Texas Instruments

PMP4465 Test Procedure

China Power Reference Design

3/27/2014

1 GENERAL

1.1 PURPOSE

To provide detailed data for evaluating and verifying the PMP4465, which uses TI Buck controller TPS54360-Q1 and TPS65262-Q1.

1.2 REFERENCE DOCUMENTATION

Schematic PMP4465_SCH.PDF
Assembly PMP4465_PCB.PDF
BOM

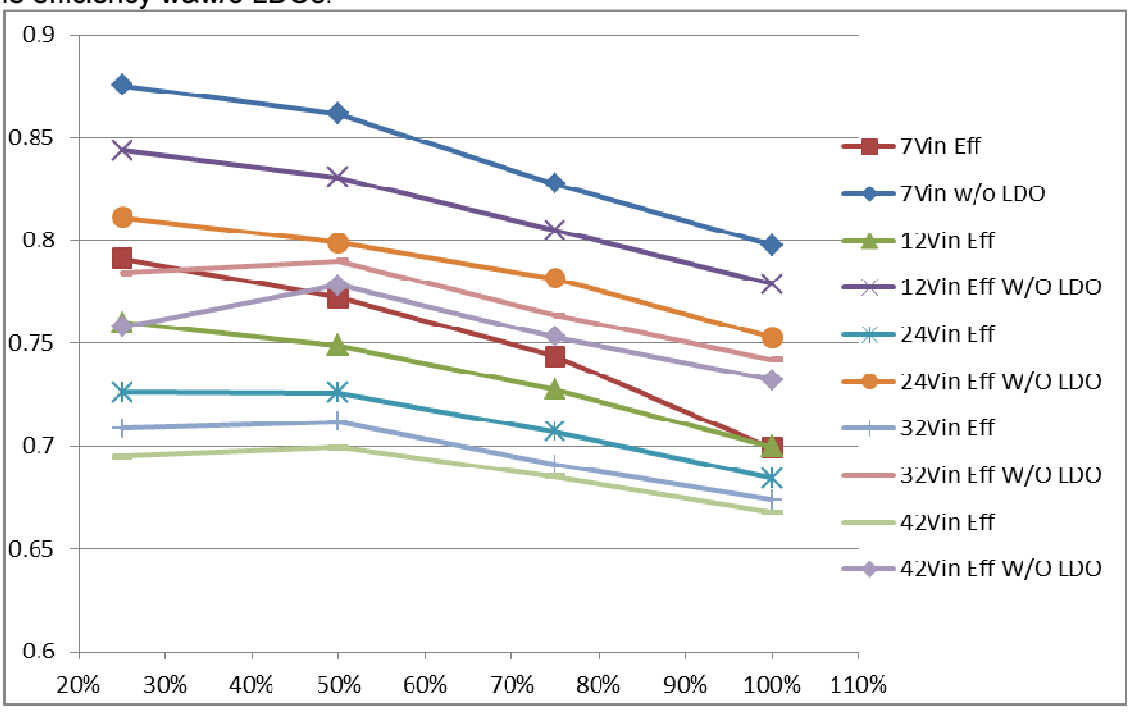
1.3 TEST EQUIPMENTS

Multi-meter (current): Fluke 287C*1
Multi-meter (voltage): Fluke 287C*1
DC Source: GPS 3303C
E-Load: Chroma 63101 module

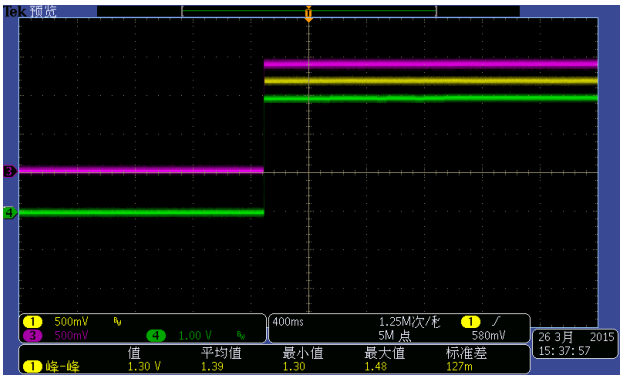
2 Performance data and waveform

2.1 EFFICIENCY

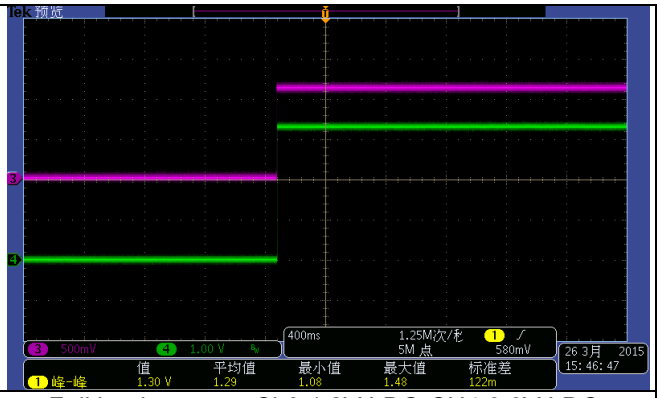
As the LDOs in TPS65262 has big effect on efficiency. The efficiency curve include the efficiency w&w/o LDOs.



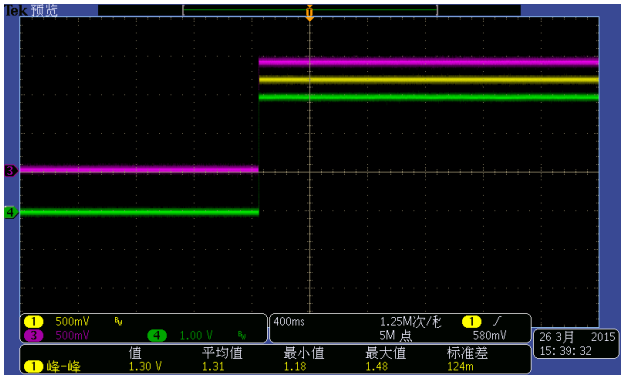
2.2 Start Up



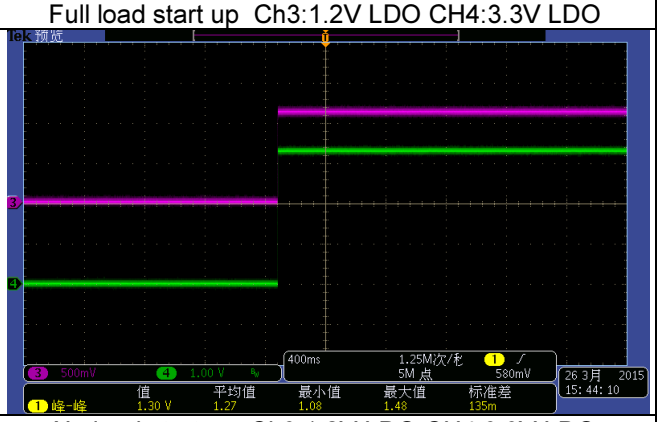
Full load start up Ch1:1.15V CH3:1.5V CH4:3.3V



Full load start up Ch3:1.2V LDO CH4:3.3V LDO

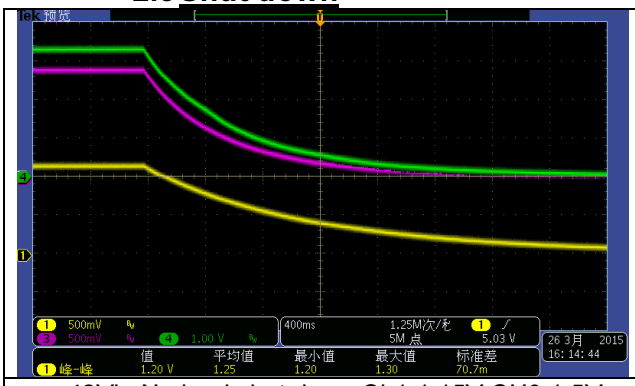


No load start up Ch1:1.15V CH3:1.5V CH4:3.3V

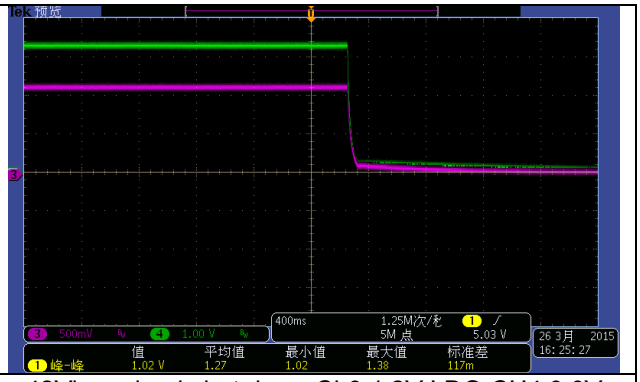


No load start up Ch3:1.2V LDO CH4:3.3V LDO

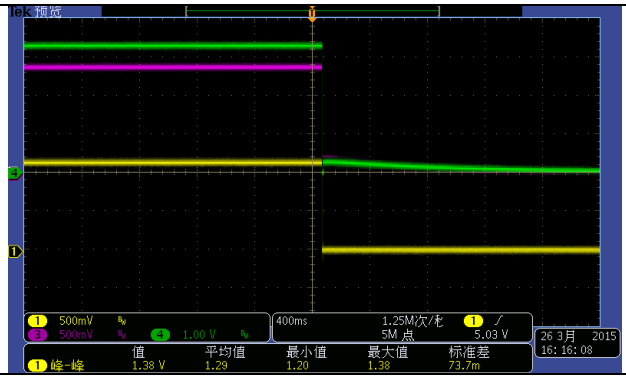
2.3 Shut down



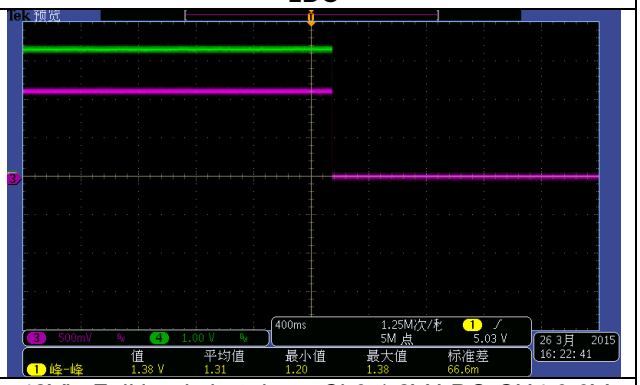
42Vin No load shut down Ch1:1.15V CH3:1.5V CH4:3.3V



42Vin no load shut down Ch3:1.2V LDO CH4:3.3V LDO

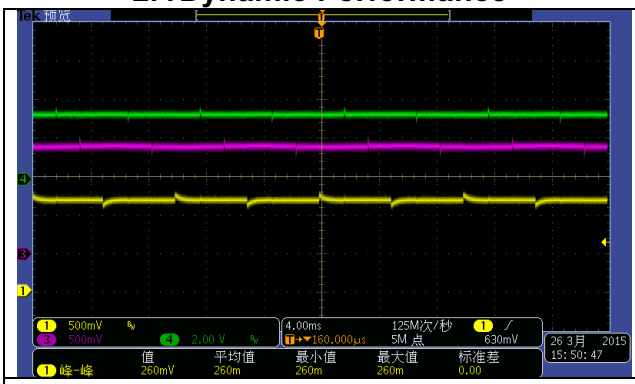


42Vin Full load shut down Ch1:1.15V CH3:1.5V CH4:3.3V

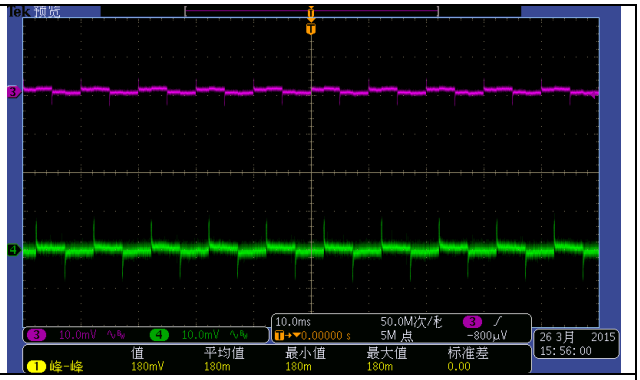


42Vin Full load shut down Ch3:1.2V LDO CH4:3.3V LDO

2.4 Dynamic Performance

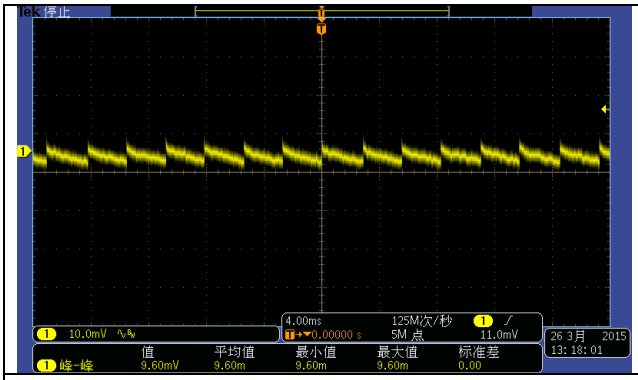


7Vin 0~2.1A Dynamic performance Ch1:1.15V CH3:1.5V CH4:3.3V

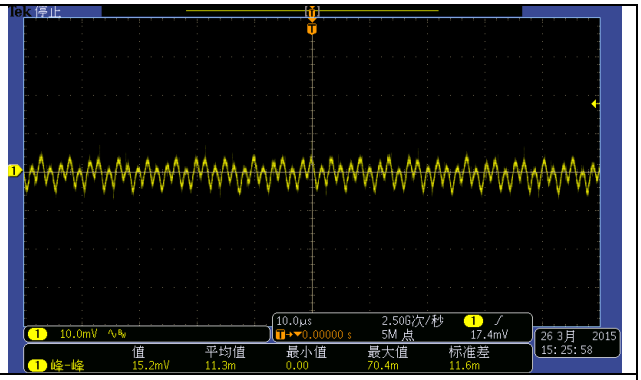


30Vin 0~2.1A Dynamic performance Ch3:1.2V LDO CH4:3.3V LDO

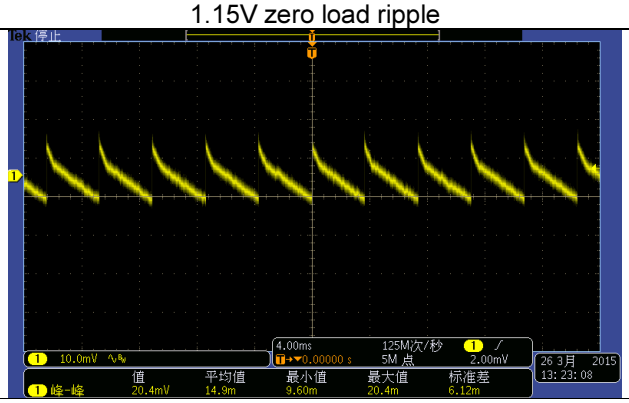
2.5 OUTPUT Voltage Ripple



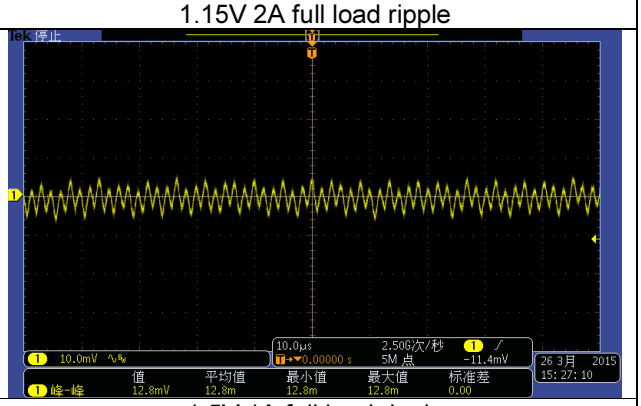
1.15V zero load ripple



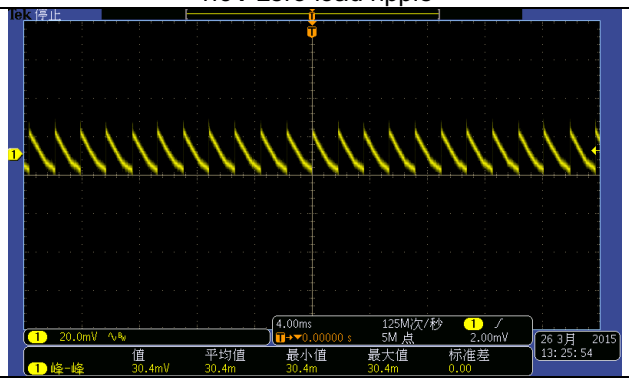
1.15V 2A full load ripple



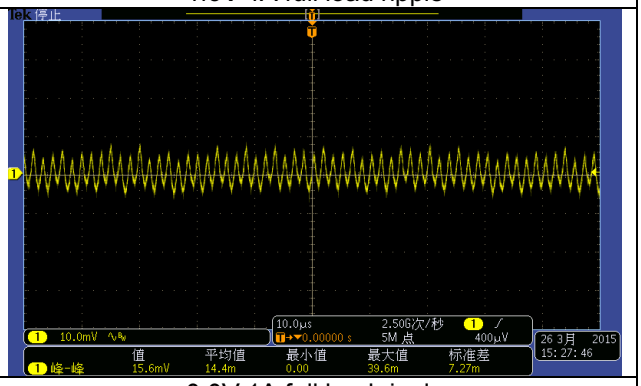
1.5V zero load ripple



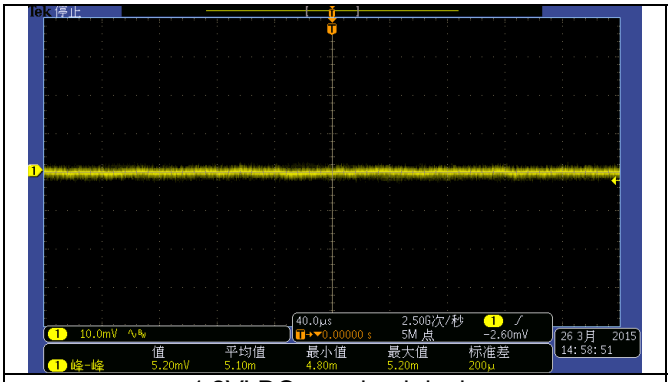
1.5V 1A full load ripple



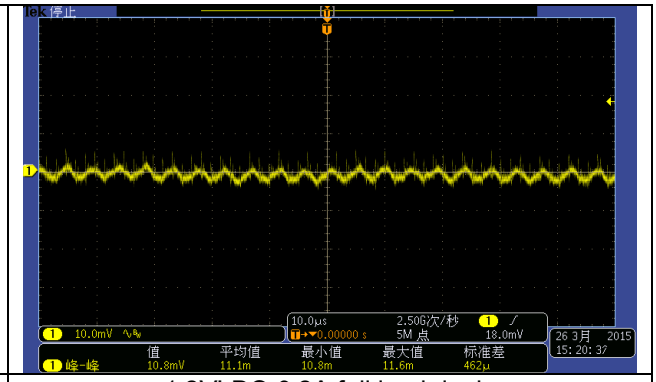
3.3V zero load ripple



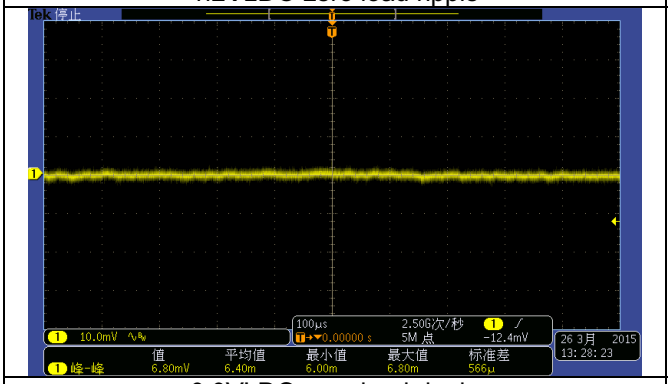
3.3V 1A full load ripple



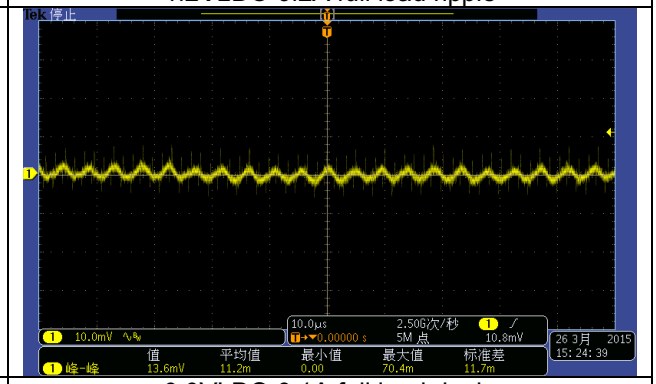
1.2VLDO zero load ripple



1.2VLDO 0.2A full load ripple



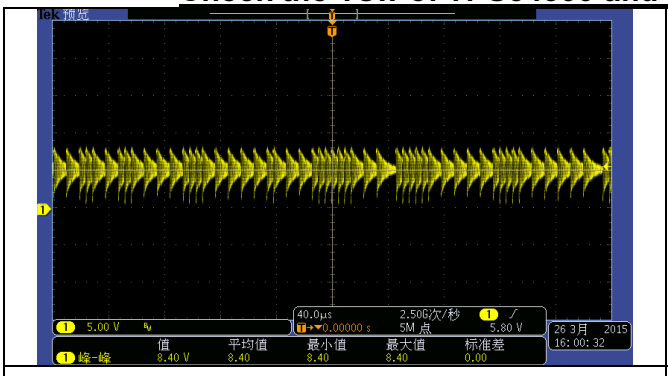
3.3VLDO zero load ripple



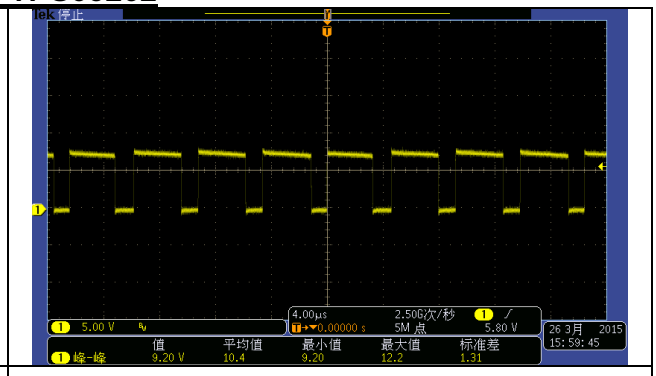
3.3VLDO 0.1A full load ripple

2.6 Mosfet Vds

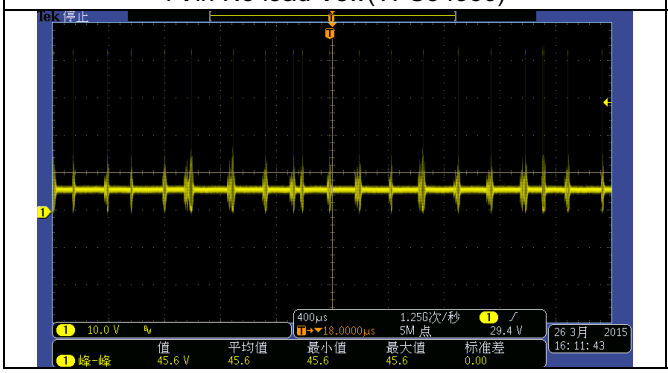
Check the Vsw of TPS54360 and TPS65262

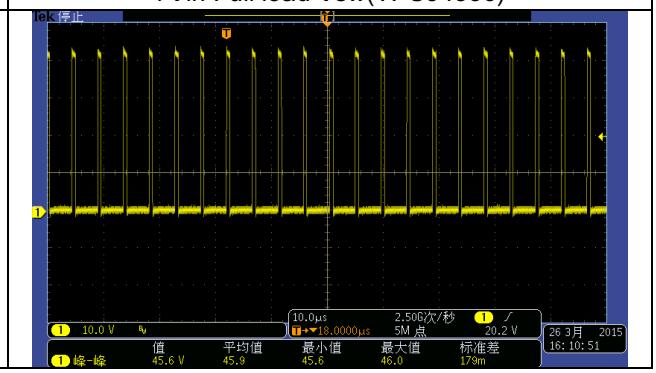


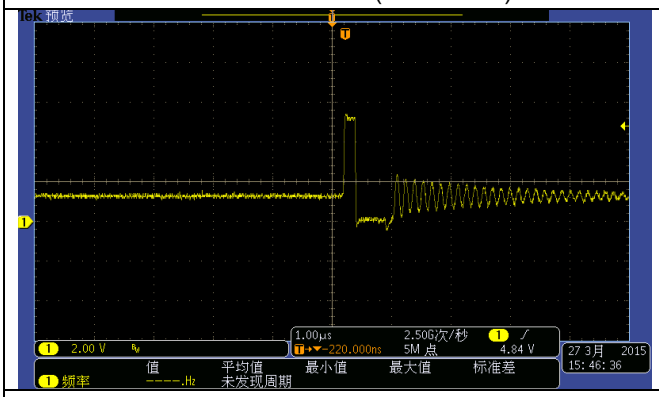
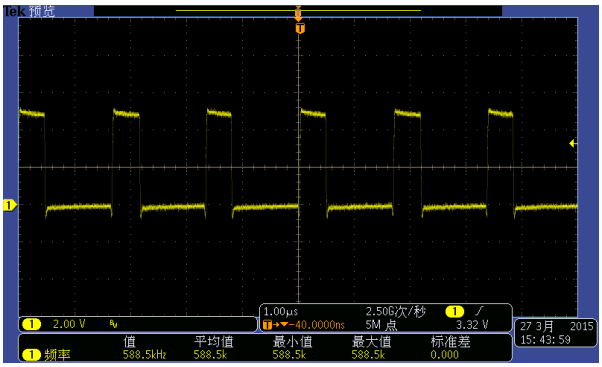
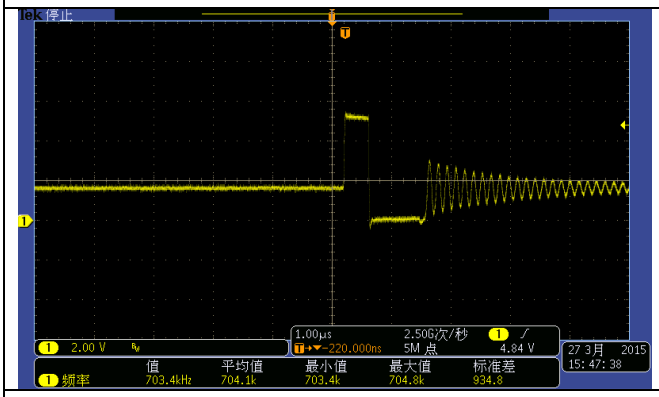
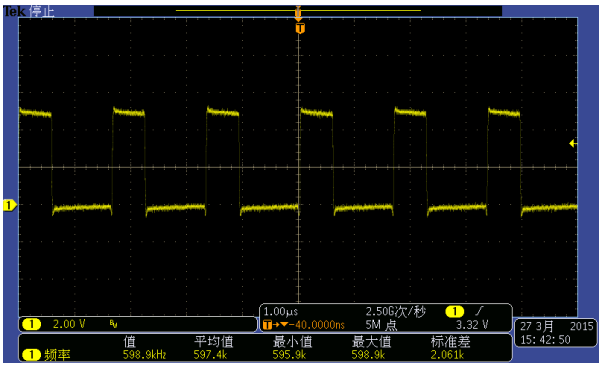
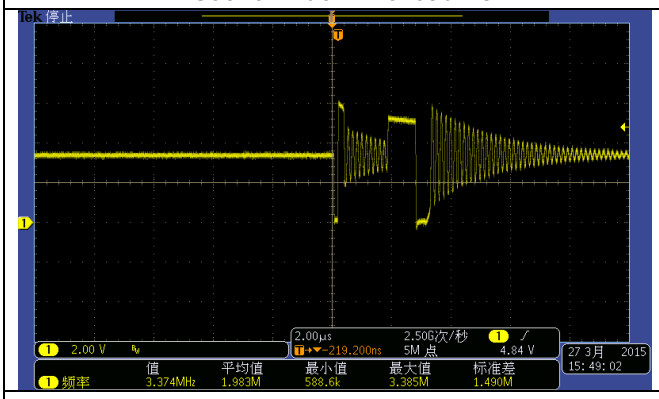
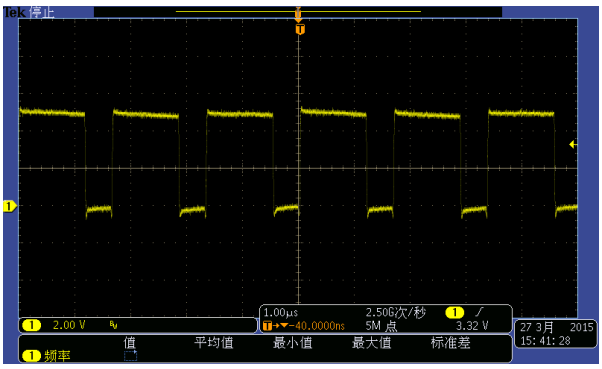
7Vin No load Vsw(TPS54360)



7Vin Full load Vsw(TPS54360)

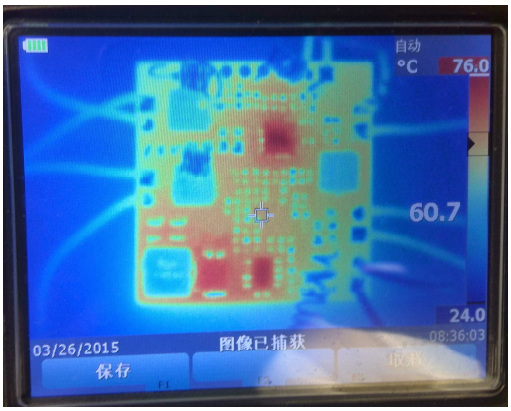




42Vin No load Vsw(TPS54360)	42Vin Full load Vsw(TPS54360)
	
TPS65262 Buck1 No load Vsw	TPS65262 Buck1 Full load Vsw
	
TPS65262 Buck2 No load Vsw	TPS65262 Buck2 Full load Vsw
	
TPS65262 Buck3 No load Vsw	TPS65262 Buck3 Full load Vsw

2.7 Thermal Performance

The thermal is tested under 12Vin with full load output 1hour W/O LDO.



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