Texas Instruments

PMP4394 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 PMP4394.

1.2 REFERENCE DOCUMENTATION

Schematic: PMP4394_SCH_RevA
Assembly: PMP4394_PCB_RevA
BOM

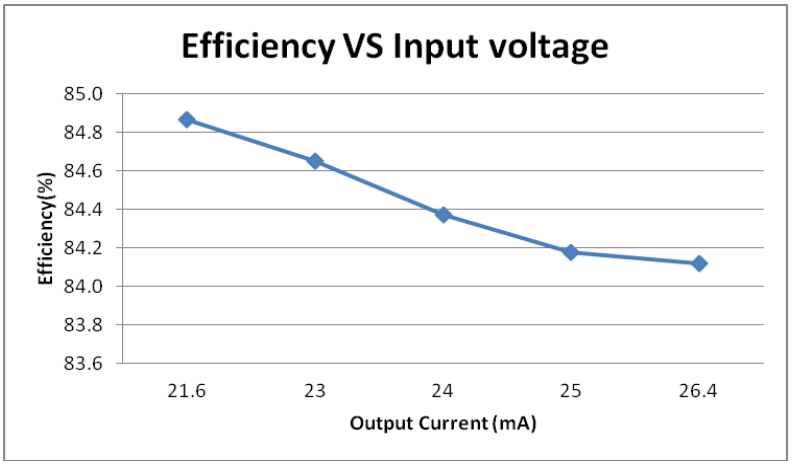
1.3 TEST EQUIPMENTS

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

2 INPUT CHARACTERISTICS

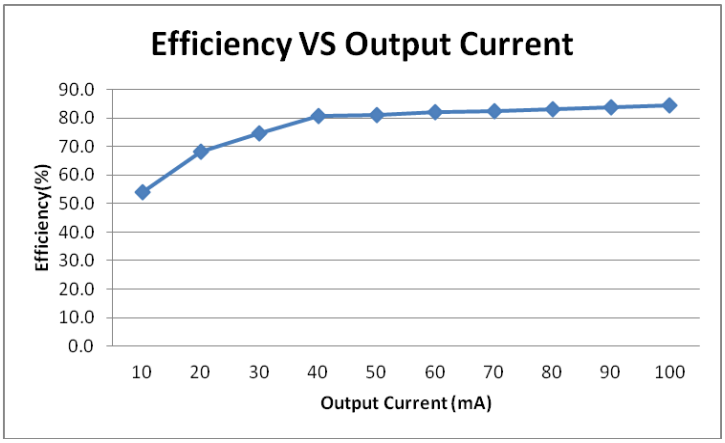
2.1 Full load Efficiency

Vin (V)	Iin(A)	Vo1(V)	Vo2(V)	Io1(mA)	Io2(mA)	Effi.(%)
21.6	53.70	4.94	-4.89	100	100	84.9
23.0	50.90	4.98	-4.93	100	100	84.7
24.0	49.20	5.00	-4.95	100	100	84.4
25.0	47.50	5.02	-4.96	100	100	84.2
26.4	45.20	5.04	-4.99	100	100	84.1



2.2 Efficiency versus output current

Io1/Io2(mA)	Vin (V)	Iin(mA)	Vo1(V)	Vo2(V)	Effi.(%)
10	24.04	7.82	5.09	-5.04	53.9
20	24.04	12.3	5.06	-5.01	68.1
30	24.04	16.8	5.05	-5.00	74.7
40	24.04	20.7	5.04	-4.99	80.6
50	24.04	25.7	5.04	-4.99	81.2
60	24.04	30.4	5.03	-4.98	82.2
70	24.03	35.2	5.02	-4.96	82.6
80	24.03	39.9	5.02	-4.96	83.3
90	24.03	44.5	5.01	-4.96	83.9
100	24.03	49.1	5.00	-4.95	84.3



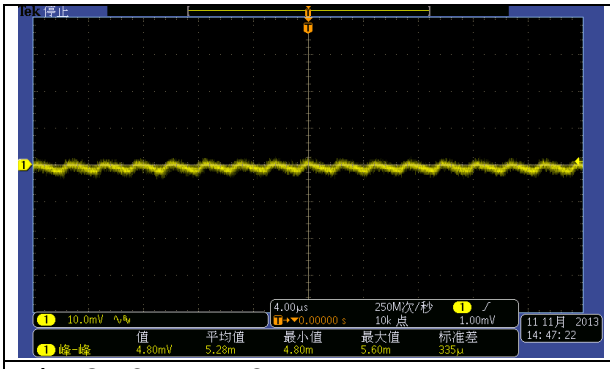
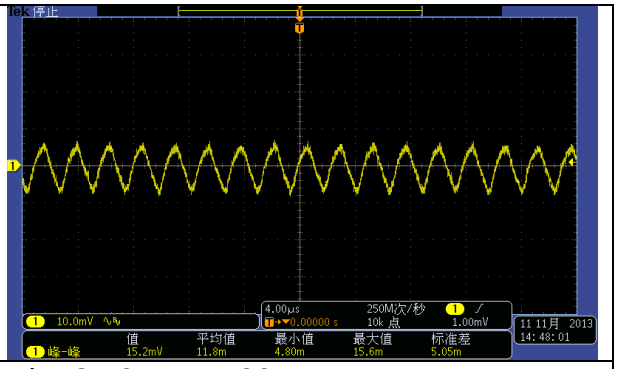
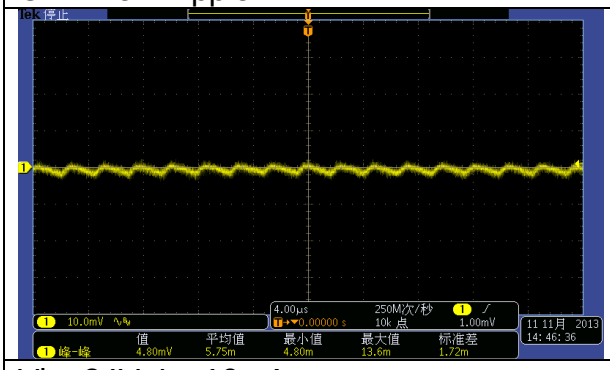
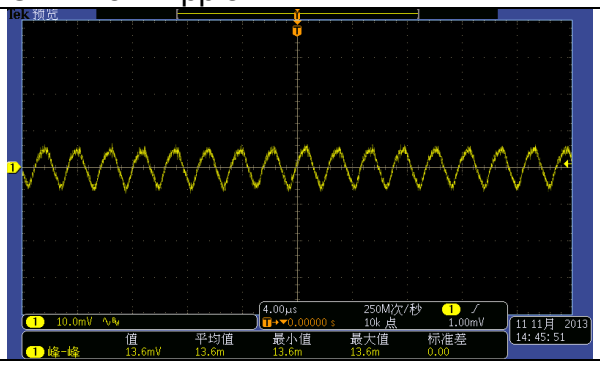
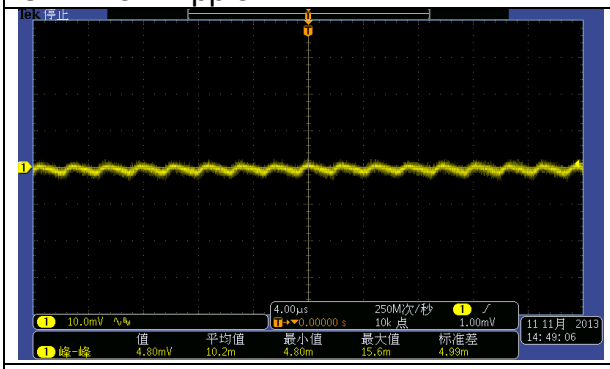
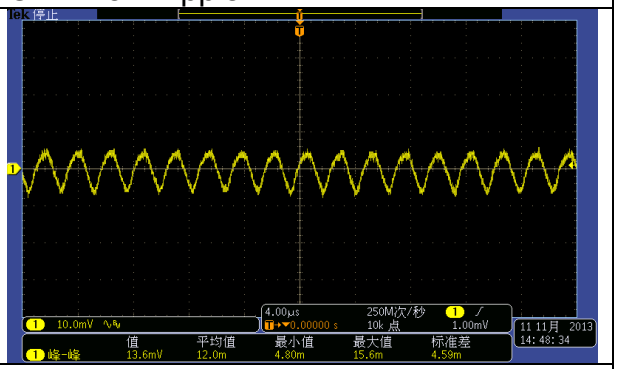
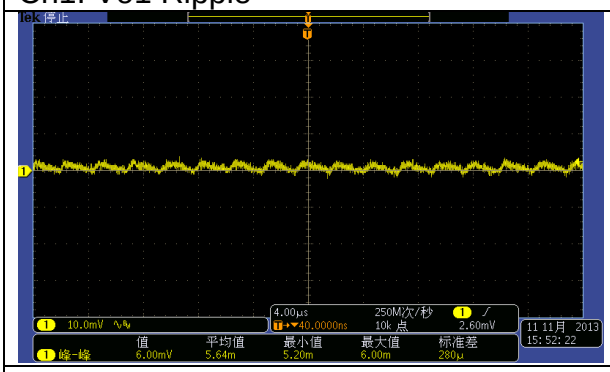
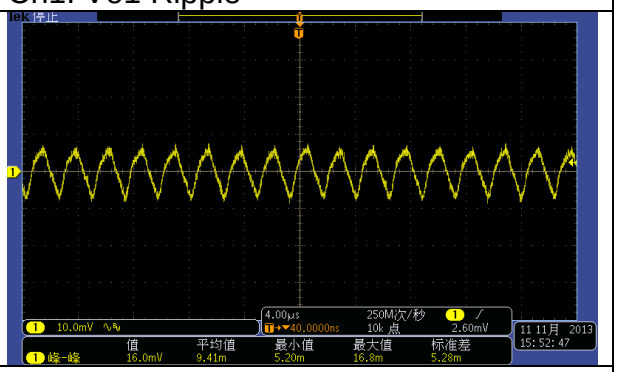
3 OUTPUT CHARACTERISTICS

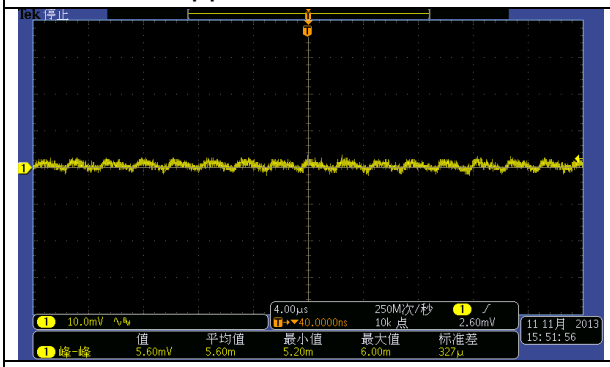
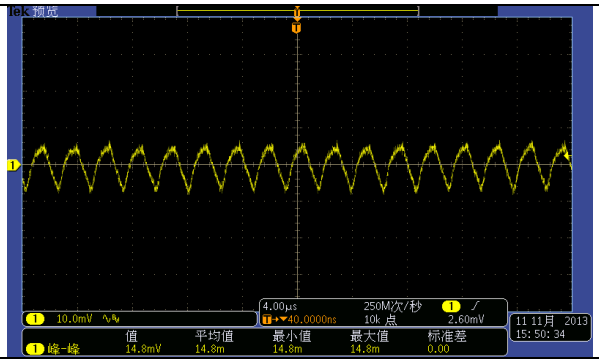
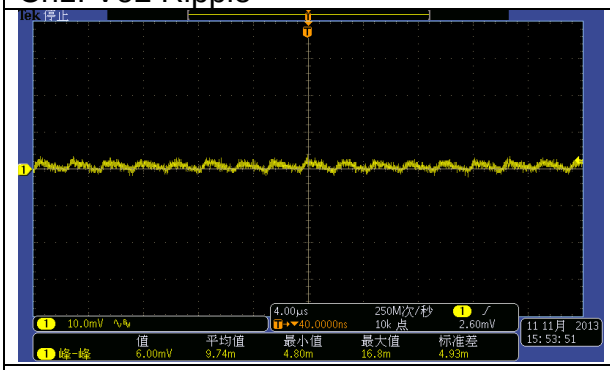
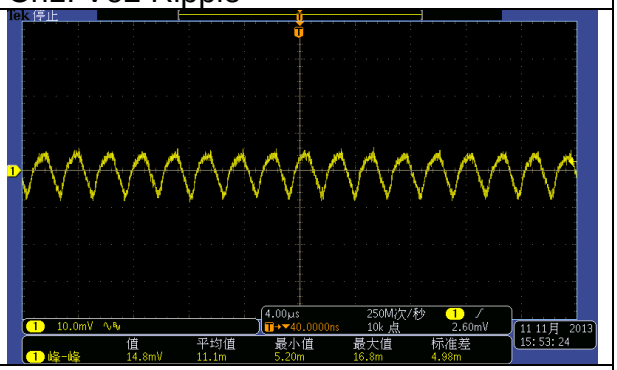
3.1 Line and load Regulation

	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)	%
21.6	5.04	-4.99	5.00	-4.95	4.98	4.93	4.97	-4.92	4.94	-4.89	2.2
24.0	5.09	-5.03	5.05	-5.00	5.03	-4.98	5.02	-4.97	5.00	-4.95	1.8
26.4	5.13	5.07	5.09	-5.04	5.07	-5.02	5.06	-5.01	5.04	-4.99	2.6

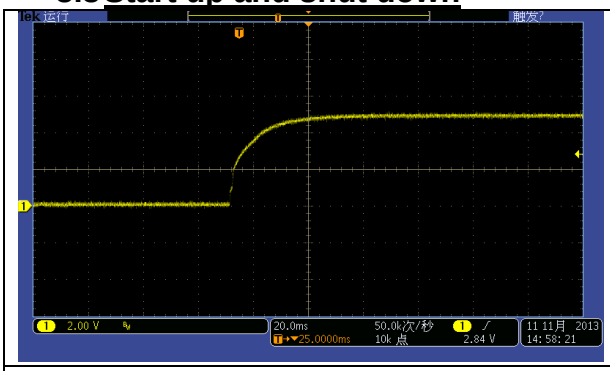
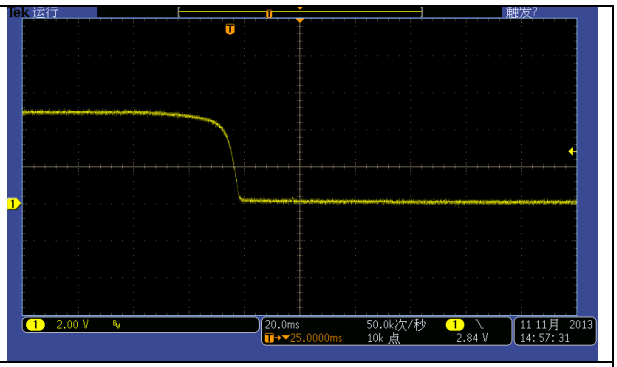
3.2 Ripple and noise

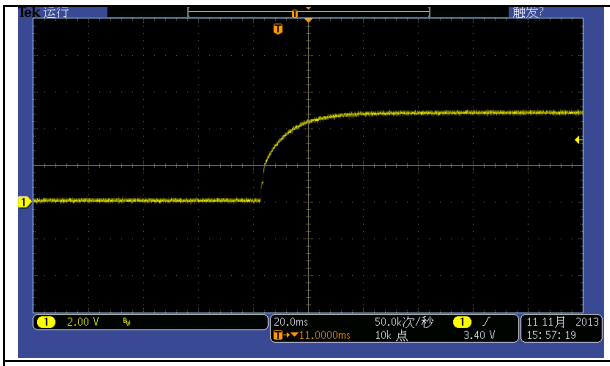
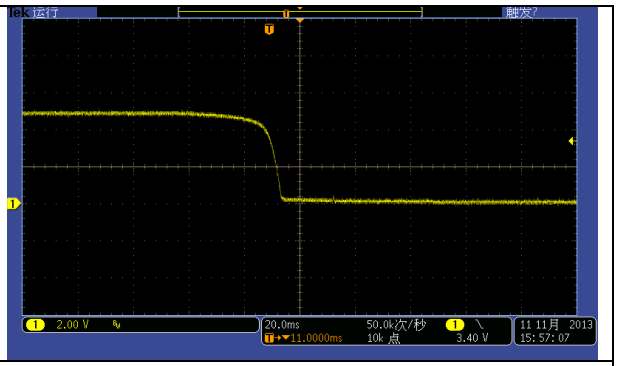
	Io1=Io2=10mA		Io1=Io2=100mA	
Vin (V)	Vo1 (mV)	Vo2 (mV)	Vo1 (mV)	Vo2 (mV)
21.6	4.8	6.0	15.2	16.0
24	4.8	5.6	13.6	14.8
26.4	4.8	6.0	13.6	14.8

	
Vin=21.6V Io=10mA Ch1: Vo1 Ripple	Vin=21.6V Io=100mA Ch1: Vo1 Ripple
	
Vin=24V Io=10mA Ch1: Vo1 Ripple	Vin=24V Io=100mA Ch1: Vo1 Ripple
	
Vin=26.4V Io=10mA Ch1: Vo1 Ripple	Vin=26.4V Io=100mA Ch1: Vo1 Ripple
	
Vin=21.6V Io=10mA	Vin=21.6V Io=100mA

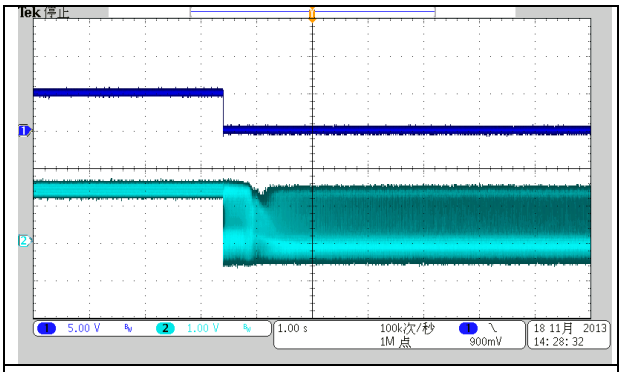
Ch1: Vo2 Ripple	Ch1: Vo2 Ripple
	
Vin=24V Io=10mA Ch1: Vo2 Ripple	Vin=24V Io=100mA Ch1: Vo2 Ripple
	
Vin=26.4V Io=10mA Ch1: Vo2 Ripple	Vin=26.4V Io=100mA Ch1: Vo2 Ripple

3.3 Start up and shut down

	
Vin=24V Io=100mA Ch1: Vo1 Start up	Vin=24V Io=100mA Ch1: Vo1 shut down

	
Vin=24V Io=100mA Ch1: Vo2 Start up	Vin=24V Io=100mA Ch1: Vo2 shut down

3.4 Output short protection


Vin=24V Io=100mA Vo1 from full load to short Ch1: Vo1 Ch2: U12 FB

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