The PMP7038 is a DC/DC SMPS LLC resonant half bridge design. It has the following specification:

- 7.5W DC/DC SMPS
- Input voltage range: 4.75DC – 5.25VDC
- Output voltage: 5V
- Output current: 1.5Amax
- Galvanic isolation: Yes 4kVrms
- Dimensions: 110mm × 40mm (only 6mm height)
- One side assembly
If not other described, all tests are done at 5VDC input voltage.

1 Startup

The output voltage and current at startup are shown in the image below.

1.5A load at the output
Channel 1 shows the input voltage (5V/div, 10ms/div).
Channel 2 shows the output voltage 2V/div
Startup time = 45ms
## 2 Current consumption, Efficiency

### 4.75V

<table>
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### 5.25V

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![Efficiency vs Iout Graph](image-url)
3 Output Ripple Voltage and current

The output ripple voltage is shown in the plot below. Load 1.5A.

Channel 2 shows the output AC voltage, 20MHz BW (20mV/div, 10us/div). The ripple voltage: <10mVpp, spikes <80mVpp
4 Switching Node Waveform

The image below shows the drain-source voltage.

Channel 1 shows the switch node voltage (TP3): 2V/div, 5us/div.

5 Load step response

Channel 4 shows the output Current (500mA/div, 2ms/div).
Channel 2 shows the output voltage, AC coupling, 20MHz BW
Load step (750mA-1500mA) voltage drop out/over shoot: 70mVpp
6 Loop Response
Measured Bode plot below

Crossover frequency: 5.4kHz
Phase margin: 60deg

7 Thermal Image

PMP7038 Thermal image Top view
Ambient temperature 26°C
8 EMI Measurements

Conducted emission measurements on output – Not agency approved
Uin = 5VDC
Iout = 1.5A
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