Test Report: PMP22006
100-VAC-130-VAC Input, 5-Vout, 6-A CCM Flyback Reference Design

Description
The PMP22006 is an isolated continuous conduction mode (CCM) flyback design that outputs 5 V at 6 A. The input is US line only (100 VAC-130 VAC).
1 Test Prerequisites

1.1 Voltage and Current Requirements

Table 1. Voltage and Current Requirements

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SPECIFICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Voltage Range</td>
<td>100VAC-132VAC</td>
</tr>
<tr>
<td>Switching Frequency</td>
<td>125kHz</td>
</tr>
<tr>
<td>Output Voltage/Current</td>
<td>5V/6A</td>
</tr>
</tbody>
</table>

1.2 Required Equipment*

- AC voltage source
- Electronic load
- Multi-meters
- Oscilloscope
2 Testing and Results

2.1 Efficiency and Voltage Regulation

2.1.1 5V output

![Iout vs Efficiency](image)

![Vout Regulation](image)
<table>
<thead>
<tr>
<th>VIN(V)</th>
<th>Iin(A)</th>
<th>Pin(W)</th>
<th>VOUT(V)</th>
<th>Iout(A)</th>
<th>Pout(W)</th>
<th>EFF(%)</th>
<th>Ploss(W)</th>
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</thead>
<tbody>
<tr>
<td>120</td>
<td>0.028</td>
<td>0.154</td>
<td>4.969</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.154</td>
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<tr>
<td>120</td>
<td>0.034</td>
<td>0.750</td>
<td>4.967</td>
<td>0.099</td>
<td>0.492</td>
<td>0.656</td>
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<td>3.180</td>
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<td>0.503</td>
<td>2.499</td>
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<td>0.681</td>
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<tr>
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<td>0.129</td>
<td>5.795</td>
<td>4.968</td>
<td>1.000</td>
<td>4.968</td>
<td>0.857</td>
<td>0.827</td>
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<tr>
<td>120</td>
<td>0.175</td>
<td>8.520</td>
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<td>11.162</td>
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<td>2.003</td>
<td>9.949</td>
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<tr>
<td>120</td>
<td>0.515</td>
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<td>4.974</td>
<td>6.008</td>
<td>29.884</td>
<td>0.906</td>
<td>3.116</td>
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</tbody>
</table>
2.2 Thermal Images
All images were taken after a 10 minute soak and at 25°C. These were taken open frame and not in any case.

2.2.1 120Vac; 5Vout; 6A out

Transformer core: 65°C
Diode Bridge: 72.5°C
Secondary FET and snubber: 77.9°C
2.3 Switching Waveforms

2.3.1 120Vac; 5Vout; 6A out; fsw=129kHz

![Switching Waveform Diagram](image-url)
2.4 Output voltage ripple

![Graph showing output voltage ripple with measurement values and timebase settings.]

- Timebase: 0.00 µs
- Intervals: 2.00 µs/div
- Voltage: 20.0 kV/div
- Waveform: Negative
- X1: -10.000 µs
- X2: 9.999 µs
- Y1: 3.900 µs
2.5  **Bode Plot**

![Bode Plot Image]
2.6 load transients

2.6.1 5V output, 0A-6A
2.7 EMI

Note: below shows the Conducted EMI testing for LINE and NTRL and incorporates the Quasi-peak and Average class B guidelines to show that the test passed for both.

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