Texas Instruments

PMP4401 Test Procedure

China Power Reference Design

REV A

31/12/2013

1 GENERAL

1.1 PURPOSE

To provide detailed data for evaluating and verifying the PMP4401.

1.2 REFERENCE DOCUMENTATION

Schematic: PMP4401_SCH_RevA
Assembly: PMP4401_PCB_RevA
BOM

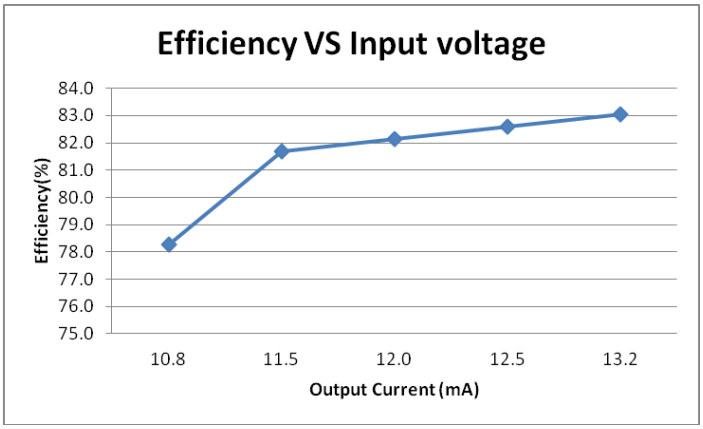
1.3 TEST EQUIPMENTS

Multi-meter(voltage): Fluke 287
DC Source: TDK-Lambda GEN100-33
Load: Chroma 63110A module

2 INPUT CHARACTERISTICS

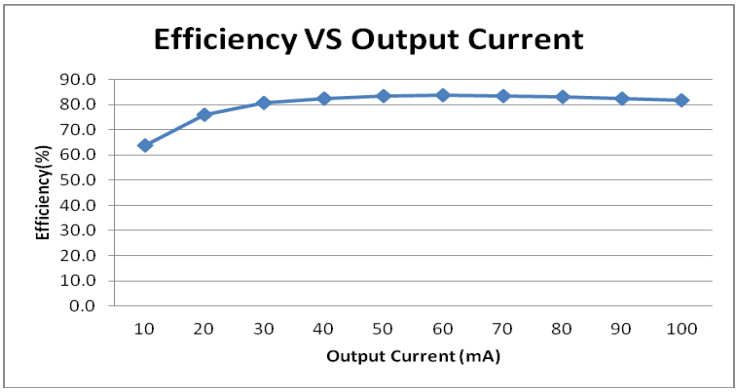
2.1 Full load Efficiency

Vin (V)	Iin(A)	Vo1(V)	Vo2(V)	Io1(mA)	Io2(mA)	Effi.(%)
10.8	108.70	4.60	-4.59	100	100	78.3
11.5	100.30	4.73	-4.70	100	100	81.7
12.0	96.80	4.79	-4.75	100	100	82.1
12.5	93.40	4.85	-4.81	100	100	82.6
13.2	89.10	4.92	-4.87	100	100	83.1



2.2 Efficiency versus output current

Io1/Io2(mA)	Vin (V)	Iin(mA)	Vo1(V)	Vo2(V)	Effi.(%)
10	12.03	13.6	5.26	-5.17	63.7
20	12.03	22.7	5.23	-5.14	75.9
30	12.03	31.9	5.20	-5.11	80.6
40	12.02	41.4	5.17	-5.09	82.5
50	12.02	50.7	5.12	-5.04	83.4
60	12.02	59.9	5.06	-4.99	83.8
70	12.02	69.2	5.00	-4.93	83.6
80	12.02	78.4	4.93	-4.87	83.2
90	12.02	87.6	4.85	-4.81	82.6
100	12.02	96.7	4.78	-4.74	81.9



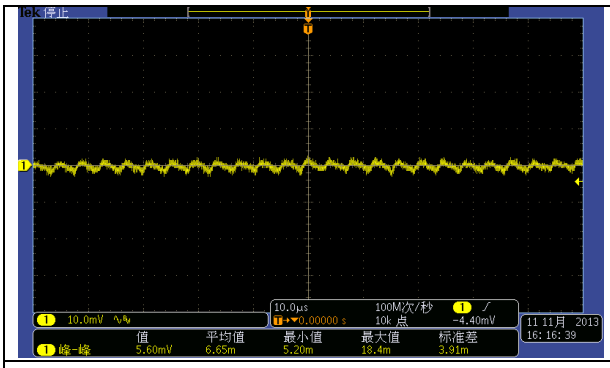
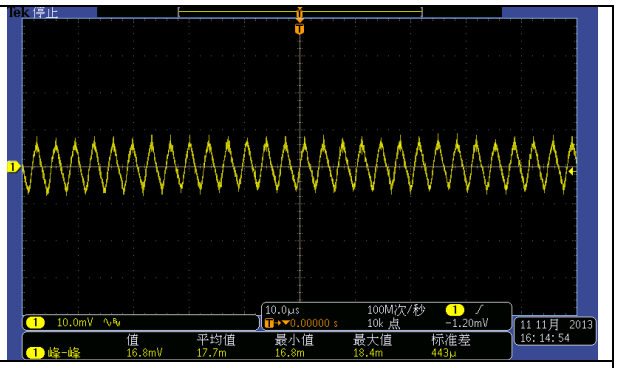
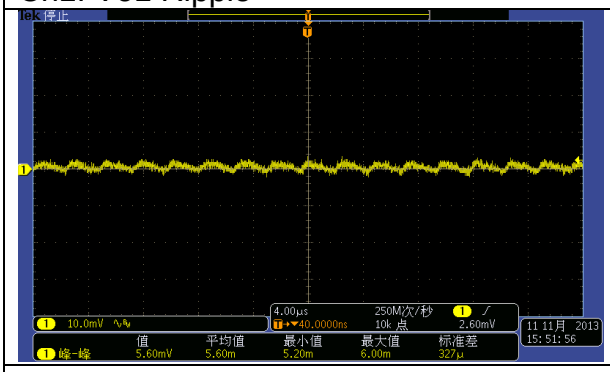
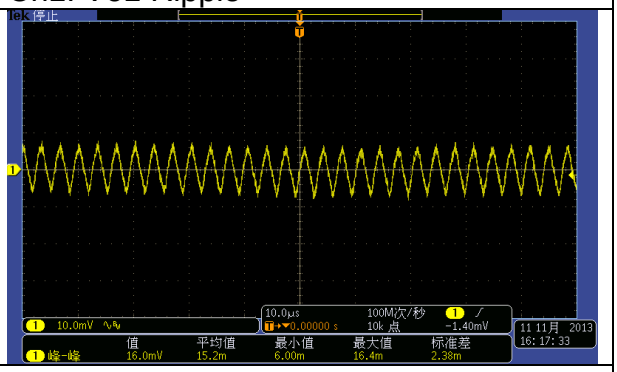
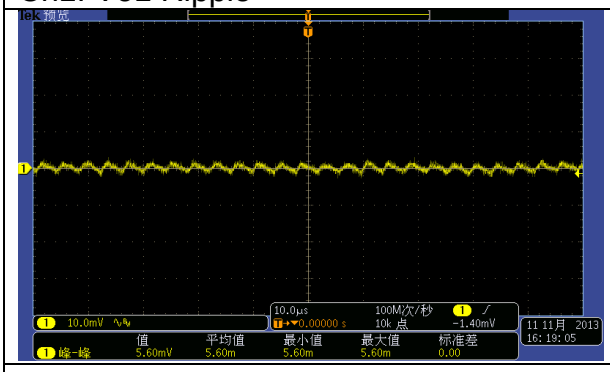
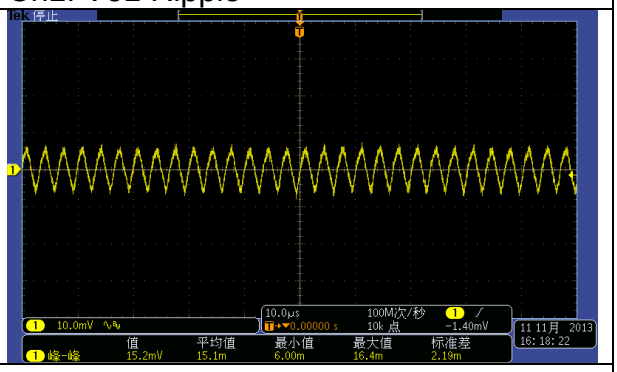
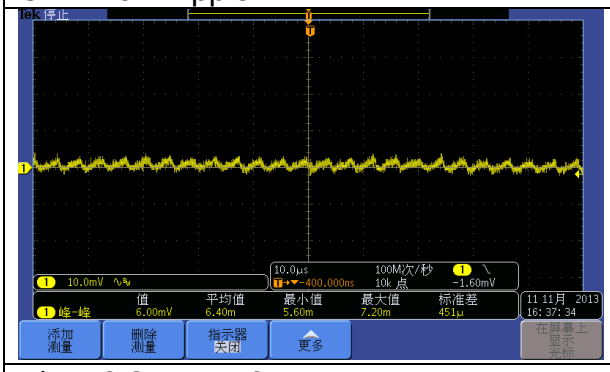
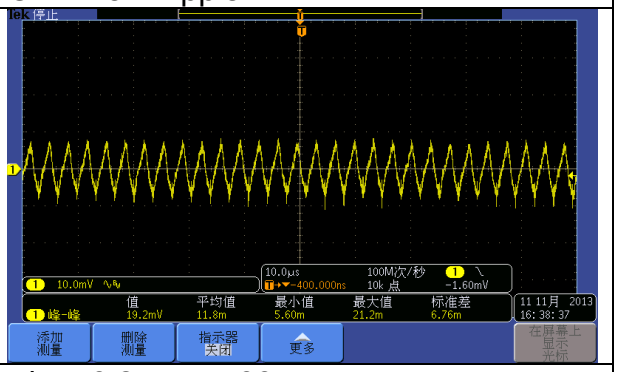
3 OUTPUT CHARACTERISTICS

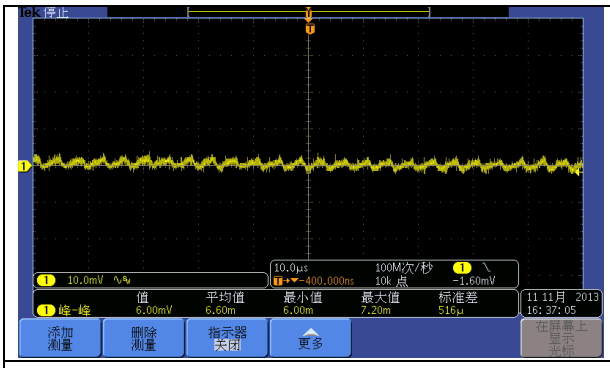
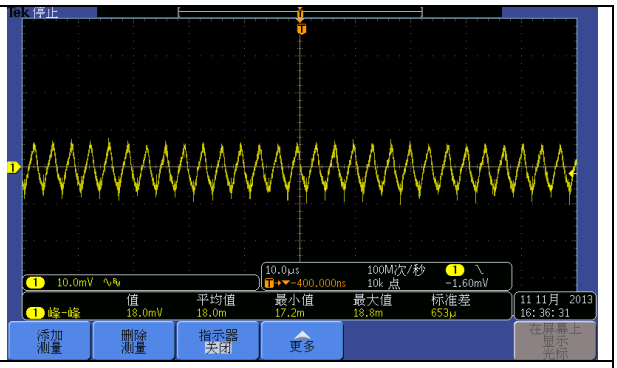
3.1 Line and load Regulation

	Io1=Io2=10mA		Io1=Io2=30mA		Io1=Io2=50mA		Io1=Io2=70mA		Io1=Io2=100mA		
Vin (V)	Vo1 (V)	Vo2 (V)	Vo1 (V)	Vo2 (V)	Vo1 (V)	Vo2 (V)	Vo1 (V)	Vo2 (V)	Vo1 (V)	Vo2 (V)	%
10.8	5.17	-5.09	5.10	-5.02	5.03	-4.95	4.87	-4.81	4.60	-4.59	-8.2
12.0	5.27	-5.18	5.21	-5.12	5.12	-5.05	5.00	-4.92	4.78	-4.75	5.4
13.2	5.33	-5.25	5.29	-5.20	5.19	-5.10	5.07	-4.93	4.89	-4.85	6.6

3.2 Ripple and noise

	Io1=Io2=10mA		Io1=Io2=100mA	
Vin (V)	Vo1 (mV)	Vo2 (mV)	Vo1 (mV)	Vo2 (mV)
10.8	5.6	6.0	16.8	19.2
12.0	5.6	6.0	16.0	18.0
13.2	5.6	6.4	15.2	16.8

	
Vin=10.8V Io=10mA Ch1: Vo1 Ripple	Vin=10.8V Io=100mA Ch1: Vo1 Ripple
	
Vin=12V Io=10mA Ch1: Vo1 Ripple	Vin=12V Io=100mA Ch1: Vo1 Ripple
	
Vin=13.2V Io=10mA Ch1: Vo1 Ripple	Vin=13.2V Io=100mA Ch1: Vo1 Ripple
	
Vin=10.8V Io=10mA Ch1: Vo2 Ripple	Vin=10.8V Io=100mA Ch1: Vo2 Ripple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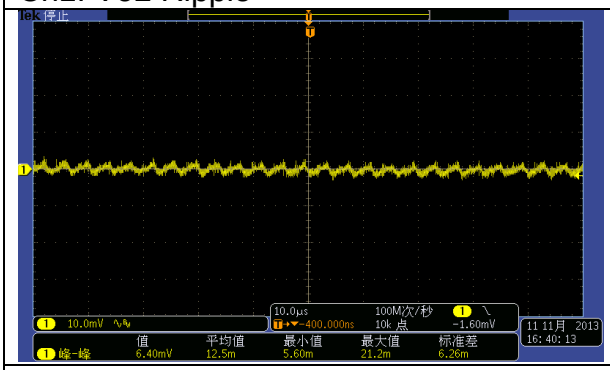
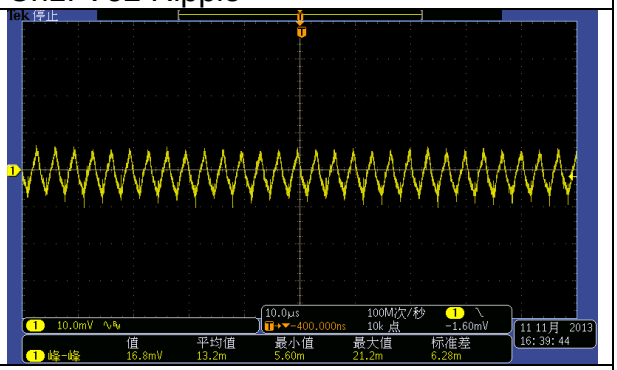
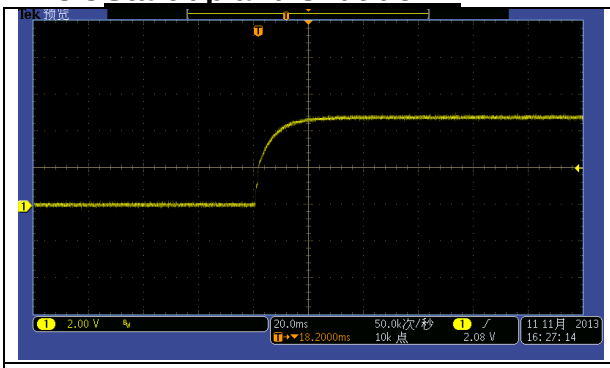
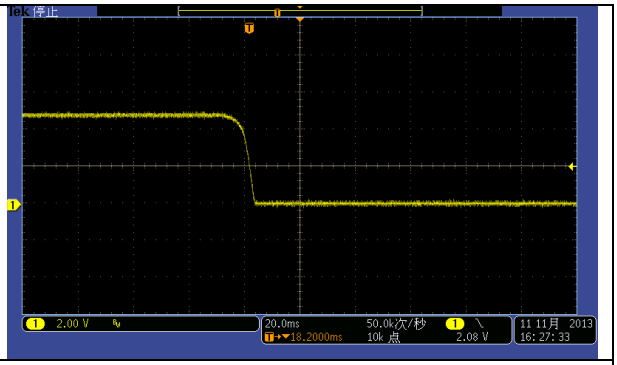
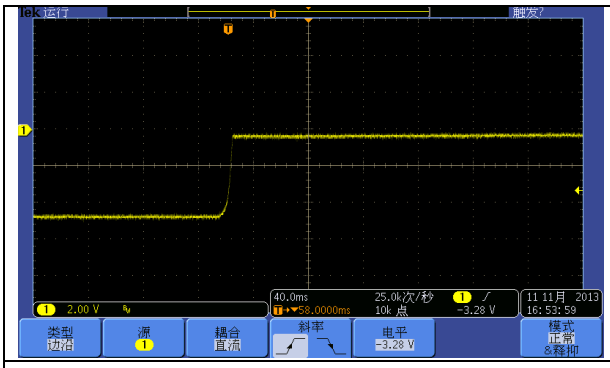
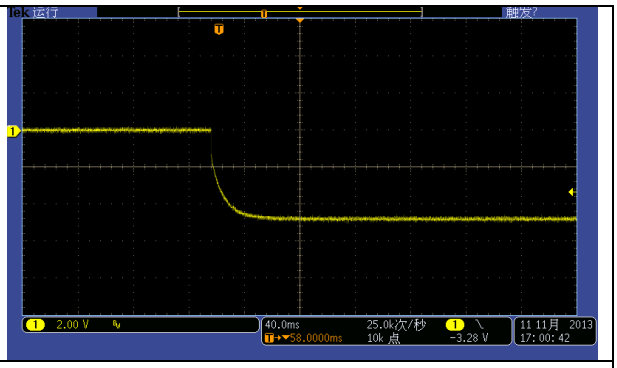
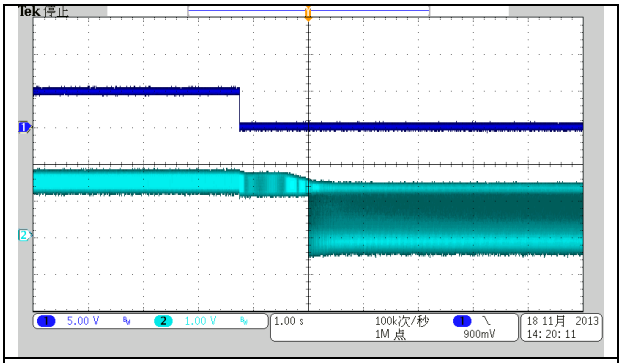
	
Vin=13.2V Io=10mA Ch1: Vo2 Ripple	Vin=13.2V Io=100mA Ch1: Vo2 Ripple

3.3 Start up and shut down

	
Vin=12V Io=100mA Ch1: Vo1 Start up	Vin=12V Io=100mA Ch1: Vo1 shut down

	
Vin=12V Io=100mA Ch1: Vo2 Start up	Vin=12V Io=100mA Ch1: Vo2 shut down

3.4 Output short protection


Vin=12V Io=100mA Vo1 from full load to short Ch1: Vo1 Ch2: U12 FB

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