

**Test Data
For PMP9254
9/18/2013**



Table of Contents

1. Design Specifications	3
2. Circuit Description.....	3
3. PMP9254 Board Photo.....	3
4. Efficiency	4
5. Load Regulation	5
6. Line Regulation.....	6
7. Waveforms.....	8
7.1 Load Transient Response	8
7.2 Startup and Shutdown	9
7.3 Output Voltage Ripple and Switch Node Voltage	12
7.4 Current Limit Hiccup	14

1. Design Specifications

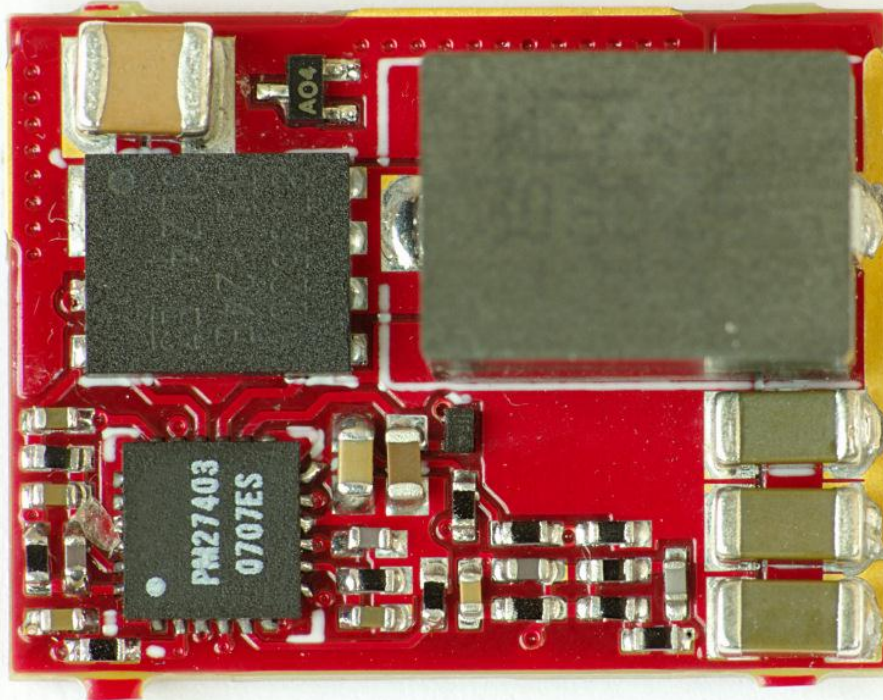
Vin Min.	4.5VDC
Vin Nom.	12VDC
Vin Max.	20VDC
Vout	1.8VDC
Iout	30A Max.
Approximate Switching Frequency	600kHz

2. Circuit Description

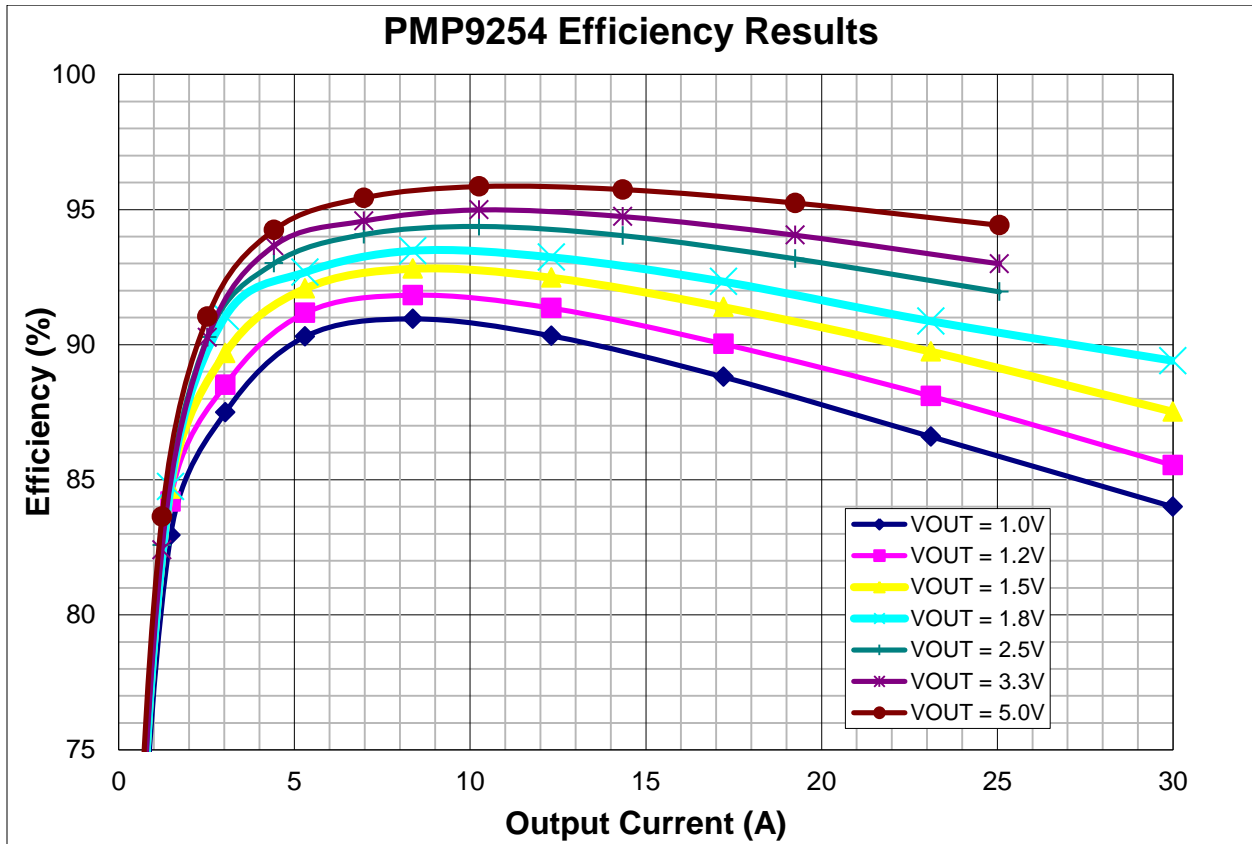
PMP9254 is a Synchronous Buck Converter that accepts an input voltage of 4.5V to 20V and provides an output of 1.8Vout capable of supplying 30A of current to the load. This design is constructed on a single-sided component mount board and provides high output current in a very small board area. All tests for this report were performed at 12Vin and 1.8Vout, unless otherwise specified.

3. PMP9254 Board Photo

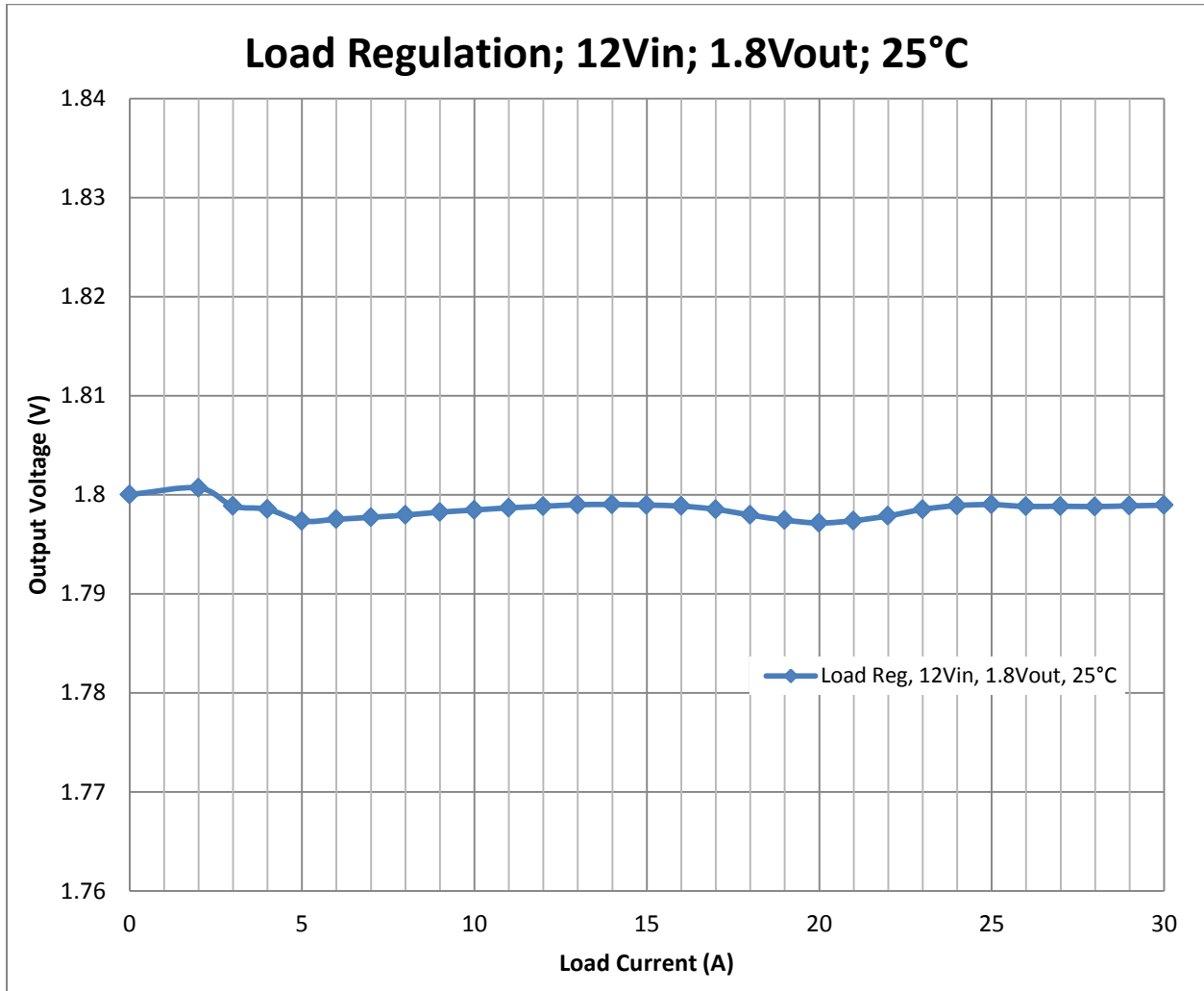
Board Dimensions: 20mm. x 15mm.



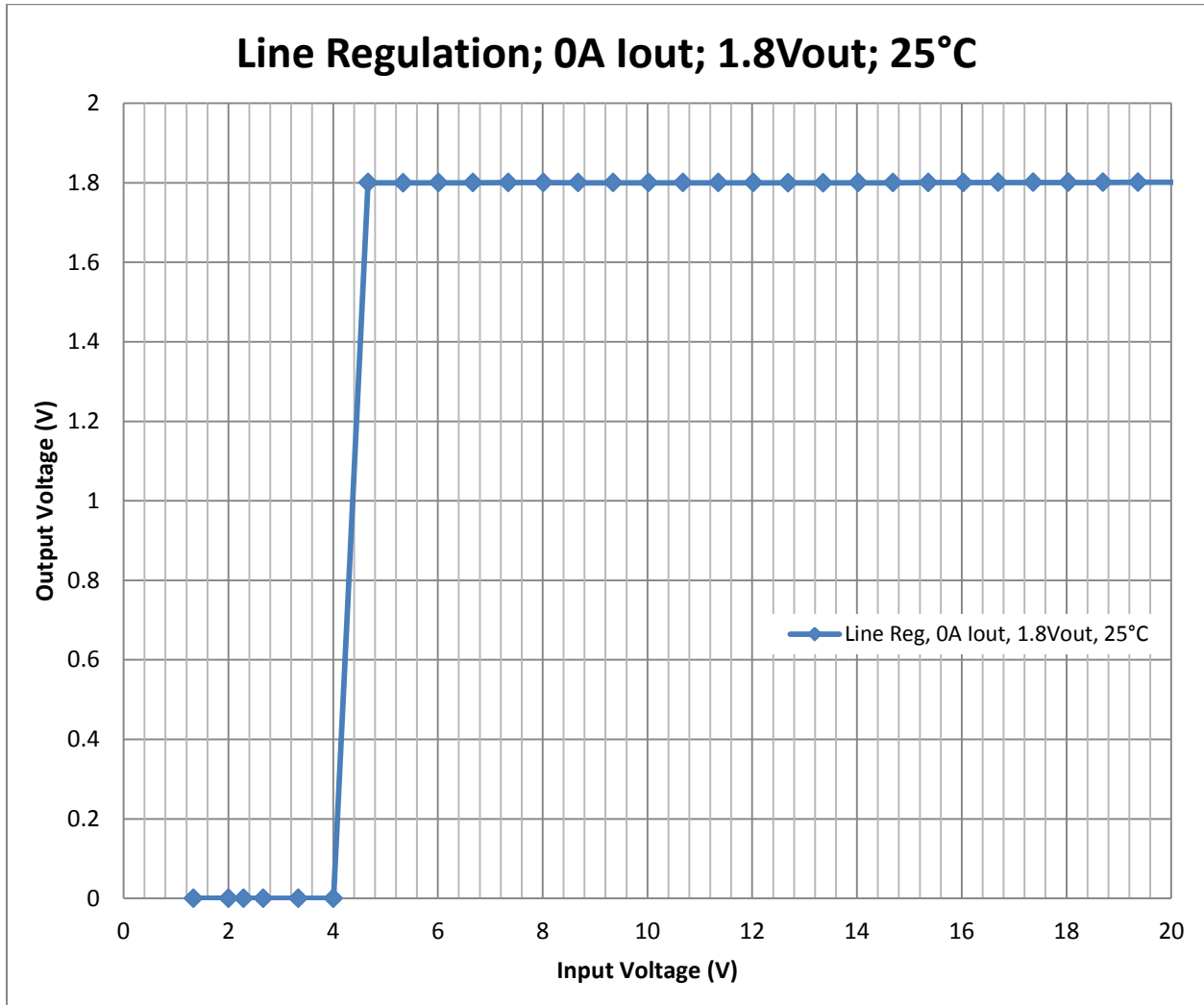
4. Efficiency



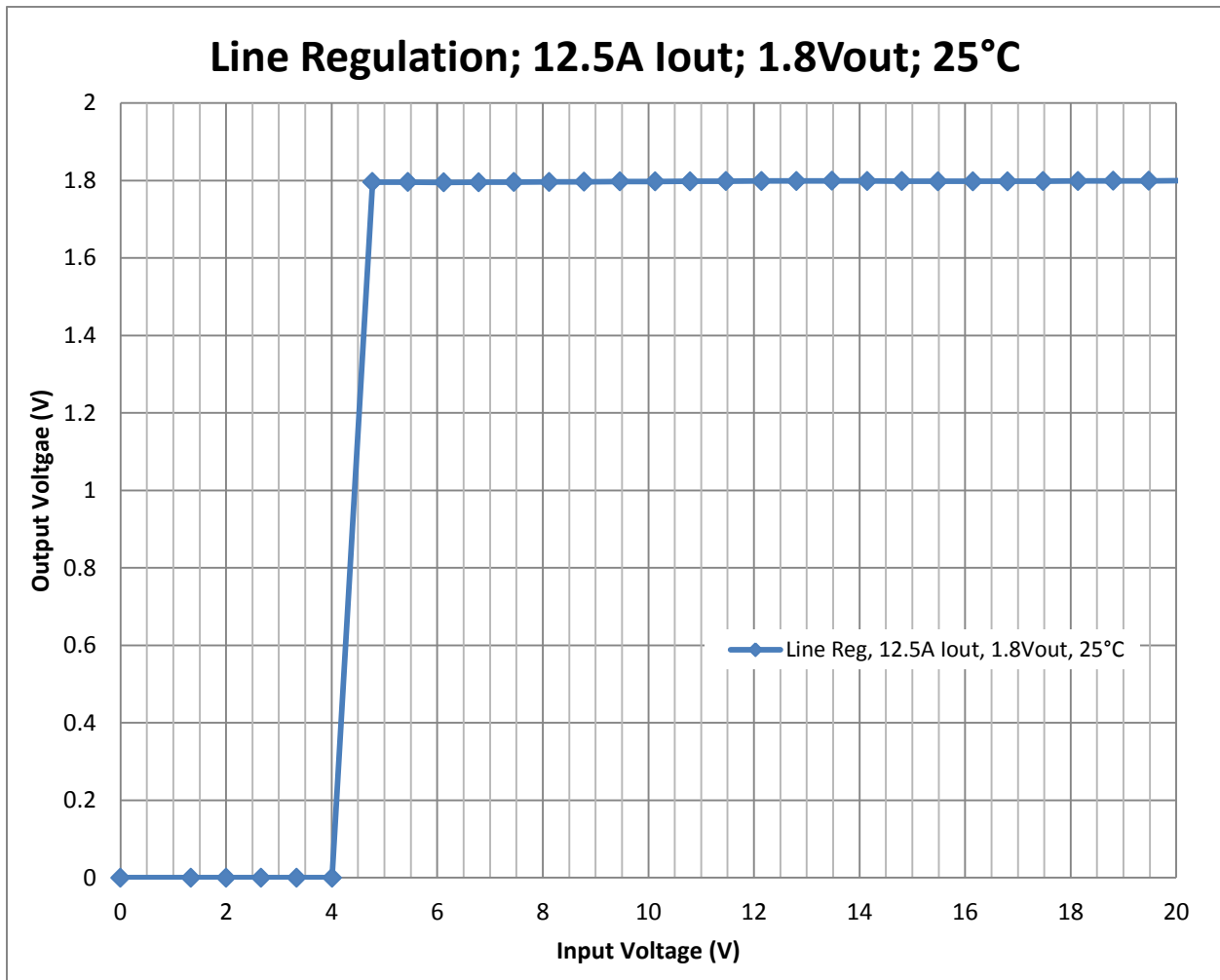
5. Load Regulation



6. Line Regulation



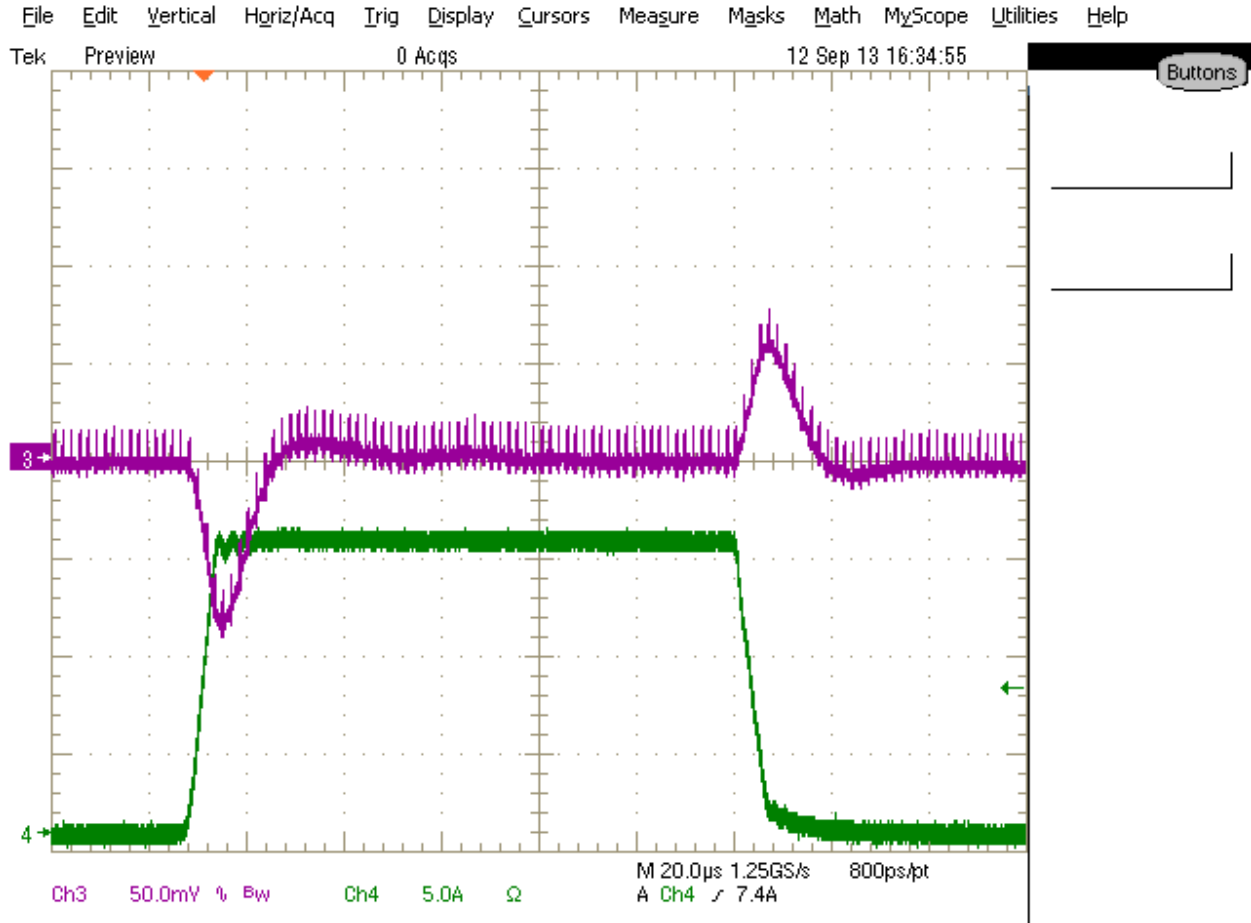
Line Regulation at 0A Load Current



Line Regulation at 12.5A Load Current

7. Waveforms

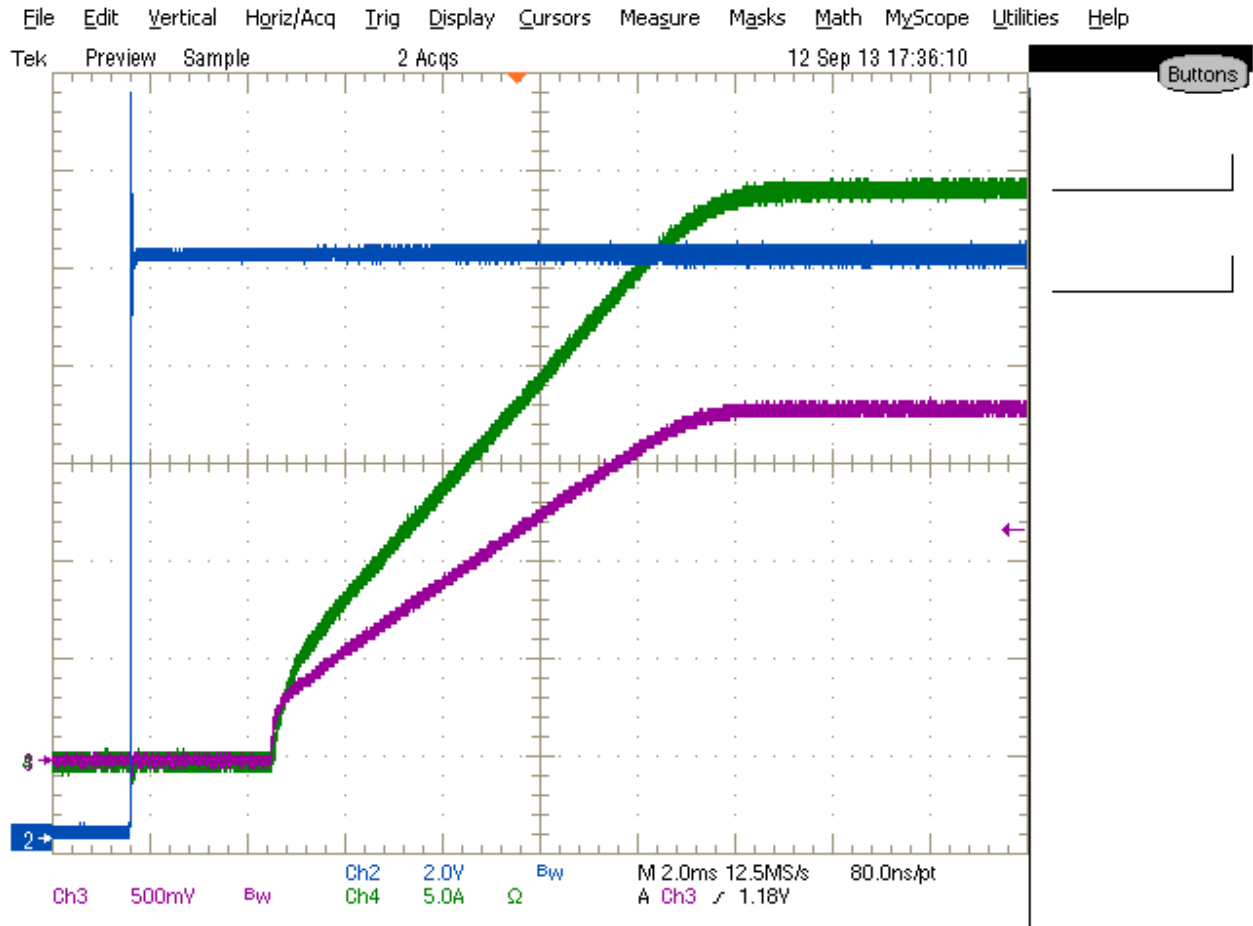
7.1 Load Transient Response



Load Transient Response at Vin = 12V with 0%-to-50% (0A-to-15A) Load Step

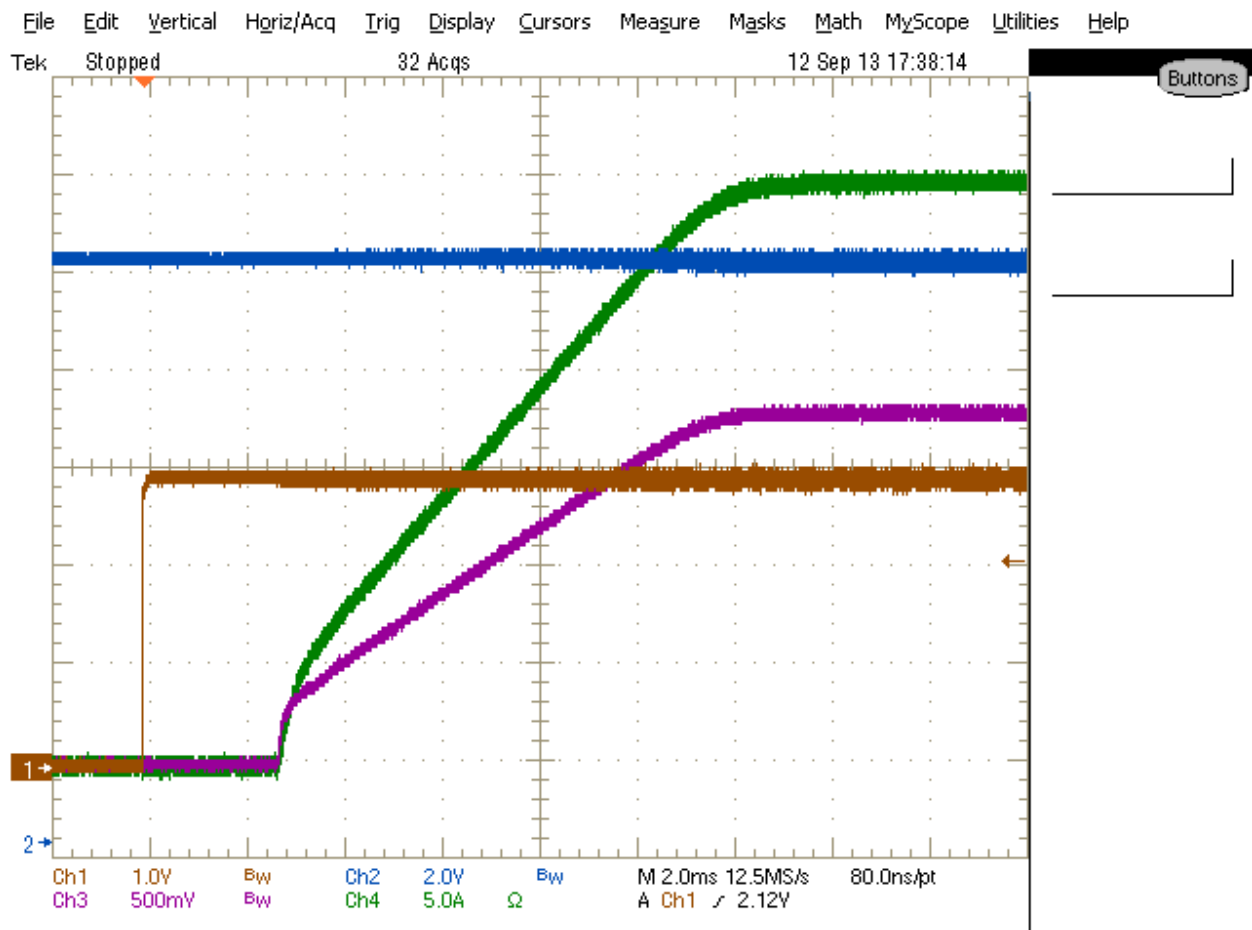
[CH3 = Vout; CH4 = Iout]

7.2 Startup and Shutdown



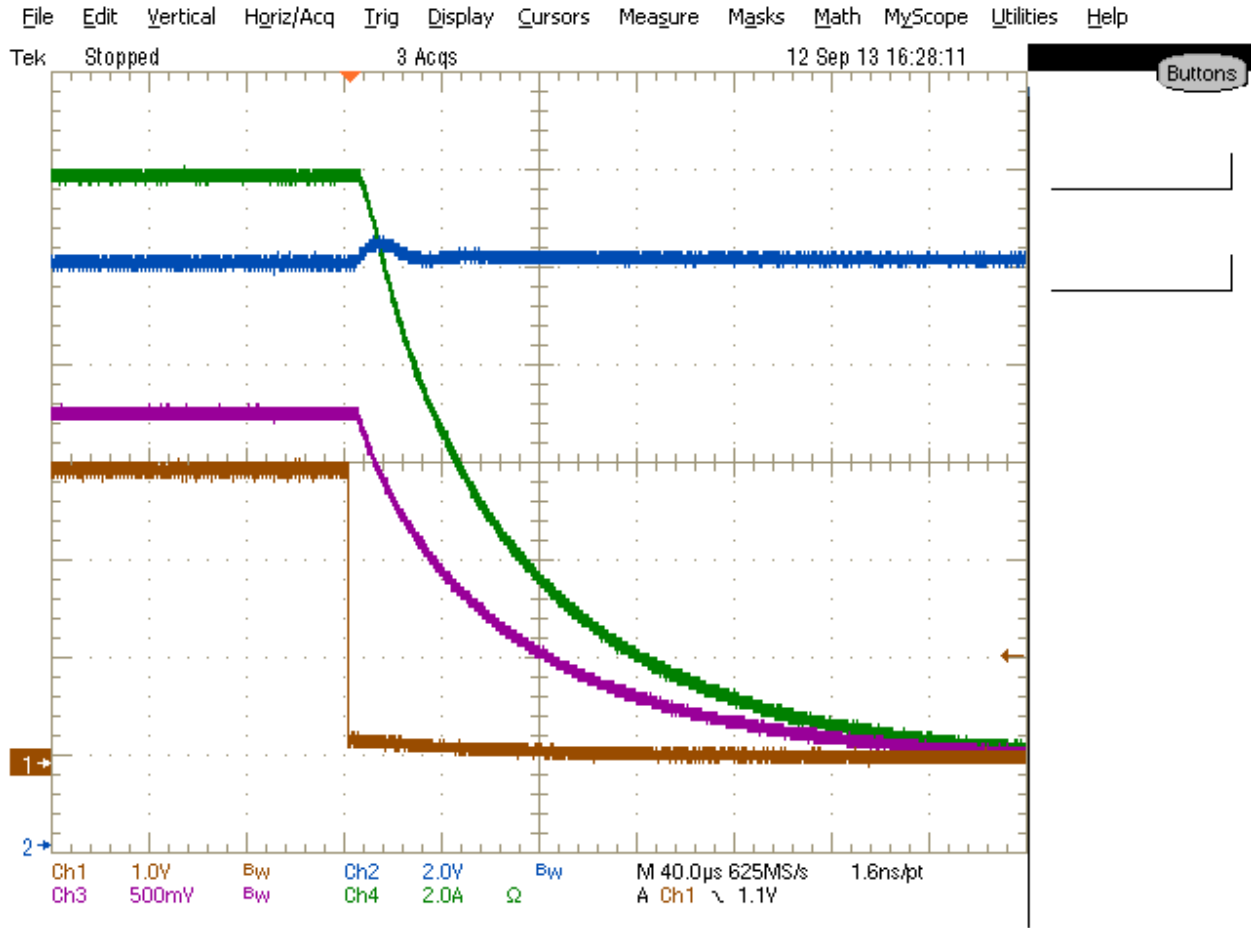
Startup into Full (30A) Load ($V_{in} = 12V$)

[CH2 = V_{in} ; CH3 = V_{out} ; CH4 = I_{out}]



Startup via Enable pin into Full (30A) Load (Vin = 12V)

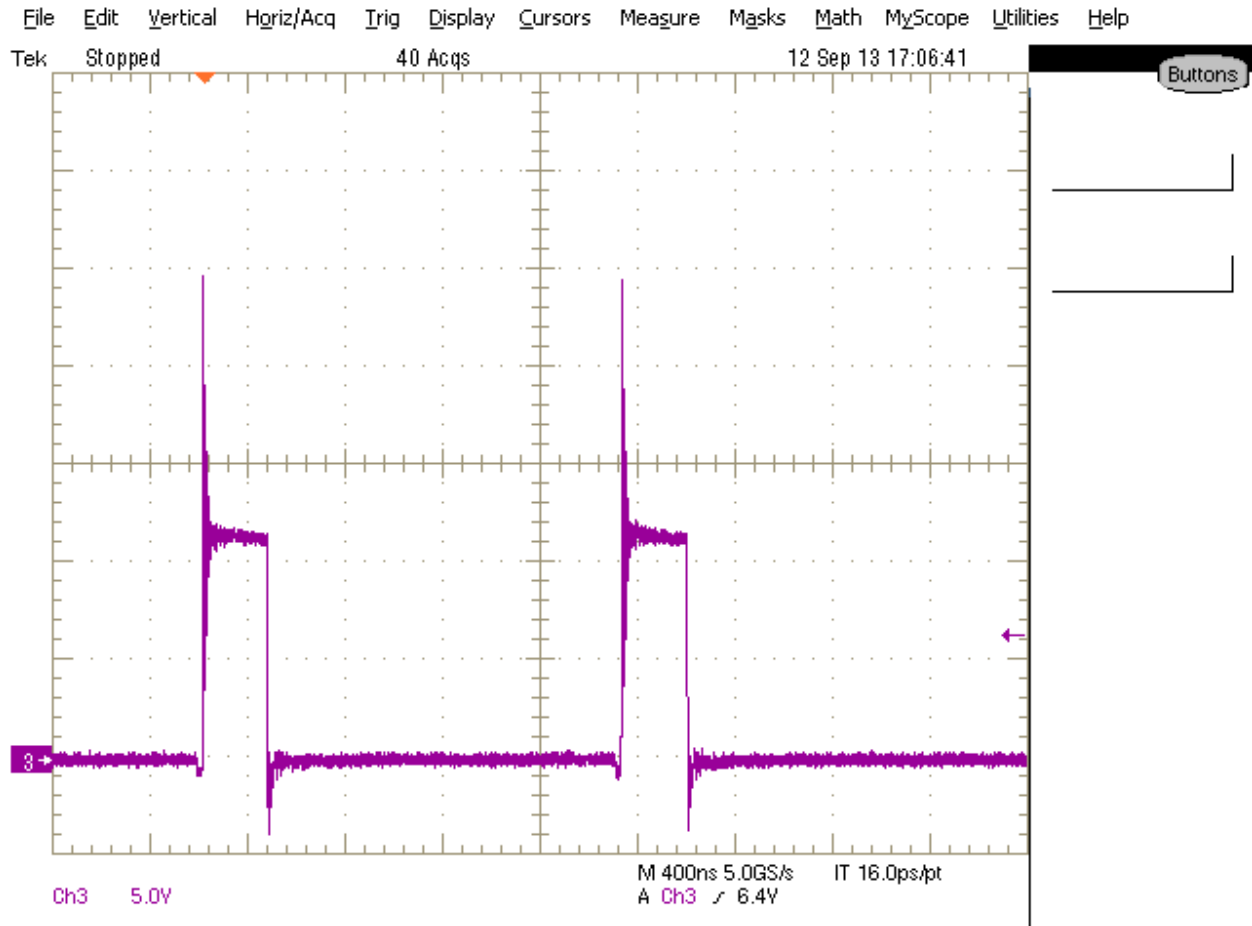
[CH1 = Venable; CH2 = Vin; CH3 = Vout; CH4 = Iout]



Shutdown via Enable pin from 12A Load (Vin = 12V)

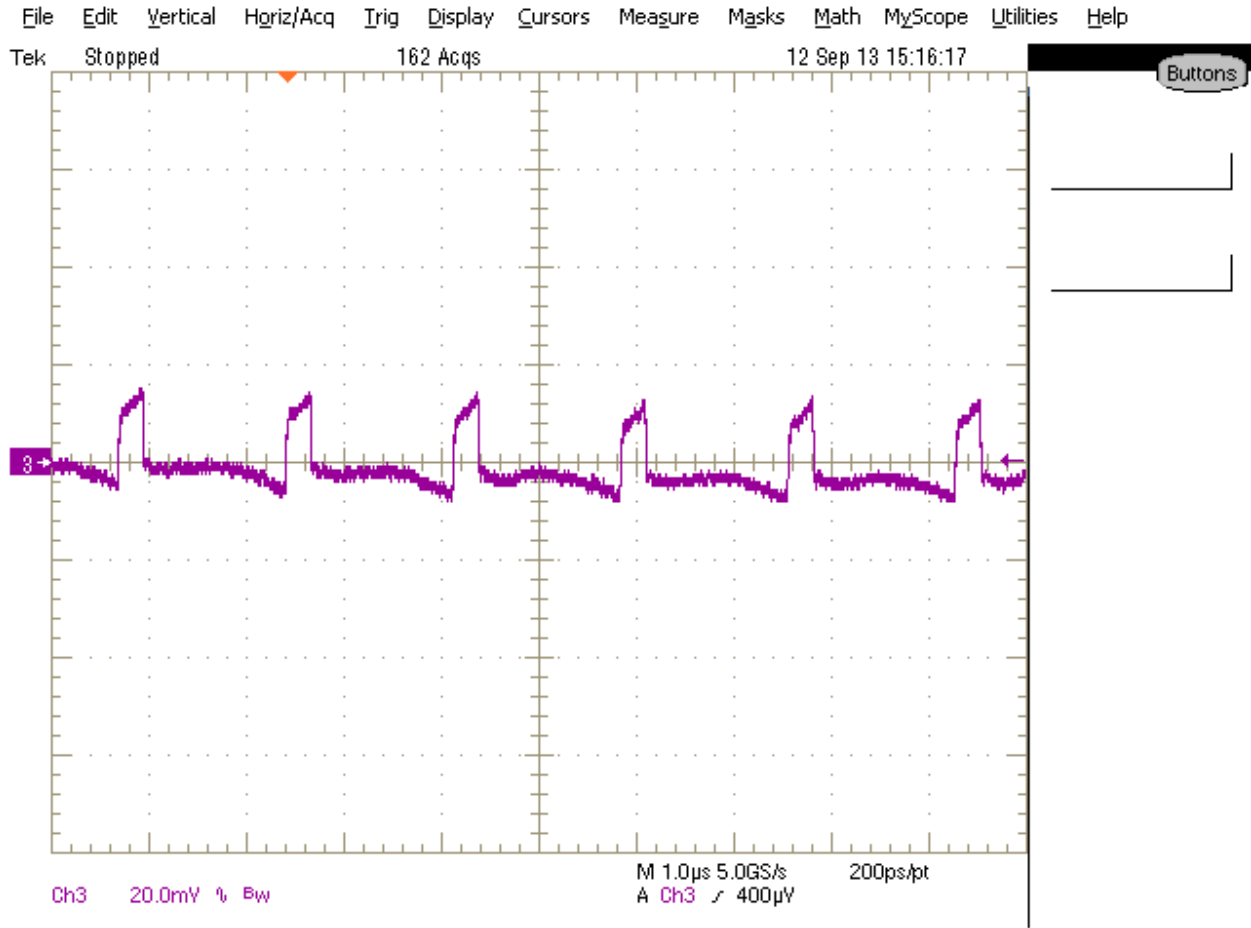
[CH1; Venable; CH2 = Vin; CH3 = Vout; CH4 = Iout]

7.3 Output Voltage Ripple and Switch Node Voltage



Switch Node at $V_{in} = 12V$ and 20A Load

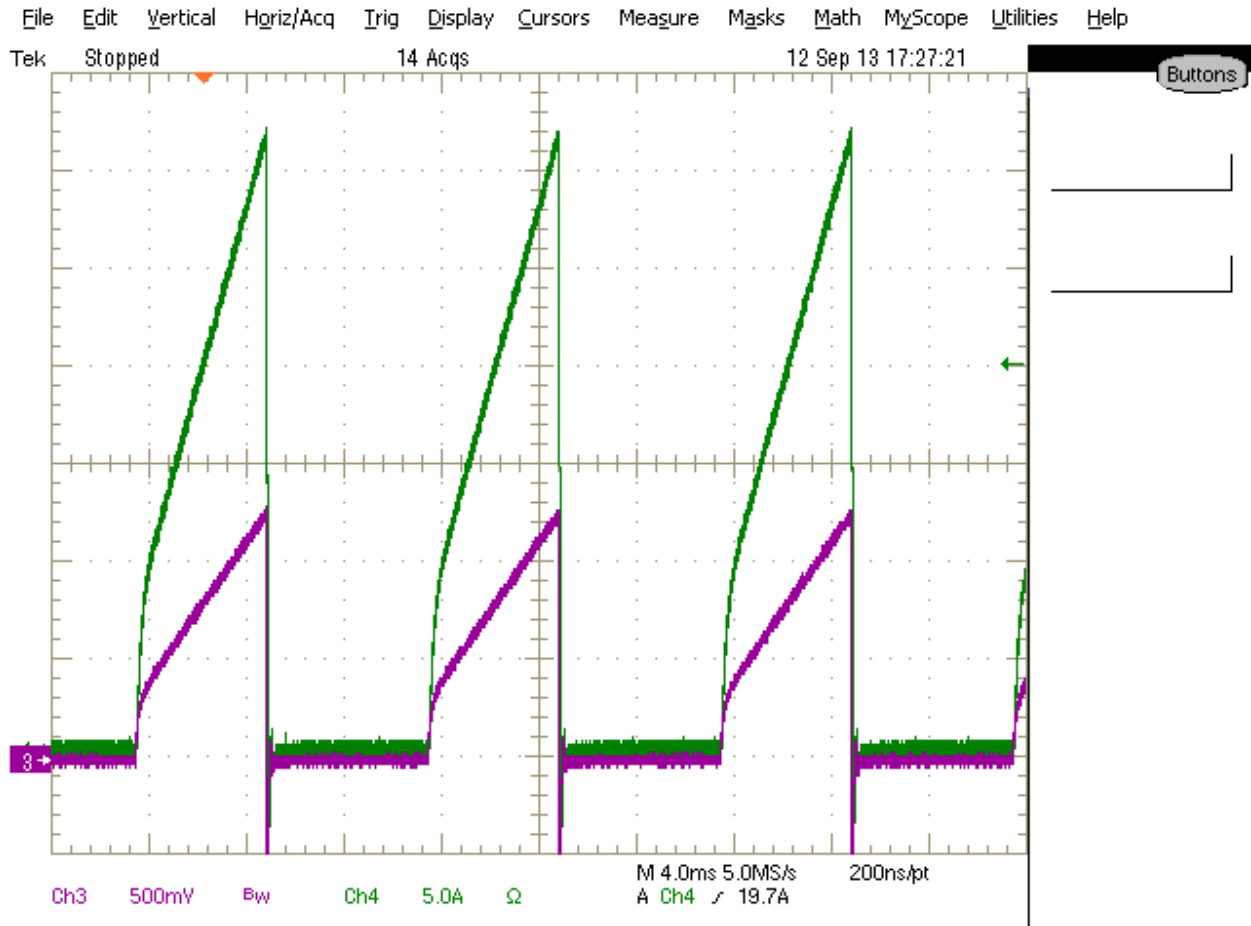
[CH3 = V_{sw}]



Output Voltage Ripple at $V_{in} = 12V$ and No Load ($V_{ripple} \approx 22mV_{p-p}$)

[CH3 = V_{out}]

7.4 Current Limit Hiccup



Current Limit at 12Vin (approximately 33A)

[CH3 = Vout; CH4 = Iout]

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