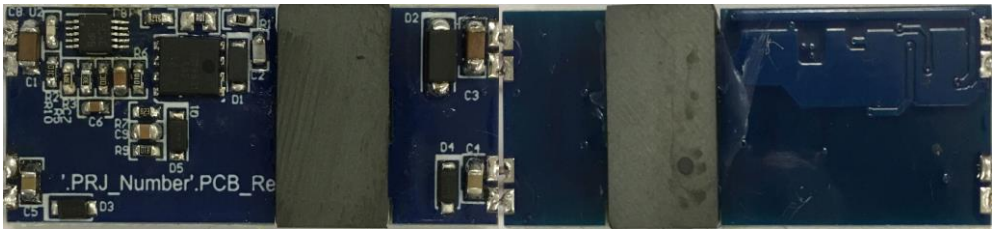
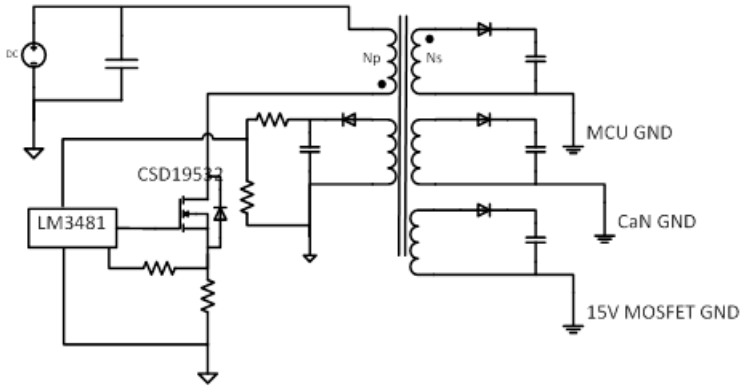
Design PMP40100 Test Results

1 GENERAL

1.1 PURPOSE

The PMP40100 is an isolated flyback solution which accepts an input voltage of 5V to 36V and provides multiple output rails to the load. The reference design using LM3481 flyback-CCM topology features, multiple isolated output rails, good line and load regulation, good thermal performance. The design also integrates transformer winding in PCB which significantly reduces the PCB board dimension.





1.2 REFERENCE DOCUMENTATION

Schematic: PMP40100E1((No Variations))_Sch.PDF
PCB: PMP40100_PCB_.PcbDoc
BOM: PMP40100E1((No Variations))_TI-BOM.pdf

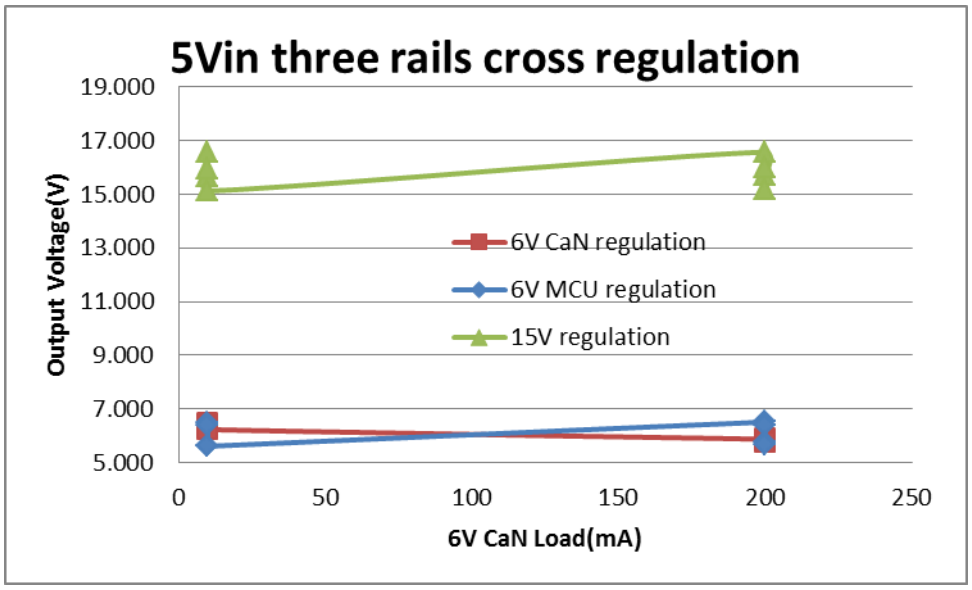
1.3 TEST EQUIPMENTS

Multi-meter (current): Fluke 287C*2
Multi-meter (voltage): Agilent 34401A
E-Load: Chroma 63101 module

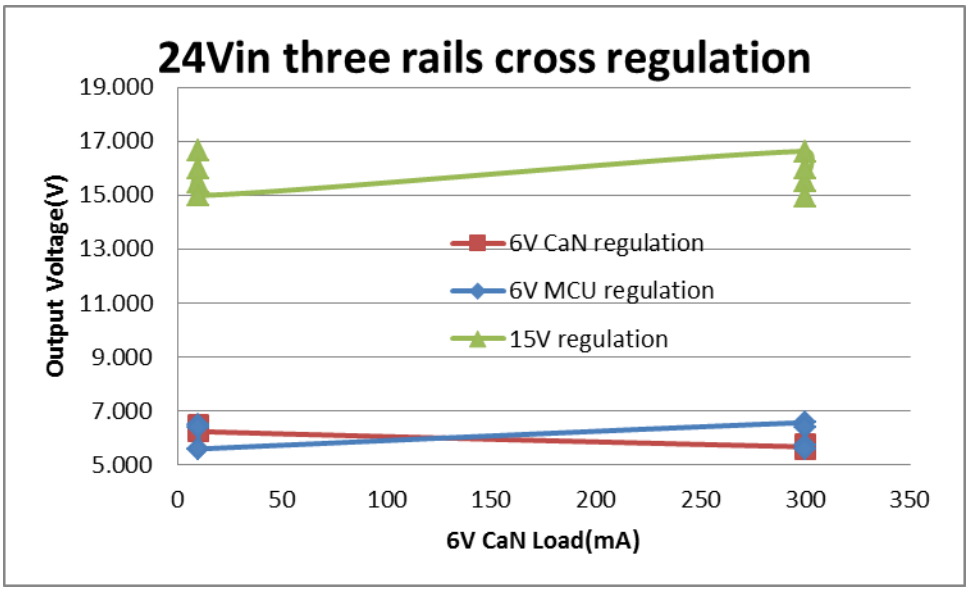
2 Performance data and waveform

2.1 Three Output Rail Cross Regulation

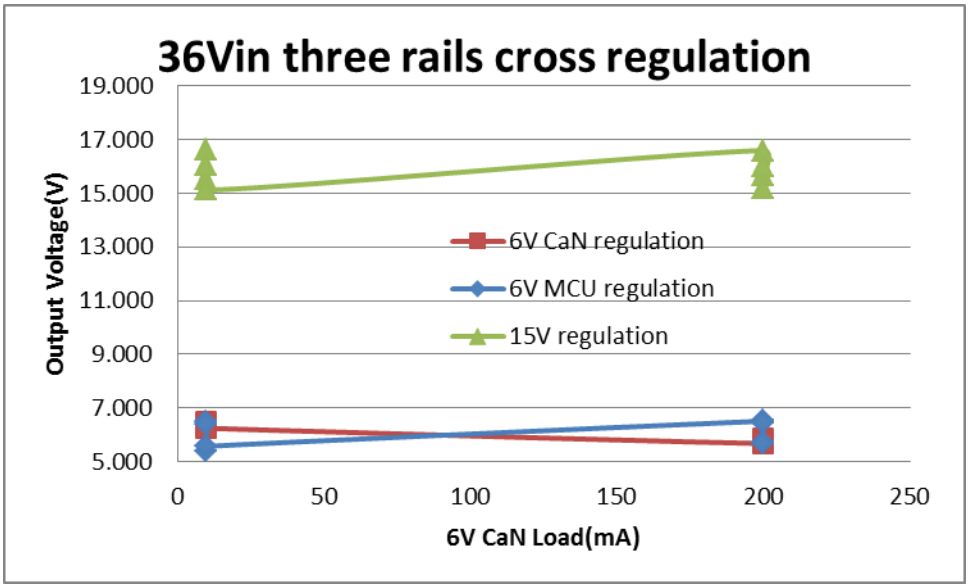
Vin=5V	6V(CaN)(mA)	Vout1	6V(MCU)(mA)	Vout2	15V(Driver)(mA)	Vout3
	10	6.499	10	6.484	10	16.594
	10	6.405	10	6.383	80	15.672
	10	6.328	300	5.609	10	15.953
	10	6.238	300	5.617	80	15.125
	200	5.881	10	6.516	10	16.570
	200	5.915	10	6.414	80	15.688
	200	5.840	300	5.758	10	16.016
	200	5.754	300	5.688	80	15.203



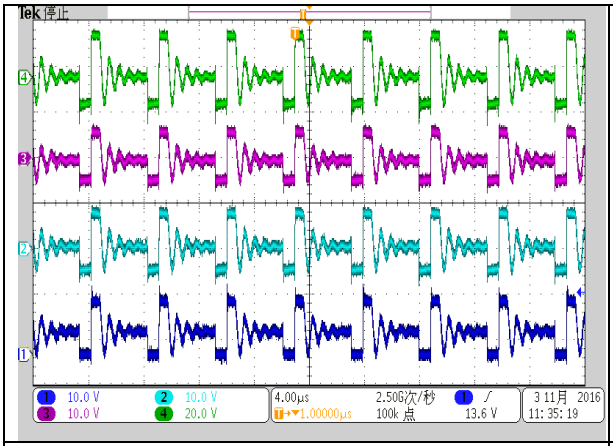
Vin=24V	6V(CaN)(mA)	Vout1	6V(MCU)(mA)	Vout2	15V(Driver)(mA)	Vout3
	10	6.500	10	6.500	10	16.664
	10	6.398	10	6.391	100	15.477
	10	6.351	300	5.570	10	16.000
	10	6.240	300	5.594	100	14.984
	300	5.674	10	6.570	10	16.625
	300	5.781	10	6.391	100	15.492
	300	5.713	300	5.711	10	15.969
	300	5.591	300	5.602	100	14.953



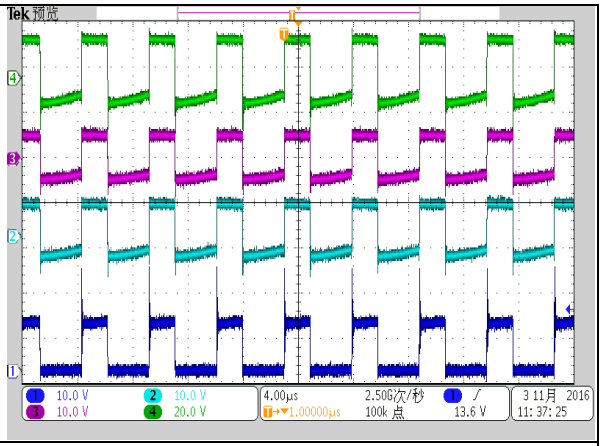
Vin=36V	6V(CaN)(mA)	Vout1	6V(MCU)(mA)	Vout2	15V(Driver)(mA)	Vout3
	10	6.485	10	6.484	10	16.617
	10	6.433	10	6.414	80	15.516
	10	6.346	300	5.414	10	16.031
	10	6.253	300	5.578	80	15.117
	200	5.683	10	6.516	10	16.594
	200	5.8775	10	6.422	80	15.672
	200	5.798	300	5.703	10	16.000
	200	5.733	300	5.656	80	15.188



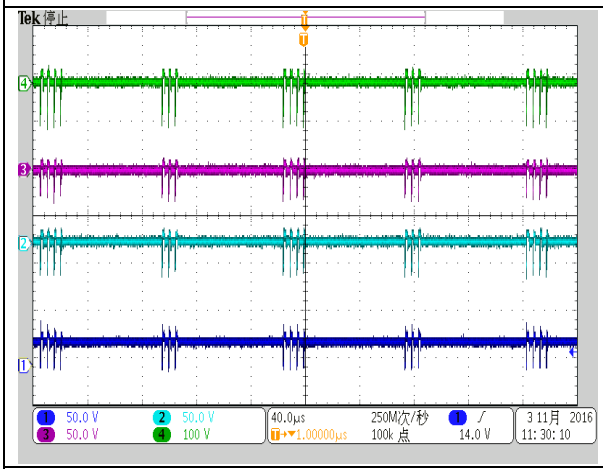
2.2 5Vin,24Vin,36Vin no load and full load



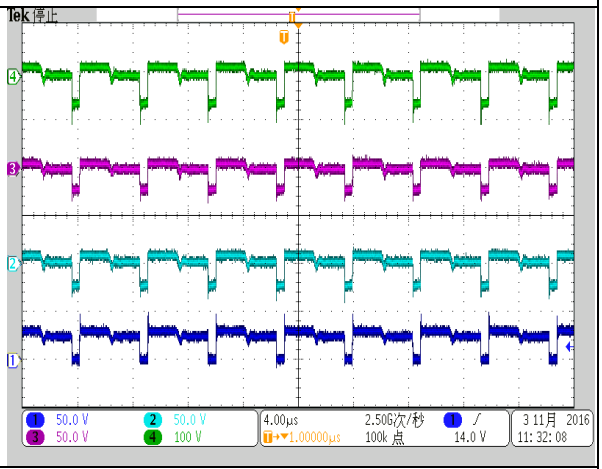
5Vin No-Load
CH1=Vprids;CH2=CaN Vdiode;
CH3=MCU Vdiode; CH4=15V Vdiode



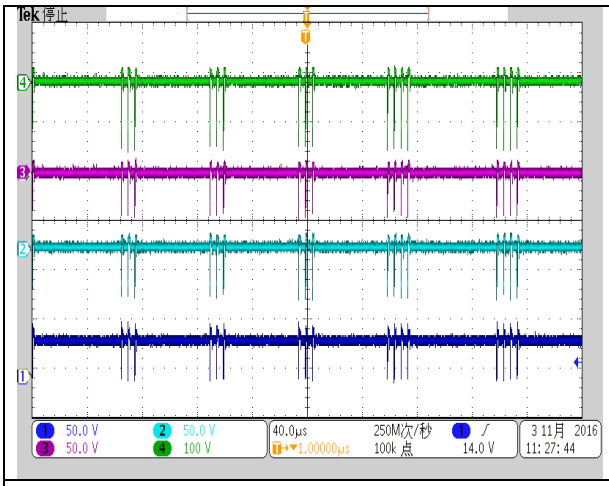
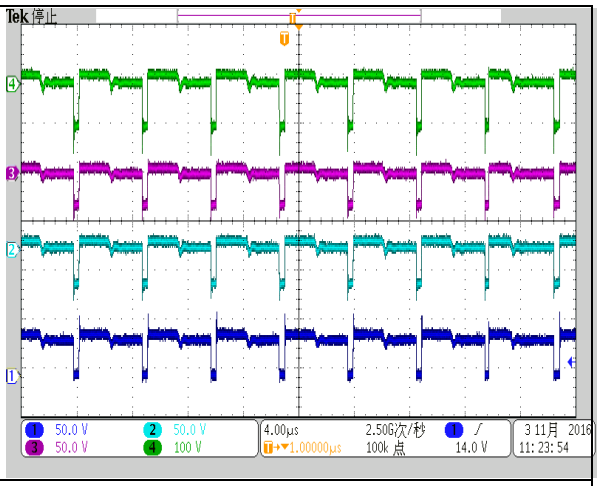
5Vin Full-Load
CH1=Vprids;CH2=CaN Vdiode;
CH3=MCU Vdiode; CH4=15V Vdiode



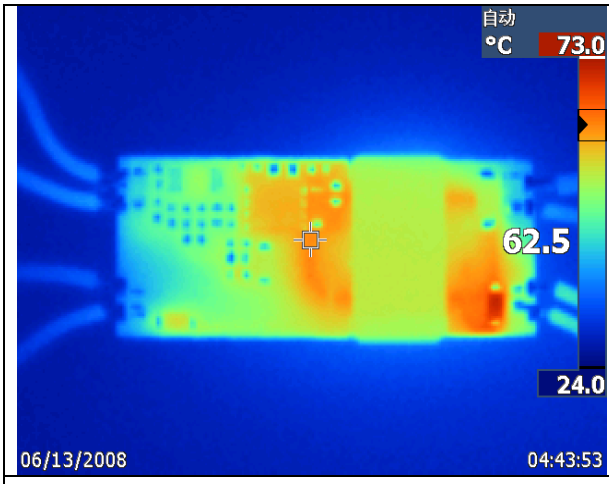
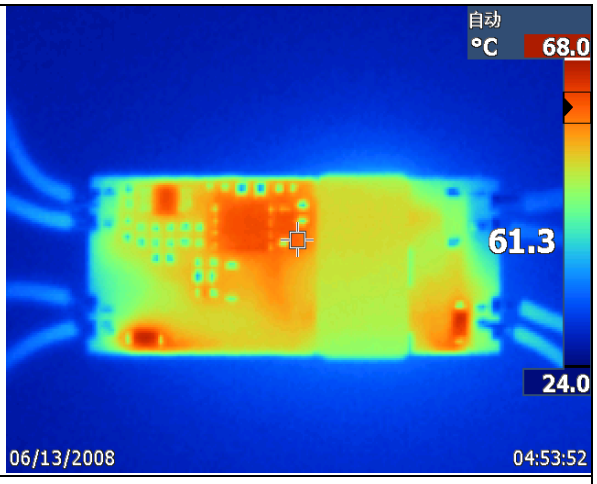
24Vin No-Load
CH1=Vprids;CH2=CaN Vdiode;
CH3=MCU Vdiode; CH4=15V Vdiode

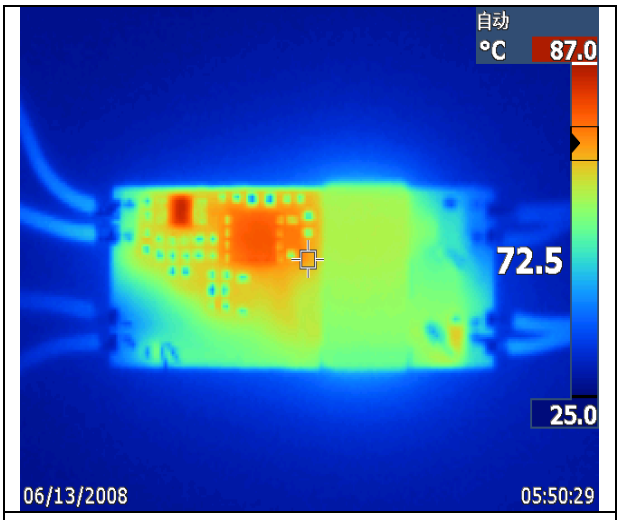


24Vin Full-Load
CH1=Vprids;CH2=CaN Vdiode;
CH3=MCU Vdiode; CH4=15V Vdiode

	
36Vin No-Load **CH1=Vprids;CH2=CaN Vdiode;** **CH3=MCU Vdiode; CH4=15V Vdiode**	**36Vin Full-Load** **CH1=Vprids;CH2=CaN Vdiode;** **CH3=MCU Vdiode; CH4=15V Vdiode**

2.3 Thermal Performance

	
5Vin full load	**24Vin full load**



36Vin full load

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