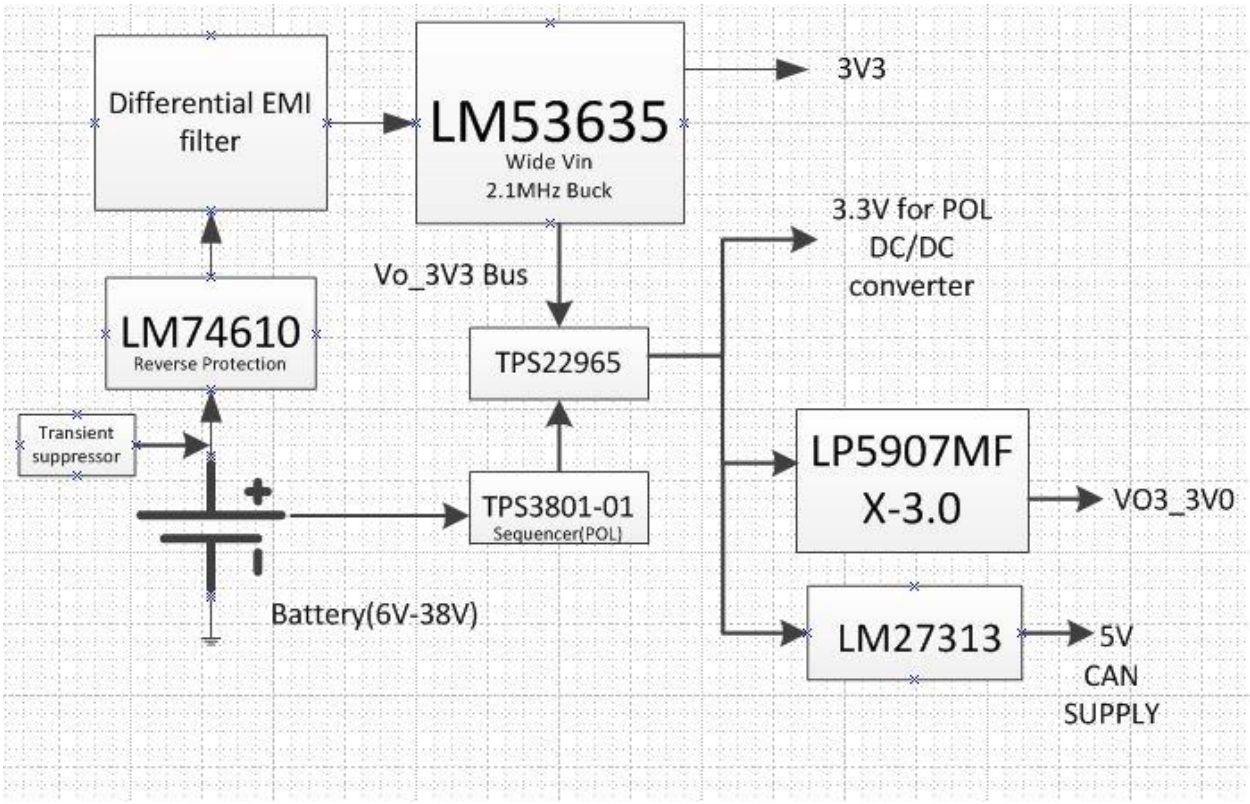
Test Report
For PMP15014
04/27/2016

1. Design Specifications

Vin Min	**4.5VDC**
Vin Max	**38VDC**
Vout	**3.3VDC-First stage**
Iout	**3.5A**
Wide Vin DCDC Switching Frequency	**2.2MHz**

2. Circuit Description

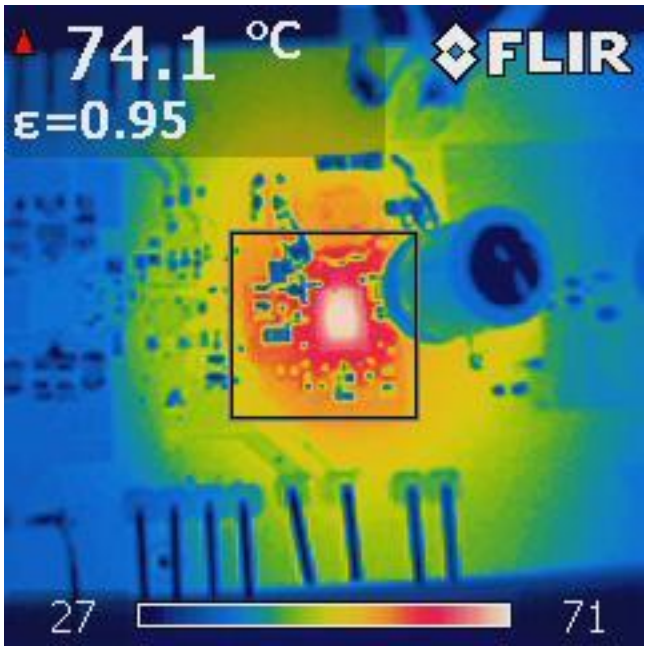
This solution is designed to be an automotive off-battery front end power supply for infotainment systems. It was created using a two stage power system meeting high voltage input needs and providing multi output rails for different load needs. The system also provides transient and reverse polarity protection. Both stages of power are working at 2.1Mhz to provide good EMI performance with an EMI filter to support CISPER 25. The block diagram is as below.



3. Board Photos

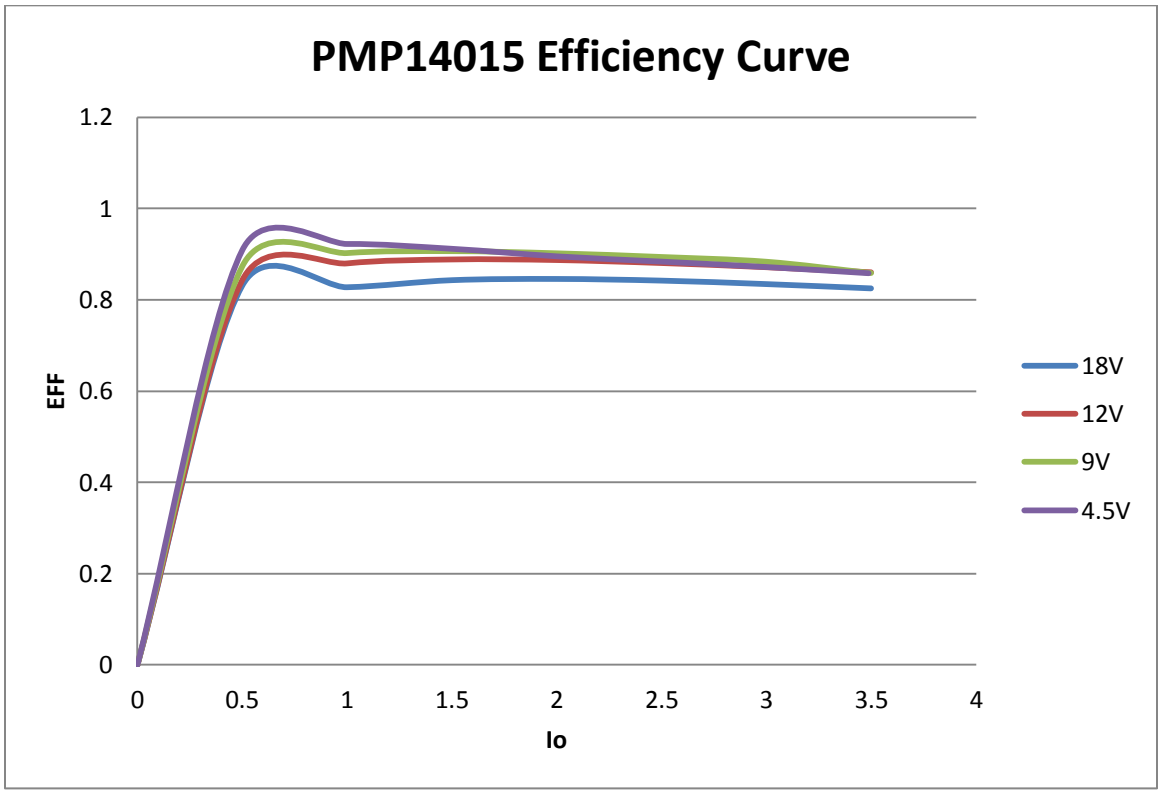
Top (75x25mm^2)

4. Thermal Data



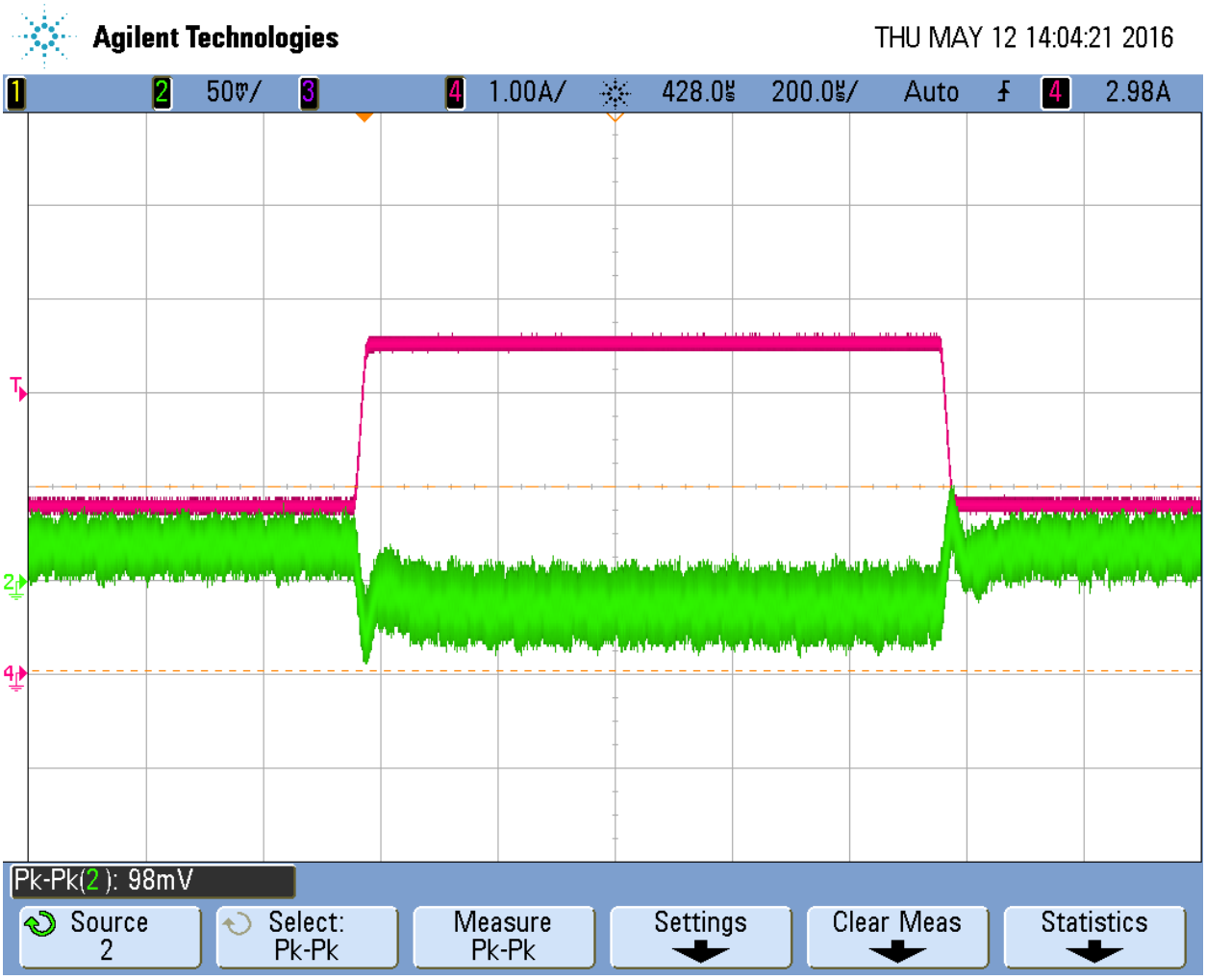
IR thermal image taken at steady state at Full load and V_{IN} = 12V with no airflow

5. Efficiency

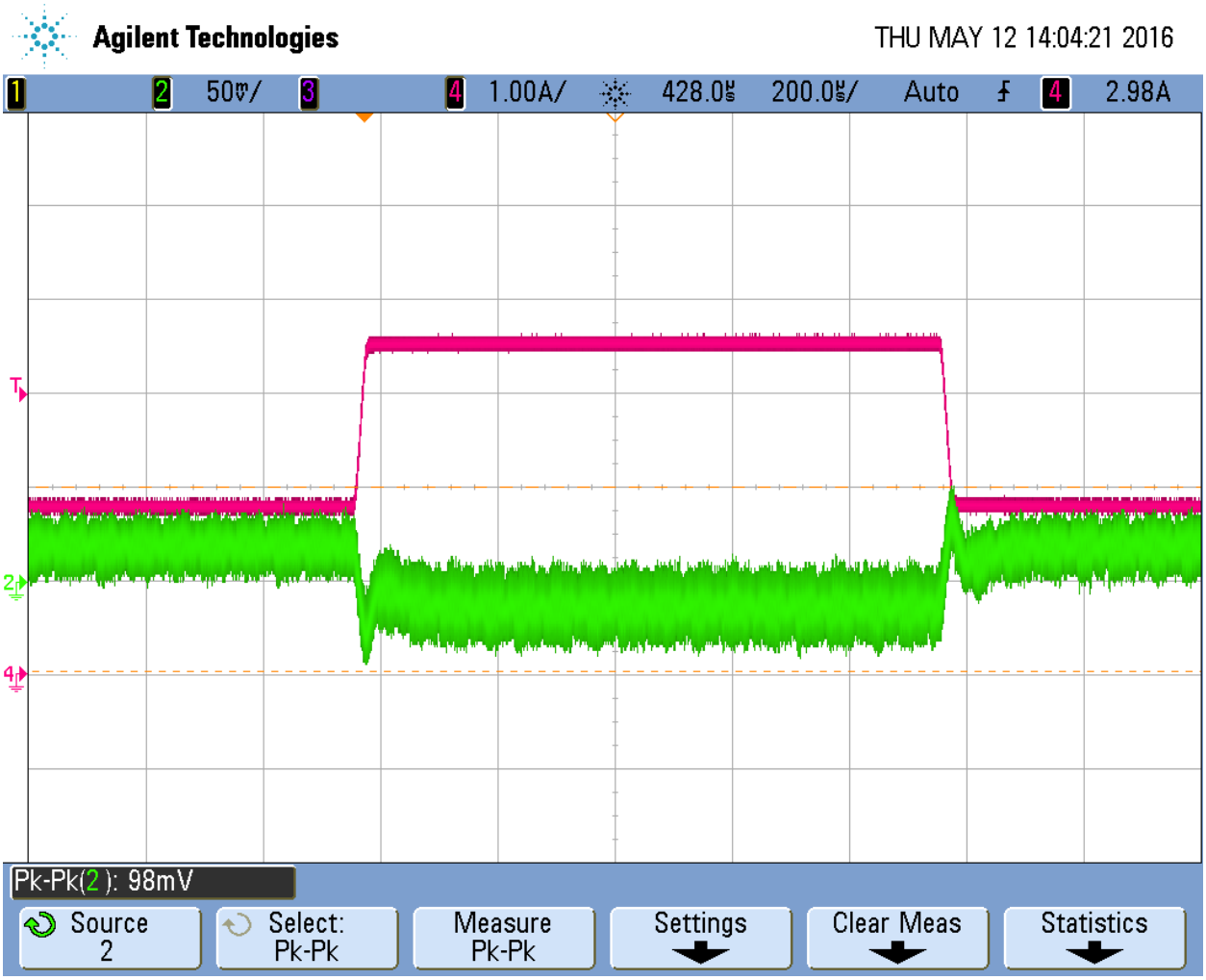


6. Waveform

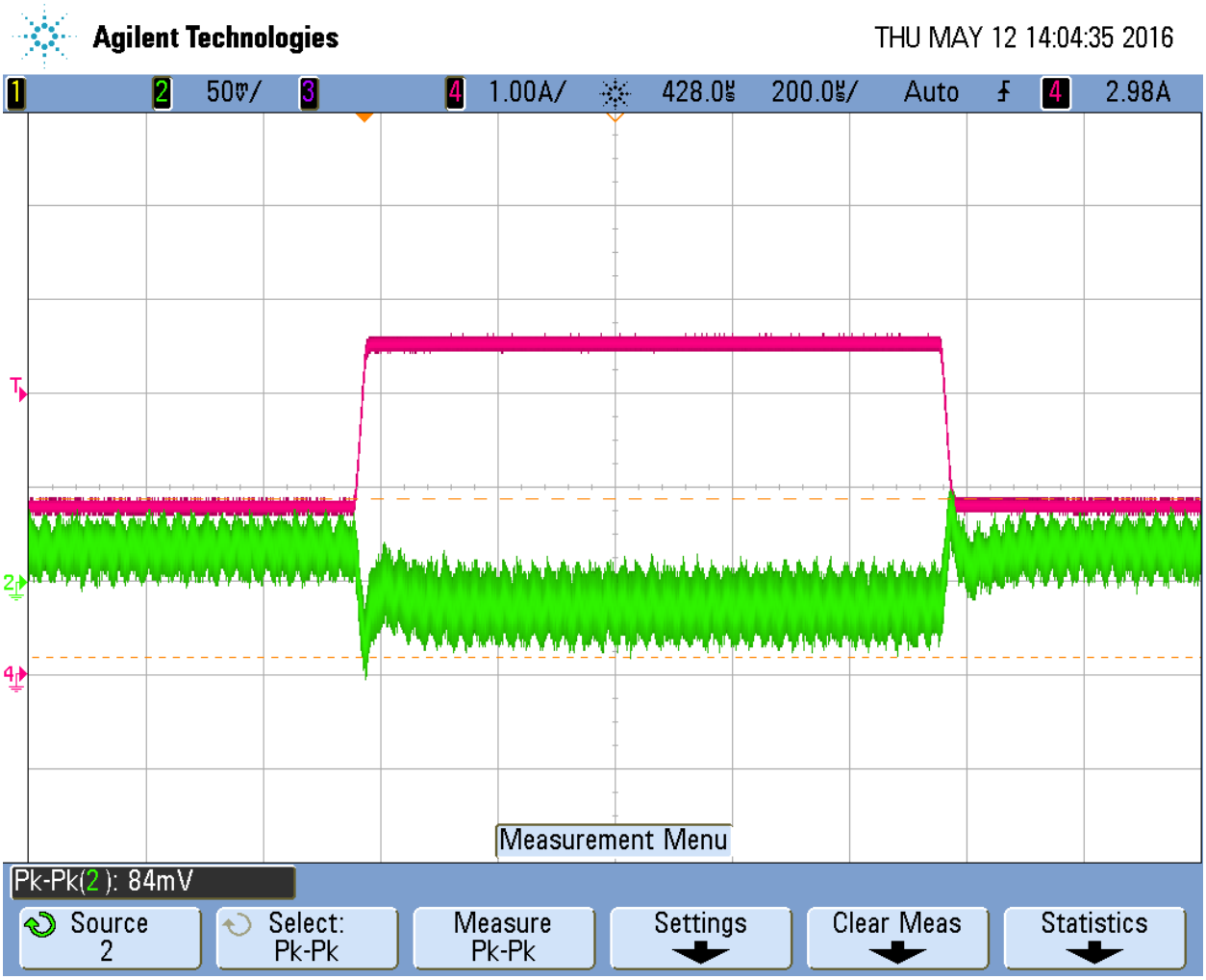
6.1 Load Transient (Slew Rate: 100mA/uS)



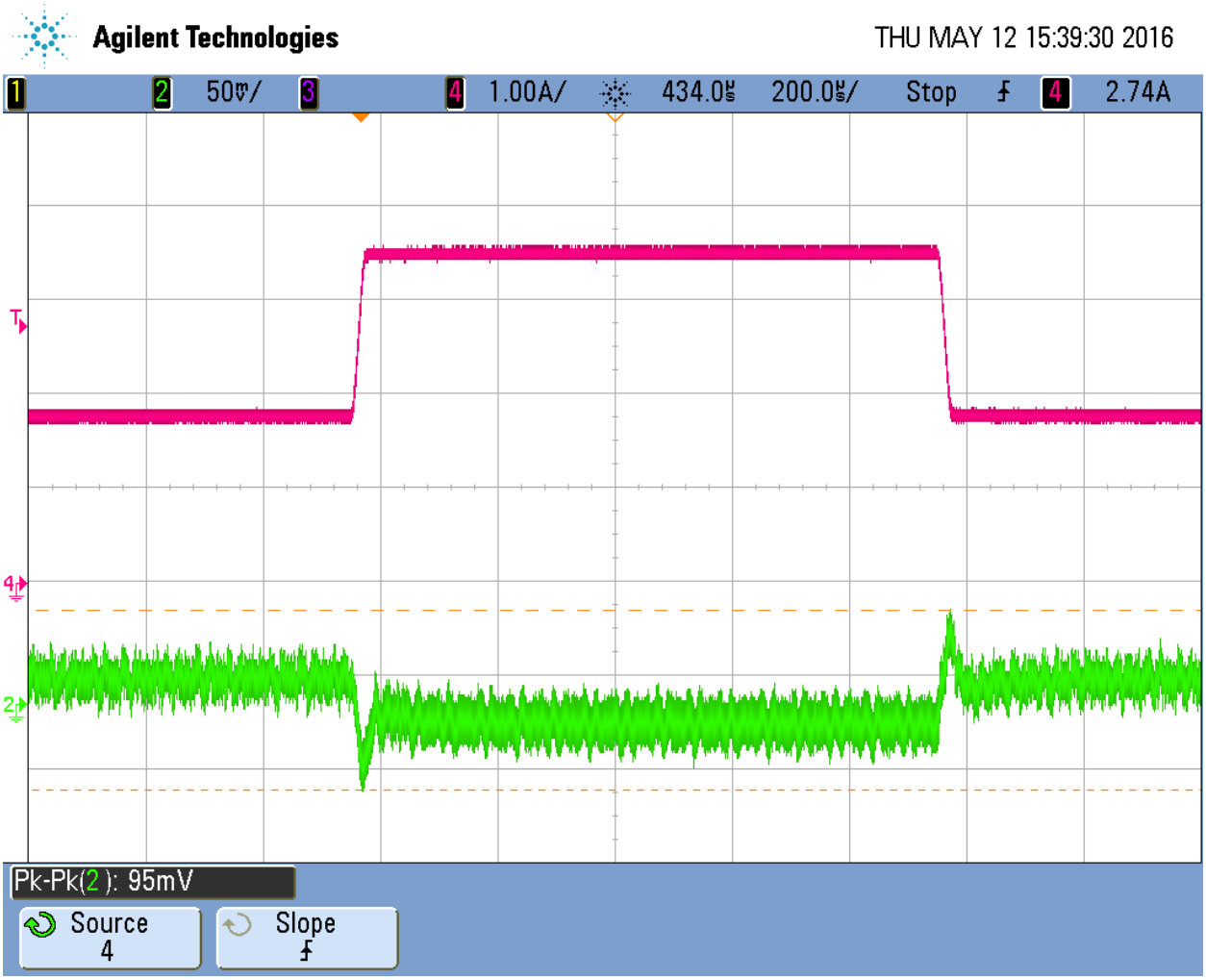
V_{IN}=12V, 3V3 Channel: 1.75A-3A-1.75A



V_{IN}=18V, 3V3 Channel: 1.75A-3A-1.75A

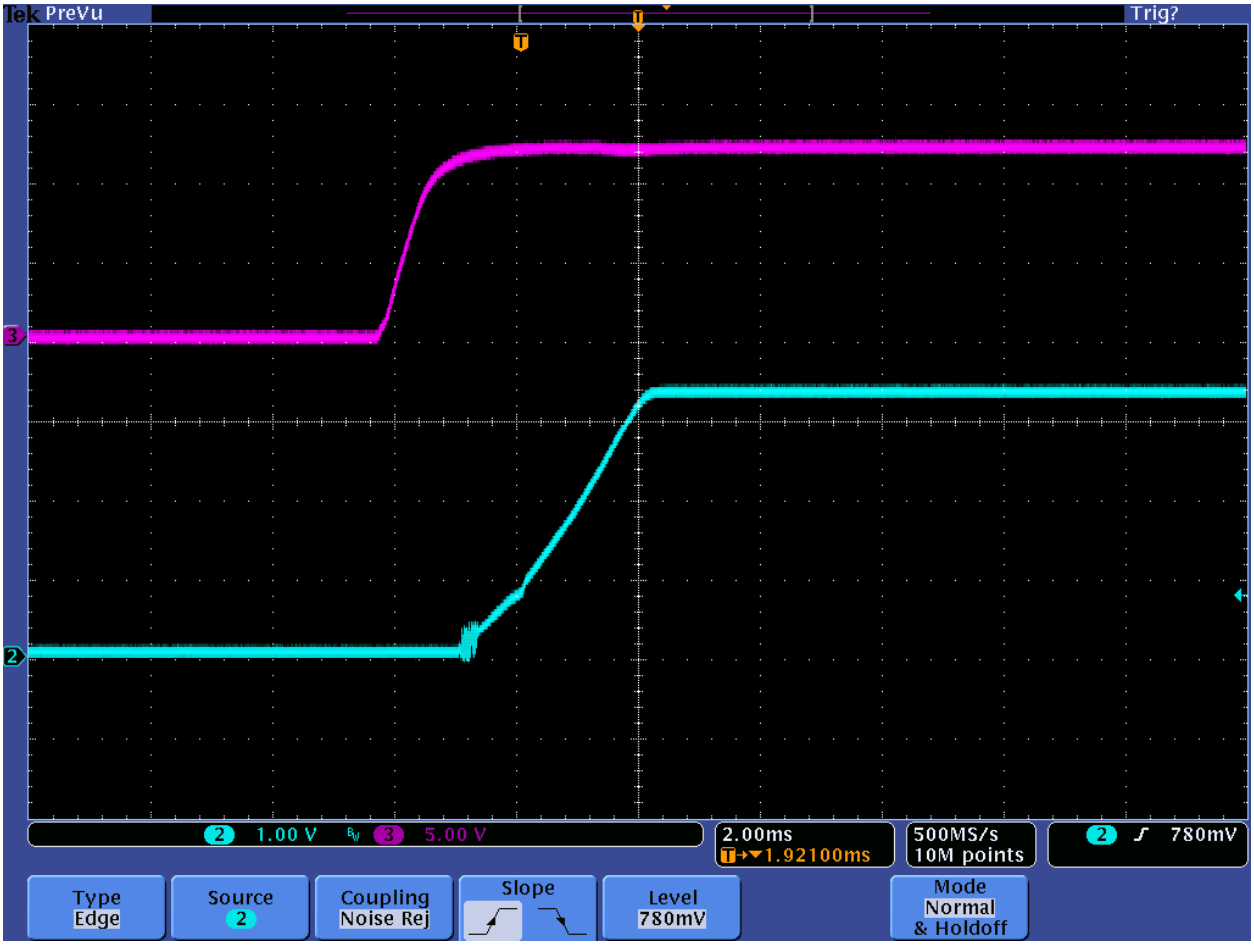


V_{IN}=9V, 3V3 Channel: 1.75A-3A-1.75A



V_{IN}=4.5V, 3V3 Channel: 1.75A-3A-1.75A

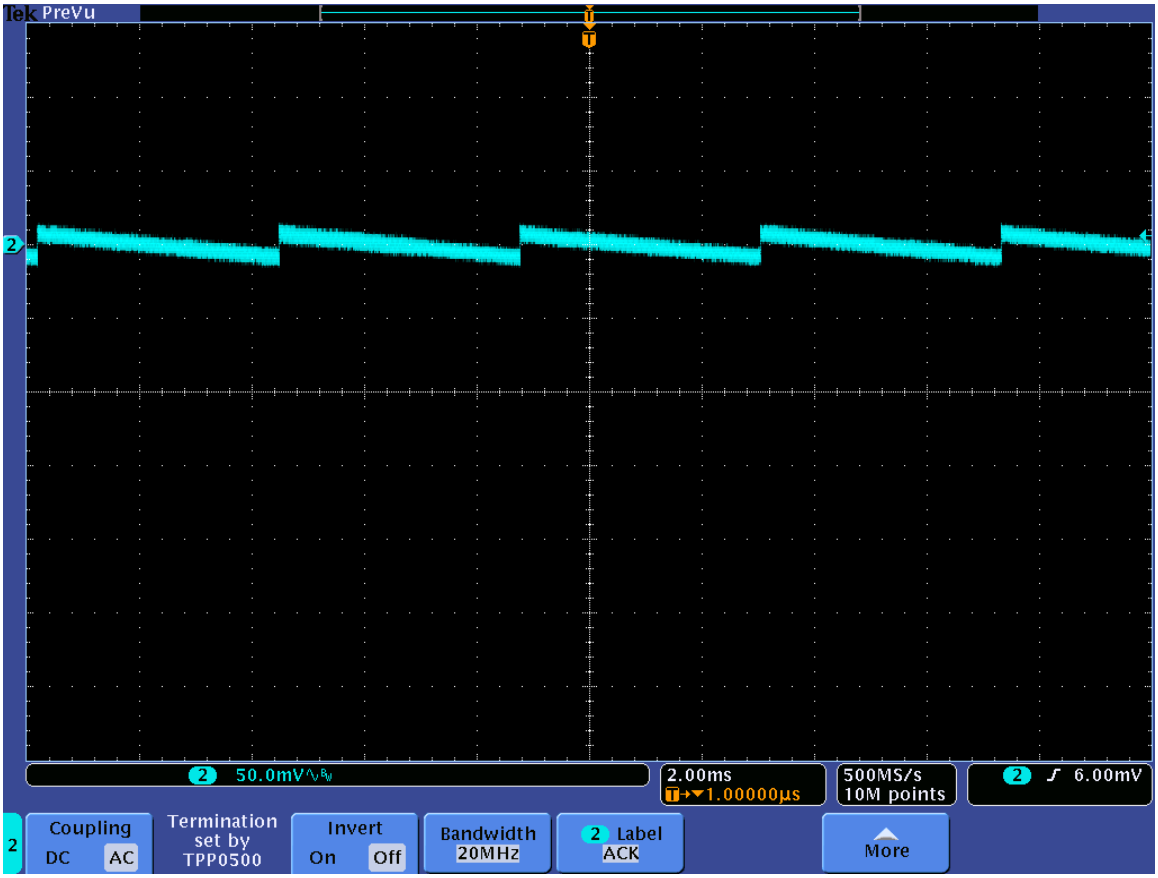
6.2 Start up



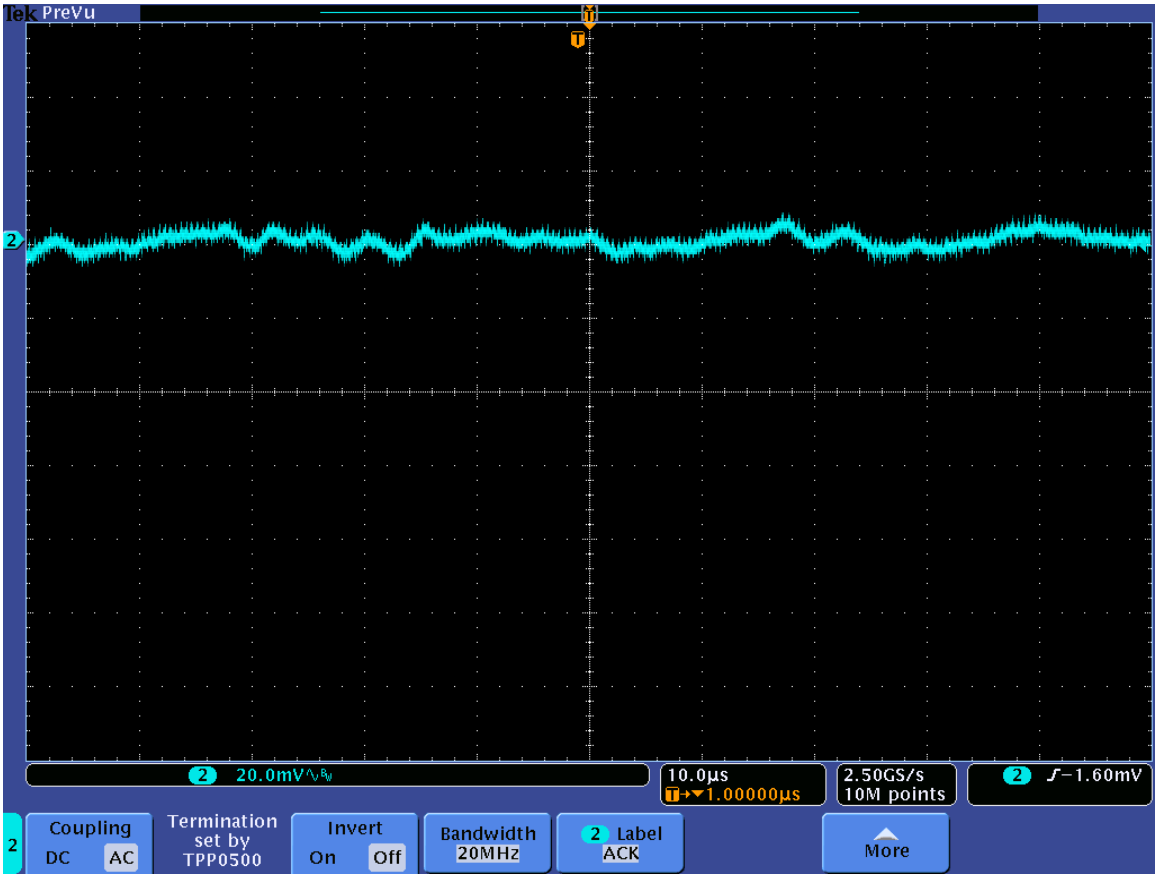
12Vin 3.3Vo Io=3.5A

12Vin 3.3Vo Io=0A

6.3 Ripple

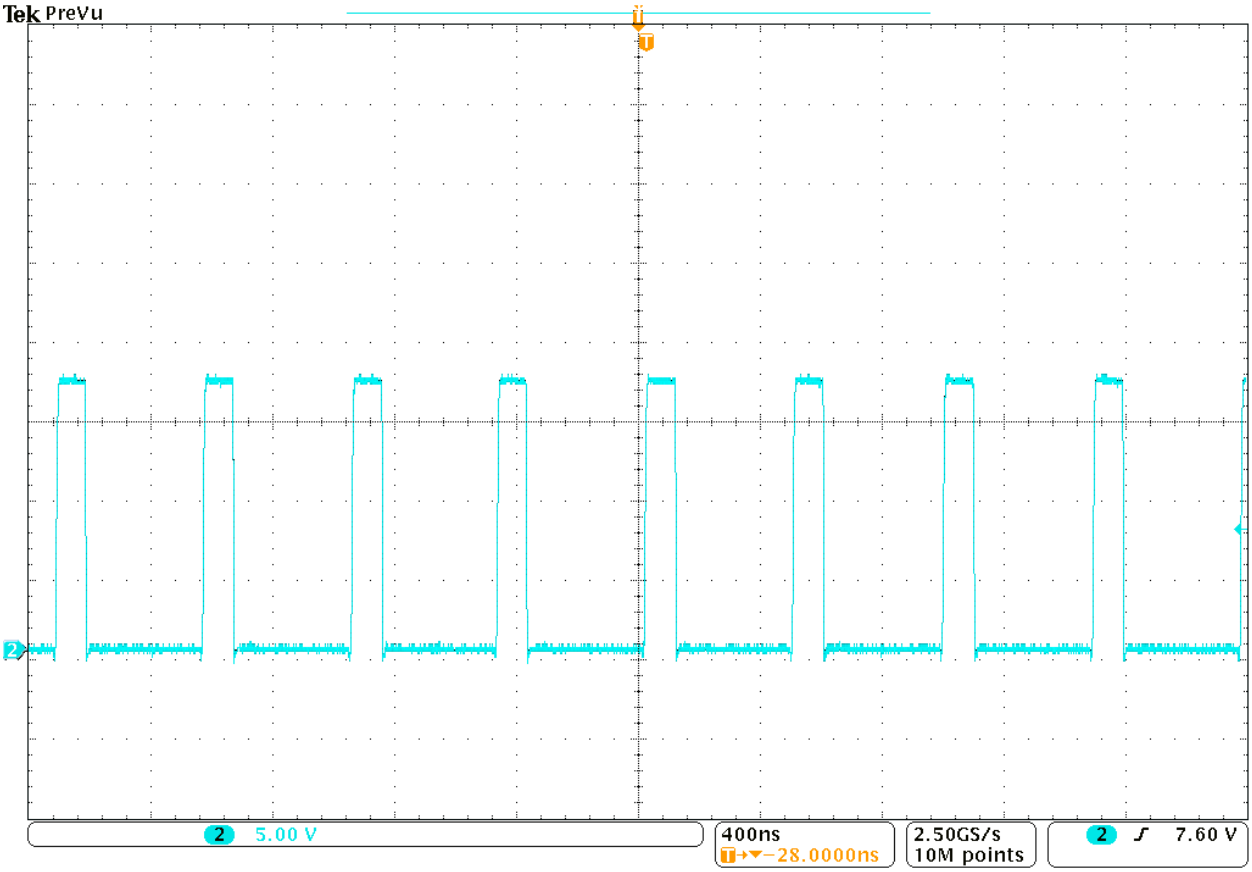


12Vin 3.3Vo Io=0A

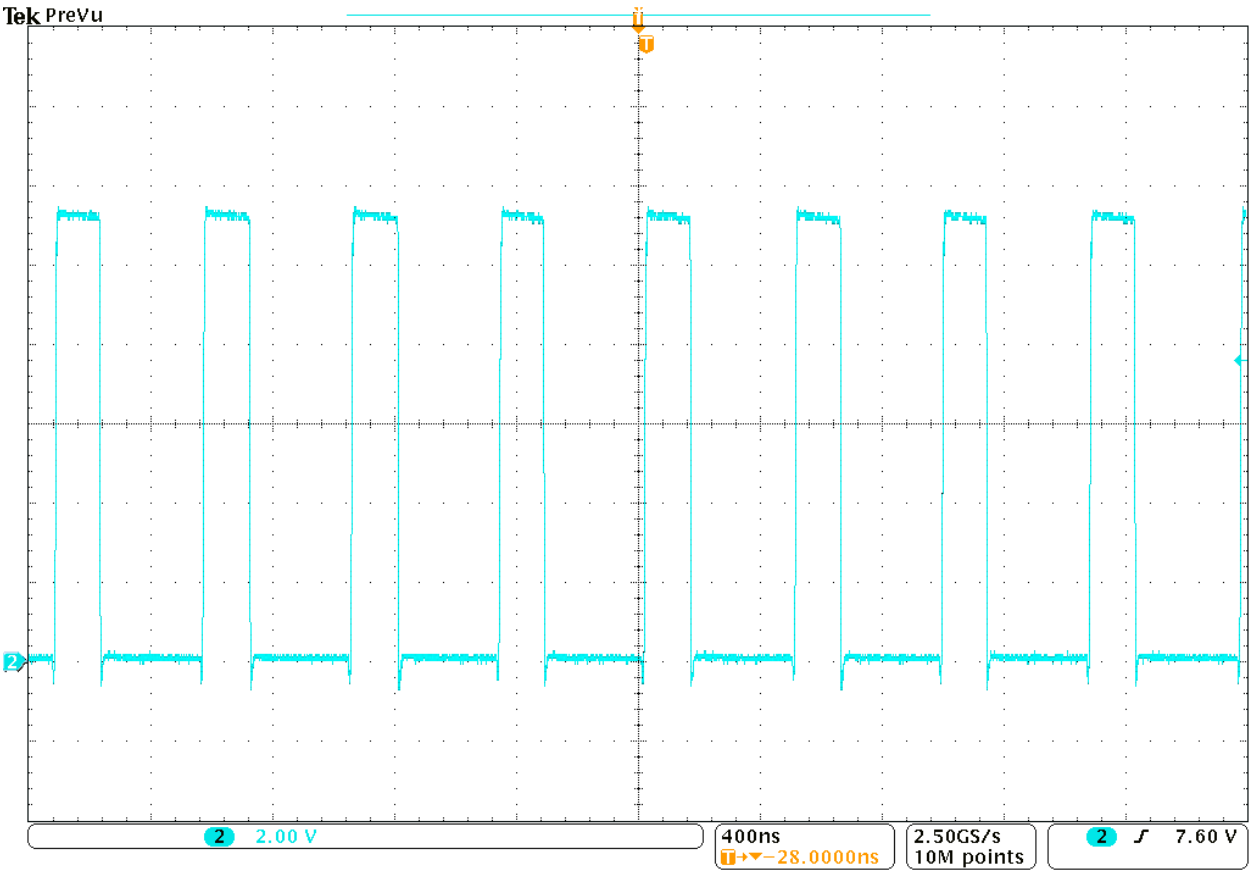


12Vin 3.3Vo Io=3.5A

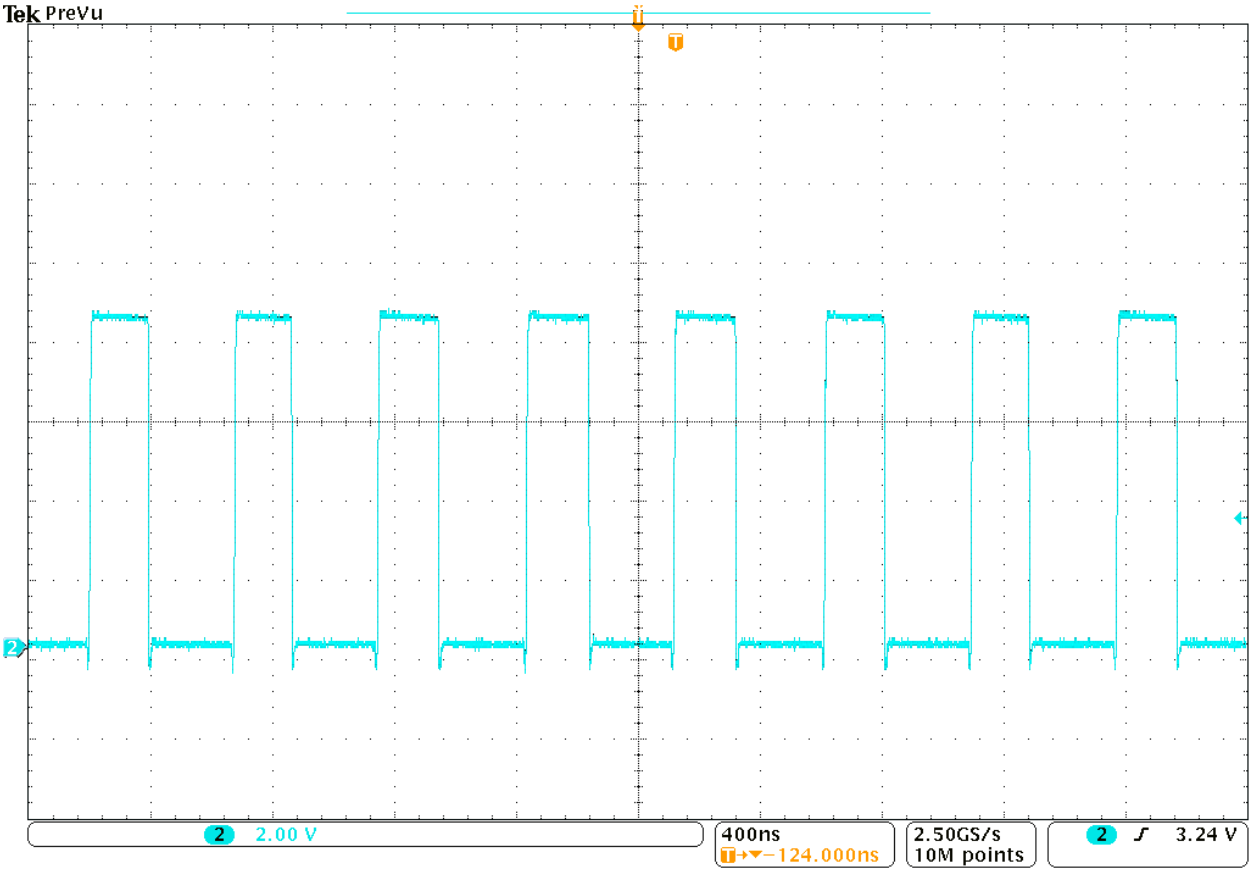
6.3 SW Waveform



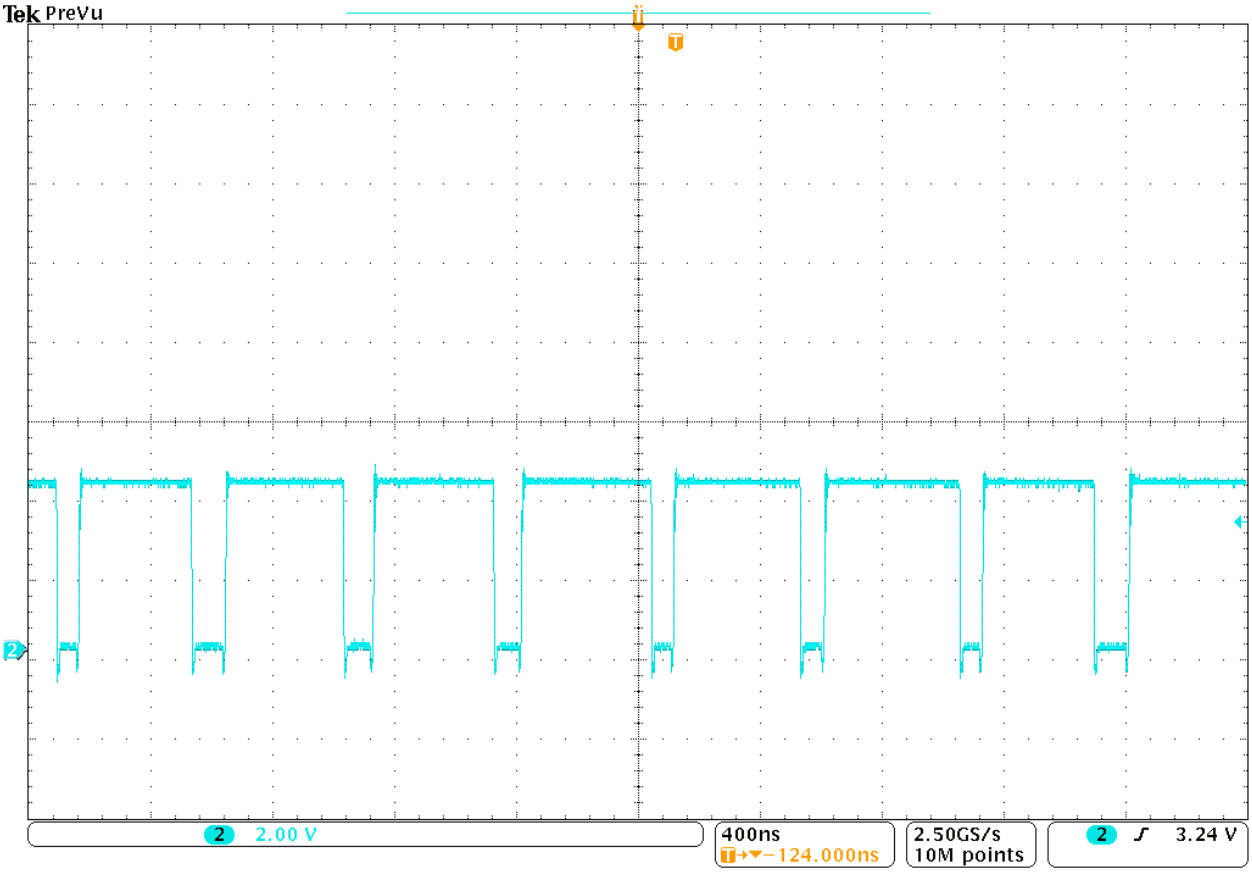
18Vin 3.3Vo Io=3.5A



12Vin 3.3Vo Io=3.5A

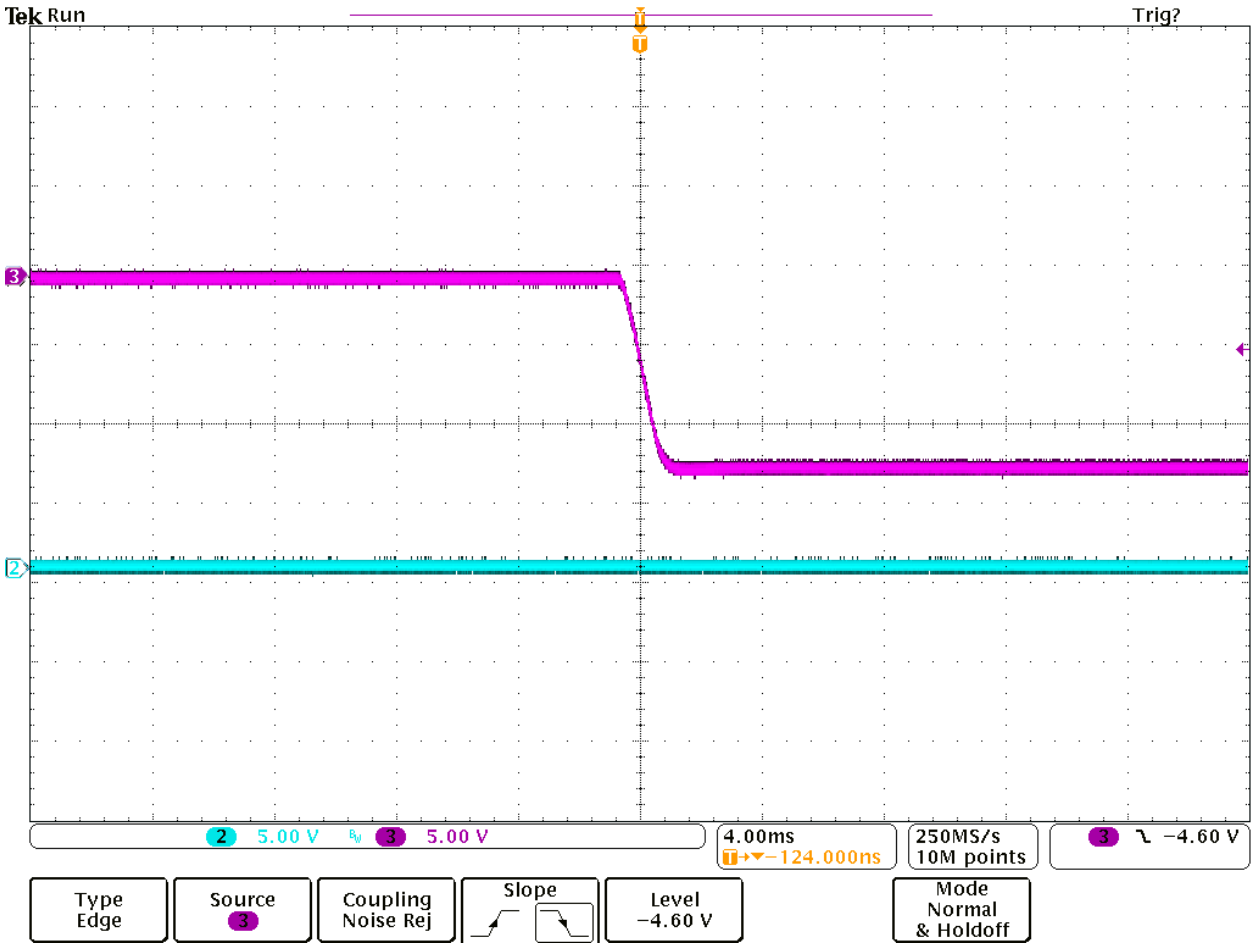


9Vin 3.3Vo Io=3.5A



4.5Vin 3.3Vo Io=3.5A

6.4 Reverse Polarity Protection



-12Vin added at the input port(CH3: Battery voltage, Ch2: Input voltage of LM53635)

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