1 Startup

Input voltage = 80VAC
Load current = 4.22A
2 Shutdown

Input voltage  = 230VAC
Load current   = 4.22A
3 Efficiency

![Efficiency Graph](image)

4 Load regulation

![Load Regulation Graph](image)
5 Control Loop Frequency Response

Load current = 4.22A
Input voltage = 80VAC
Phase margin = 52°
Bandwidth = 0.55kHz

Load current = 4.22A
Input voltage = 230VAC
Phase margin = 58°
Bandwidth = 0.91kHz

Load current = 4.22A
Input voltage = 272VAC
Phase margin = 57°
Bandwidth = 0.94kHz
6 Switch Node

Input voltage = 411VDC
Load current  = 4.22A

Input voltage = 80VAC
Load current  = 4.22A
7 Output ripple voltage

Input voltage = 230VAC
Load current = 4.22A
8 Load Transients

Input voltage = 230VAC
Load current = 2 to 4.3A
Input voltage = 85VAC
Load current = 2 to 4.3A
9 Thermal Analysis

The images below show the infrared images taken from the FlexCam after 15min at full load.

Input voltage = 110VAC
Load current = 4.22A
Ambient temperature = 25°C
No heatsink, no airflow

<table>
<thead>
<tr>
<th>Name</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mosfet Q1001</td>
<td>77.1°C</td>
</tr>
<tr>
<td>Transformer T1000</td>
<td>86.7°C</td>
</tr>
<tr>
<td>Resistor R1000</td>
<td>81.1°C</td>
</tr>
<tr>
<td>Mosfet Q1000</td>
<td>74.6°C</td>
</tr>
</tbody>
</table>

Input voltage = 230VAC
Load current = 4.22A
Ambient temperature = 25°C
No heatsink, no airflow

<table>
<thead>
<tr>
<th>Name</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistor R1000</td>
<td>81.4°C</td>
</tr>
<tr>
<td>Mosfet Q1000</td>
<td>75.8°C</td>
</tr>
<tr>
<td>Transformer T1000</td>
<td>98.3°C</td>
</tr>
<tr>
<td>Mosfet Q1001</td>
<td>90.4°C</td>
</tr>
</tbody>
</table>
10 EMI Measurement

The graph below shows the conducted emission EMI noise and the EN55022 Class-B Quasi-Peak limits (measurement from the worst case line). The load was connected to a LISN and an isolation transformer; the load was a power resistor (9V@4.22A). The receiver was set to Quasi-peak detector, 10 KHz bandwidth. The secondary side GND of the converter was connected to the ground of the LISN.

Input voltage  = 110VAC
Load current  = 4.22A
Input voltage = 230VAC
Load current = 4.22A
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