



Texas Instruments

PMP4488 Test Procedure

Asia Power Reference Design

REV A

10/19/2015

# **1 GENERAL**

## **1.1 PURPOSE**

To provide detailed data for evaluating and verifying the EVM.

## **1.2 REFERENCE DOCUMENTATION**

Schematic: PMP4488 SCH

PCB: PMP4488 PCB

BOM

## **1.3 TEST EQUIPMENTS**

Multi-meter(voltage): Fluke 287

Multi-meter(current): Fluke 287

DC Source: TDK-Lambda GEN100-33

Load: Chroma 63110A module

Oscilloscope: Tek DPO3054

# **2 INPUT CHARACTERISTICS**

## **2.1 Efficiency versus output current**

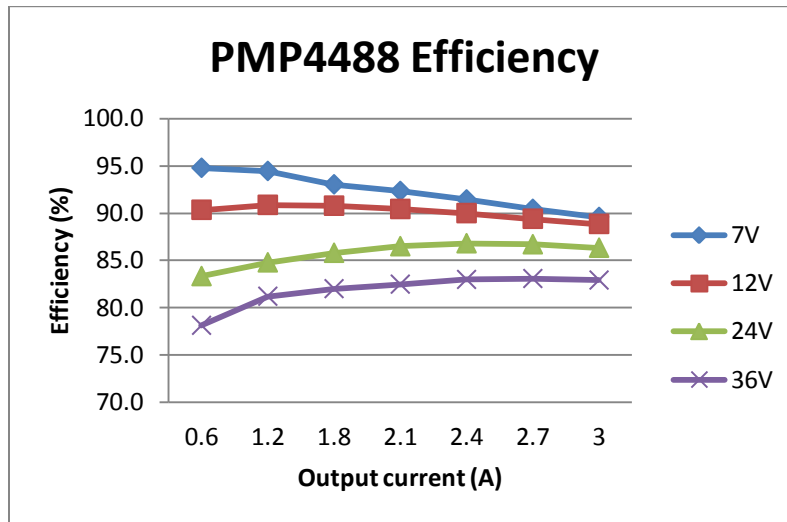
<b>Vin(V)</b>	<b>Iin(mA)</b>	<b>Vo(V)</b>	<b>Io(A)</b>	<b>Effi.(%)</b>
6.95	0.462	5.072	0.6	94.8
6.87	0.934	5.05	1.2	94.4
7.14	1.362	5.026	1.8	93.0
7.097	1.607	5.014	2.1	92.3
7.045	1.863	5	2.4	91.4
7.07	2.103	4.98	2.7	90.4
7.013	2.371	4.965	3	89.6

<b>Vin(V)</b>	<b>Iin(mA)</b>	<b>Vo(V)</b>	<b>Io(A)</b>	<b>Effi.(%)</b>
12	0.281	5.077	0.6	90.3
11.96	0.558	5.053	1.2	90.9
11.91	0.837	5.027	1.8	90.8
11.98	0.972	5.014	2.1	90.4
11.96	1.115	5	2.4	90.0
11.95	1.259	4.981	2.7	89.4
11.93	1.405	4.964	3	88.8

<b>Vin(V)</b>	<b>Iin(mA)</b>	<b>Vo(V)</b>	<b>Io(A)</b>	<b>Effi.(%)</b>
24.05	0.152	5.077	0.6	83.3
24	0.298	5.053	1.2	84.8
23.97	0.44	5.027	1.8	85.8
23.96	0.508	5.013	2.1	86.5

23.95	0.577	4.998	2.4	86.8
23.91	0.648	4.975	2.7	86.7
23.93	0.72	4.958	3	86.3

Vin(V)	Iin(mA)	Vo(V)	Io(A)	Effi.(%)
36.1	0.108	5.076	0.6	78.1
36.07	0.207	5.052	1.2	81.2
36.05	0.306	5.025	1.8	82.0
36.03	0.354	5.009	2.1	82.5
36.01	0.401	4.992	2.4	83.0
36	0.449	4.973	2.7	83.1
35.99	0.498	4.953	3	82.9

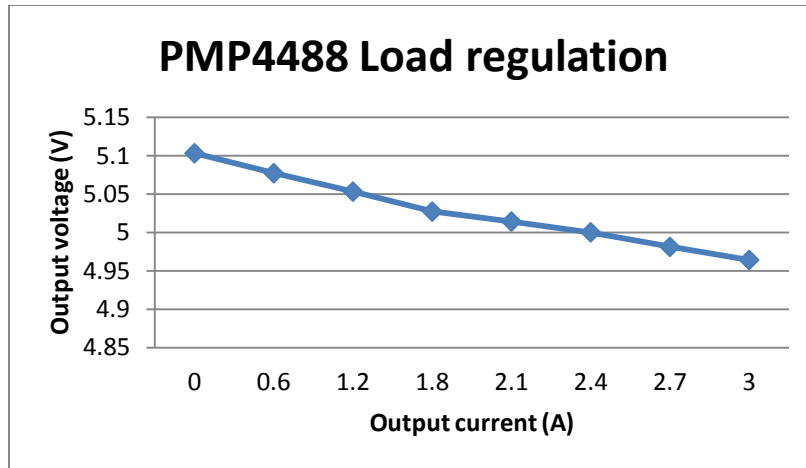


### 3 OUTPUT CHARACTERISTICS

#### 3.1 Load Regulation

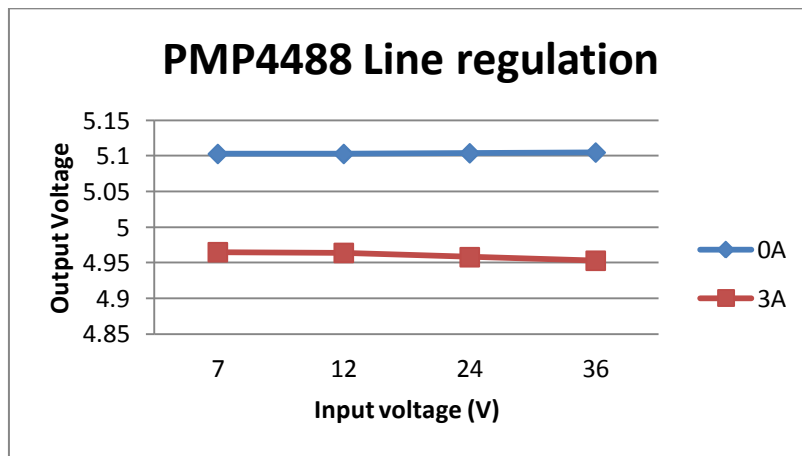
Vin=12V

Io (A)	0	0.6	1.2	1.8	2.1	2.4	2.7	3
Vo (V)	5.103	5.077	5.053	5.027	5.014	5	4.981	4.964

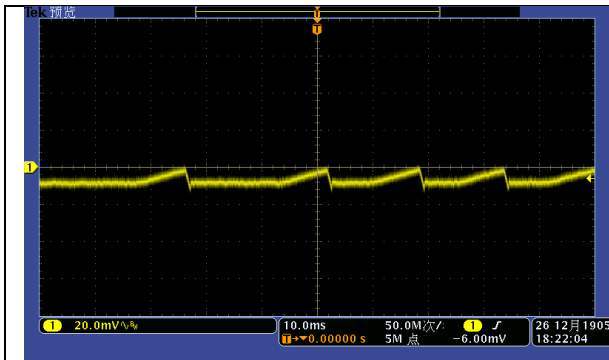


### 3.2 Line Regulation

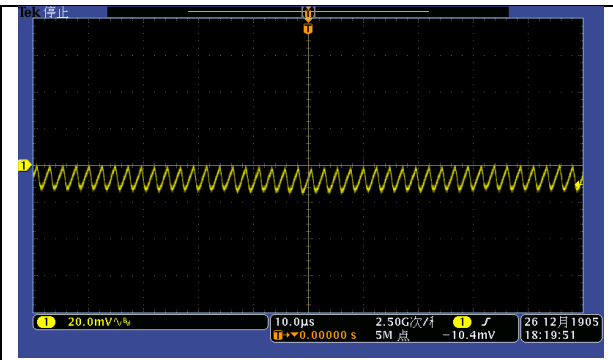
Vin (V)	Vo (V)	
	Io=0A	Io=3A
7	5.103	4.965
12	5.103	4.964
24	5.104	4.958
36	5.105	4.953



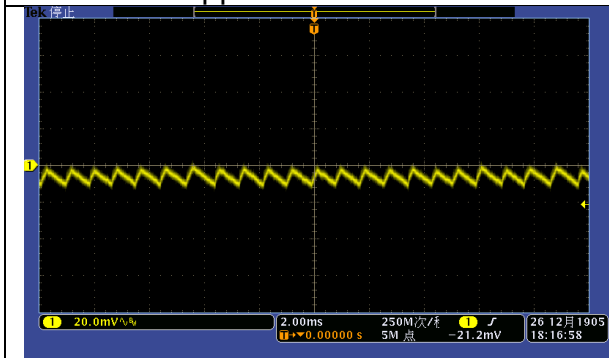
### 3.3 Ripple and noise



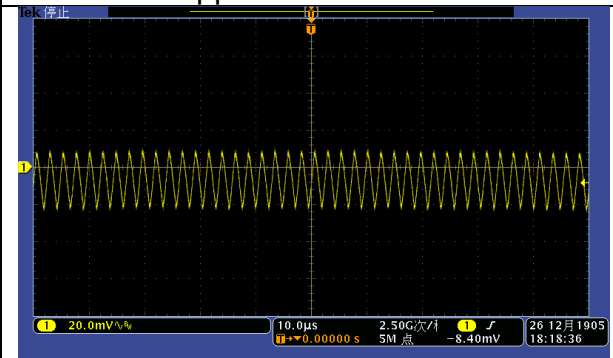
Vin=7V Io=0A  
Ch1: Vout Ripple



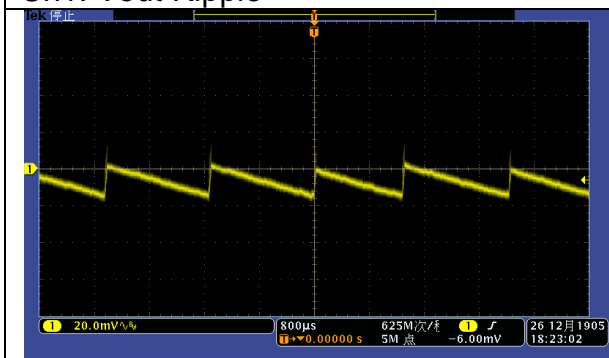
Vin=7V Io=3A  
Ch1: Vout Ripple



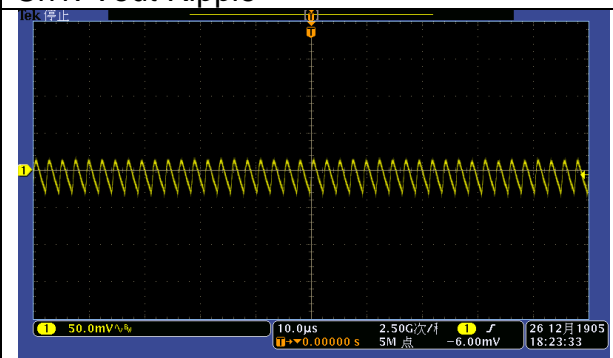
Vin=12V Io=0A  
Ch1: Vout Ripple



Vin=12V Io=3A  
Ch1: Vout Ripple

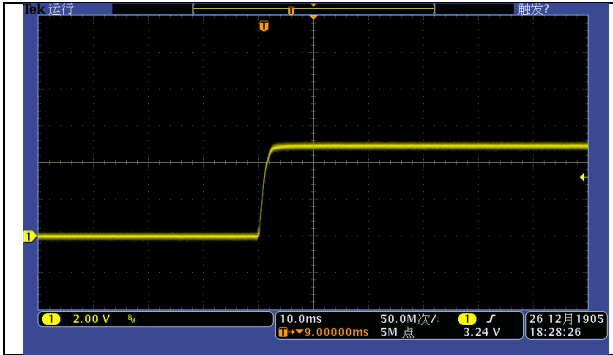


Vin=36V Io=0A  
Ch1: Vout Ripple



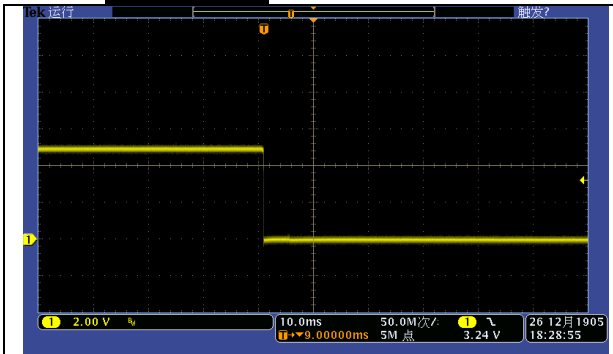
Vin=36V Io=3A  
Ch1: Vout Ripple

### 3.4 Start up



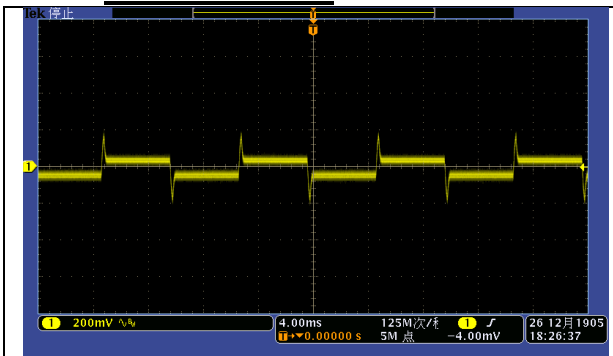
Vin=12V Io=3A  
Ch1: Vout

### 3.5 Shut down



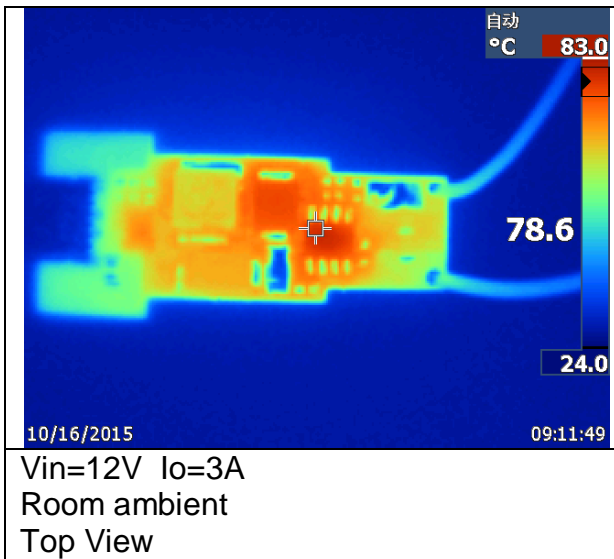
Vin=12V Io=3A  
Ch1: Vout

### 3.6 Load Transient



Vin=12V  
Io = 1A to 3A  
Ch1: Vout

## 4 Thermal



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