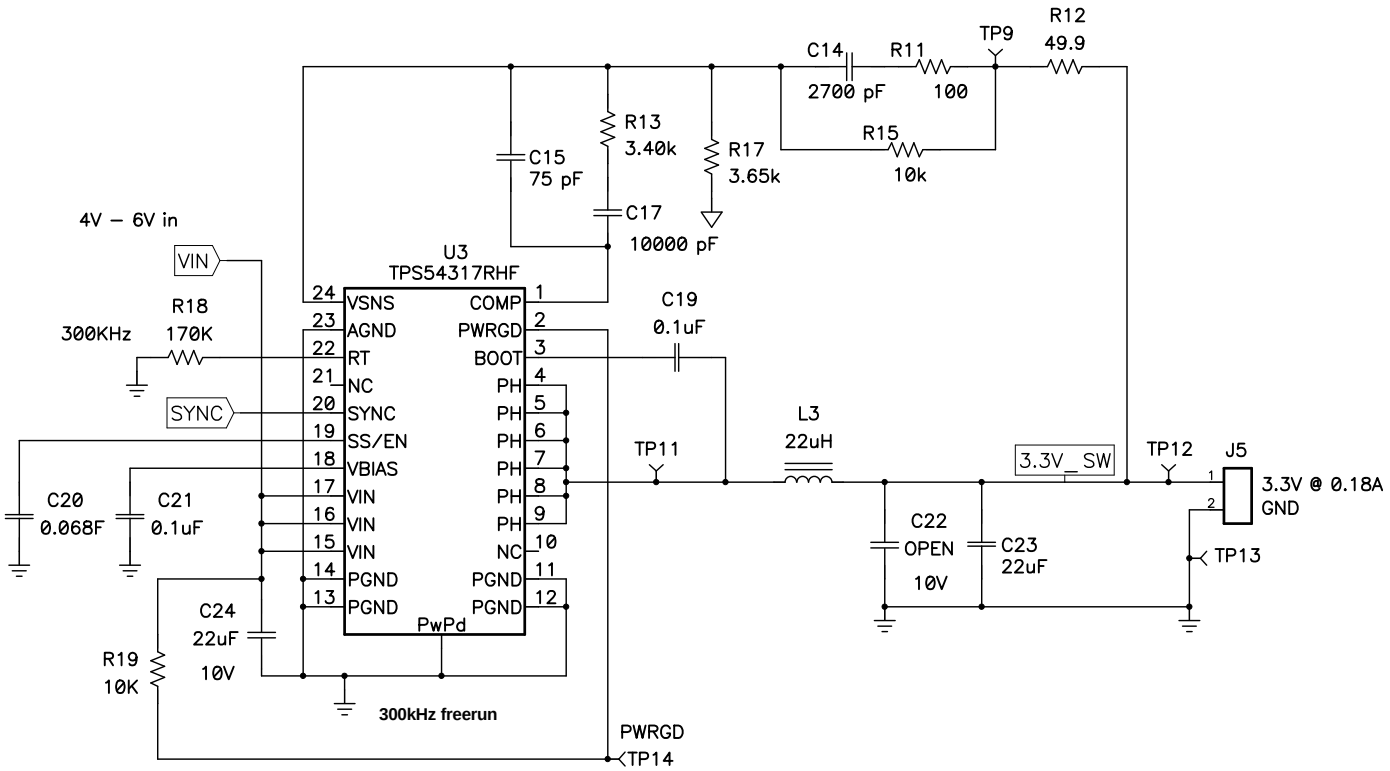
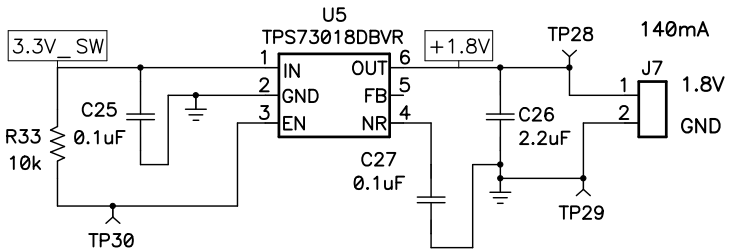


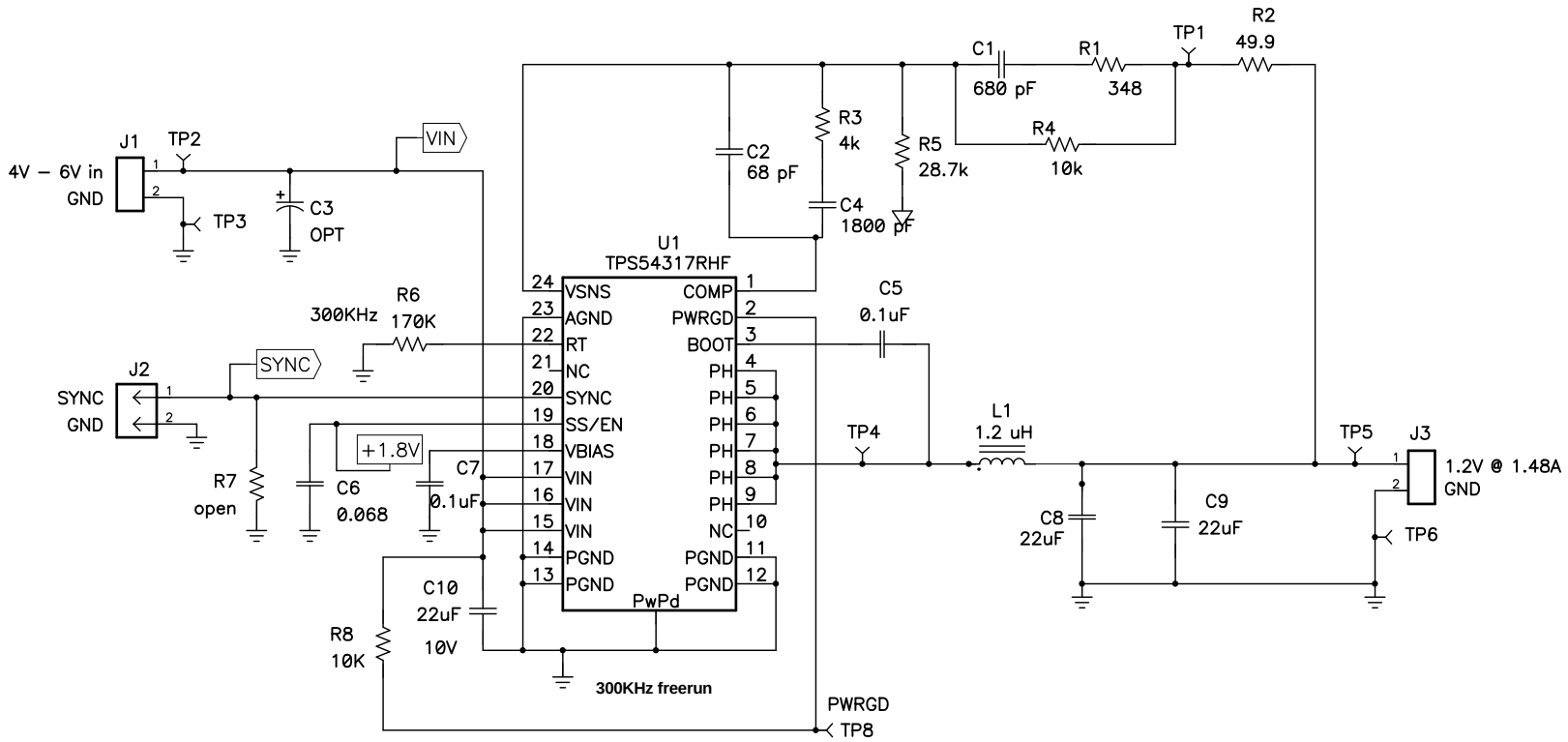
TEXAS INSTRUMENTS

Title: TPS54317		
Size: B	Number: PMP4023	Rev: A
Date: 8/27/08	Drawn by: T Olabumuyi	
Filename: PMP4023_REVA.sch	Sheet 1 of 3	



TEXAS INSTRUMENTS

Title	TPS73018	
Size B	Number PMP4023	Rev A
Date 8/27/08	Drawn by I. Olabumuyi	
Filename PMP4023_REVA.sch	Sheet 2 of 3	



TEXAS INSTRUMENTS

Title: TPS54317		
Size: B	Number: PMP4023	Rev: A
Date: 8/27/08		Drawn by: T Olabumuyi
Filename: PMP4023_REVA.sch		Sheet 3 of 3

Filename: PMP4023_REVA_bom.xls
Date: 10/02/2008

PMP4023_REVA BOM

COUNT	RefDes	Description	Size	Part Number	MFR
1	C1	Capacitor, Ceramic, 680-pF, 50-V, X7R, 10%	603	std	std
1	C14	Capacitor, Ceramic, 2700-pF, 50-V, X7R, 10%	603	std	std
1	C15	Capacitor, Ceramic, 75-pF, 50-V	603	std	std
1	C17	Capacitor, Ceramic, 10000-pF, 50-V, X7R, 10%	603	std	std
1	C2	Capacitor, Ceramic, 68-pF, 50-V	603	std	std
1	C20	Capacitor, Ceramic, 0.068F, 0402	402	Std	Std
1	C22	Capacitor, Ceramic, open, 10V, X5R, 15%	1206	C3216X5R1A226MT	TDK
1	C23	Capacitor, Ceramic, 10V, X5R, 22uF	1210	C3216X5R1A226MT	TDK
1	C25	Capacitor, Ceramic, 0.1-uF, 50-V, X7R, 15%	603	Std	TDK
1	C26	Capacitor, Ceramic, 16V, X7R	805	std	std
1	C27	Capacitor, Ceramic, 0.1uF, 50-V, X7R, 15%	603	Std	TDK
1	C3	Open	7343 (D)		
1	C4	Capacitor, Ceramic, 1800-pF, 50-V, X7R, 10%	603	std	std
4	C5, C7, C19, C21	Capacitor, Ceramic, 0.1uF, 6.3V, X5R, 10%, 0402	402	Std	Std
1	C6	Capacitor, Ceramic, 0.068, 0402	402	Std	Std
1	C8	Capacitor, Ceramic, 6.3V, X5R	1206	C3216X5ROJ226	TDK
3	C9, C10, C24	Capacitor, Ceramic, 22uF, 10V, X5R, 15%	1206	C3216X5R1A226MT	TDK
3	J1, J3, J5	Terminal Block, 2-pin, 6-A, 3.5mm	0.27 x 0.25	ED1514	OST
1	J2	Header, 2-pin, 100mil spacing, (36-pin strip)	0.100 inch x 2	PTC36SAAN	Sullins
1	J7	Terminal Block, 2-pin, 15-A, 5.1mm	0.40 x 0.35	ED1609	
1	L1	Inductor, SMT, 1.2-uH, 4.4-A, 17-milliohm		DO1813P-122HC	Coilcraft
1	L3	Inductor, SMT, 22uH, 1.67A, 107 milliohm	0.153 x 0.153 inch	DR73-220-R	Coilcraft
1	R1	Resistor, Chip, 348-Ohms, 1/16-W, 1%	603	Std	Std
1	R11	Resistor, Chip, 100-Ohms, 1/16-W, 1%	603	Std	Std
1	R13	Resistor, Chip, 3.40k-Ohms, 1/16-W, 1%	603	Std	Std
1	R17	Resistor, Chip, 3.65k-Ohms, 1/16-W, 1%	603	Std	Std
2	R2, R12	Resistor, Chip, 49.9 Ohms, 1%, 0402	402	Std	Std
1	R3	Resistor, Chip, 4k-Ohms, 1/16-W, 1%	603	Std	Std
1	R33	Resistor, Chip, 1/16W, 1%	603	Std	Std
2	R4, R15	Resistor, Chip, 10k-Ohms, 1/16-W, 1%	603	Std	Std
1	R5	Resistor, Chip, 28.7k-Ohms, 1/16-W, 1%	603	Std	Std
2	R6, R18	Resistor, Chip, 170K Ohms, 1%, 0402	402	Std	Std
1	R7	Resistor, Chip, open, 0402	402	Std	Std
2	R8, R19	Resistor, Chip, 10K Ohms, 1%, 0402	402	Std	Std
9	TP1, TP2, TP4, TP5, TP8, TP9, TP11, TP12, TP14	Test Point, Red, Thru Hole Color Keyed	0.100 x 0.100 inch	5000	Keystone
2	TP28, TP30	Test Point, Red, Thru Hole Color Keyed	0.100 x 0.100 inch	5000	Keystone
1	TP29	Test Point, Black, Thru Hole Color Keyed	0.100 x 0.100 inch	5001	Keystone
3	TP3, TP6, TP13	Test Point, Black, Thru Hole Color Keyed	0.100 x 0.100 inch	5001	Keystone
2	U1, U3	IC, IFET Power Controller, adj.V, 3A	QFN-24	TPS54317RHF	Texas Instruments
1	U5	IC, UltraLow-Noise, High PSRR, Fast RF 200 mA, LDO Regulator	SOT23-6	TPS73018DBVR	Texas Instruments

DM643x – TPS54317 (x 2) & TPS73018 – (PMP4023)
10/02/08

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

Content

Start Up Waveform

Channel 1: 3.3V DCDC (TPS54317)
Channel 3: 1.8V LDO (TPS73018)
Channel 2: 1.2V DCDC (TPS54317)

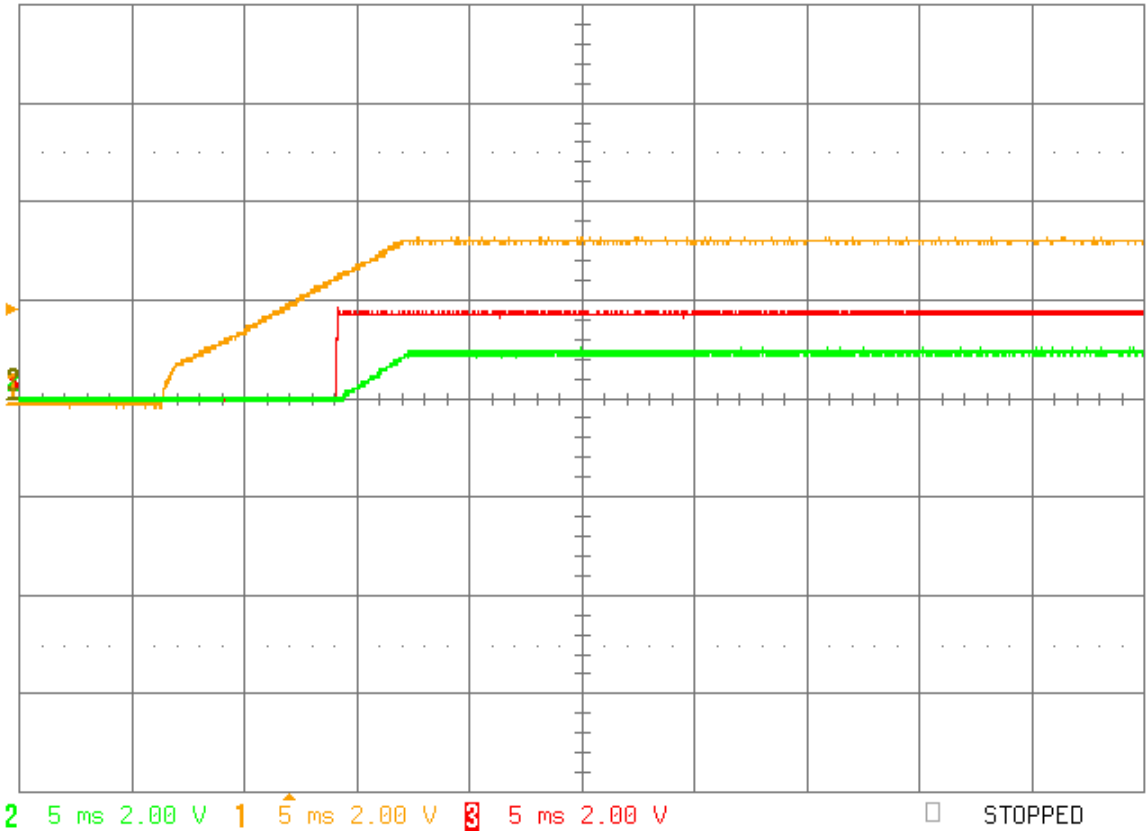


Fig 1: Start Up Waveform, Channel 1 – 3.3V, Ch 3: 1.8V, Ch 2: 1.2v

1.2V@ 1.48A (TPS54317)

Output Ripple

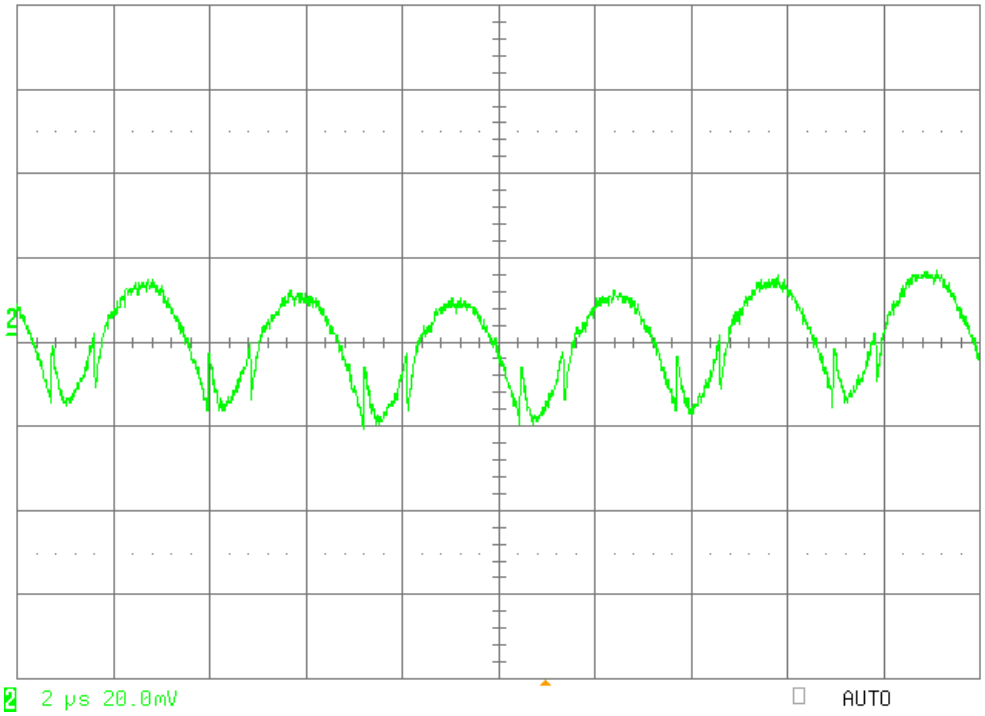


Fig 2: Output ripple on 1.2V output with 1.48A load

Load Transients

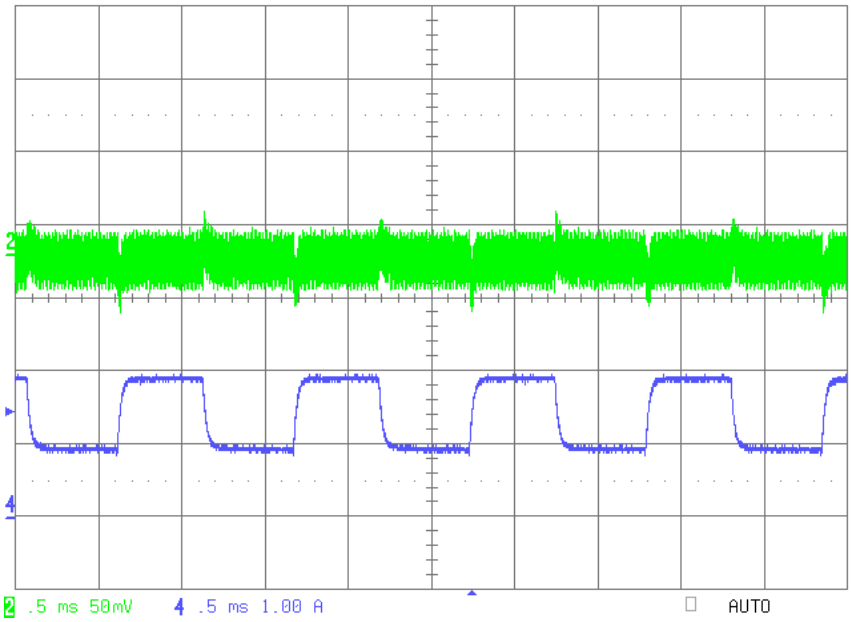


Fig 3: 50% to 100% Load Transient on 1.2V output, Ch 1: Out Voltage, Ch 4: Load Step

Efficiency

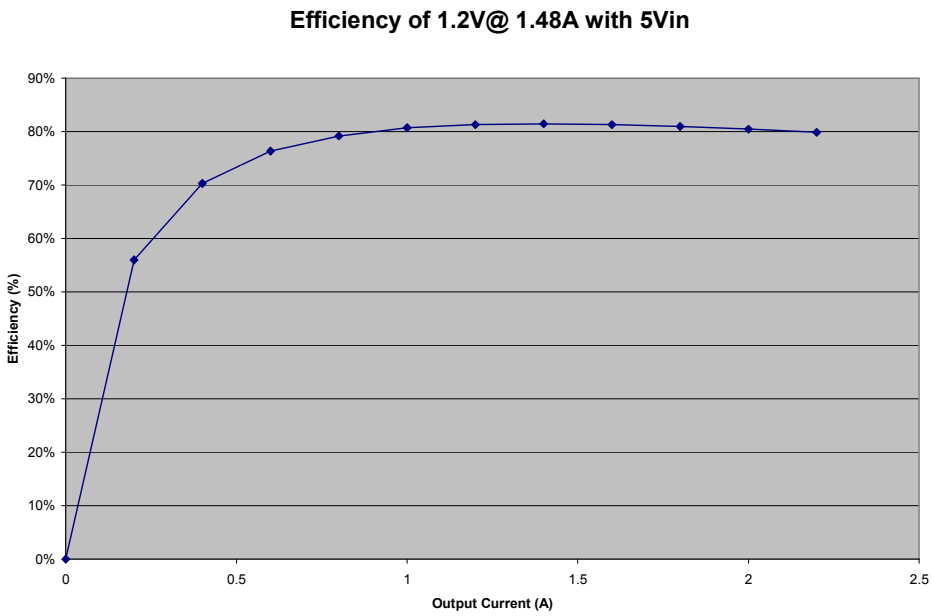


Fig 4: Efficiency of 1.2V output with 5Vin

Load Regulation

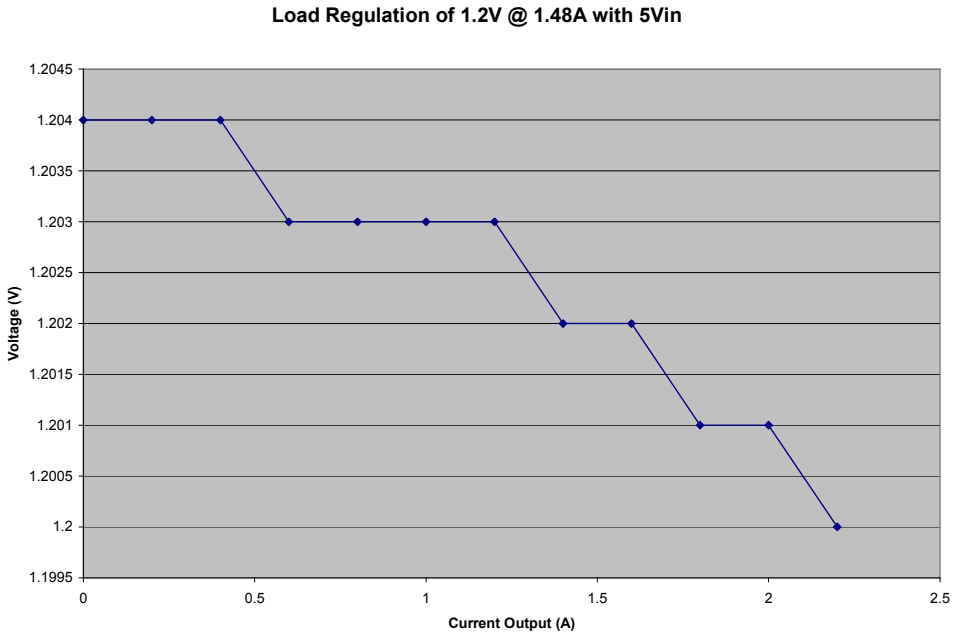


Fig 5: Load Regulation of 1.2V output with 5Vin

Switch node

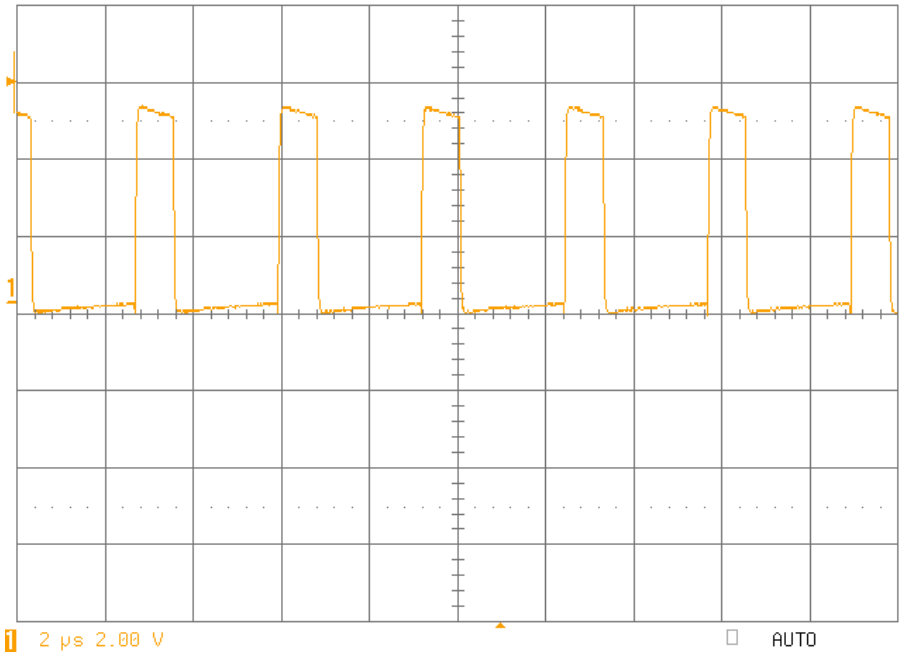


Fig 6: Switch node of 1.2V@1.48A output with 5Vin

Frequency Response

Crossover frequency is at 67.12K
Phase Margin is 48.81 degrees

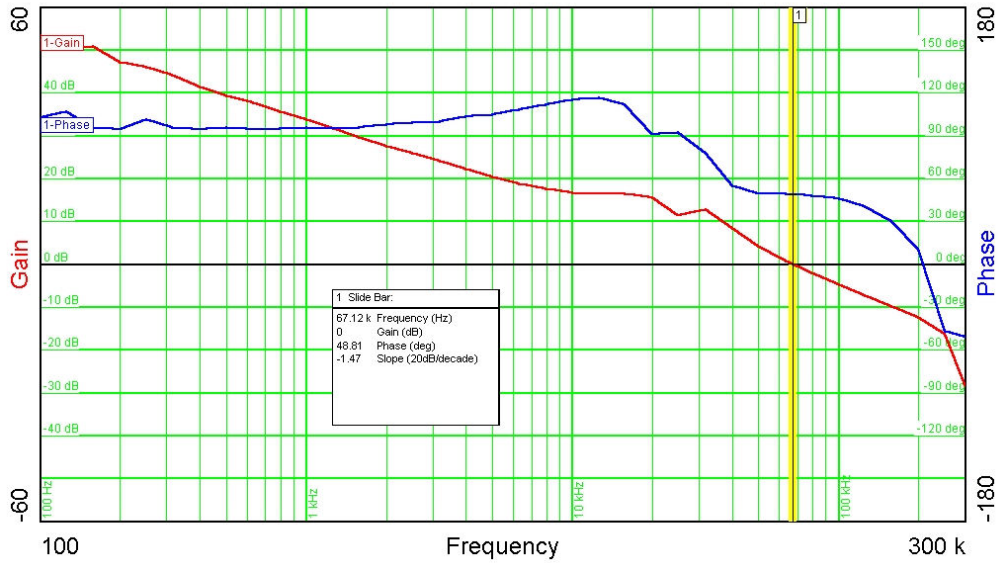


Fig 7: Frequency response of 1.2V@1.48A output with 5Vin

3.3V@ 0.18A (TPS54317)

Output Ripple on 3.3V @ 0 .18A (TPS54317)

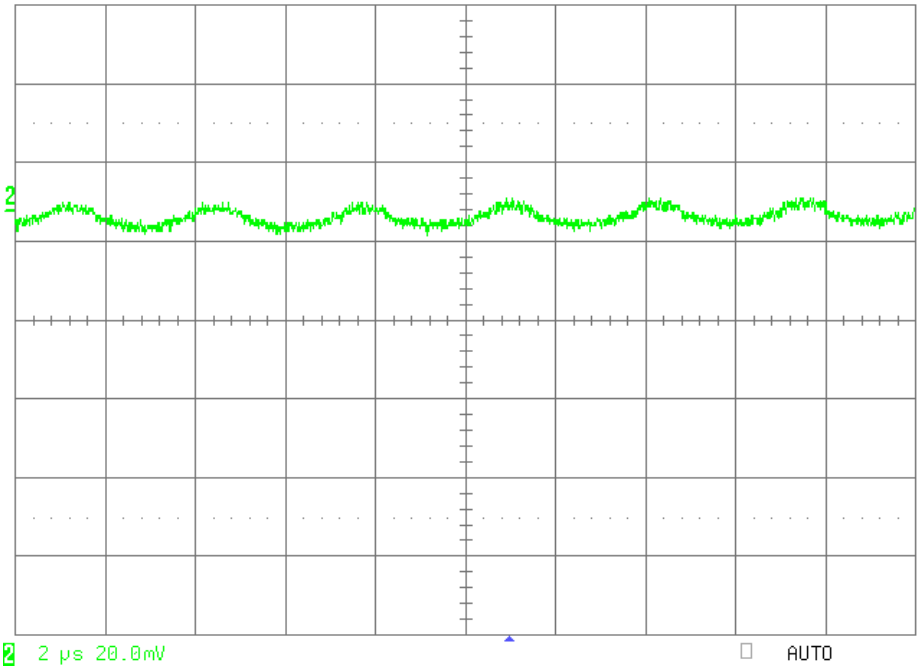


Fig 8: Output ripple on 3.3V output with 0.18A load and 5Vin

Load Transients (50% to 100% Load Step) on 3.3V@ 0.18A (TPS54317)

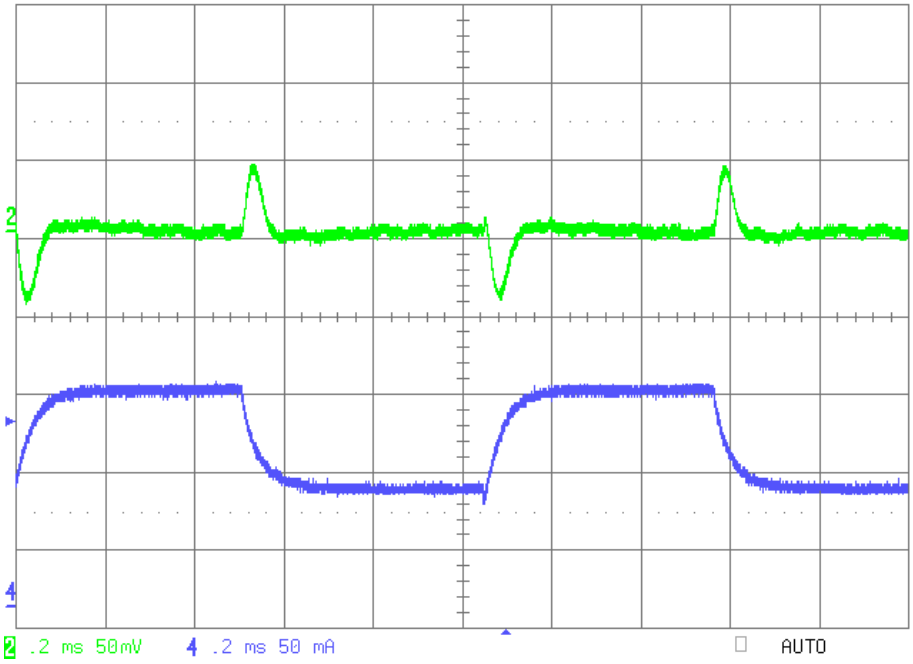


Fig 9: 50% to 100% Load step on 3.3V output. Ch 2: Output Volt, Ch 4: Load Step

Efficiency on 3.3V @ 0.18A (TPS54317)

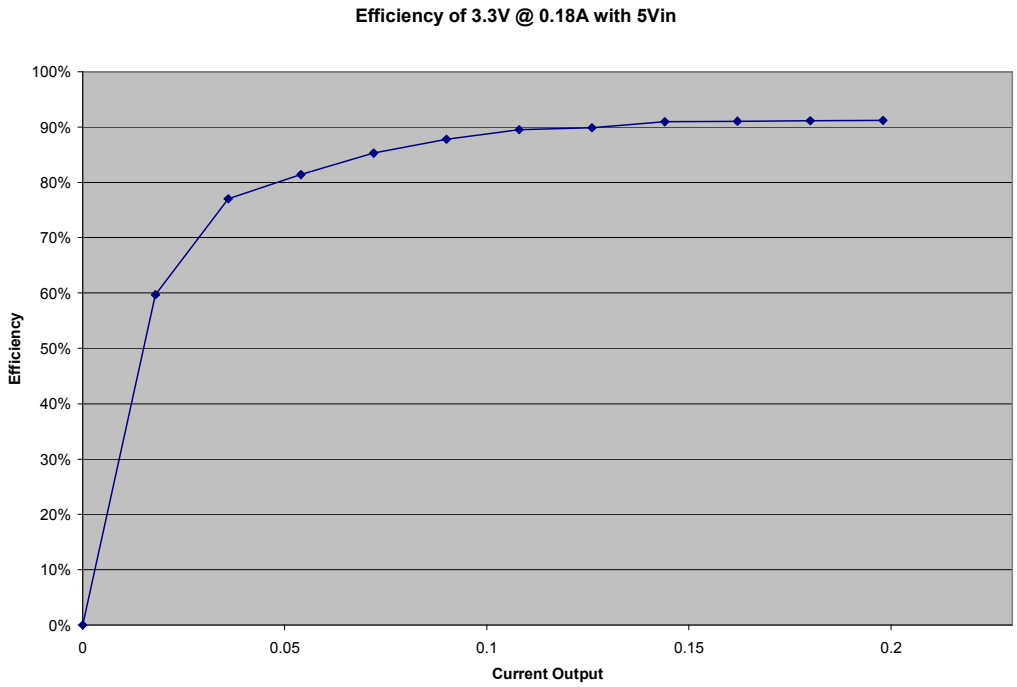


Fig 10: Efficiency of 3.3V output with 5V in

Load Regulation on 3.3V @ 0.18A (TPS54317)

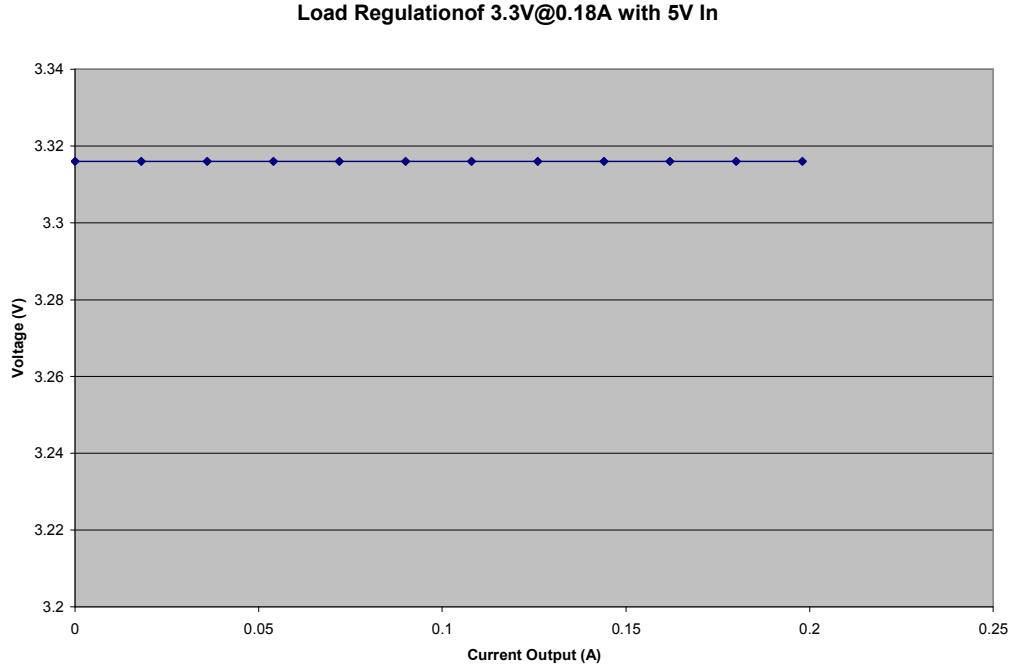


Fig 11: Load regulation of 3.3V output with 5V in

Switch node on 3.3V @ 0.18A (TPS54317)

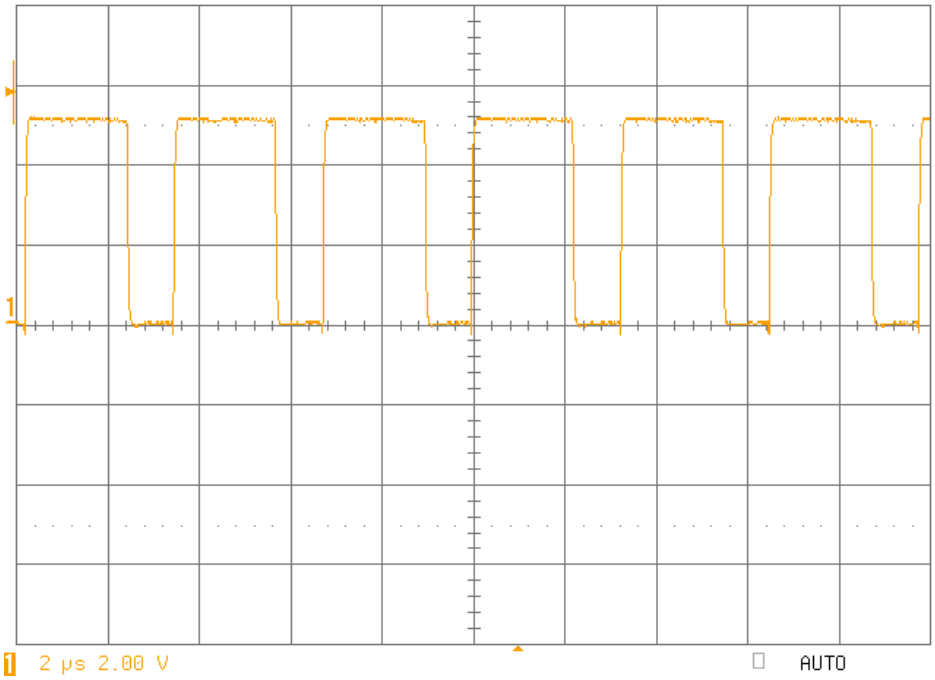


Fig 12: Switch node of 3.3V @ 0.18A

Frequency Response on 3.3V @ 0.18A (TPS54317)
Crossover Frequency is 26.36k and phase margin is 70.23 degrees.

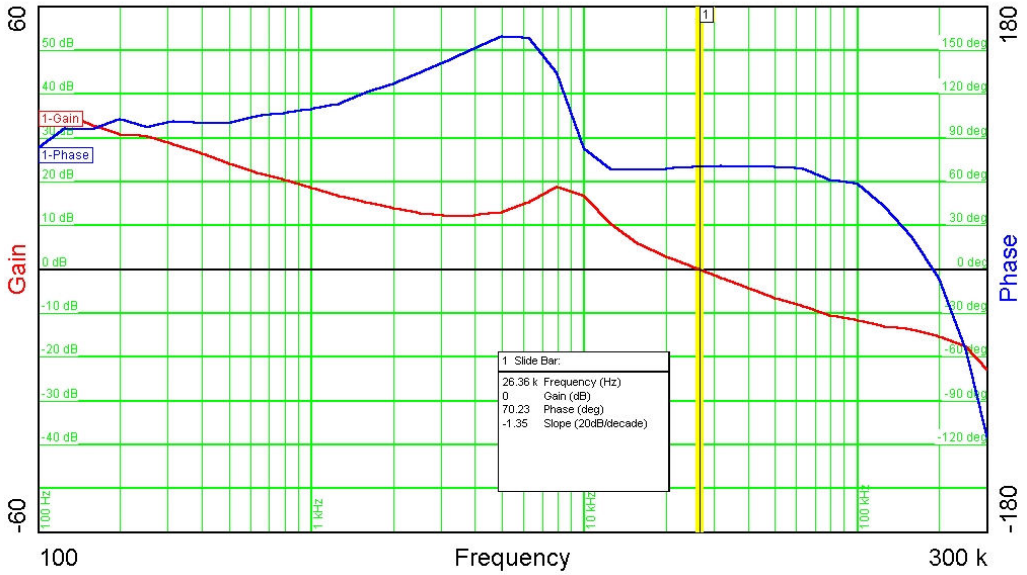


Fig 13: Frequency response of 3.3V@0.18A with 5Vin

1.8V@ 0.14A (TPS73018)

Output Ripple on 1.8V @ 0.14A (TPS73018) LDO

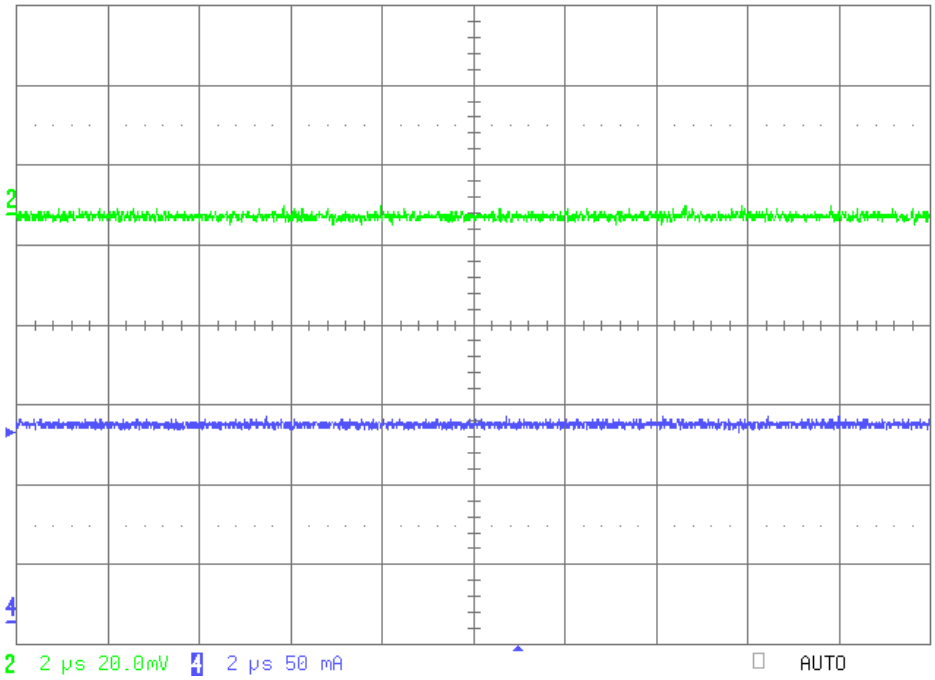


Fig 14: Output ripple on 1.8V @ 0.14A, Ch 2: Out Volt, Ch 4: Load Current

Load Transients 50% to 100% Step on 1.8V @ 0.14A (TPS73018) LDO

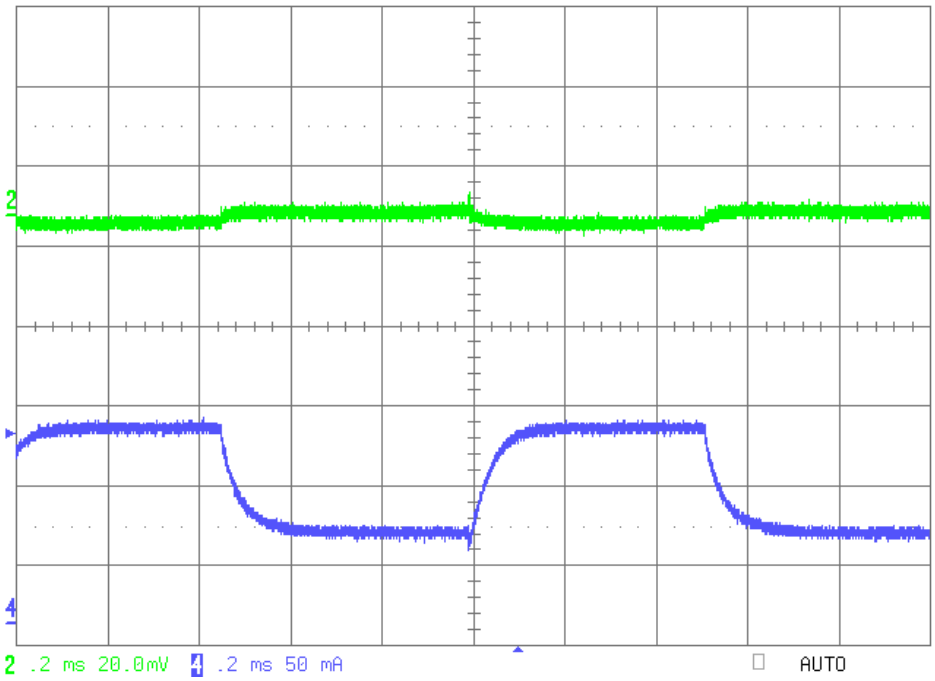


Fig 15: Transient response; Ch 4: 50% to 100% Load step, Ch 2: Output Voltage