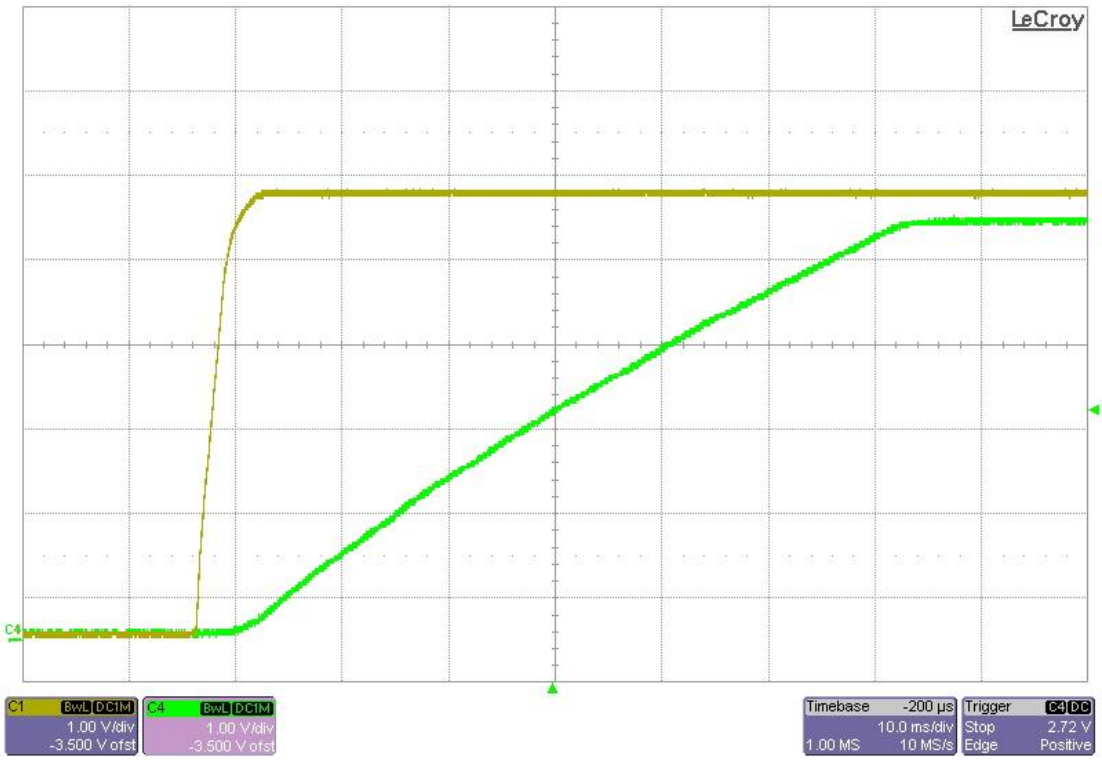
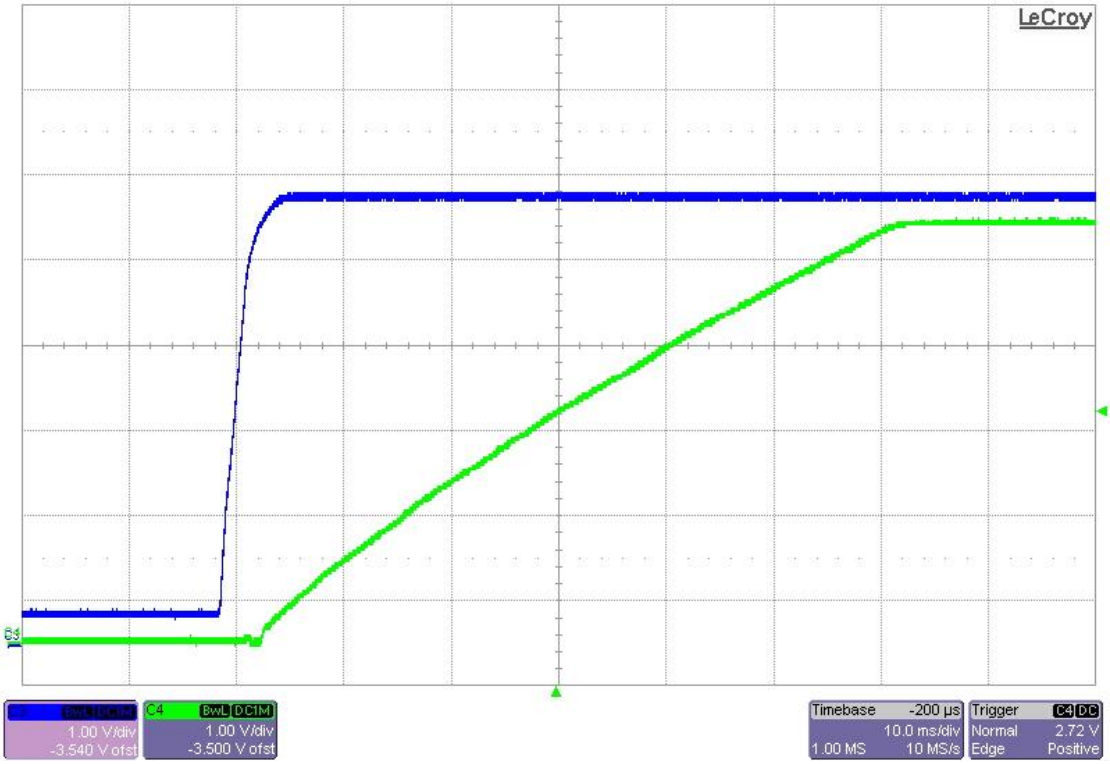
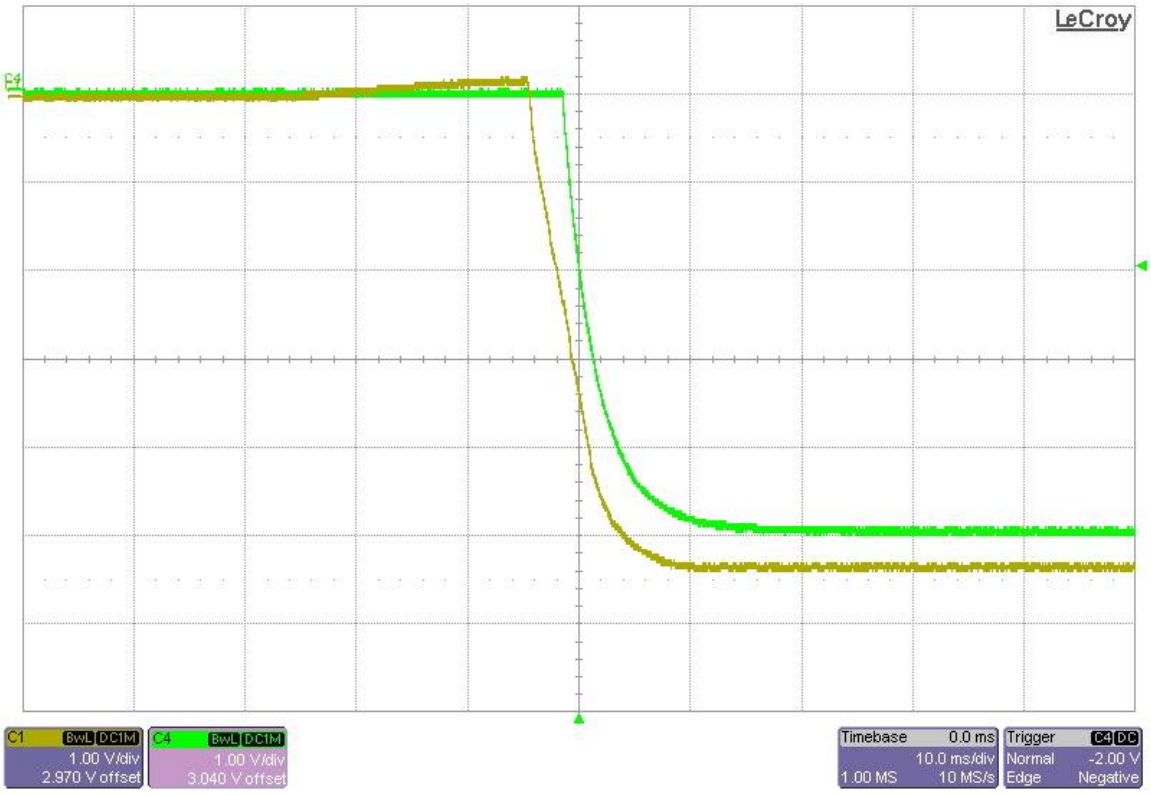
1 Startup



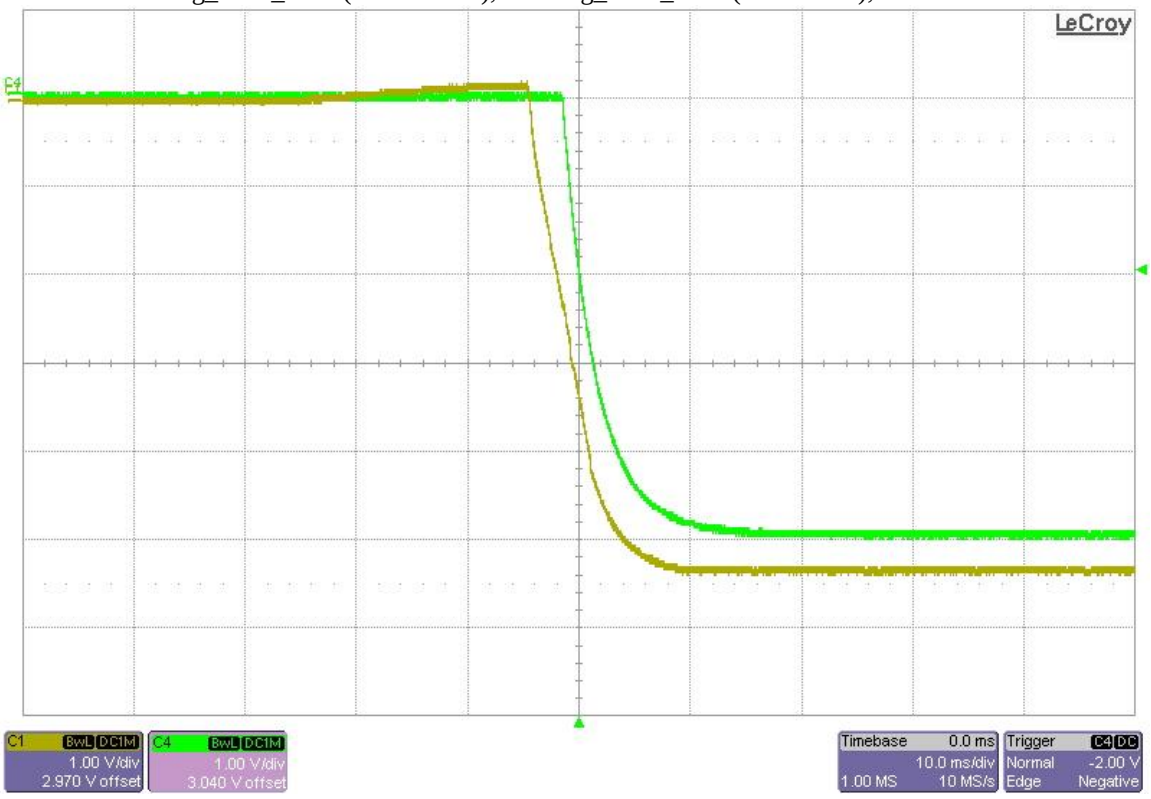
C1: Vout_TP7(before LDO); C4:Vout_TP9(After LDO); LOAD=0mA



C3: Vout_TP7(before LDO); C4:Vout_TP9(After LDO); LOAD=250mA



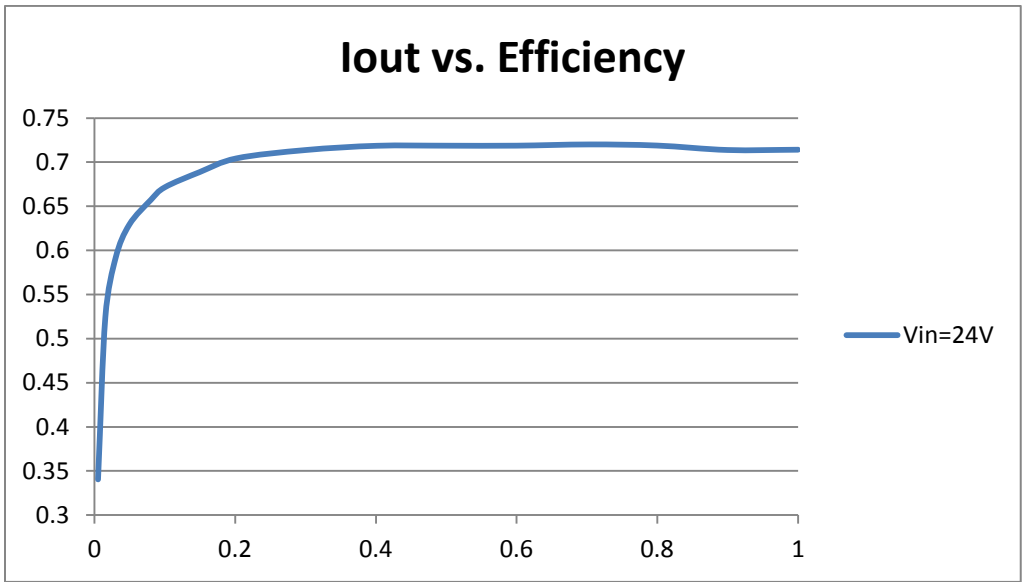
C1: Neg_Vout_TP17(before LDO); C4: Neg_Vout_TP19(After LDO); LOAD=0mA



C1: Neg_Vout_TP17(before LDO); C4: Neg_Vout_TP19(After LDO); LOAD=250mA

2 Efficiency

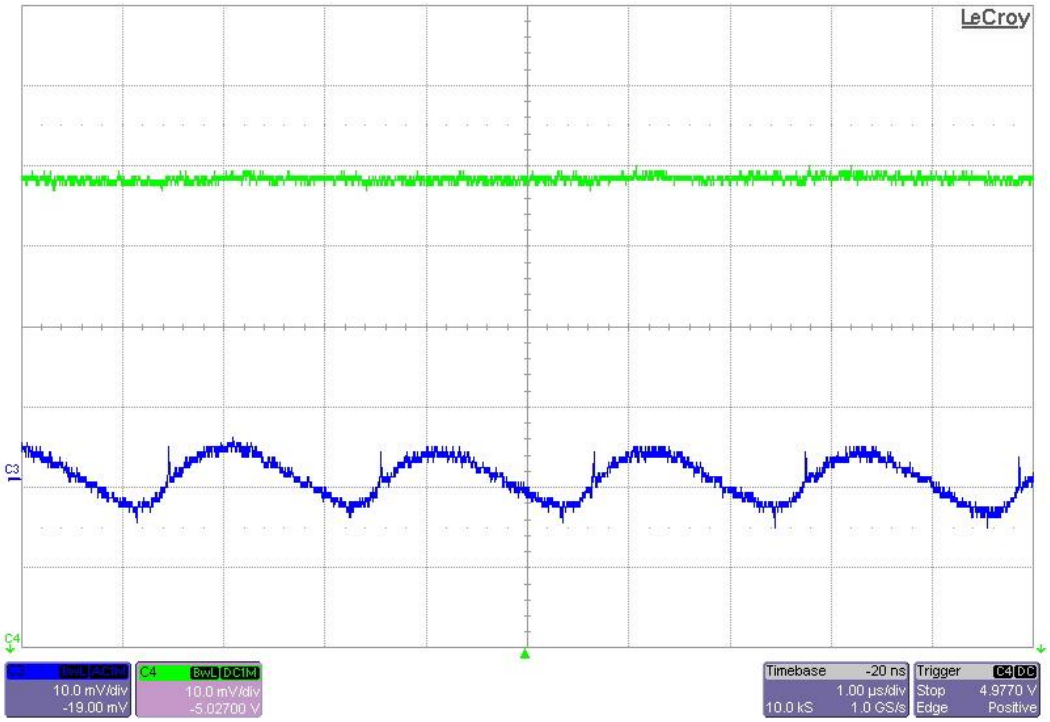
The efficiency is shown in the figure below.



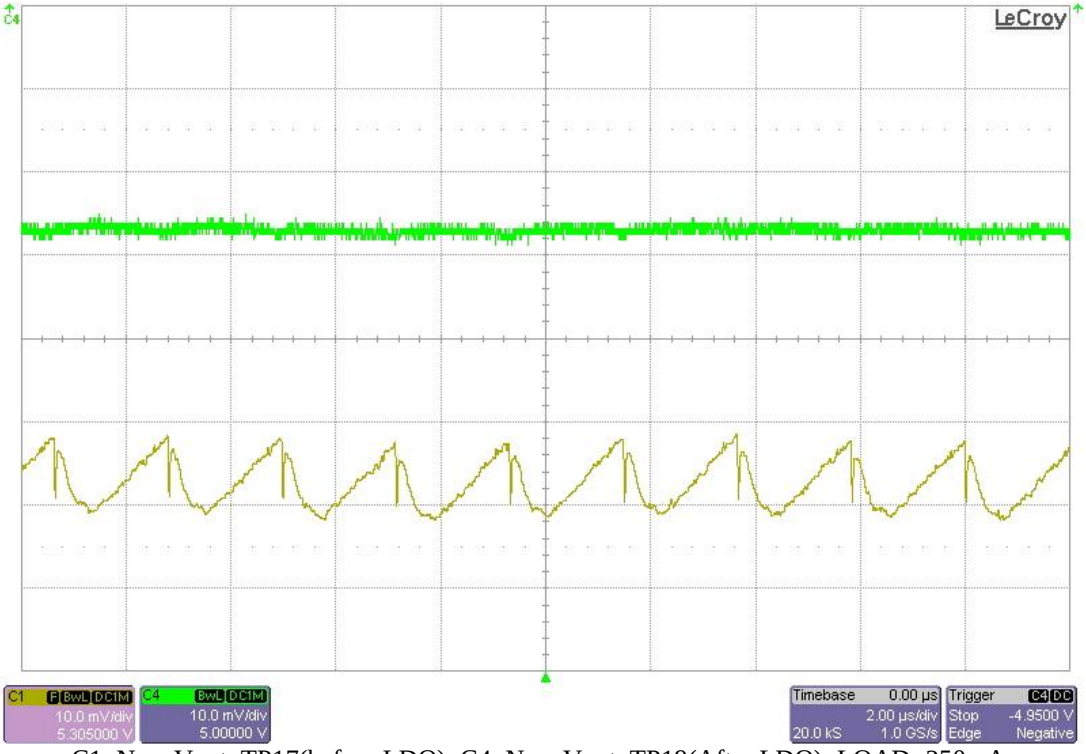
Vin(V)	Iin(mA)	Vout(V)	Iout(mA)
23.996	3.1	5.065	5
23.99	6.2	5.063	15.4
23.982	10.7	5.06	30
24.071	16.5	5.049	49.5
24.054	25.5	5.039	80
24.043	31.25	5.046	100
24.16	45.26	5.038	149.5
23.988	60.05	5.023	202
24.036	87.6	5.008	300.1
24.083	115.7	4.986	401.6
24.028	144.1	4.965	501.2
23.973	172.6	4.959	599.7
24.017	201.5	4.958	702.9
24.065	228.5	4.943	799.7
24.07	258.3	4.931	900
24.052	286.2	4.916	1000

3 Output Ripple Voltage

The output ripple voltage is shown in the figure below.



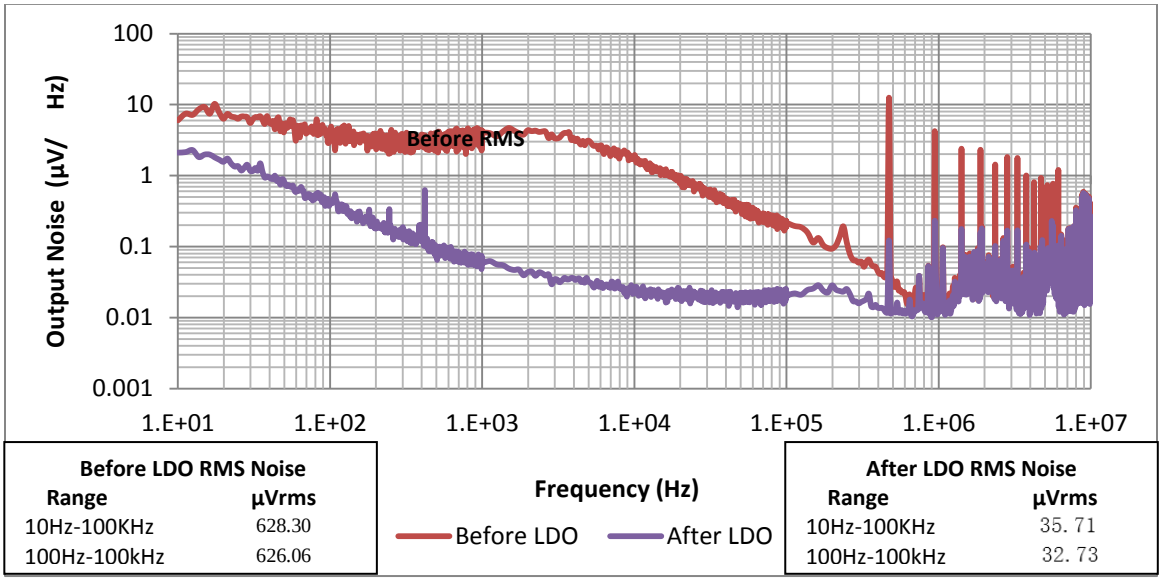
C3: Vout_TP7(before LDO); C4:Vout_TP9(After LDO); LOAD=250mA



C1: Neg_Vout_TP17(before LDO); C4: Neg_Vout_TP19(After LDO); LOAD=250mA

4 Noise Measurement

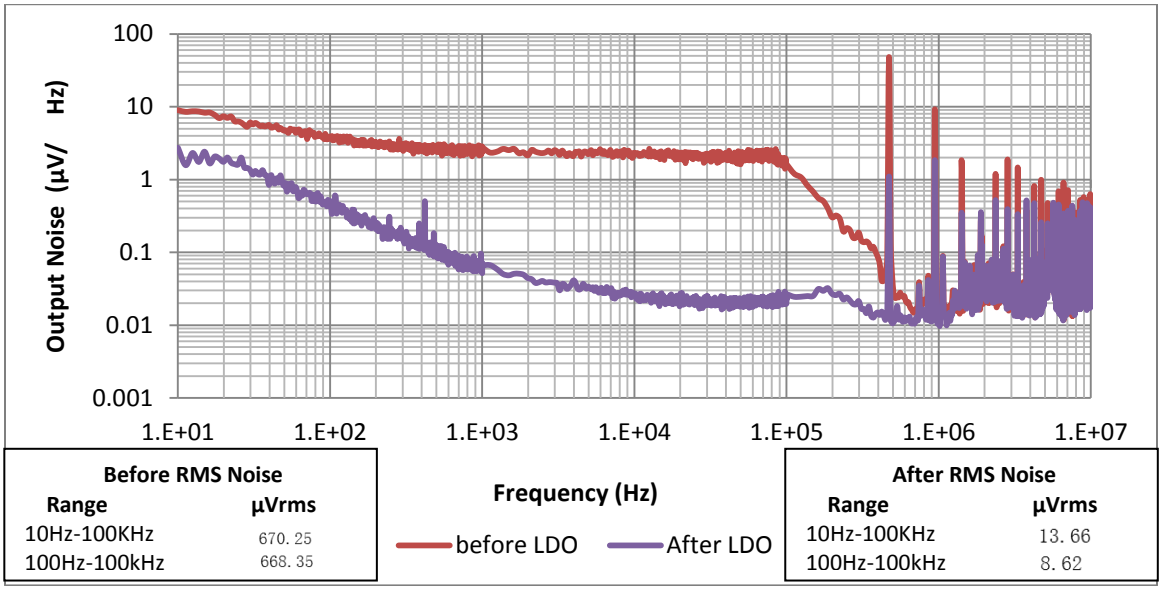
The output noise is shown in the figure below.
Input voltage = 24V
Output voltage = +5V
Load current = 100mA



Before LDO RMS Noise	
Range	µVrms
10Hz-100KHz	628.30
100Hz-100kHz	626.06

After LDO RMS Noise	
Range	µVrms
10Hz-100KHz	35. 71
100Hz-100kHz	32. 73

Input voltage = 24V
Output voltage = +5V
Load current = 1A

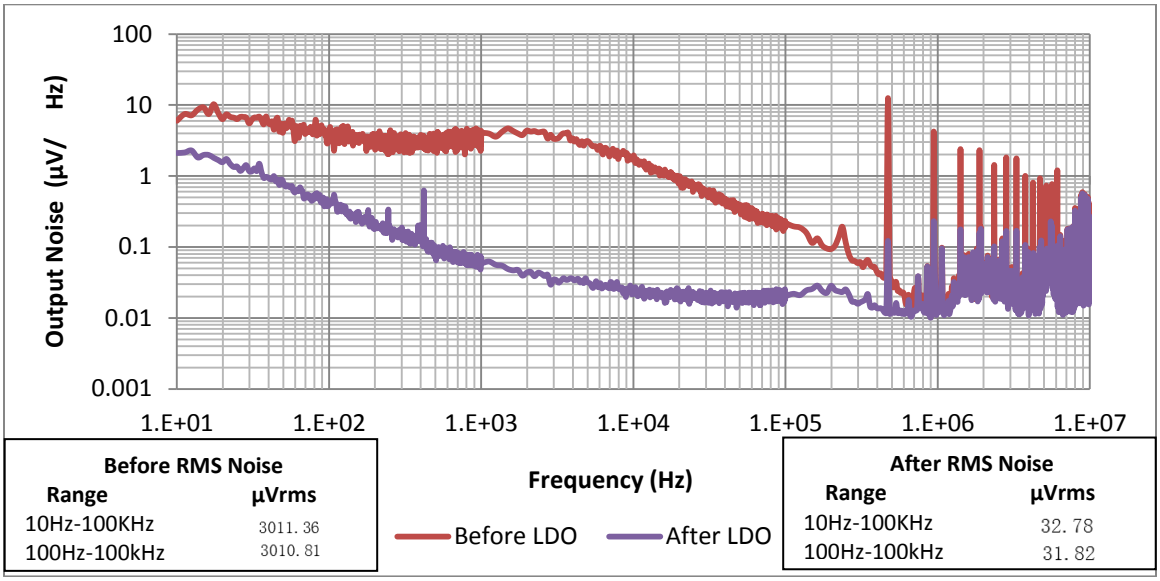


Before RMS Noise	
Range	µVrms
10Hz-100KHz	670. 25
100Hz-100kHz	668. 35

After RMS Noise	
Range	µVrms
10Hz-100KHz	13. 66
100Hz-100kHz	8. 62

PMP8372 Test Results

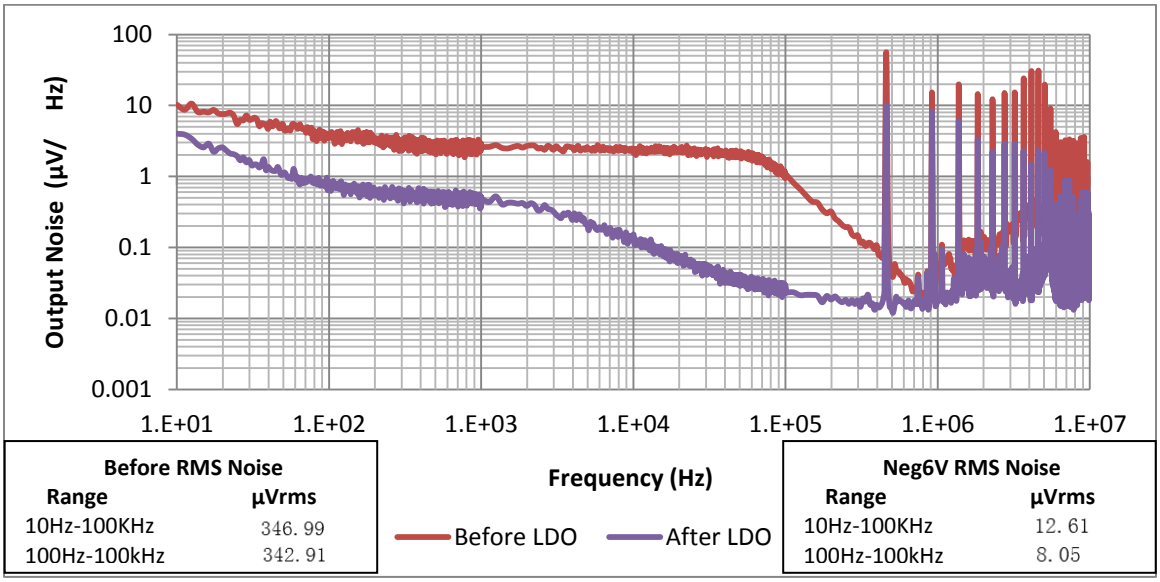
Input voltage = 24V
Output voltage = -5V
Load current = 100mA



Before RMS Noise	
Range	µVrms
10Hz-100KHz	3011.36
100Hz-100kHz	3010.81

After RMS Noise	
Range	µVrms
10Hz-100KHz	32.78
100Hz-100kHz	31.82

Input voltage = 24V
Output voltage = -5V
Load current = 1A



Before RMS Noise	
Range	µVrms
10Hz-100KHz	346.99
100Hz-100kHz	342.91

Neg6V RMS Noise	
Range	µVrms
10Hz-100KHz	12.61
100Hz-100kHz	8.05

RMS noise range from 10Hz-100KHz(µVrms)

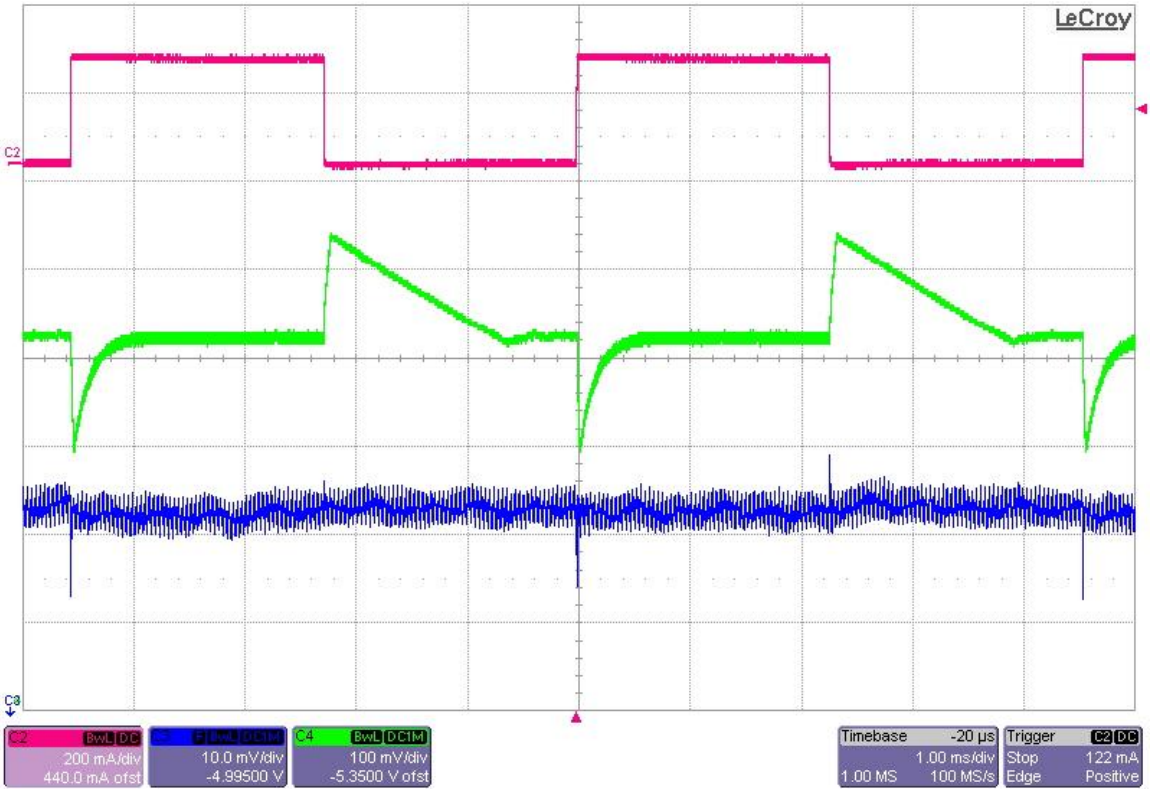
Voltage / Load	Before LDO (Positive)	After LDO (Positive)	Before LDO (Negative)	After LDO (Negative)
1A	670.25	13.66	628.30	35.71
0.1A	346.99	12.61	3011.36	32.78

RMS noise range from 100Hz-100KHz(µVrms)

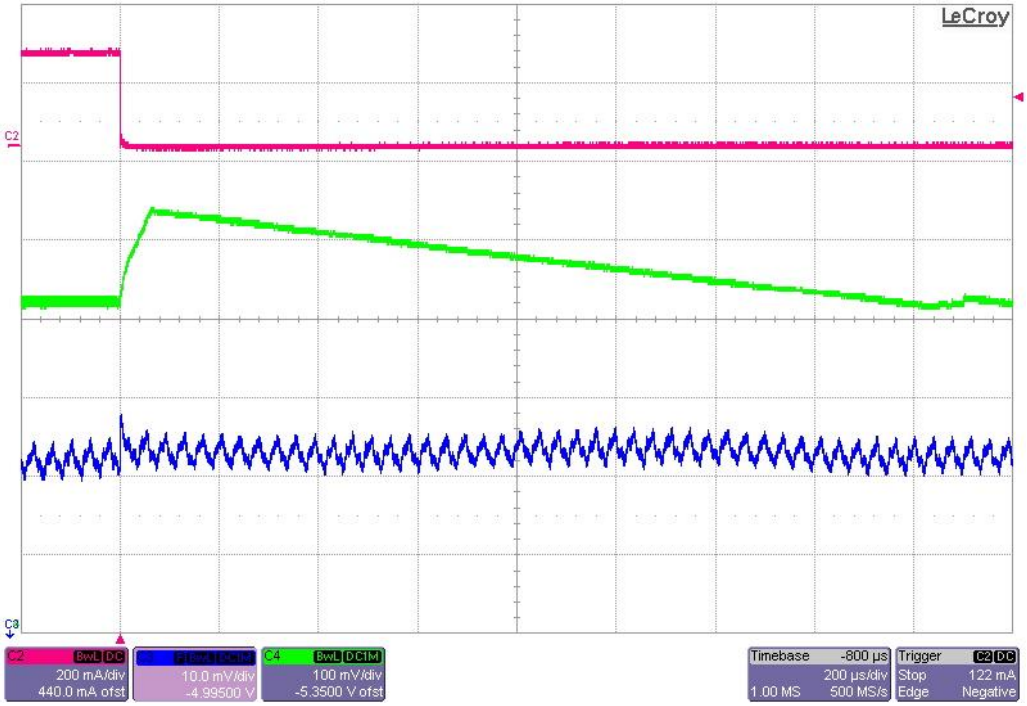
Voltage / Load	Before LDO (Positive)	After LDO (Positive)	Before LDO (Negative)	After LDO (Negative)
1A	668.35	8.62	626.06	32.73
0.1A	342.91	8.05	3010.81	31.82

5 Load Transients

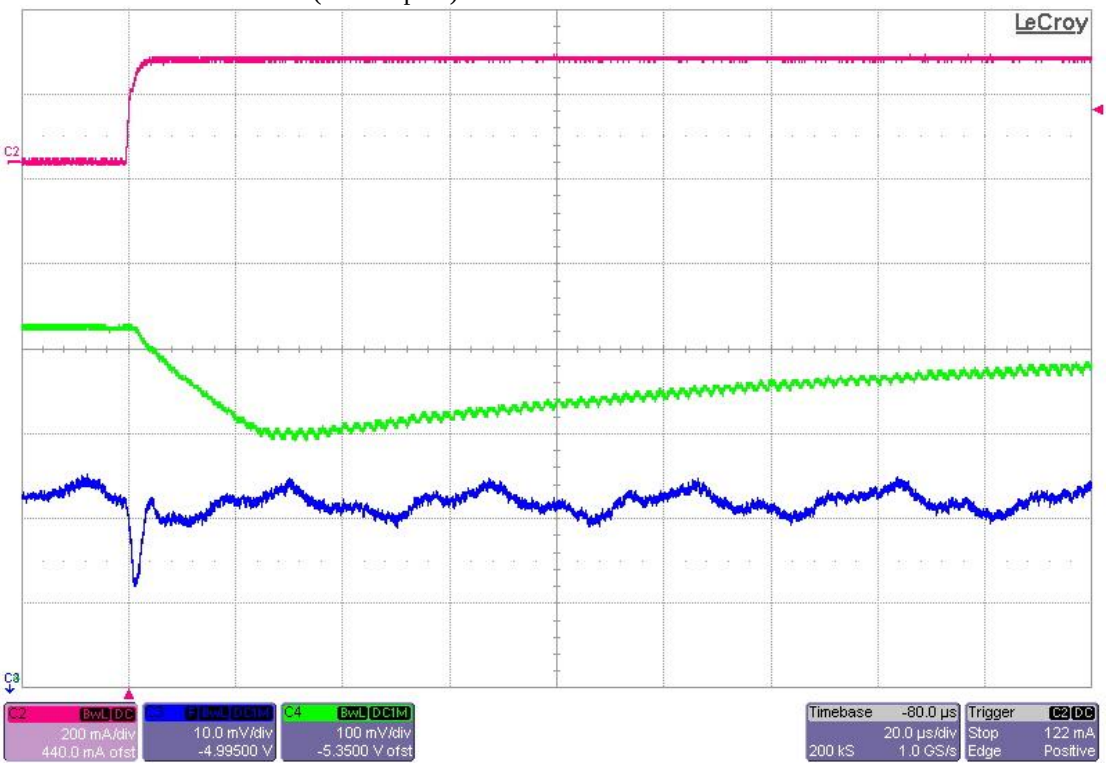
The figures below show output response to load transients. The input voltage was set to 20V.
Channel 2 : Load current
Channel 3 : 5Vout after LDO (DC coupled)
Channel 4 : 5Vout before LDO (DC coupled)



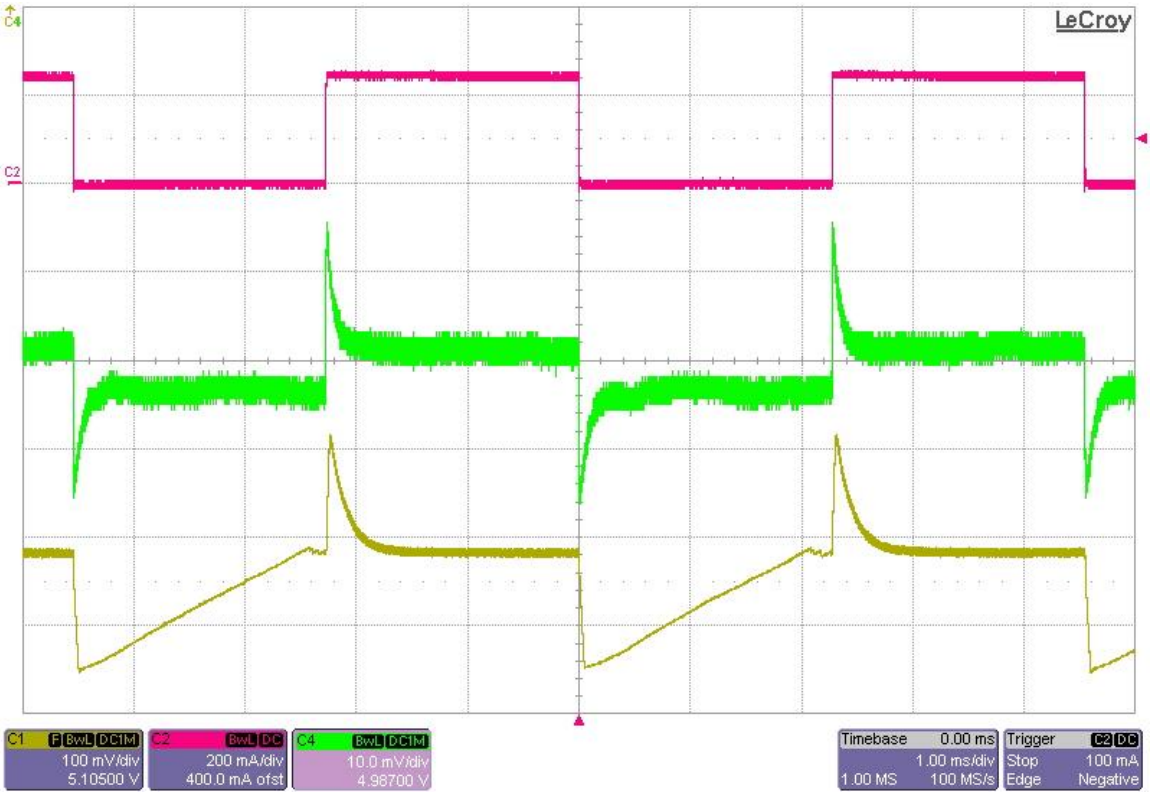
Channel 2 : Load current falling
Channel 3 : 5Vout after LDO (DC coupled)
Channel 4 : 5Vout before LDO (DC coupled)



Channel 2 : Load current falling
Channel 3 : 5Vout after LDO (DC coupled)
Channel 4 : 5Vout before LDO (DC coupled)

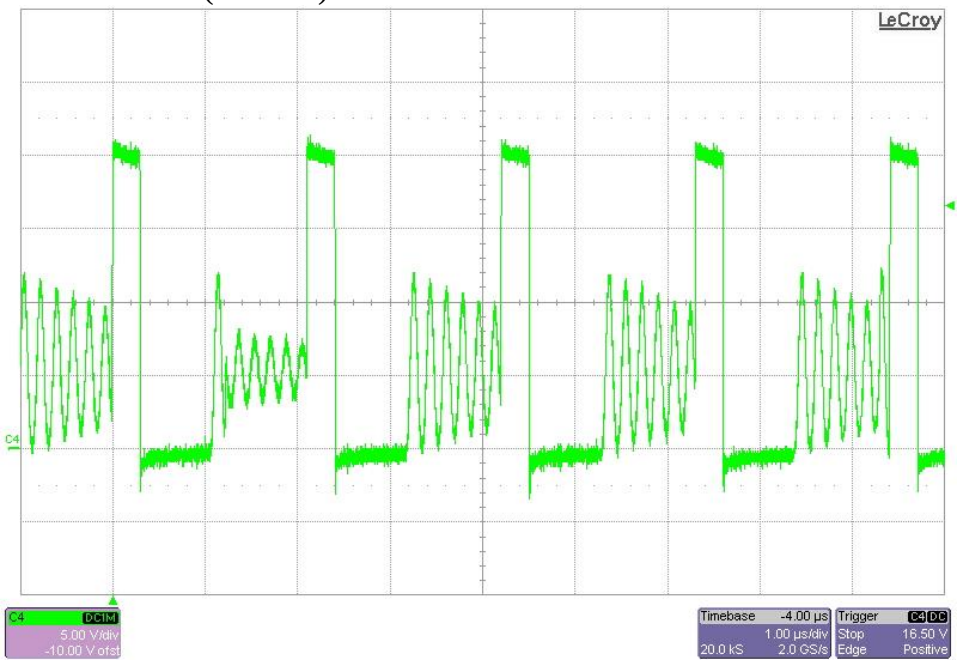


Channel 1 : -5Vout before LDO (DC coupled)
Channel 2 : Load current
Channel 4 : -5Vout after LDO (DC coupled)

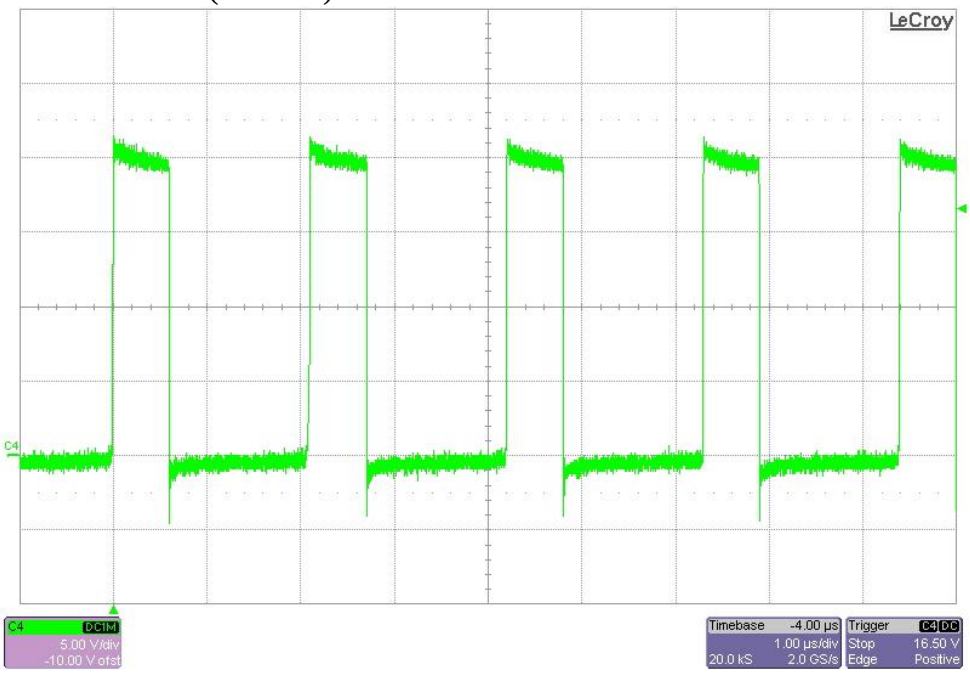


6 Switch Node Waveforms

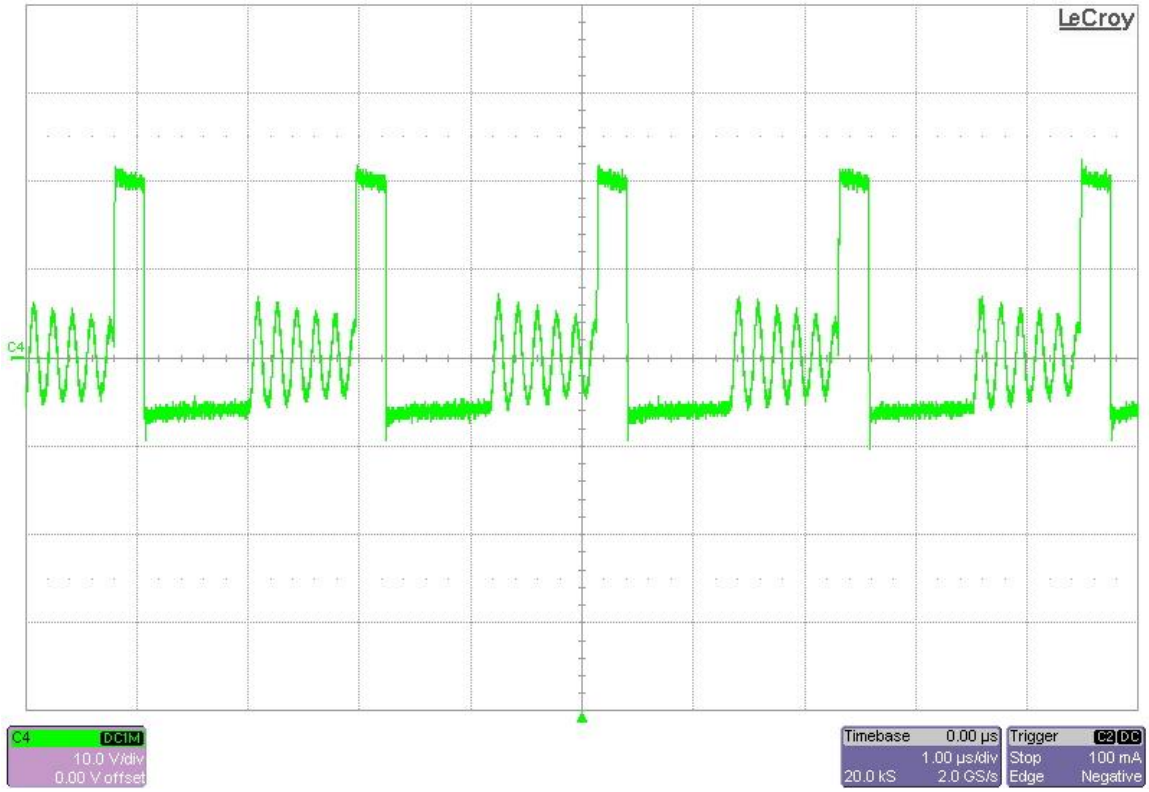
Input voltage = 24V
Output voltage = 5V
Load current = 250mA (full BW)



Input voltage = 24V
Output voltage = 5V
Load current = 900mA (full BW)

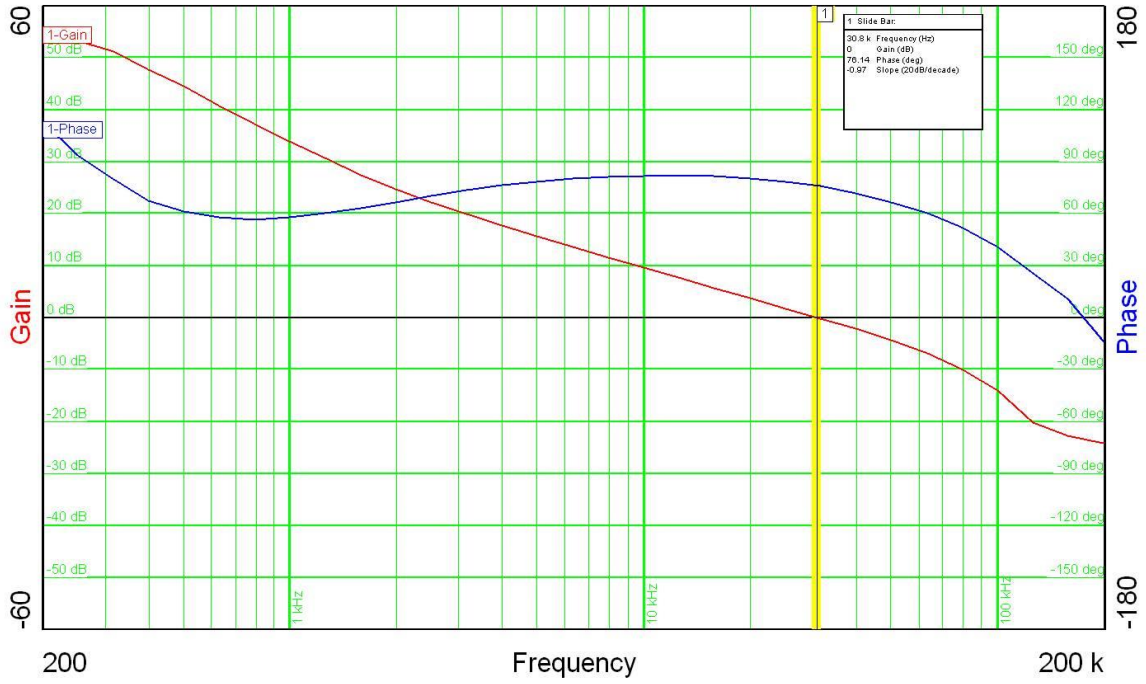


Input voltage = 24V
Output voltage = -5V
Load current = 250mA (full BW)



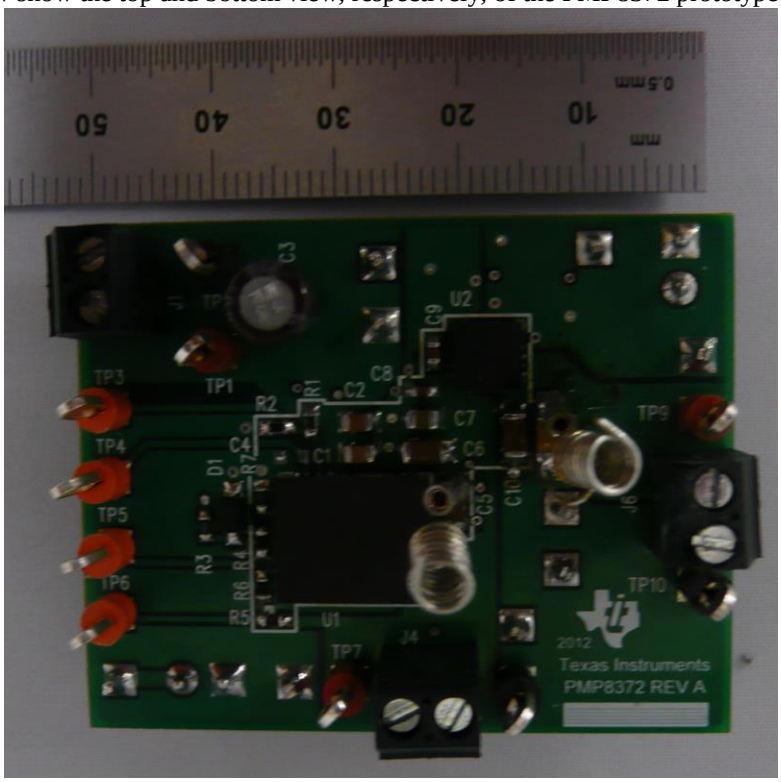
7 Control Loop Frequency Response

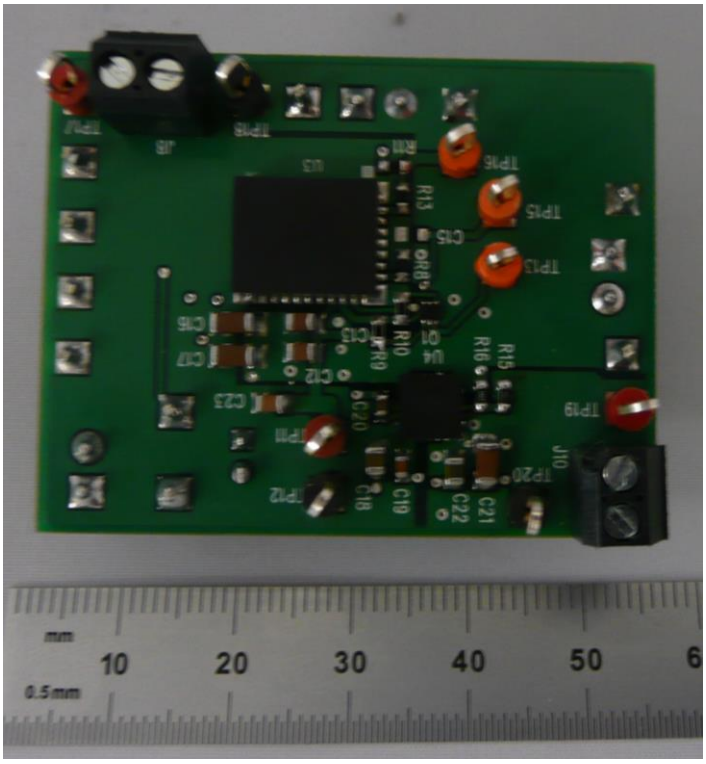
Input voltage = 24VDC
Output voltage = 5V
Load current = 250mA
Phase margin = 76.14 °
Bandwidth = 30.8kHz



8 Photo

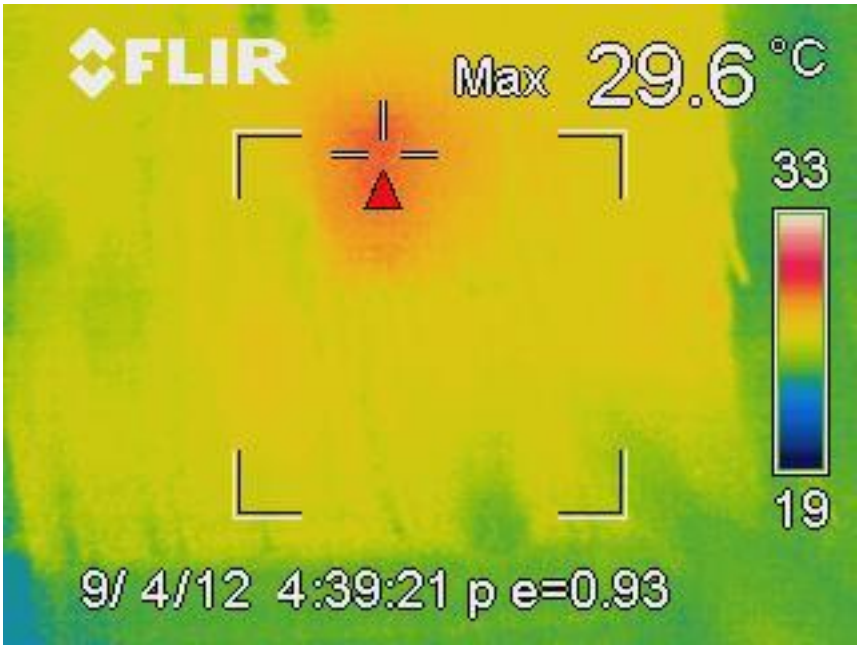
The images below show the top and bottom view, respectively, of the PMP8372 prototype board.





9 Thermal Analysis

The images below show the infrared images taken from the FlexCam with full load applied. Input voltage = 20 VDC.



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