

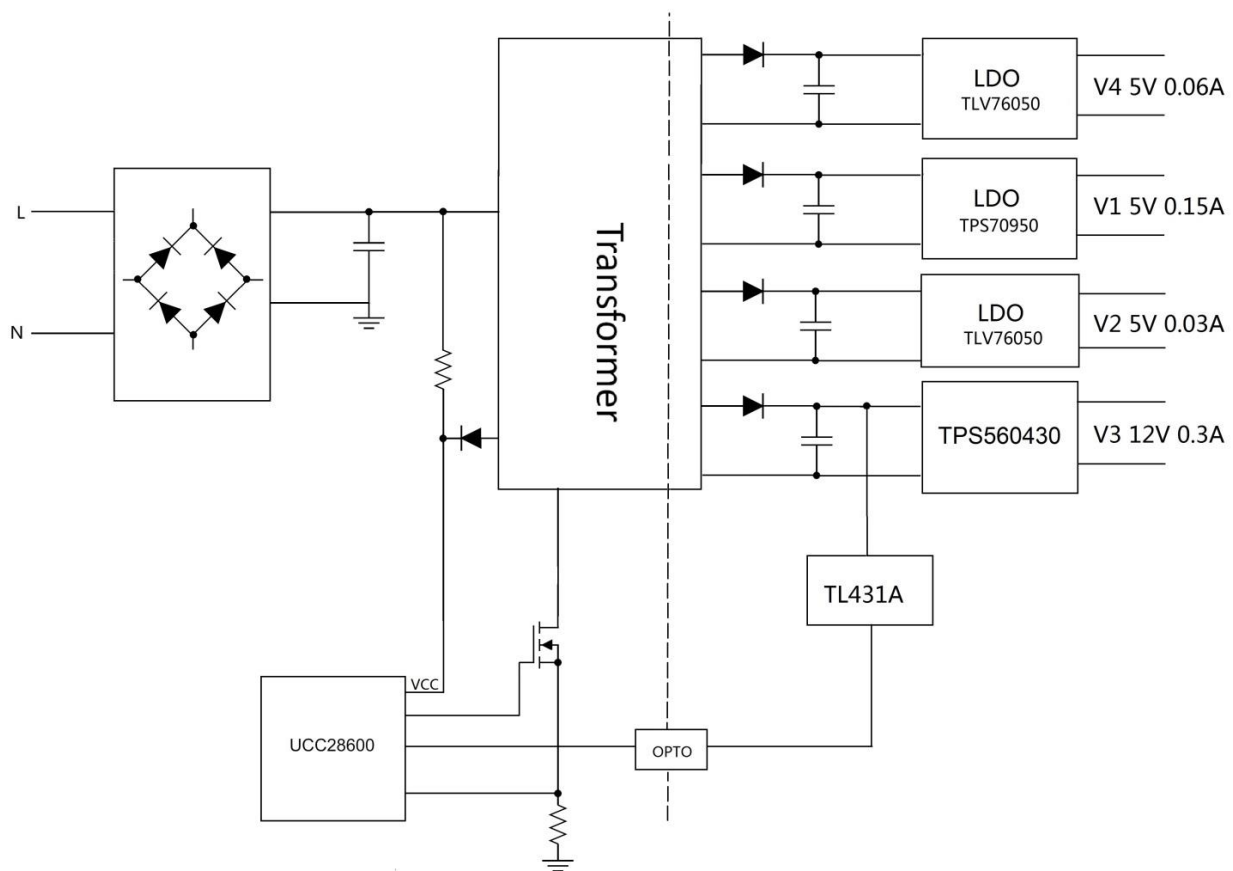
Test Report: PMP40381

1 Phase AC Input, 5W 4 Rail Outputs Reference Design for E-meter



Description

- The reference design was designed for the 1 phase smart meter application. It uses the UCC28600 quasi-resonant flyback controller to generate 4 isolated 5W rails from a wide input from 85VAC to 300VAC. The design has good line and load regulation and perfect protection feature.



1 Test Prerequisites

1.1 Voltage and Current Requirements

Table 1. Voltage and Current Requirements

PARAMETER	SPECIFICATIONS
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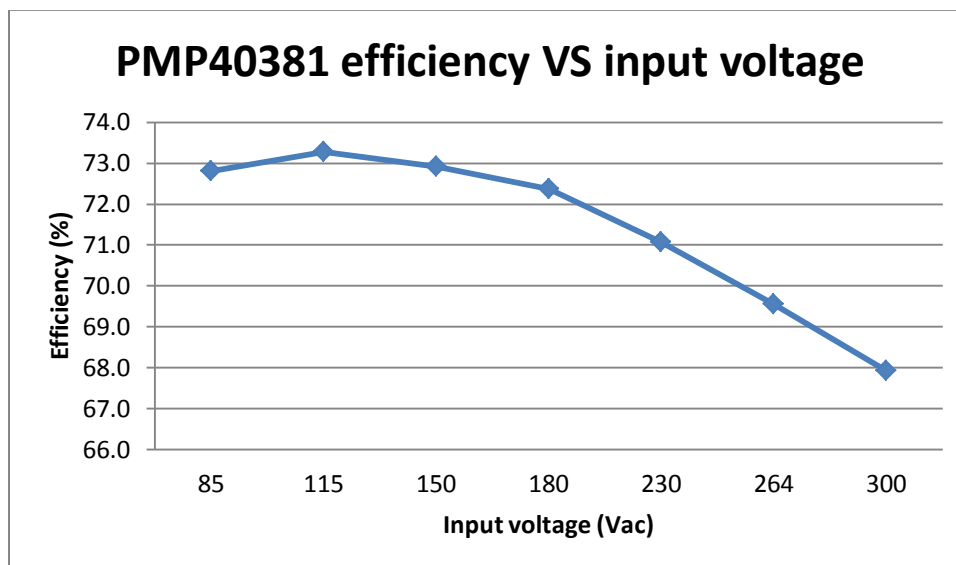
Input voltage range	85Vac-300Vac
Output voltage VO1	5V
Output current IO1	0.15A
Output voltage VO2	5V
Output current IO2	0.03A
Output voltage VO3	12V
Output current IO3	0.3A
Output voltage VO4	5V
Output current IO4	0.06A

1.2 Required Equipment

- Chroma programmable AC source 61503
- Digital power meter WT210
- Tektronix digital phosphor oscilloscope DPO3054
- Chroma DC electronic load 6314A

2 Testing and Results

2.1 Efficiency Graphs

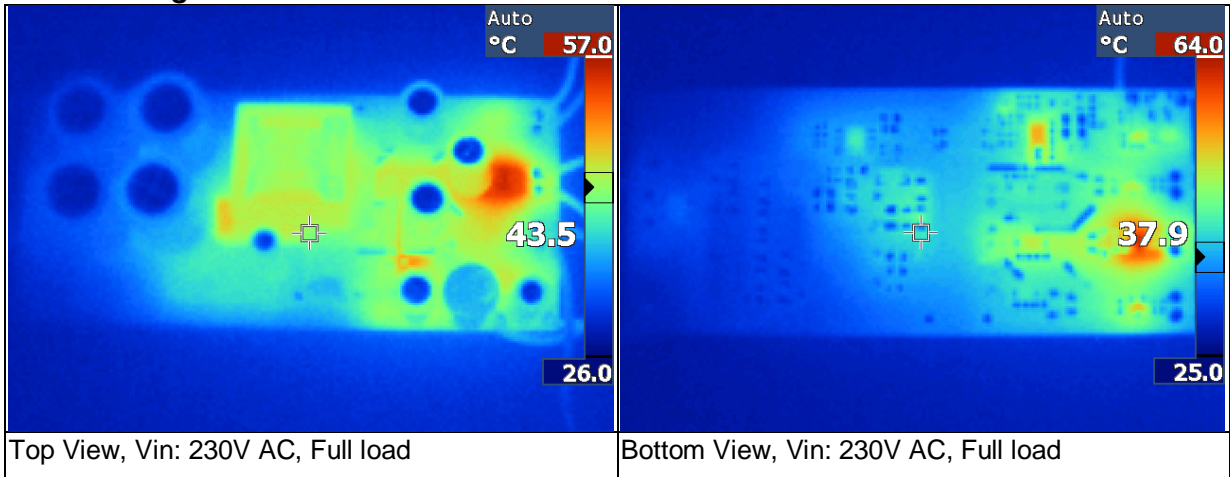


2.2 Efficiency Data

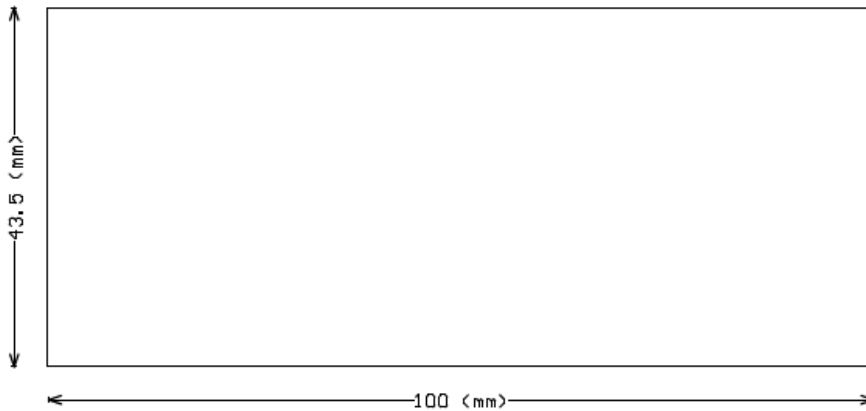
Vin (Vdc)	Pin (W)	V1 (V)	Io_V1 (A)	V2 (V)	Io_V2 (A)	V3 (V)	Io_V3 (A)	V4 (V)	Io_V4 (A)	Effi (%)
85	6.601	4.984	0.146	5.018	0.030	12.049	0.302	4.969	0.058	72.8

115	6.560	4.984	0.146	5.020	0.030	12.049	0.302	4.969	0.058	73.3
150	6.592	4.984	0.146	5.020	0.030	12.049	0.302	4.969	0.058	72.9
180	6.642	4.984	0.146	5.020	0.030	12.049	0.302	4.969	0.058	72.4
230	6.764	4.984	0.146	5.020	0.030	12.049	0.302	4.969	0.059	71.1
264	6.877	4.984	0.146	5.020	0.030	12.048	0.300	4.969	0.058	69.6
300	7.028	4.984	0.146	5.020	0.030	12.048	0.299	4.969	0.059	67.9

2.3 Thermal Images

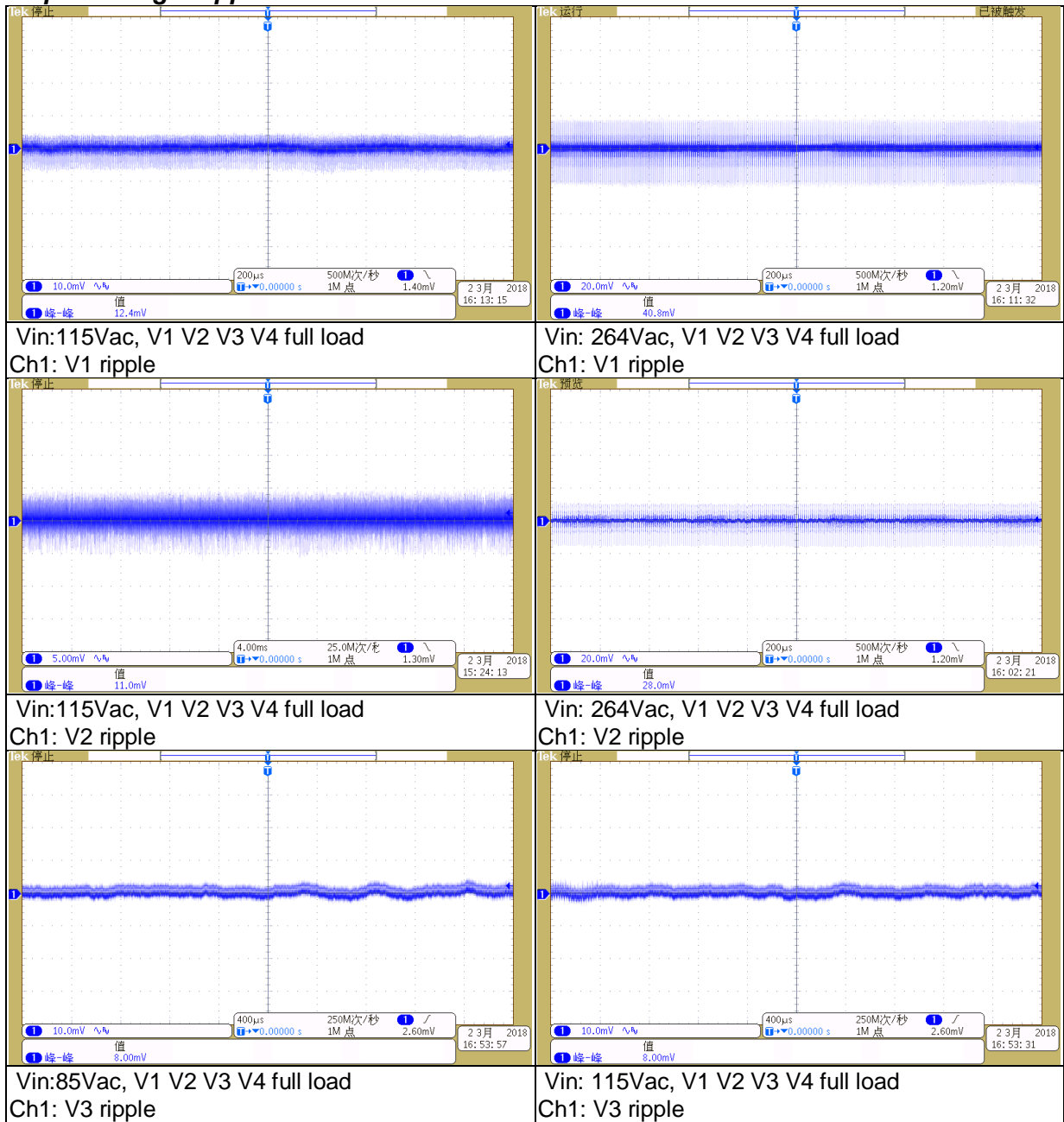


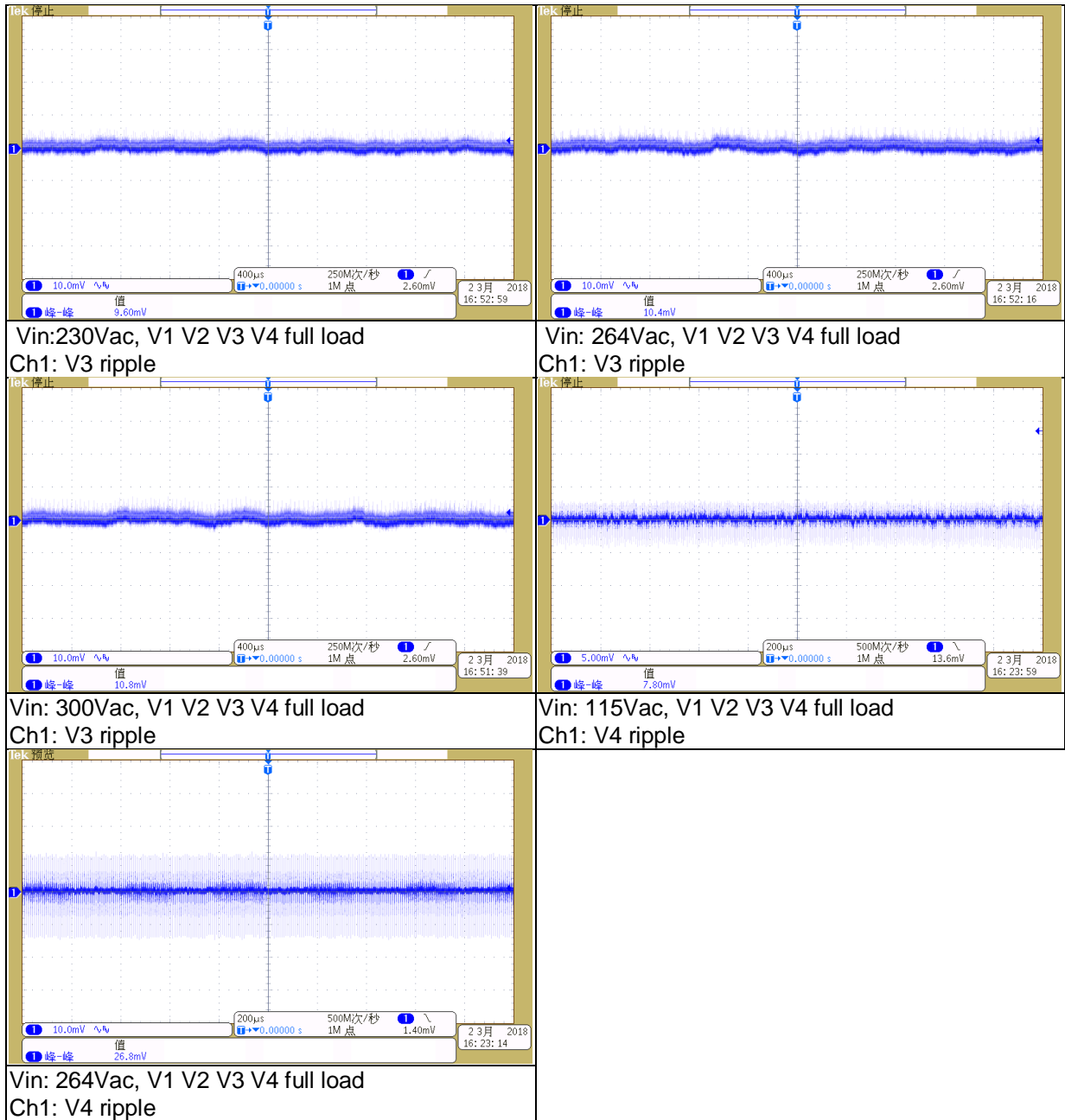
2.4 Dimensions



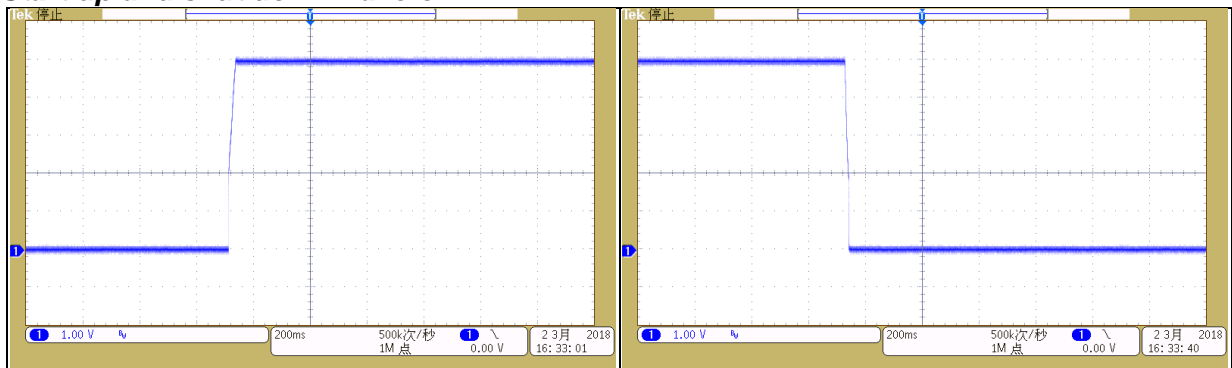
3 Waveforms

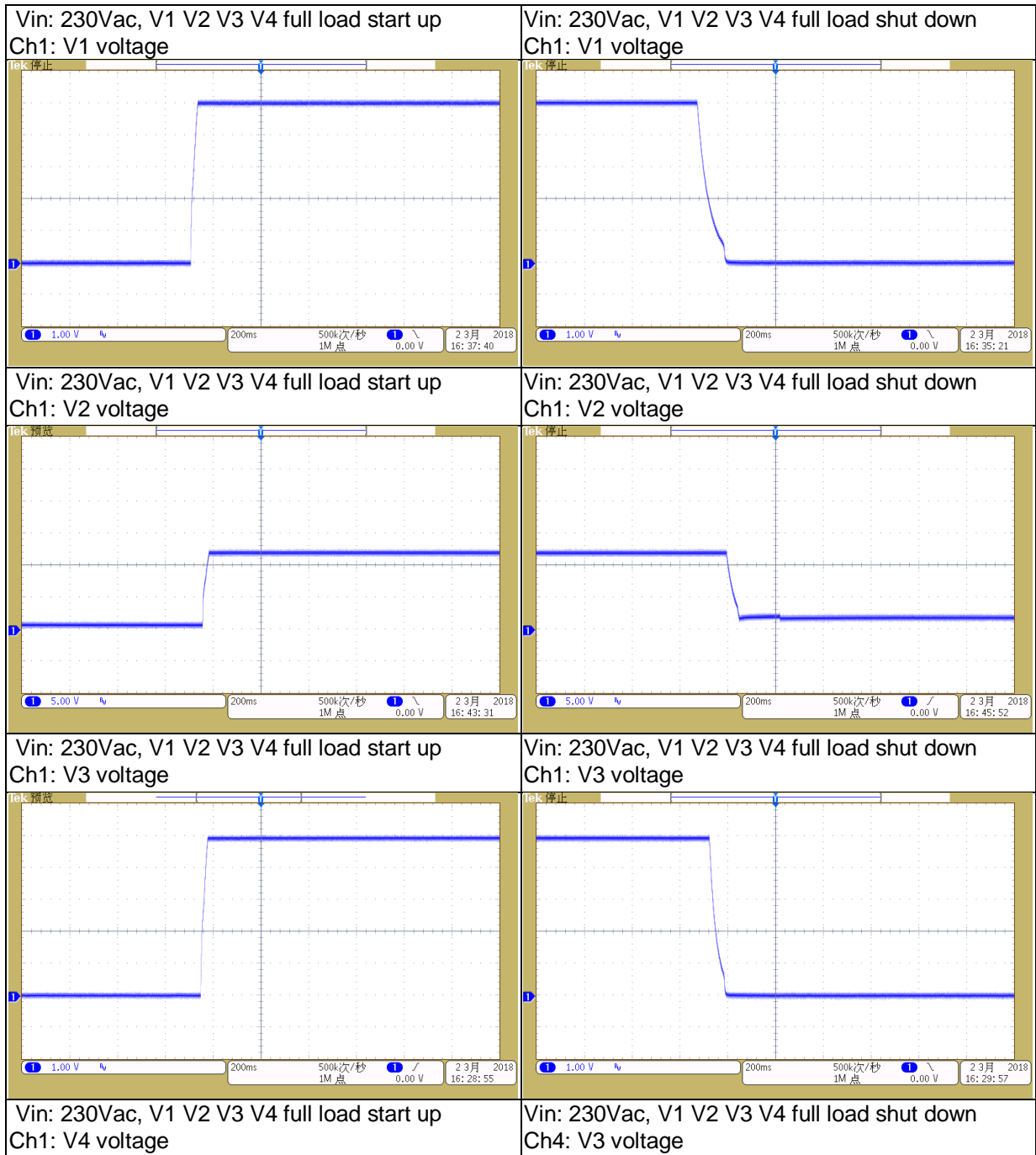
3.1 Output Voltage Ripple





3.2 Start-up and shut down waveform





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