

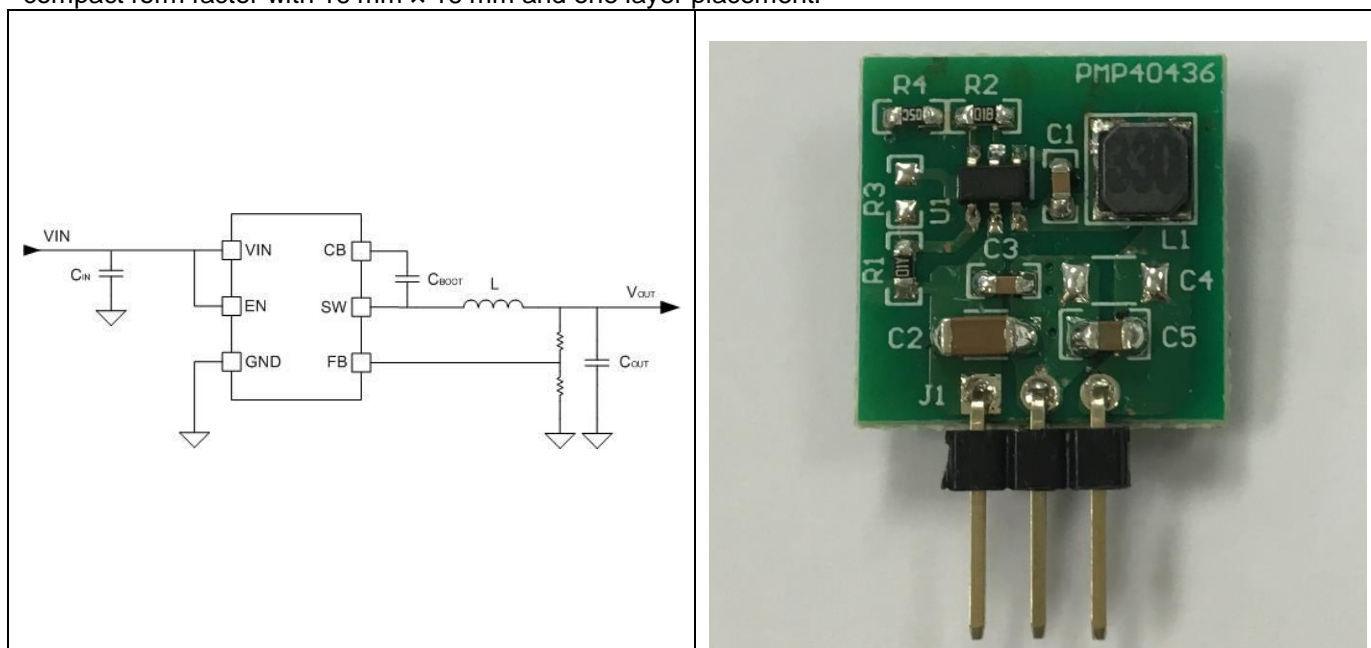
Test Report: PMP40436

13-V to 36-V in, 12-V 125-mA output power module reference design with 0.1% output voltage ripple



Description

This test report provides data gathered from the PMP40436 power module reference design for e-meter applications. The solution implements a synchronous buck converter TPS560430. The efficiency is up to 91.8% at 18-V input and 125-mA output. The output ripple is less than 1% of output voltage. The design is available in a compact form factor with 16 mm x 16 mm and one layer placement.



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1 Test Prerequisites

1.1 Voltage and Current Requirements

Table 1. Voltage and Current Requirements

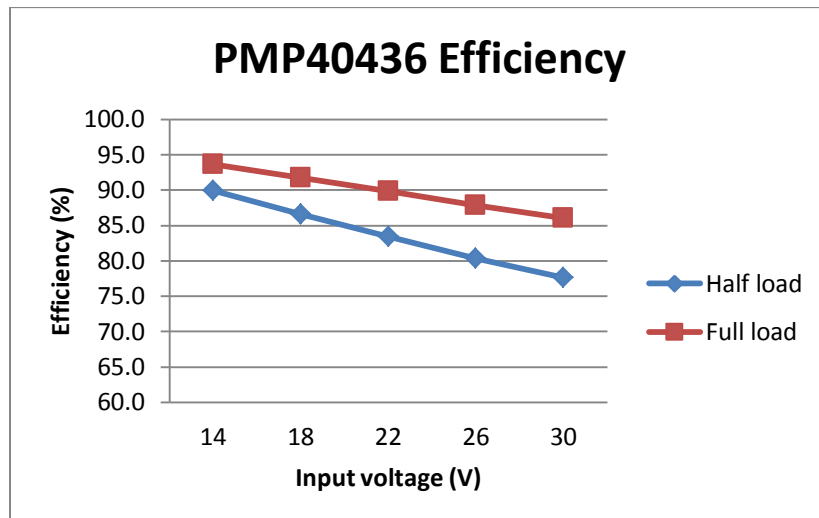
PARAMETER	SPECIFICATIONS
Input	DC Source: 13 V DC to 36 V DC
Output	12 V / 125 mA

1.2 Required Equipment

- Chroma DC power supply 62012P-600-8
- Chroma DC electronic load 63105A
- Tektronix Digital phosphor oscilloscope DPO3054
- Chroma Programmable AC source 61503
- Fluke Thermal imager Ti9

2 Testing and Results

2.1 Efficiency Graphs



2.2 Efficiency Data

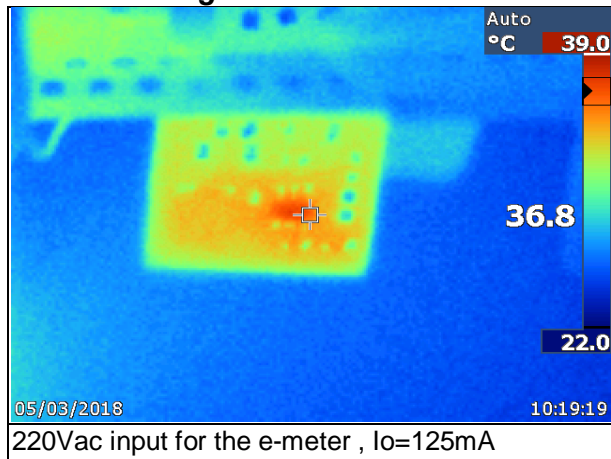
Half Load

Vin (V)	Iin (mA)	Vo (V)	Io (A)	Effi (%)
13.987	59.65	11.969	0.0627	89.9
18.008	48.12	11.967	0.0627	86.6
22.031	40.89	11.967	0.0628	83.4
26.049	35.906	11.968	0.0628	80.4
29.950	32.342	11.968	0.0628	77.6

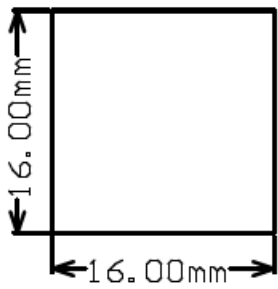
Full load

Vin (V)	Iin (mA)	Vo (V)	Io (A)	Effi (%)
13.975	111.56	11.968	0.122	93.7
18.027	88.26	11.966	0.122	91.8
21.957	74.02	11.966	0.122	89.8
25.987	63.91	11.966	0.122	87.9
29.996	56.54	11.967	0.122	86.1

2.3 Thermal Images



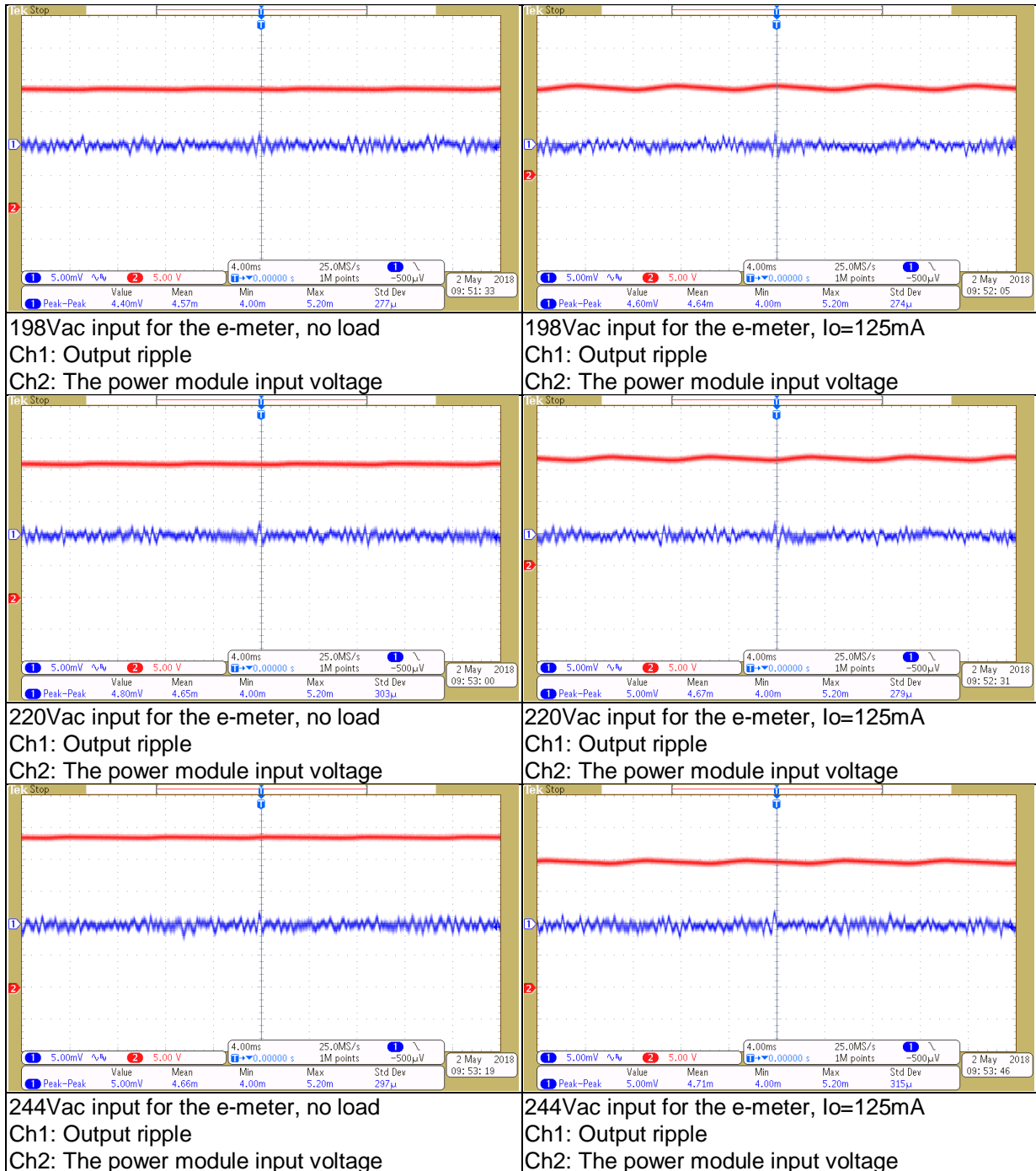
2.4 Dimensions



3 Waveforms

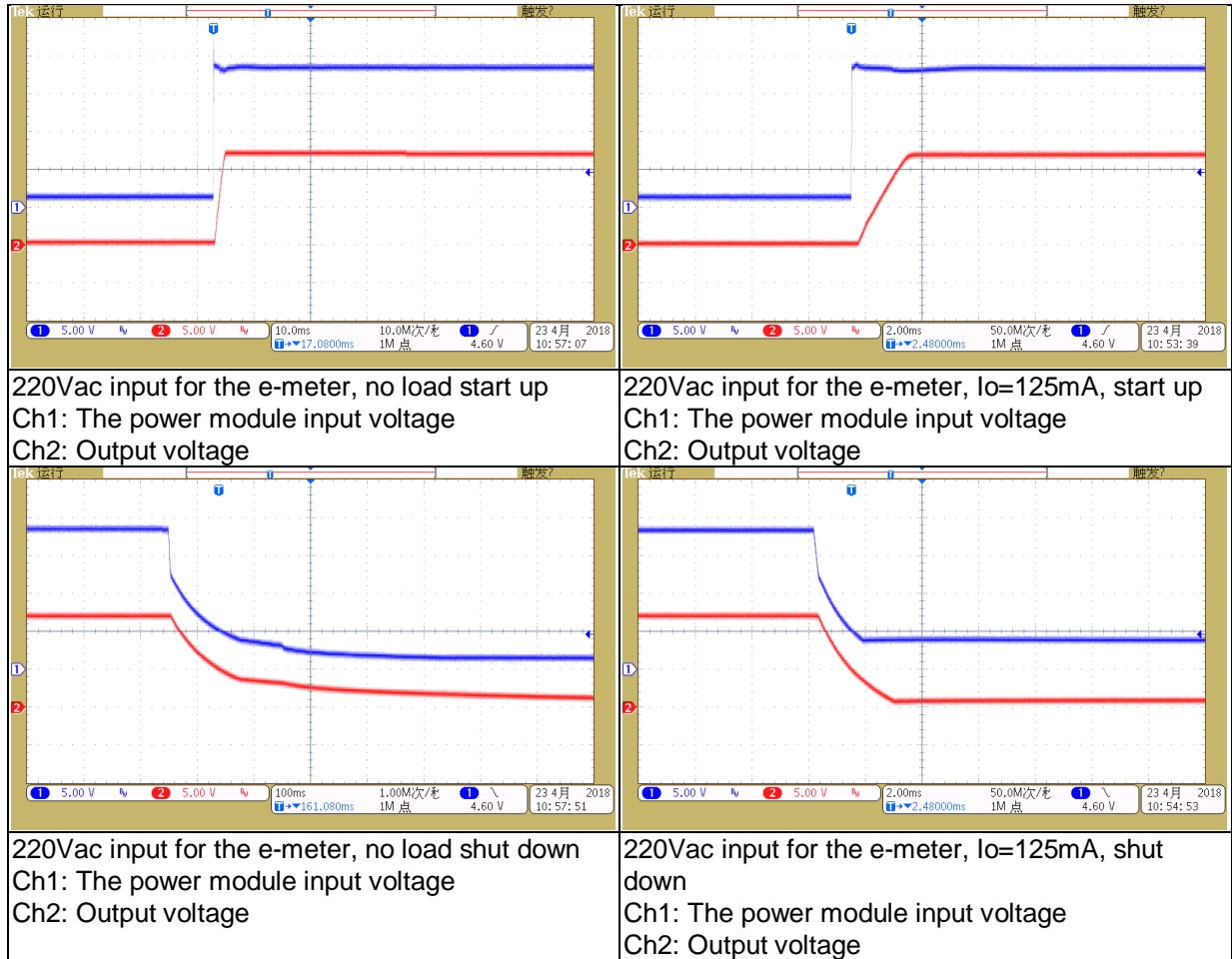
3.1 Output Voltage Ripple

Test on the e-meter



3.2 Start-up and shut-down Sequence

Test on the e-meter



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