

Max Current Output for VDCDC1 is 1.6A  
VDCDC1 can be varied between 0.6V and VCC  
depending on choice of R1 and R2

Max Current Output for VDCDC2 is 1A  
VDCDC2 can be varied between 0.6V and VCC  
depending on choice of R3 and R4

Max Current Output for VLD01 is 0.2A  
VLD01 can be varied between 1V and (VCC - 0.3V)  
depending on choice of R5 and R6

TEXAS INSTRUMENTS			
Title 5Vin Design with PMIC			
Size C	Number PMP4022	Rev A	
Date 08/27/2008	Drawn by T. Olabumuyi		
Filename PMP4022REVA.sch	Sheet 1	of 1	

Filename: PMP4022REVA\_bom.xls

Date: 08/27/2008

## PMP4022REVA BOM

COUNT	RefDes	Value	Description	Size	Part Number	MFR
1	C11	2.2uF	Capacitor, Ceramic, 6.3V, X5R,10%	0603	C1608X5R0J225K	TDK
1	C15	0.1uF	Capacitor, Ceramic, 6.3V, X5R,10%	0603	Std	Std
1	C16	0.01uF	Capacitor, Ceramic, 6.3V, X5R,10%	0603	Std	Std
2	C2, C3	22uF	Capacitor, Ceramic, 6.3V, X5R]	0805	C2012X5R0J226MT	TDK
2	C4, C13	1.0uF	Capacitor, Ceramic, 6.3V, X5R,10%	0603	C1608X5R0J105K	TDK
4	C5, C6, C7, C8	10uF	Capacitor, Ceramic, 6.3V, X5R, 10%	0805	C2012X5R0J106K	TDK
8	J1, J3, J4, J5, J9, J10, J13, J15	PTC36SAAN	Header, 2 pin, 100mil spacing, (36-pin strip)	0.100 x 2	PTC36SAAN	Sullins
4	JP3, JP4, JP7, JP8		Header, 3 pin, 100mil spacing, (36-pin strip)	0.100 x 3	PTC36SAAN	Sullins
1	L1	3.3uH	Inductor, 3.3uH, SMT, 3.39A, 18.3milliohm	0.300 sq"	DR74-3R3-R	Coiltronics
1	L2	3.3uH	Inductor, SMT, 3.3uH, 4.76A, 12.6milliohm	0.300 sq"	DR74-3R3-R	Coiltronics
1	R1	499K	Resistor, Chip, 499k,1/16W, 1%	0603		
1	R10	100K	Resistor, Chip, 1/16W, 1%	0603	Std	Std
5	R11, R16, R17, R20, R21	0	Resistor, Chip, 1/16W, 1%	0603	Std	Std
1	R12	720k	Resistor, Chip, 1/16W, 1%	0603	Std	Std
1	R13	1.00Meg	Resistor, Chip, 1.00Meg, 1/16W, 1%	0603	Std	Std
1	R14	10.0K	Resistor, Chip, 1/16W, 1%	0603	CRCW0603-xxxx-F	Vishay
1	R15	0	Resistor, Chip, short, 1/16W, 5%	0603	CRCW0603-xxxx-F	Vishay
1	R18	100K	Resistor, Chip, 1/16W, 5%	0603	CRCW0603-xxxx-F	Vishay
1	R2	499K	Resistor, Chip, 499k, 1/16W, 1%	0603		
1	R3	open	Resistor, Chip, open, 1/16W, 1%	0603		
1	R4	0	Resistor, Chip, short, 1/16W, 1%	0603		
1	R5	665k	Resistor, Chip, 665k, 1/16W, 1%	0603	Std	Std
1	R6	287k	Resistor, Chip, 332k, 1/16W, 1%	0603	Std	Std
1	R9	10	Resistor, Chip, 10, 1/16W, 5%	0603	Std	Std
1	U1	TPS650243RHB	IC, Power Management IC for Li-Ion Powered Systems	QFN-32	TPS650243RHB	TI



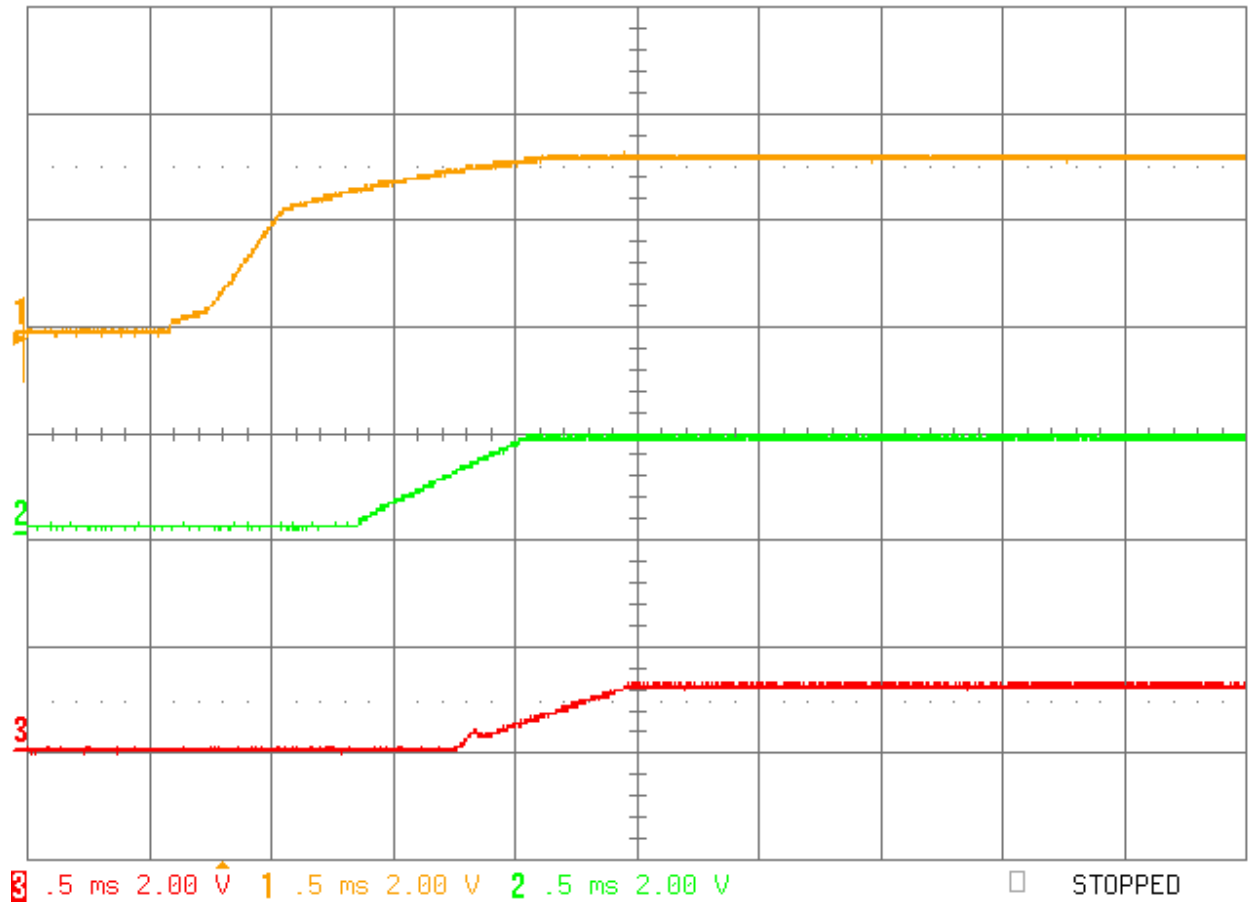
**DM643x – PMIC - (PMP4022-RevA)  
9/11/08**

The following test report includes measurements for the following output voltage rails for 5V input:

- A. **Start Up Waveform for all outputs**
- B. **1.2V @ 1.48A Using the TPS650243 Device – DCDC1**
  - 1. Output Voltage Ripple (Measured Full Load)
  - 2. Load Transient (50% to 100% Load Step)
  - 3. Load Regulation
  - 4. Efficiency
  - 5. Switch Node
- C. **1.8V @ 0.14A Using the TPS650243 Device - DCDC2**
  - 1. Output Voltage Ripple (Measured Full Load)
  - 2. Load Transient (50% to 100% Load Step)
  - 3. Load Regulation
  - 4. Efficiency
- D. **3.3V @ 0.04A Using the TPS650243 Device - LDO1**
  - 1. Output Voltage Ripple (Measured Full Load)
  - 2. Load Transient (50% to 100% Load Step,)

## A Start Up Waveform All Outputs – TPS 650243

Sequence is 3.3V, 1.8V and 1.2V



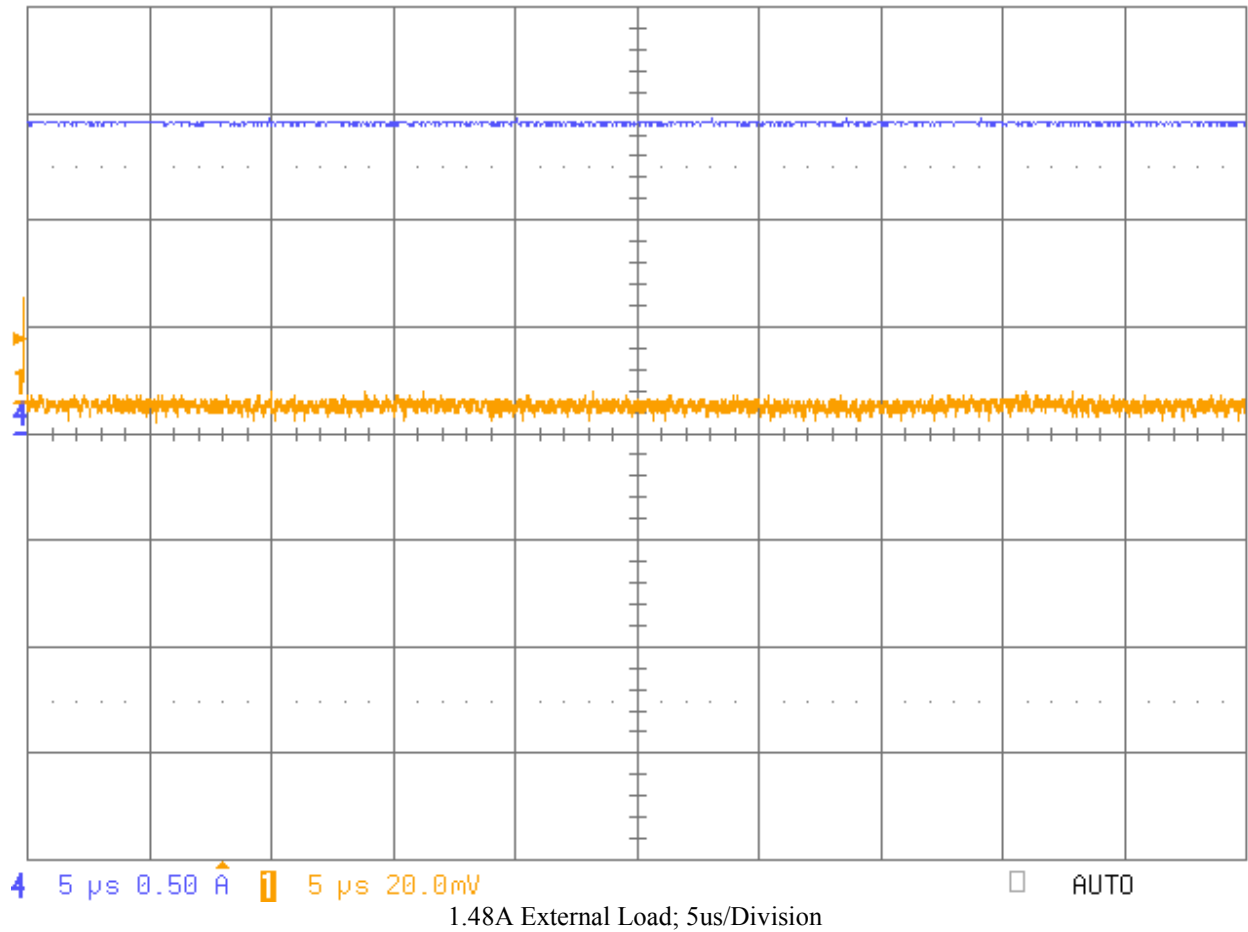
## A 1.2V @ 1.48A – TPS 650243 – DCDC1

### 1 Output Ripple Voltage

The photo below shows the output voltage ripple. The input voltage is 5V.

Channel 1: 1.2V Output - Orange (20mV/Division; AC Coupled)

Channel 4: Output Current – Blue (0.5A/Division)

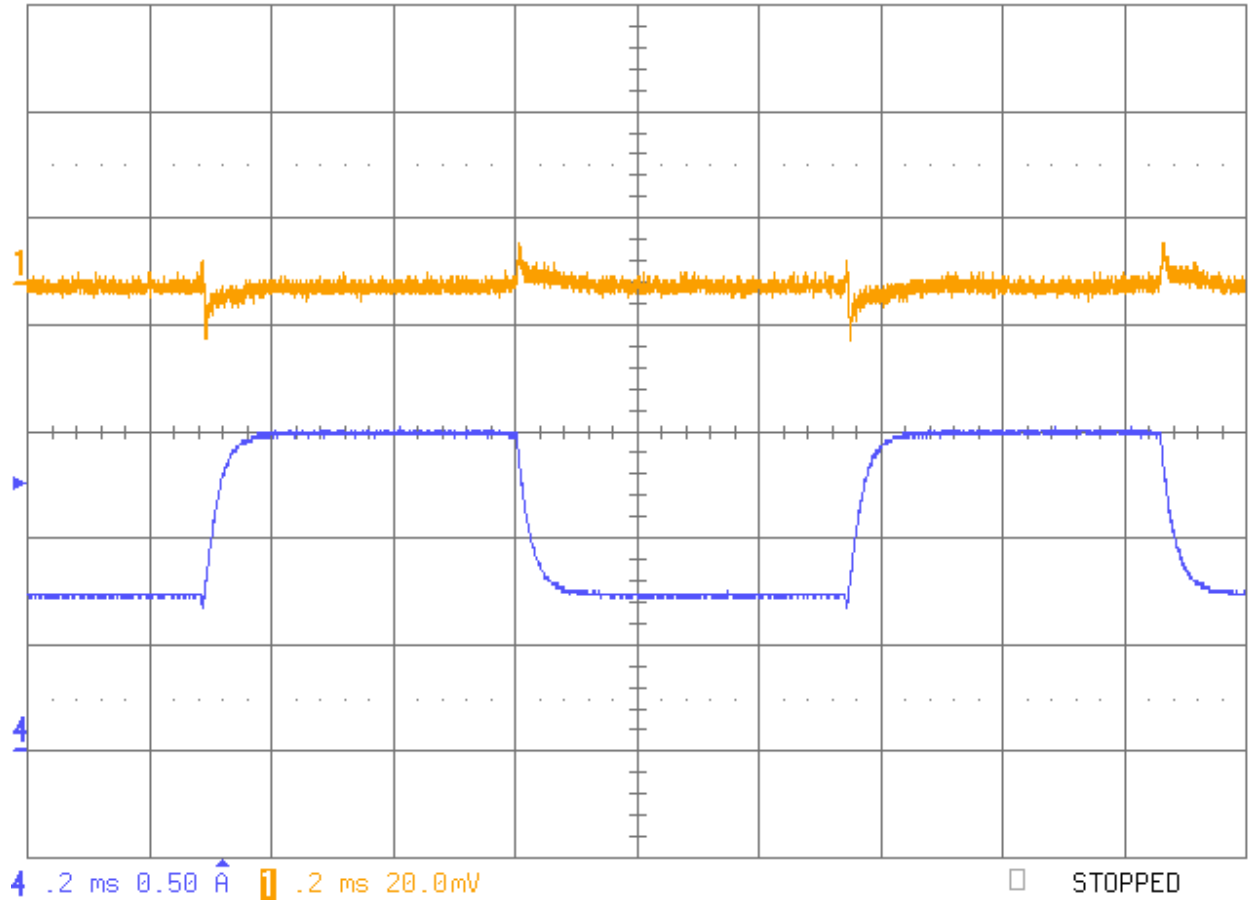


## 2 Load Transients (1.2V @ 1.48A)

The photo below shows the transient response. The current is pulsed from 0.75A to 1.48A. The input voltage is 5V. The time-base is set to 200us/Division.

Channel 1: 1.2V Output - Orange (20mV/Division; AC Coupled)

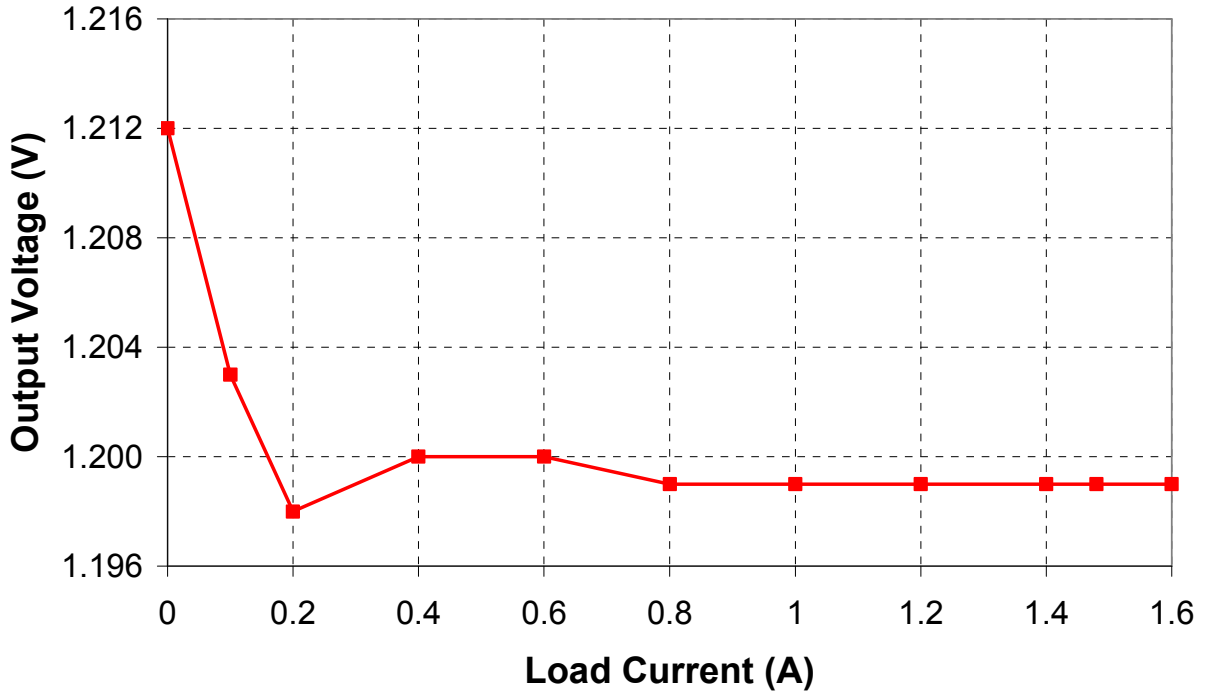
Channel 4: Output Current - Blue (100mA/Division)



### 3 Load Regulation – 1.2V @ 1.48A

The load regulation is shown in the figure below. The input voltage is 5V.

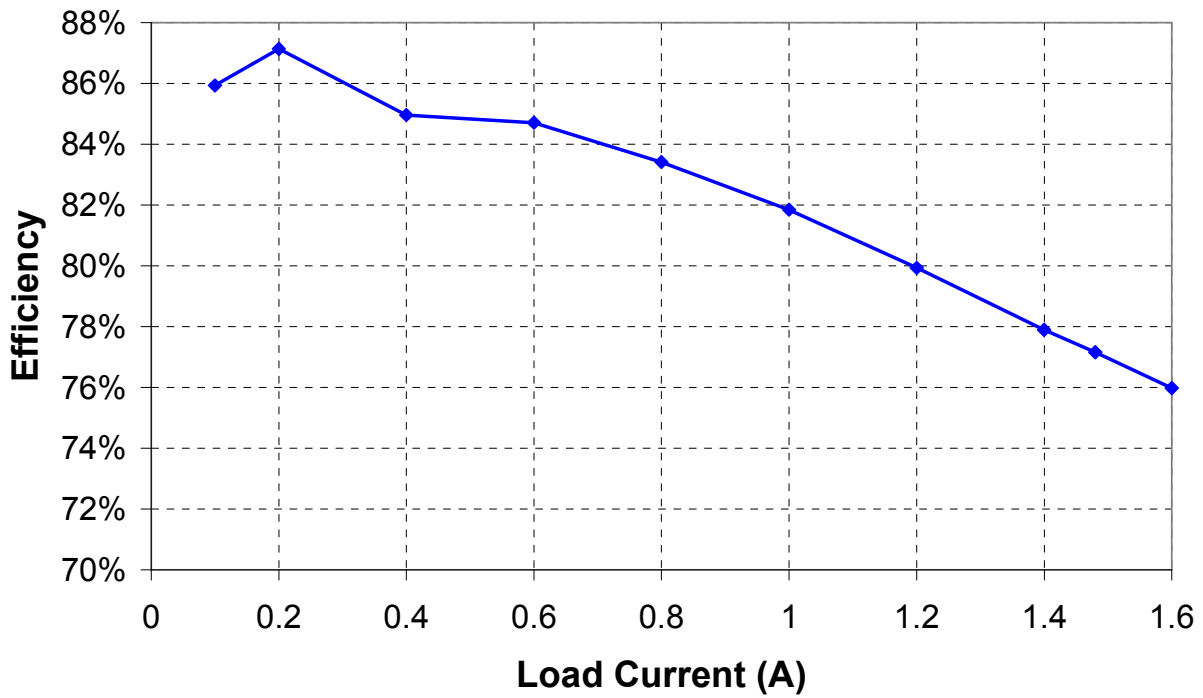
#### Output Voltage vs. Load Current



#### 4 Efficiency – 1.2V @ 1.48A

The efficiency is shown in the figure below. The input voltage is 5V.

### 1.2V @ 1.48A Efficiency vs. Load Current

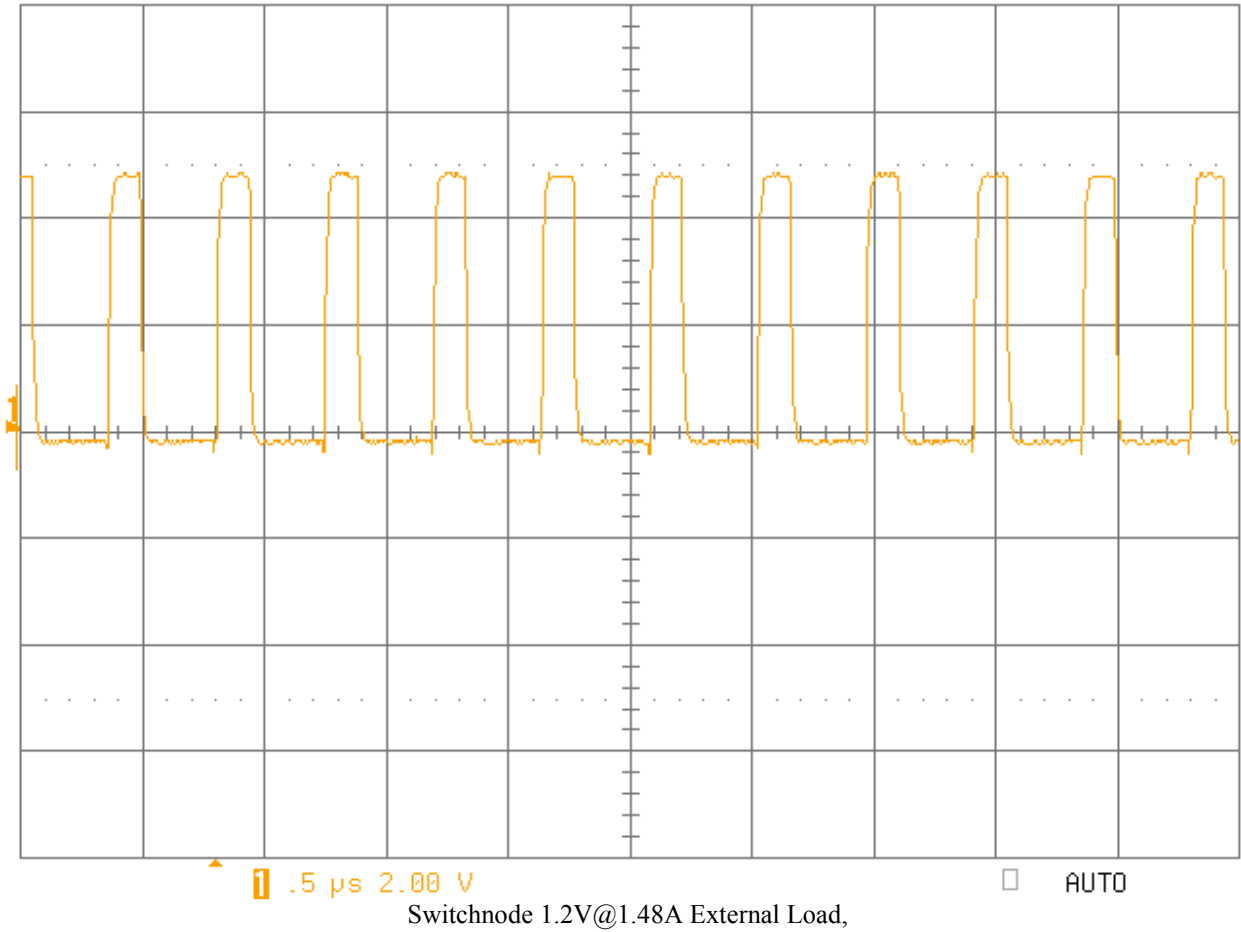




## 5 Switch Node Waveforms – 1.2V @ 1.48A

The plot below shows the switching waveforms for the converter. The input is 5V.

Channel 2: Switch Node - Orange (2V/Division)

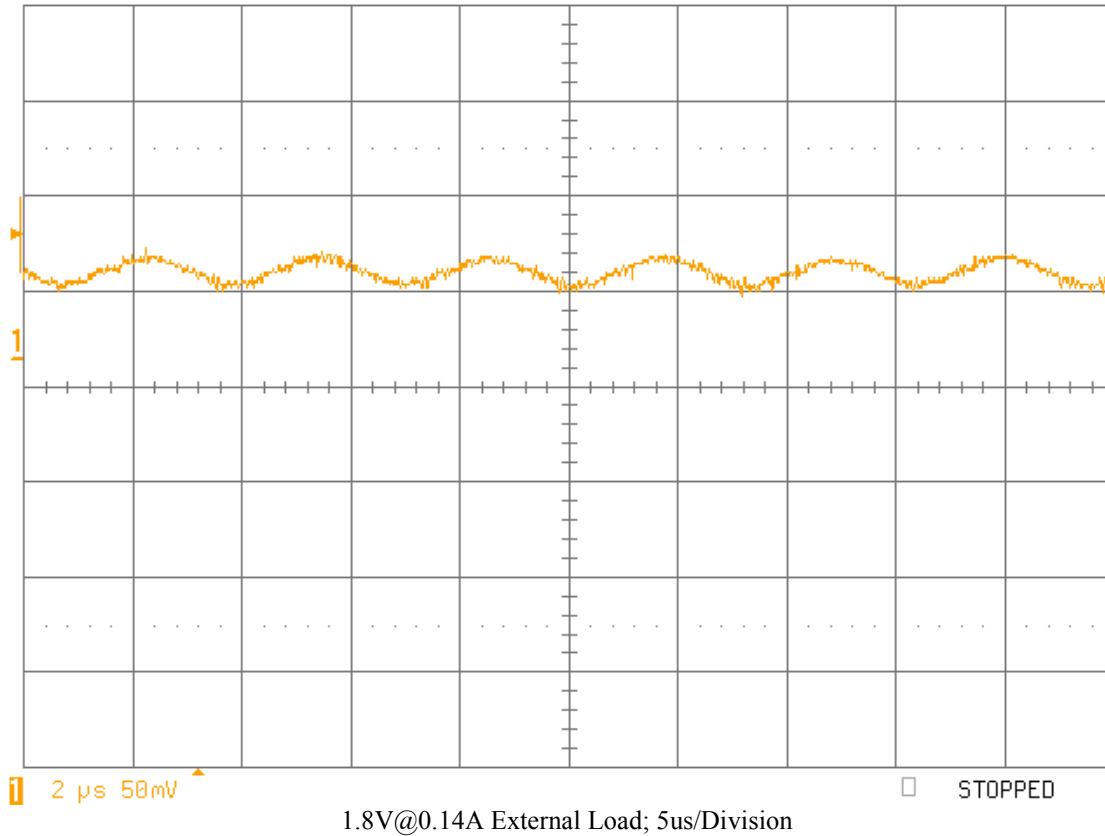


## B 1.8V @ 0.14A – TPS 650243 – DCDC1

### 1. Output Ripple Voltage for 1.8V @ 0.14A

The photo below shows the output voltage ripple. The input voltage is 5V.

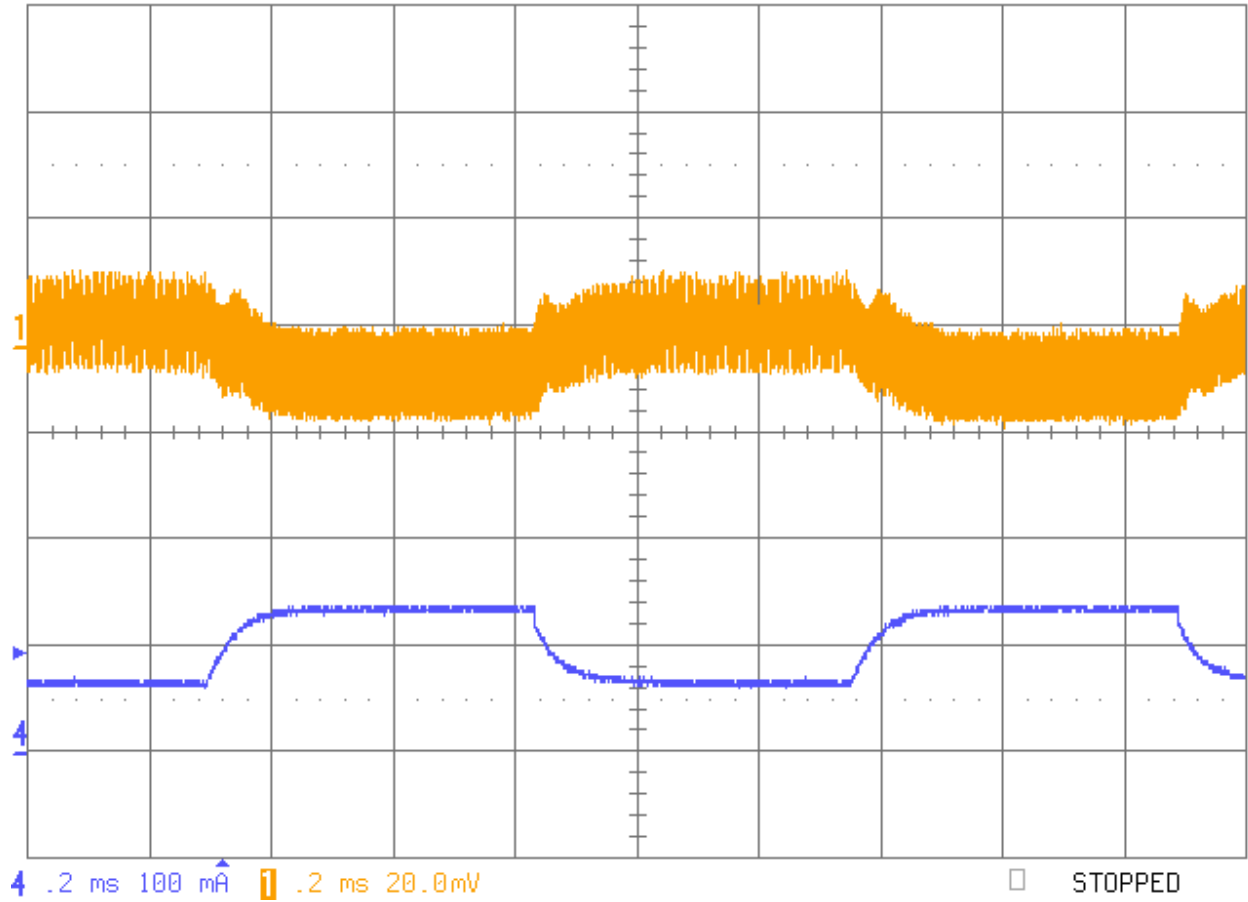
Channel 1: 1.8V Output - Orange (20mV/Division; AC Coupled)



## 2. Load Transients – 1.8V @ 0.14A

The photo below shows the transient response. The current is pulsed from 0.07A to 0.14A. The input voltage is 5V. The time-base is set to 200us/Division.

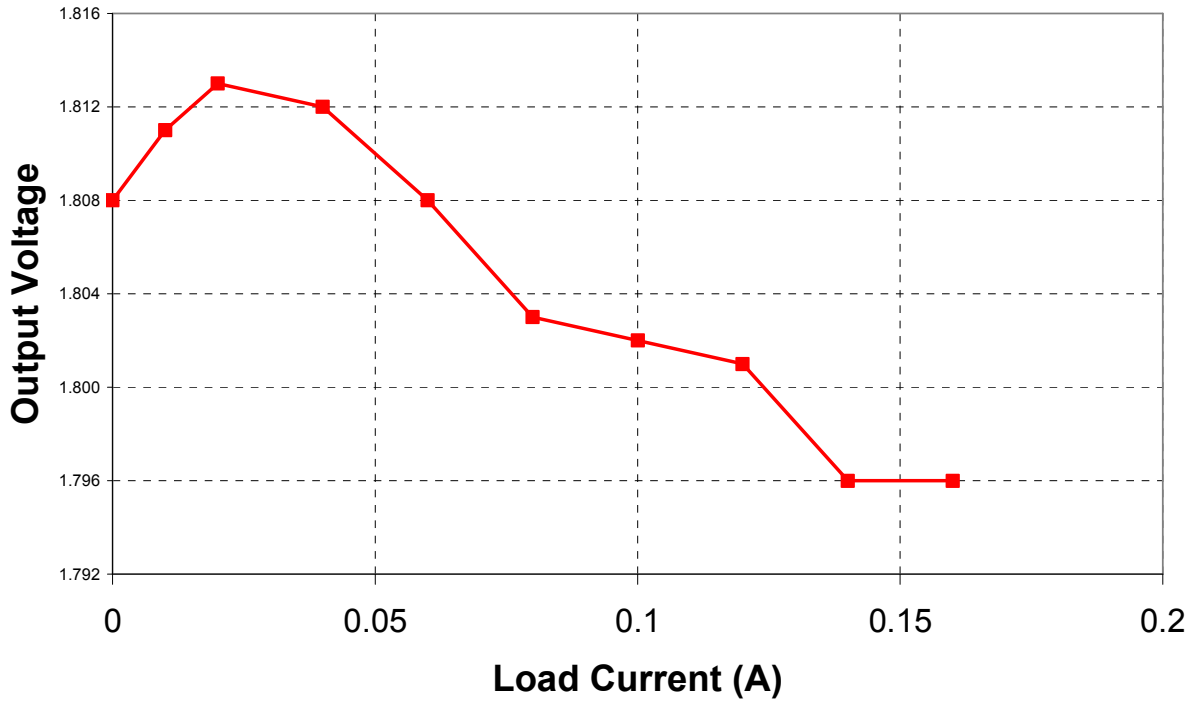
Channel 1: 1.8V Output - Orange (20mV/Division; AC Coupled)  
Channel 4: Output Current - Blue (100mA/Division)



### 3. Load Regulation – 1.8V @ 0.14A

The load regulation is shown in the figure below. The input voltage is 5V.

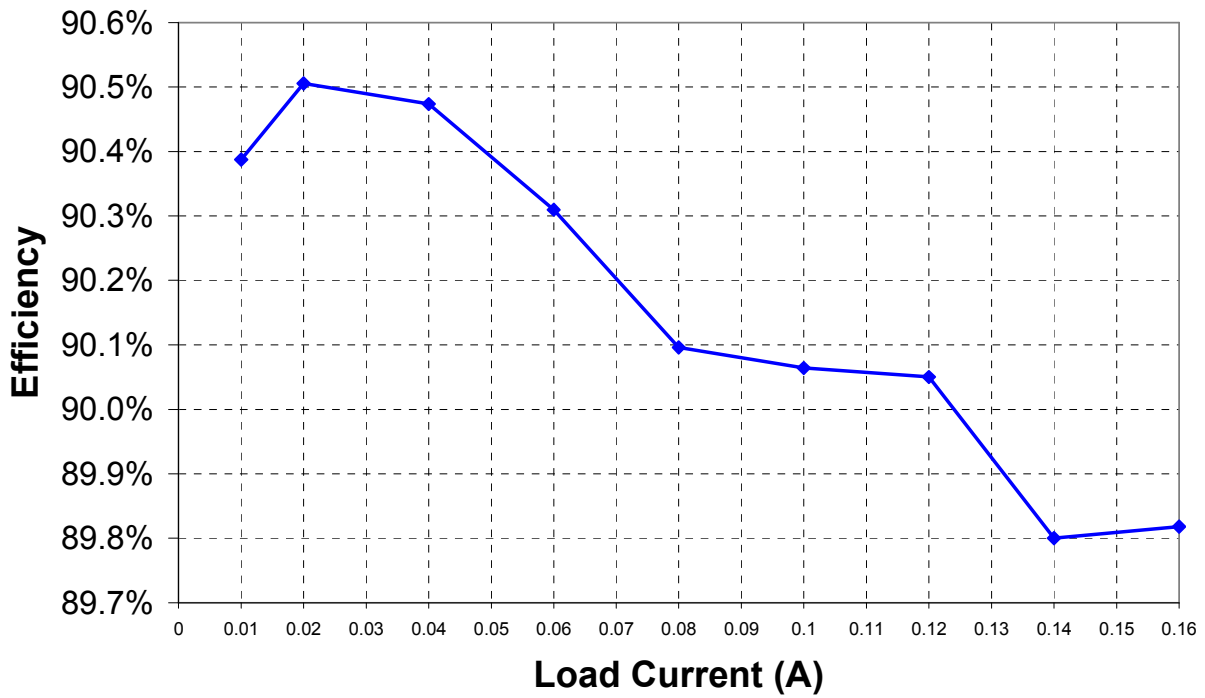
#### Output Voltage vs. Load Current



#### 4. Efficiency – 1.8V @ 0.14A

The efficiency is shown in the figure below. The input voltage is 5V.

### Efficiency vs. Load Current



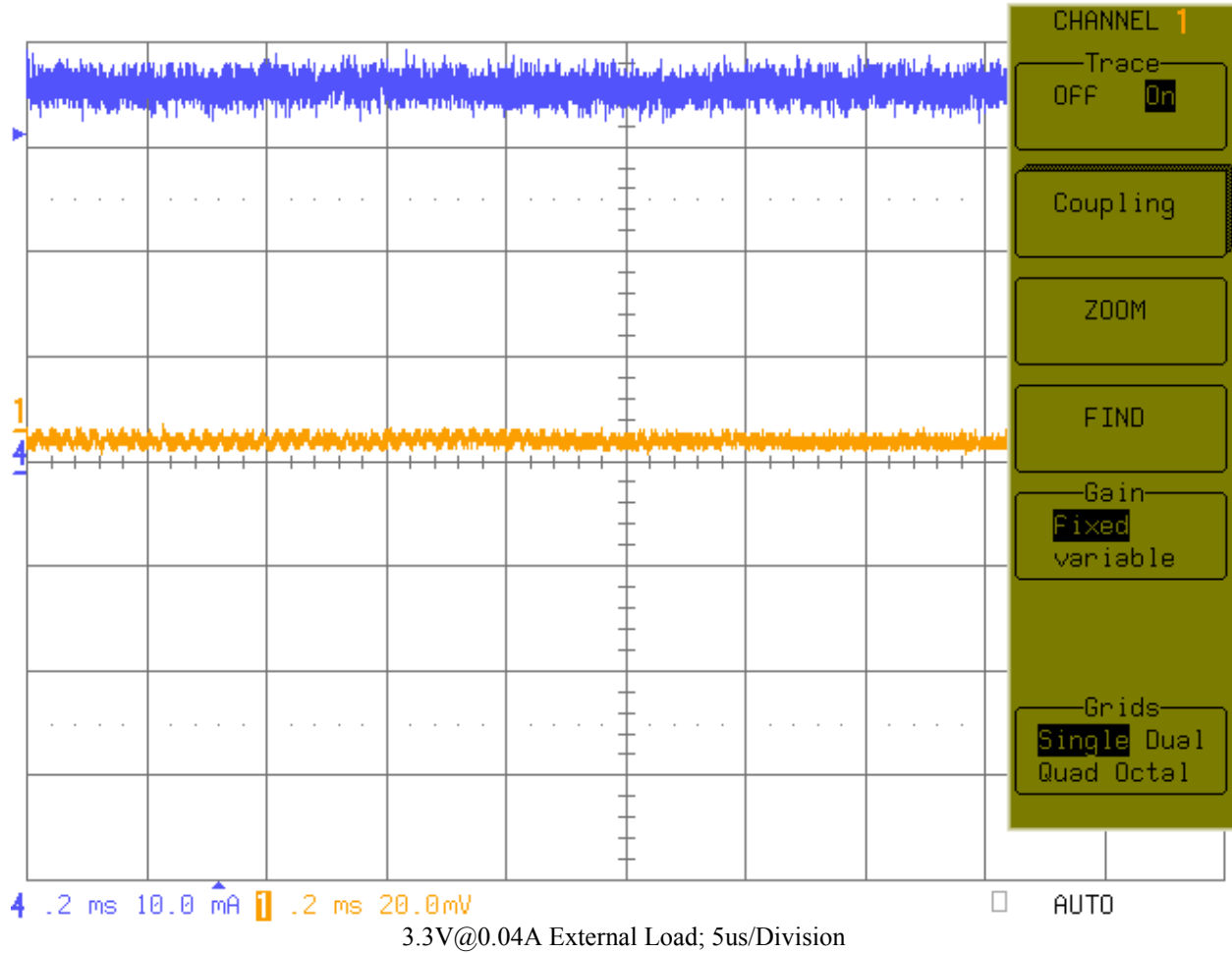
## B 3.3V @ 0.04A – TPS 650243 – LDO1

### 1. Output Ripple Voltage for 3.3V @ 0.04A

The photo below shows the output voltage ripple. The input voltage is 5V.

Channel 1: 3.3V Output - Orange (20mV/Division; AC Coupled)

Channel 4: Current Output – Blue (10mA/Division)



## 2. Load Transients – 3.3V @ 0.04A

The photo below shows the transient response. The current is pulsed from 0.02A to 0.04A. The input voltage is 5V. The time-base is set to 200us/Division.

Channel 1: 3.3V Output - Orange (20mV/Division; AC Coupled)

Channel 4: Output Current - Blue (10mA/Division)

