Texas Instruments

PMP4408 Test Procedure

China Power Reference Design

2/21/2014

1 GENERAL

1.1 PURPOSE

To provide detailed data for evaluating and verifying the PMP4408, which uses TI flyback controller LM5023 and DC/DC TPS5402.

1.2 REFERENCE DOCUMENTATION

Schematic PMP4408_SCH.PDF
Assembly PMP4408_PCB.PDF
BOM

1.3 TEST EQUIPMENTS

Multi-meter(Voltage): Fluke 287C
AC Source: Chroma 61503
E-Load: Chroma 63101*3 63105*1 module

2 Performance data and waveform

2.1 Standby loss

The standby loss in test with 5V@50mA and others no load.

| Vin(Vac)	Pin(W)
180	0.95
230	1.12
264	1.26

2.2 Cross Regulation

	5Vo	15Vo	24Vo	42Vo	5Vo	15Vo	24Vo	42Vo
4 outputs load matrix	0	0	0	0	4.9765	15.147	23.821	40.106
	0	0	0	1	4.977	15.147	23.818	39.5
	0	0	1	0	4.982	15.15	23.82	41.46
	0	0	1	1	4.981	15.15	23.82	39.72
	0	1	0	0	4.98	15.15	23.82	41.32
	0	1	0	1	4.982	15.16	23.83	38.73
	0	1	1	0	4.984	15.16	23.83	42.3
	0	1	1	1	4.984	15.16	23.83	39.86
	1	0	0	0	4.983	15.15	23.84	40.93
	1	0	0	1	4.983	15.15	23.84	39.7
	1	0	1	0	4.983	15.15	23.84	41.97
	1	0	1	1	4.984	15.16	23.84	39.84
	1	1	0	0	4.989	15.16	23.84	41.89
	1	1	0	1	4.99	15.16	23.84	39.83
	1	1	1	0	4.99	15.16	23.825	43.04
	1	1	1	1	4.991	15.16	23.83	39.93

2.3 EFFICIENCY
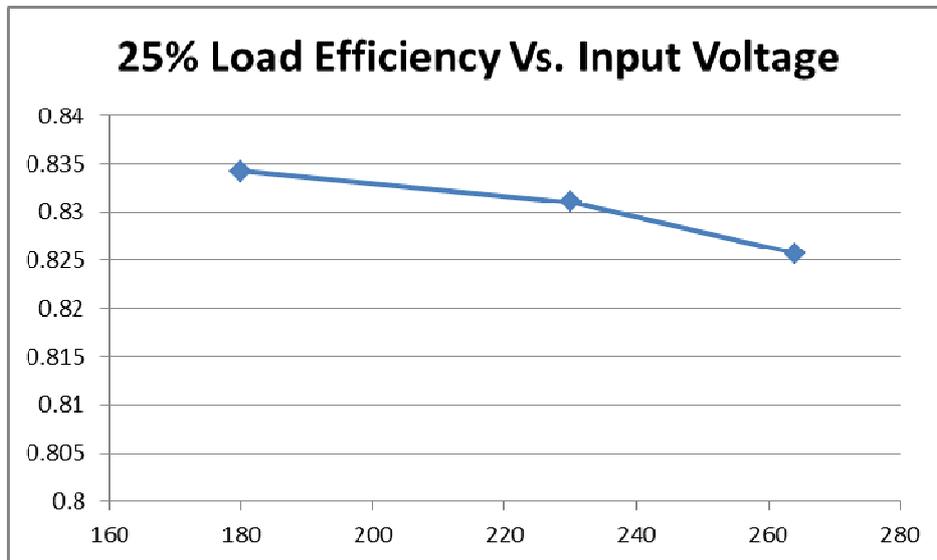
50% Load Efficiency Vs. Input Voltage

75% Load Efficiency Vs. Input Voltage
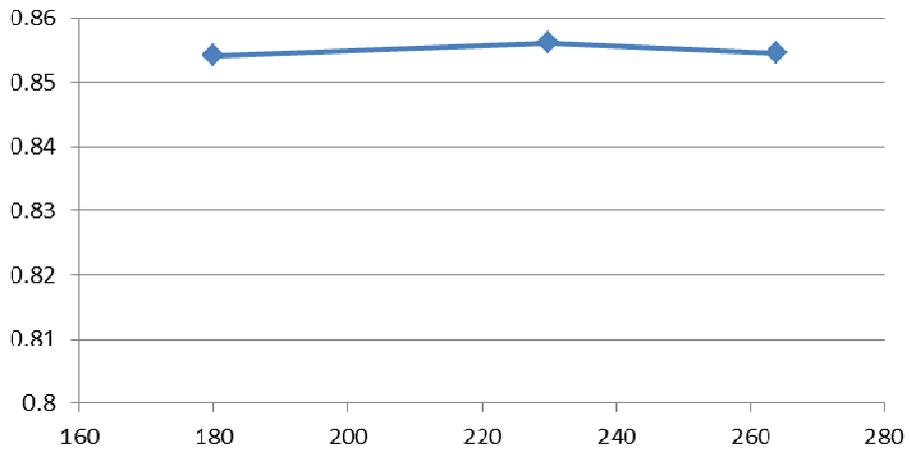
100% Load Efficiency Vs. Input Voltage
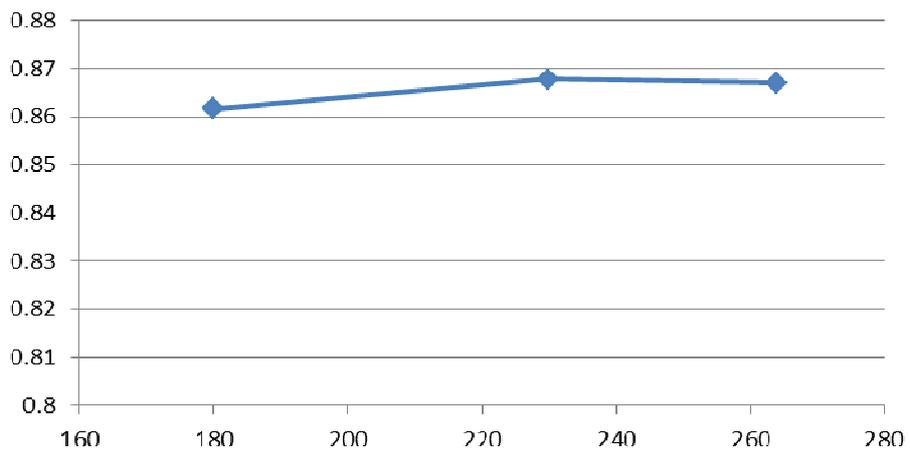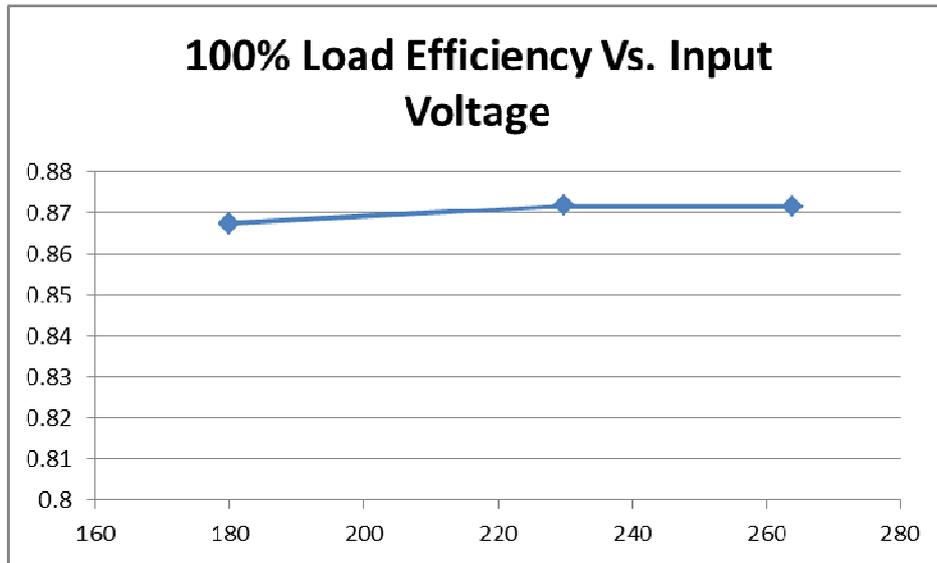
2.4 Start Up

Start up test result:
Ch1:5V
Ch2:15V
Ch3:24V
Ch4:42V

| 180Vac zero load Start Up | 180Vac full load Start Up |

230Vac zero load Start Up	230Vac full load Start Up
264Vac zero load Start Up	264Vac full load Start Up
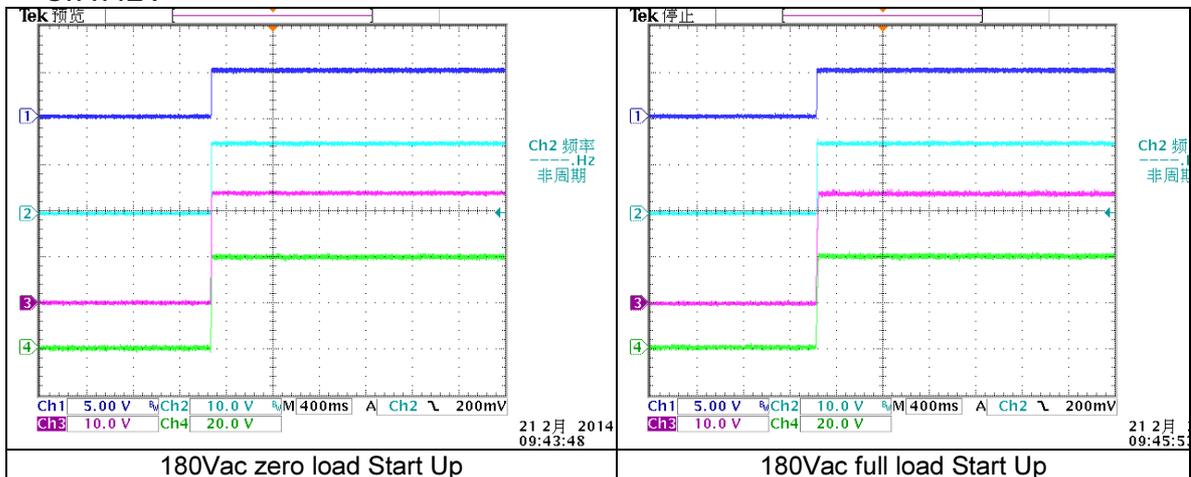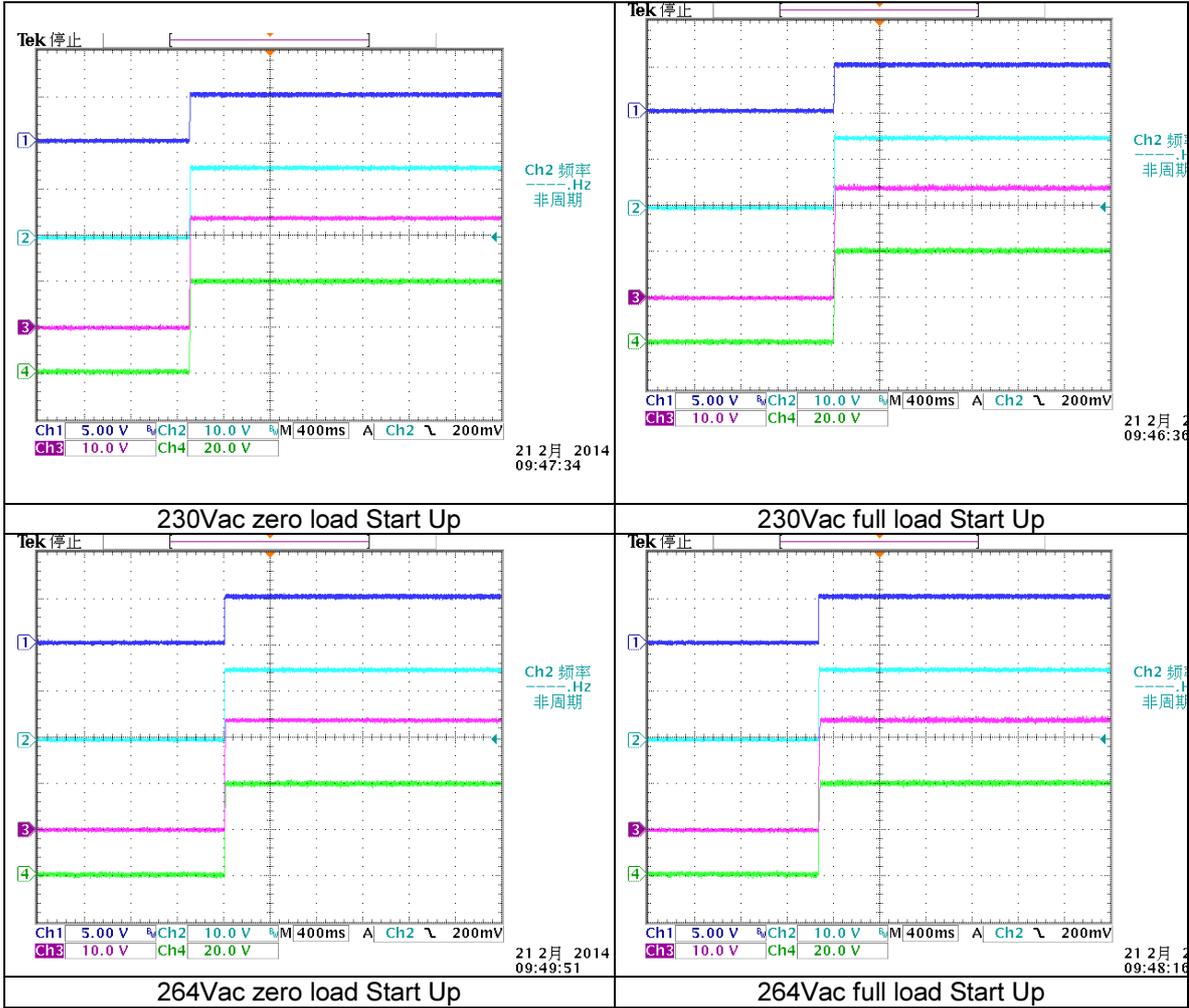
2.5 Output voltage ripple

Ripple Test Result:
CH1:5V
CH2:15V
CH3:24V
CH4:42V

 180Vac zero load ripple	 180Vac full load ripple
 230Vac zero load ripple	 230Vac full load ripple
 264Vac zero load ripple	 264Vac full load ripple
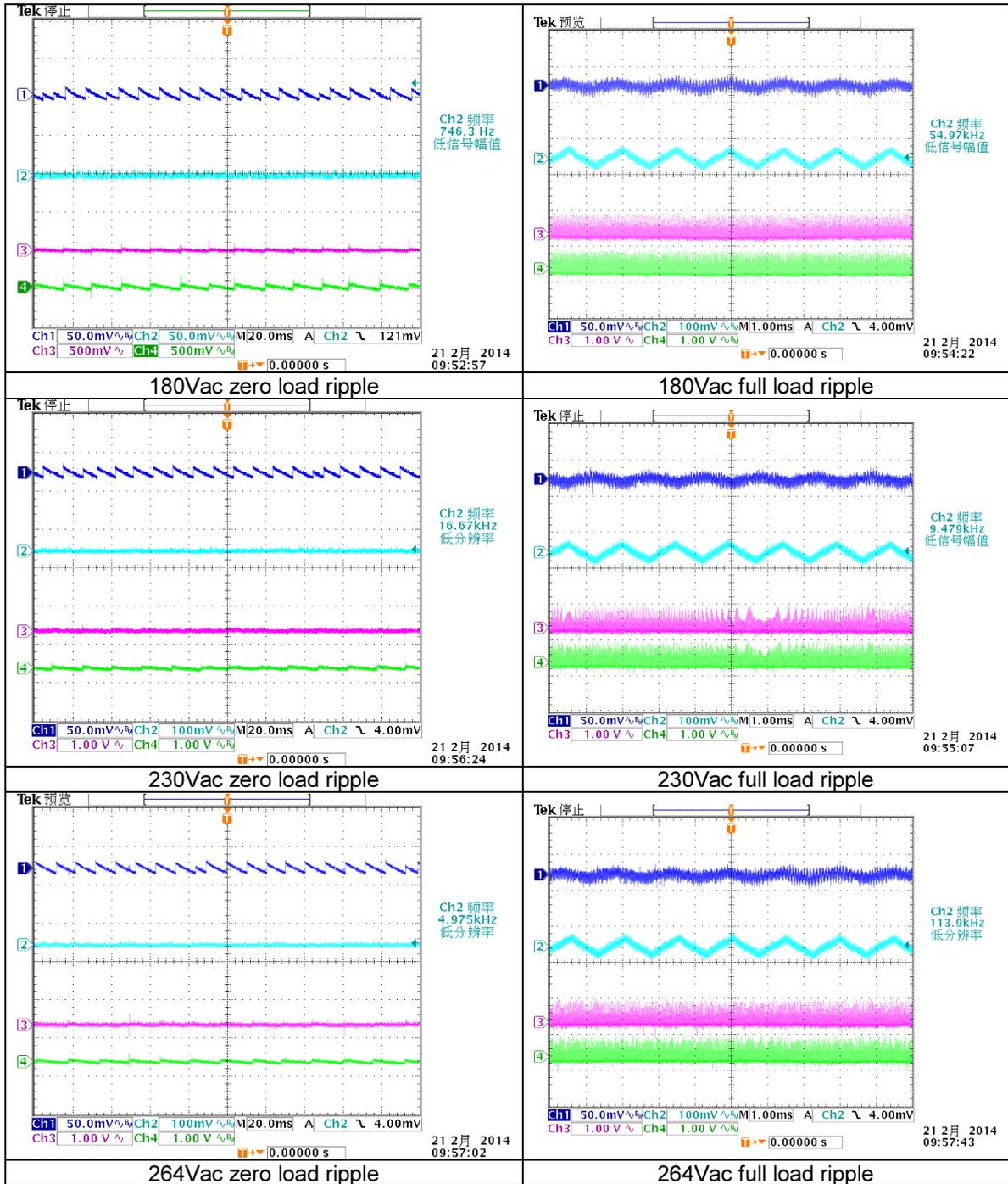
2.6 Start up with 4A output current

180V 4A start up	264V 4A start up

2.7 Short circuit protection
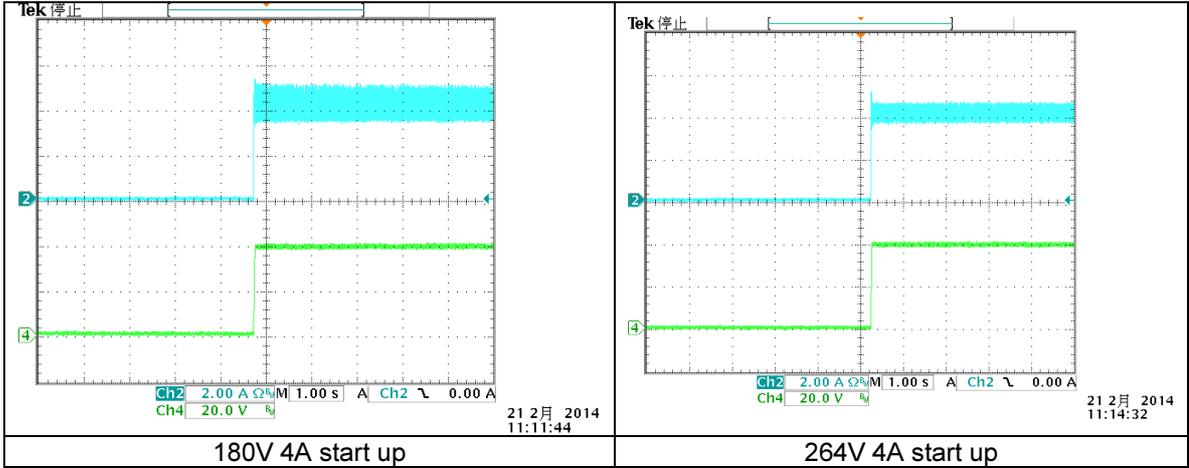
180Vin Short Circuit Protection	230Vin Short Circuit Protection
264Vin Short Circuit Protection	

2.8 Output Over voltage Protection
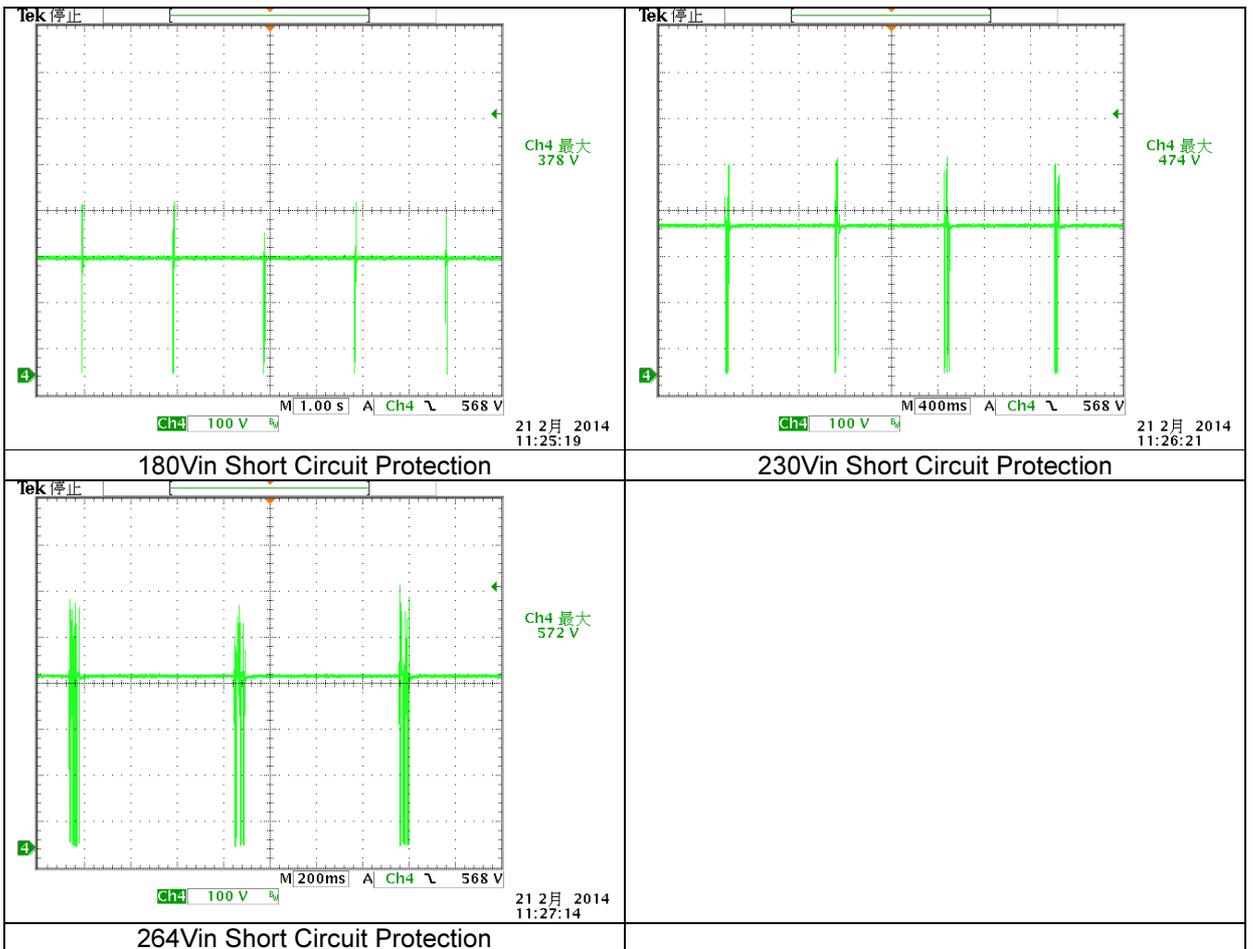
Output Over Voltage Protection
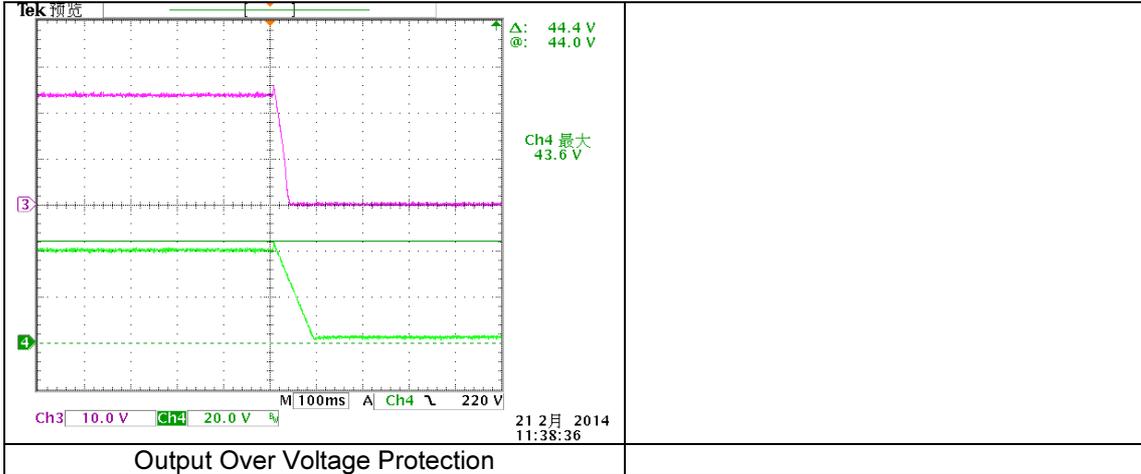
2.9 Mosfet Voltage Stress

180Vin Full load Vds

230Vin Full load Vds

264Vin Full load Vds
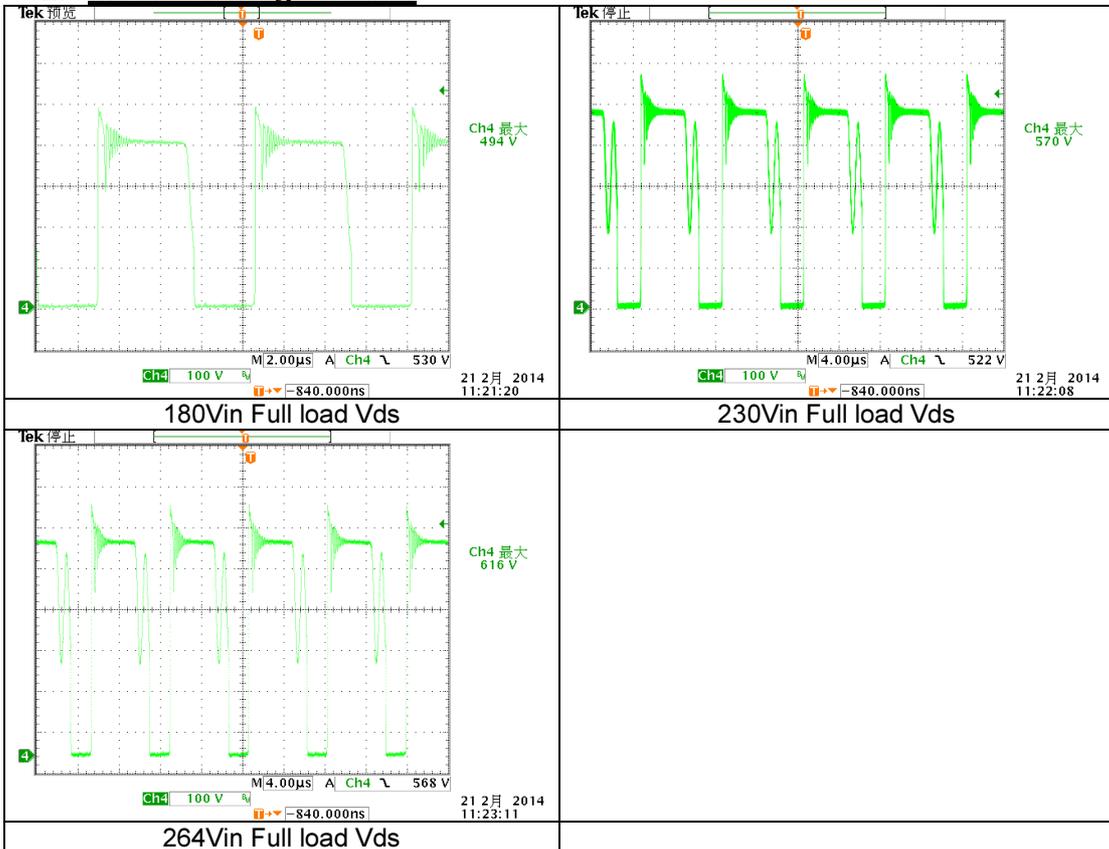
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