 - MAXIMUM NON-REPEETITIVE FORWARD SURGE CURRENT

PEAK FORWARD SURGE CURRENT (A)

NUMBER OF CYCLES AT 60Hz

5/3ns Single Half Sine Wave
JEDEC Method

FIG.3 - TYPICAL FORWARD CHARACTERISTICS

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

FORWARD VOLTAGE (V)

FIG.4 - TYPICAL JUNCTION CAPACITANCE

JUNCTION CAPACITANCE (pF)

REVERSE VOLTAGE (V)

FIG.5 - REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM

NOTES:
1. Rise Time=7ns max. Input Impedance
   1 megohm 22pF
2. Fall Time=120ns max. Source Impedance
   50 ohms

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