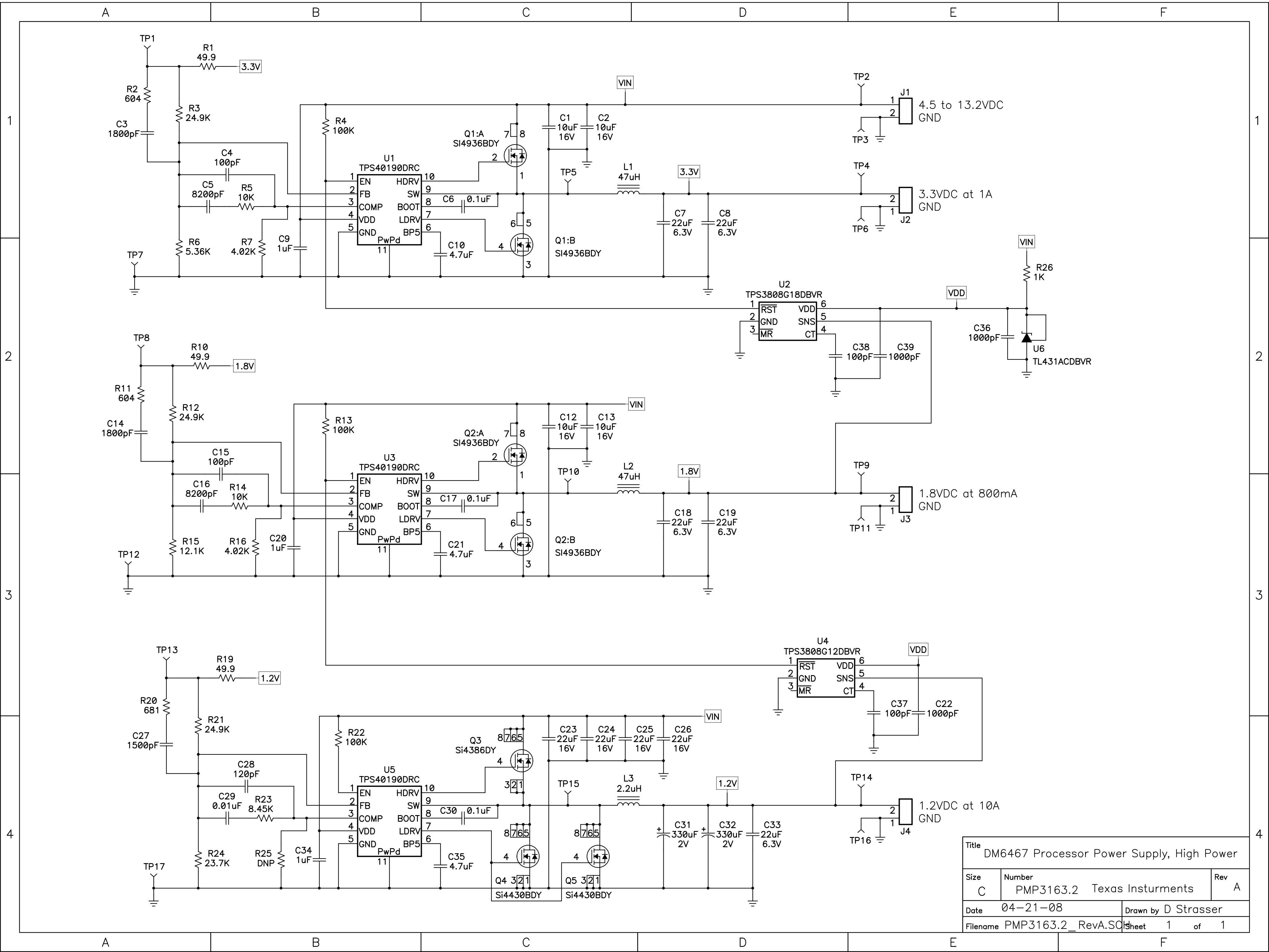

TP1
R1 49.9
3.3V
R2 604
C3 1800pF
R3 24.9K
C4 100pF
C5 8200pF
R5 10K
R6 5.36K
R7 4.02K
C9 1uF
TP7
R4 100K
U1 TPS40190DRC
EN FB COMP VDD GND PwPd HDRV SW BOOT LDRV BP5
VIN
C1 10uF 16V
C2 10uF 16V
Q1:A SI4936BDY
Q1:B SI4936BDY
C6 0.1uF
C10 4.7uF
TP5
L1 47uH
C7 22uF 6.3V
C8 22uF 6.3V
TP2
J1
4.5 to 13.2VDC
GND
TP3
TP4
J2
3.3VDC at 1A
GND
TP6
U2 TPS3808G18DBVR
RST GND MR VDD SNS CT
C38 100pF
C39 1000pF
VDD
R26 1K
C36 1000pF
U6 TL431ACDBVR
TP8
R10 49.9
1.8V
R11 604
C14 1800pF
R12 24.9K
C15 100pF
C16 8200pF
R14 10K
R15 12.1K
R16 4.02K
C20 1uF
TP12
R13 100K
U3 TPS40190DRC
C12 10uF 16V
C13 10uF 16V
Q2:A SI4936BDY
Q2:B SI4936BDY
C17 0.1uF
C21 4.7uF
TP10
L2 47uH
C18 22uF 6.3V
C19 22uF 6.3V
TP9
J3
1.8VDC at 800mA
GND
TP11
U4 TPS3808G12DBVR
C37 100pF
C22 1000pF
TP13
R19 49.9
1.2V
R20 681
C27 1500pF
R21 24.9K
C28 120pF
C29 0.01uF
R23 8.45K
R24 23.7K
R25 DNP
C34 1uF
TP17
R22 100K
U5 TPS40190DRC
C23 22uF 16V
C24 22uF 16V
C25 22uF 16V
C26 22uF 16V
Q3 Si4386DY
C30 0.1uF
C35 4.7uF
Q4 Si4430BDY
Q5 Si4430BDY
TP15
L3 2.2uH
C31 330uF 2V
C32 330uF 2V
C33 22uF 6.3V
TP14
J4
1.2VDC at 10A
GND
TP16
Title DM6467 Processor Power Supply, High Power
Size C
Number PMP3163.2 Texas Insturments
Rev A
Date 04-21-08
Drawn by D Strasser
Filename PMP3163.2_RevA.SCH
Sheet 1 of 1

Filename: PMP3163.2_RevA_bom.xls
Date: 04/21/2008

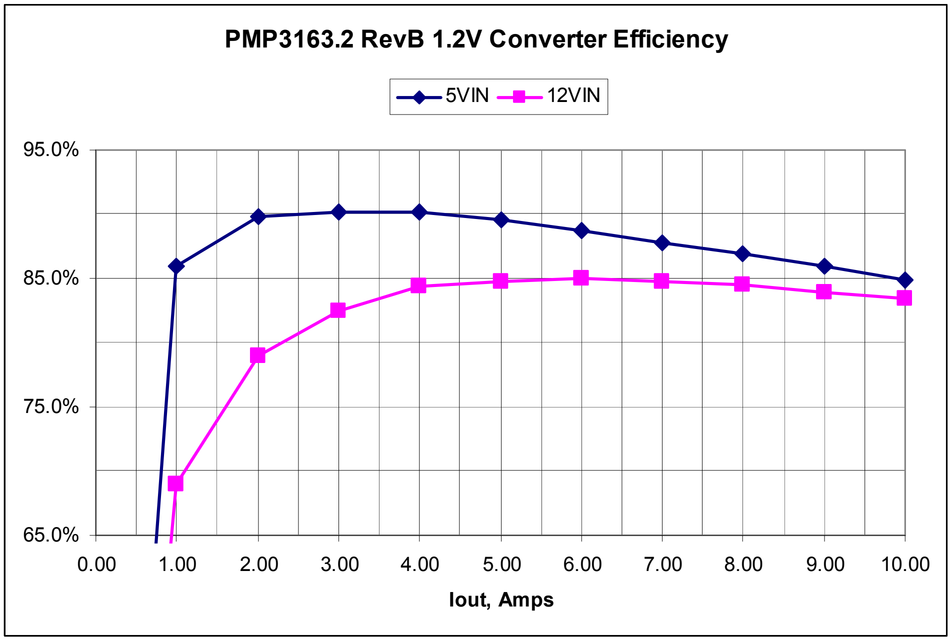
PMP3163.2_RevA_BOM

COUNT	RefDes	Value	Description	Size	Part Number	MFR
4	C4, C15, C37, C38	100pF	Capacitor, Ceramic, 50V, C0G, 10%	603	Std	Std
1	C28	120pF	Capacitor, Ceramic, 50V, C0G, 5%	603	Std	Std
3	C22, C36, C39	1000pF	Capacitor, Ceramic, 50V, X7R, 10%	603	Std	Std
1	C27	1500pF	Capacitor, Ceramic, 50V, X7R, 10%	603	Std	Std
2	C3, C14	1800pF	Capacitor, Ceramic, 50V, X7R, 10%	603	Std	Std
2	C5, C16	8200pF	Capacitor, Ceramic, 50V, X7R, 10%	603	Std	Std
1	C29	0.01uF	Capacitor, Ceramic, 50V, X7R, 10%	603	Std	Std
3	C6, C17, C30	0.1uF	Capacitor, Ceramic, 50V, X7R, 10%	603	Std	Std
3	C9, C20, C34	1uF	Capacitor, Ceramic, 16V, X7R, 10%	603	Std	Std
3	C10, C21, C35	4.7uF	Capacitor, Ceramic, 6.3V, X5R, 20%	603	Std	Std
4	C1, C2, C12, C13	10uF	Capacitor, Ceramic, 16V, X5R, 20%	805	C2012X5R1C106M	TDK
5	C7, C8, C18, C19, C33	22uF	Capacitor, Ceramic, 6.3V, X5R, 20%	805	C2012X5R0J226M	TDK
4	C23, C24, C25, C26	22uF	Capacitor, Ceramic, 16V, X5R, 20%	1206	C3216X5R1C226M	TDK
2	C31, C32	330uF	Capacitor, POSCAP, 2V, 6milliohm, 20%	7343(D)	2TPF330M	Sanyo
3	J1, J2, J3		Terminal Block, 2-pin, 6-A, 3.5mm	0.27 x 0.25	ED555/2DS	OST
1	J4		Terminal Block, 2-pin, 15-A, 5.1mm	0.40 x 0.35	D120/2DS	OST
2	L1, L2	47uH	Inductor, SMT, 1.7A, 108milliohm	10x9.7mm	VLF10040T-470M1R7	TDK
1	L3	2.2uH	Inductor, SMT, 20A, 5.5milliohm	0.51 x 0.51	IHLP5050EZ-01-2R2	Vishay
2	Q1, Q2		MOSFET, Dual N Chan, 30V, 5.7A, 51milliOhm	SO-8	SI4936BDY	Vishay
1	Q3		MOSFET, N-ch, 30V, 13.5A, 9.5milliohm	SO8	Si4386DY	Vishay
2	Q4, Q5		MOSFET, N-ch, 30V, 17A, 6milliohm	SO8	Si4430BDY	Vishay
3	R1, R10, R19	49.9	Resistor, Chip, 1/16W, 1%	603	Std	Std
2	R2, R11	604	Resistor, Chip, 1/16W, 1%	603	Std	Std
1	R20	681	Resistor, Chip, 1/16W, 1%	603	Std	Std
1	R26	1K	Resistor, Chip, 1/16W, 1%	603	Std	Std
2	R7, R16	4.02K	Resistor, Chip, 1/16W, 1%	603	Std	Std
1	R6	5.36K	Resistor, Chip, 1/16W, 1%	603	Std	Std
1	R23	8.45K	Resistor, Chip, 1/16W, 1%	603	Std	Std
2	R5, R14	10K	Resistor, Chip, 1/16W, 1%	603	Std	Std
1	R15	12.1K	Resistor, Chip, 1/16W, 1%	603	Std	Std
1	R24	23.7K	Resistor, Chip, 1/16W, 1%	603	Std	Std
3	R3, R12, R21	24.9K	Resistor, Chip, 1/16W, 1%	603	Std	Std
3	R4, R13, R22	100K	Resistor, Chip, 1/16W, 1%	603	Std	Std
0	R25	DNP	Resistor, Chip, 1/16W, 1%	603	Std	Std
10	TP1, TP2, TP4, TP5, TP8, TP9, TP10, TP13, TP14, TP15		Test Point, Red, Thru Hole Color Keyed	0.100 x 0.100	5000	Keystone
7	TP3, TP6, TP7, TP11, TP12, TP16, TP17		Test Point, Black, Thru Hole Color Keyed	0.100 x 0.100	5001	Keystone
3	U1, U3, U5		IC, Low cost synchronous buck controller	DRC10	TPS40190DRC	TI
1	U2		IC, Low Quiescent Current, Programmable 1.8V	SOT23-6	TPS3808G18DBVR	TI
1	U4		IC, Low Quiescent Current, Programmable 1.2V	SOT23-6	TPS3808G12DBVR	TI
1	U6		IC, Precision Adjustable Shunt Regulator	SOT23-5	TL431ACDBVR	TI

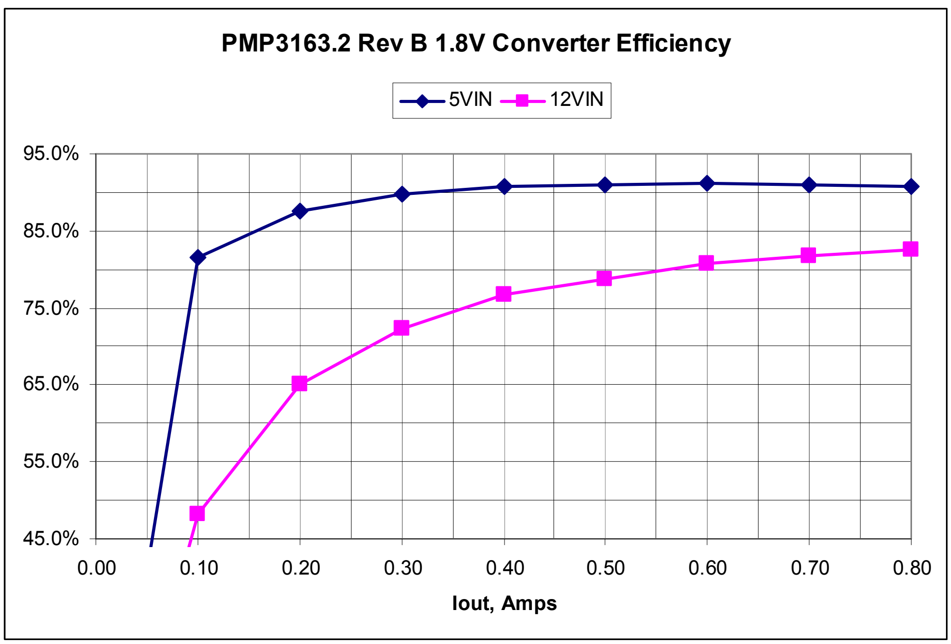
PMP3163.2 REVB **TEST DATA**
TEXAS INSTRUMENTS **06-16-08**

Efficiency

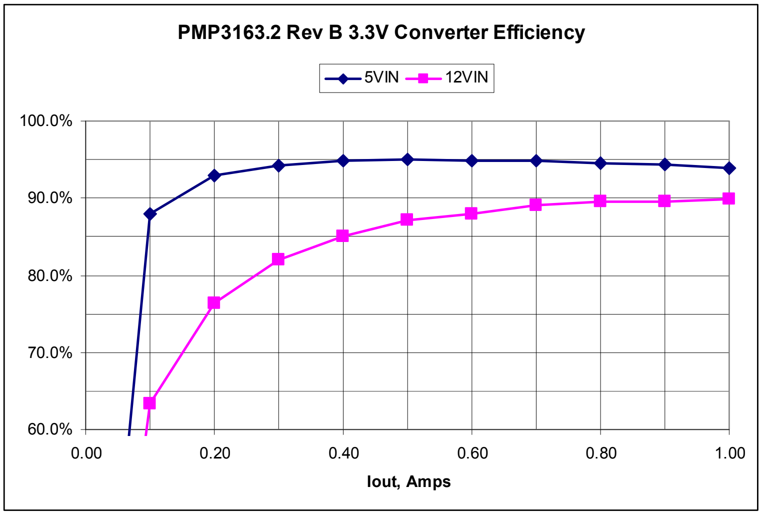
The efficiency of the1.2V converter is shown below:



The efficiency of the1.8V converter is shown below:



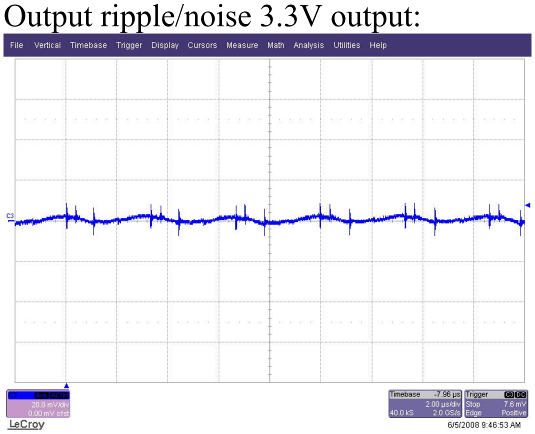
The efficiency of the3.3V converter is shown below:



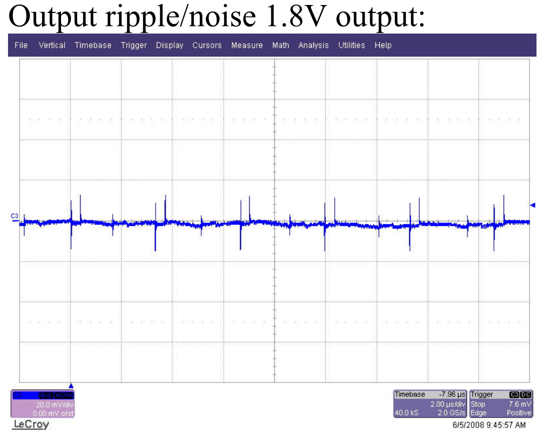
Ripple and Noise

All ripple measurements taken with a 20MHz bandwidth, max loads, and 12V input:

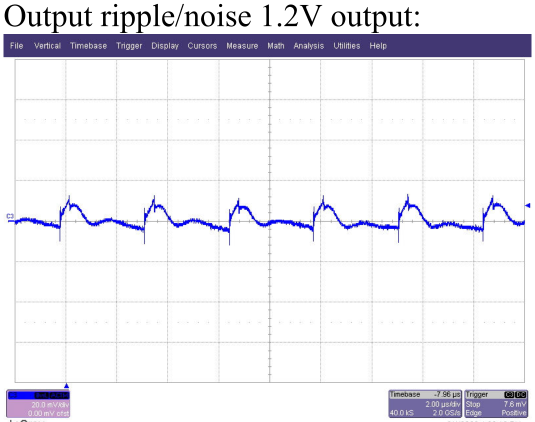
Output ripple/noise 3.3V output:



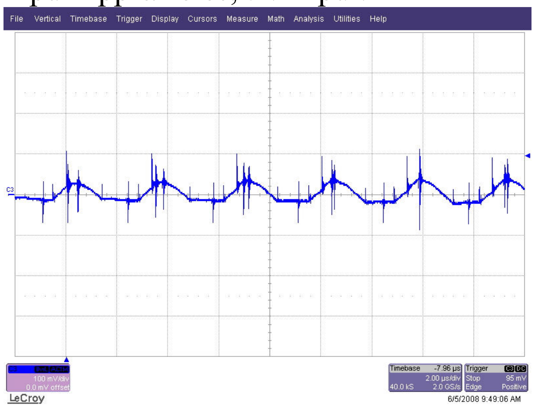
Output ripple/noise 1.8V output:



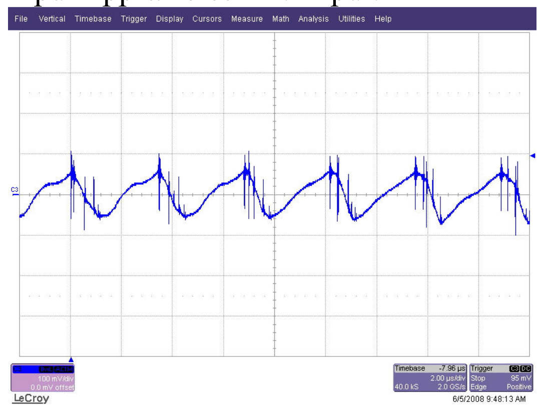
Output ripple/noise 1.2V output:



Input ripple/noise, 5V input:

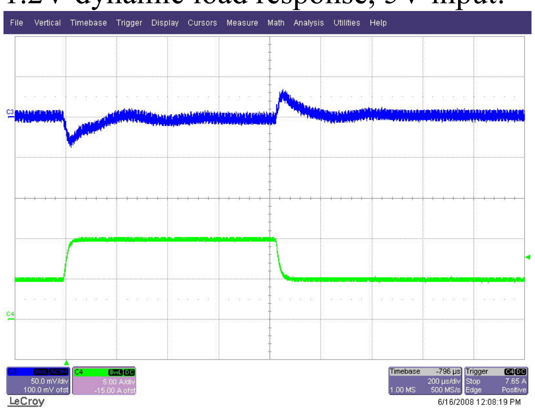


Input ripple/noise 12V input:

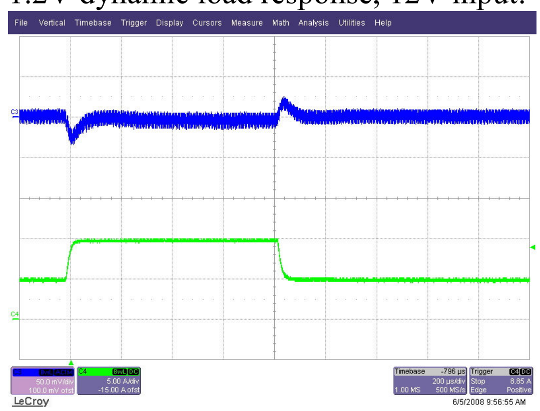


Dynamic Loading

1.2V dynamic load response, 5V input:

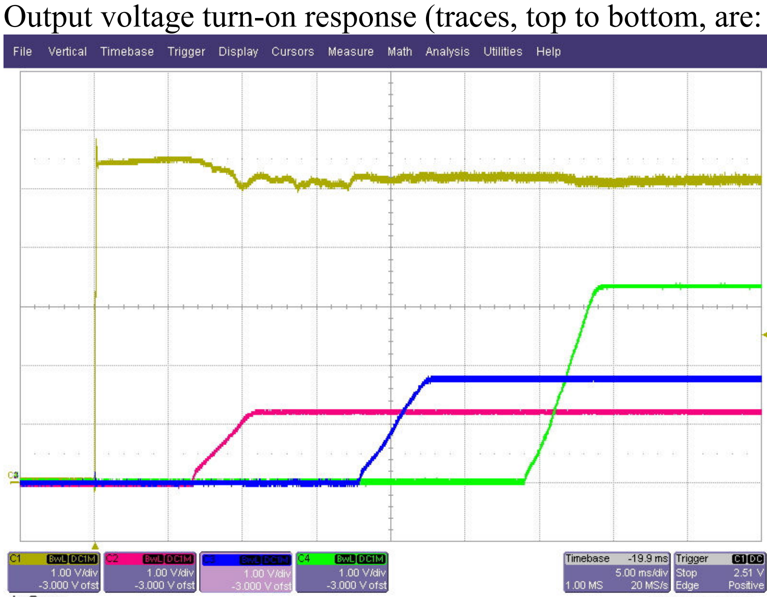


1.2V dynamic load response, 12V input:

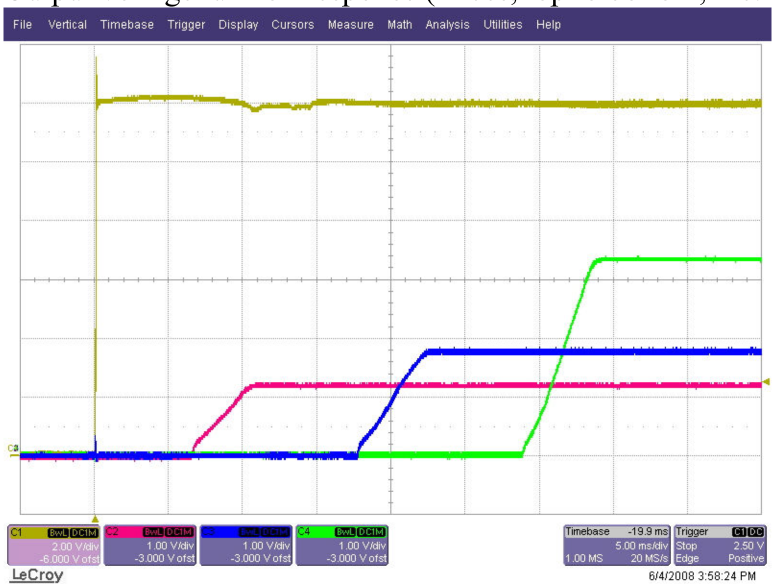


Turn On Response

Output voltage turn-on response (traces, top to bottom, are: 5VIN, 3.3V, 1.8V, 1.2V):

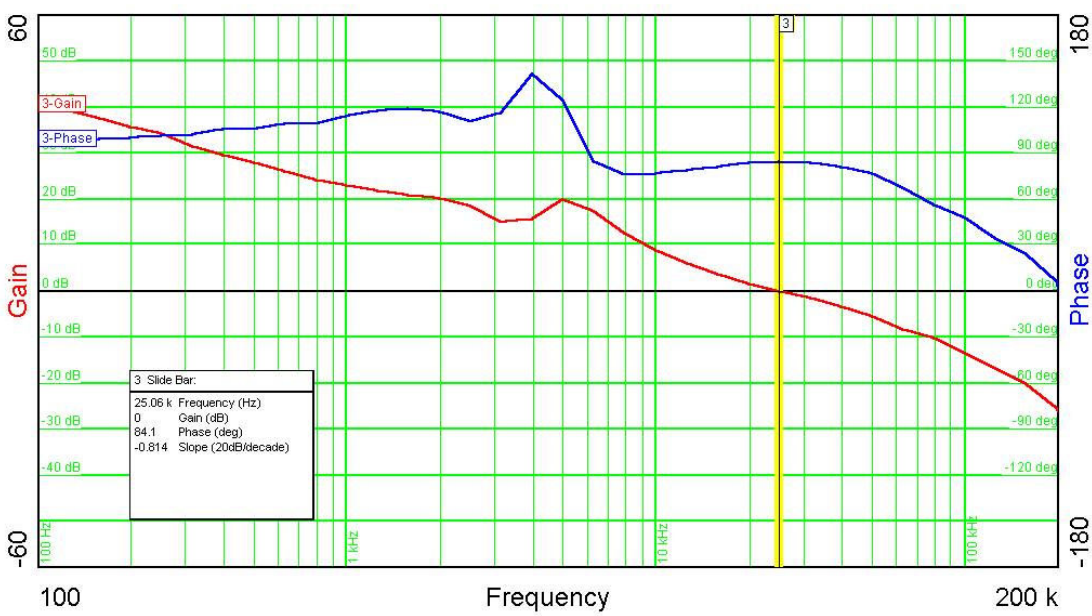


Output voltage turn-on response (traces, top to bottom, are: 12VIN, 3.3V, 1.8V, 1.2V):

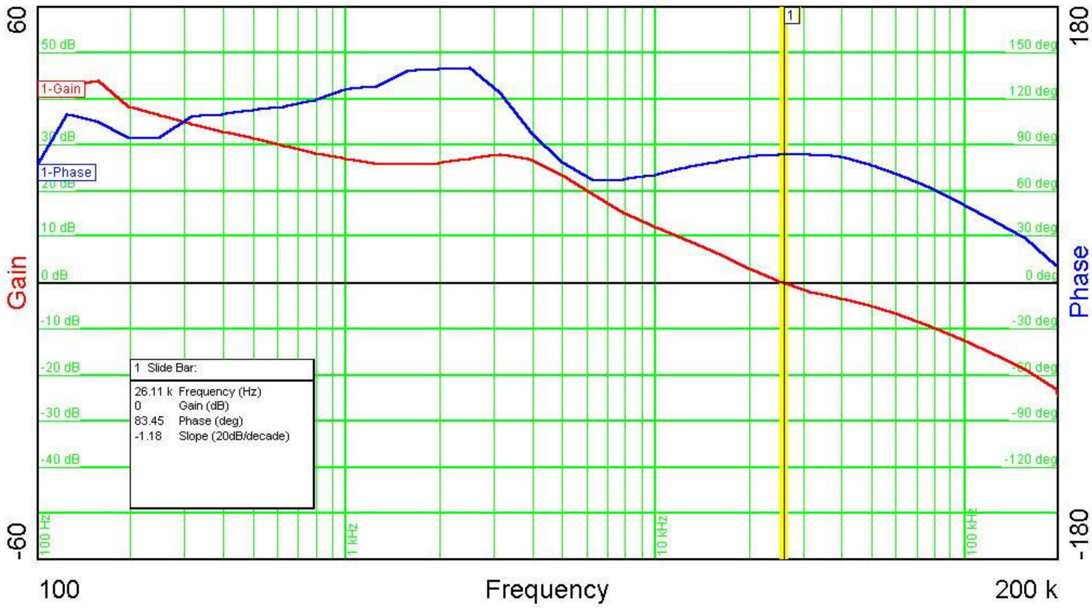


Stability Analysis (Loop Gain)

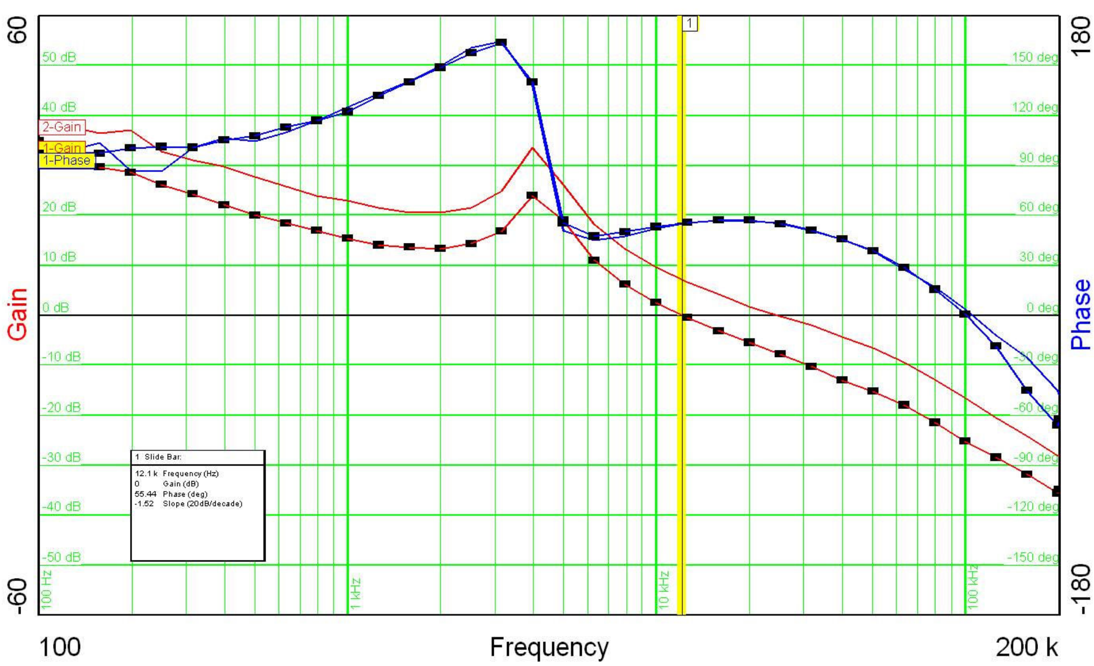
The figure below is the loop gain of the 1.2V converter with a 5V input and max load. The bandwidth is 25 KHz, the phase margin is 84 degrees, and the gain margin is 25 dB.



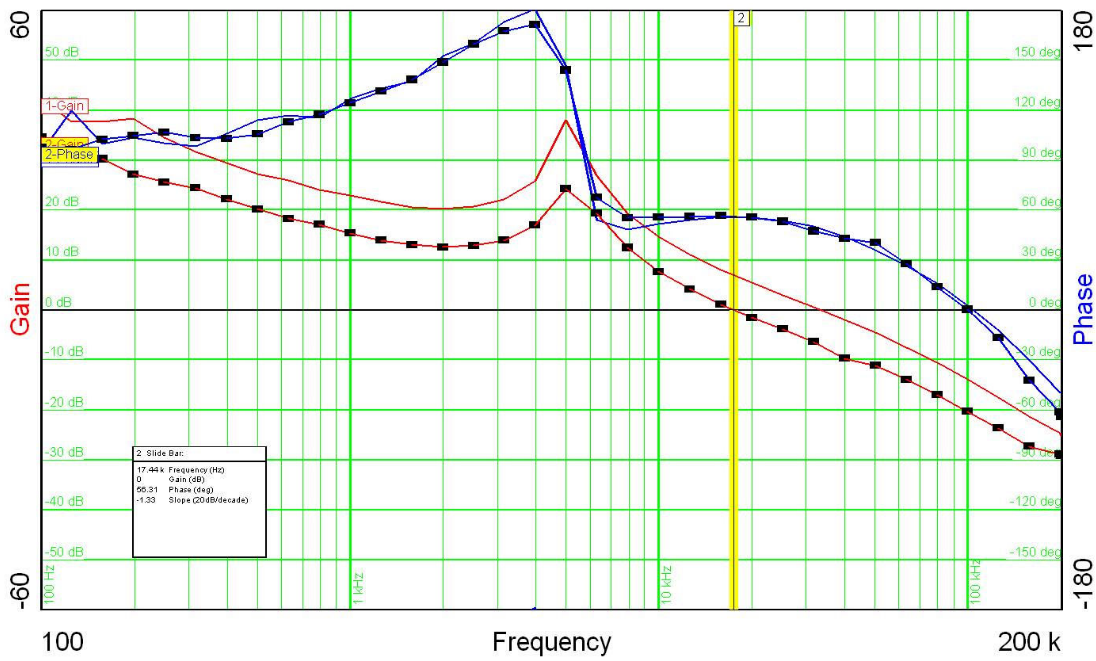
The figure below is the loop gain of the 1.2V converter with a 12V input and max load. The bandwidth is 26 KHz, the phase margin is 83 degrees, and the gain margin is 23 dB.



The figure below is the loop gain of the 1.8V converter with max load. The dotted traces are 5V input; the non-dotted traces are 12V input. With a 5V input, the bandwidth is 12 KHz, the phase margin is 55 degrees, and the gain margin is 25 dB. With a 12V input, the bandwidth is 25 KHz, the phase margin is 55 degrees, and the gain margin is 17 dB.



The figure below is the loop gain of the 3.3V converter with max load. The dotted traces are 5V input; the non-dotted traces are 12V input. With a 5V input, the bandwidth is 17 KHz, the phase margin is 56 degrees, and the gain margin is 20 dB. With a 12V input, the bandwidth is 32 KHz, the phase margin is 45 degrees, and the gain margin is 14 dB.



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