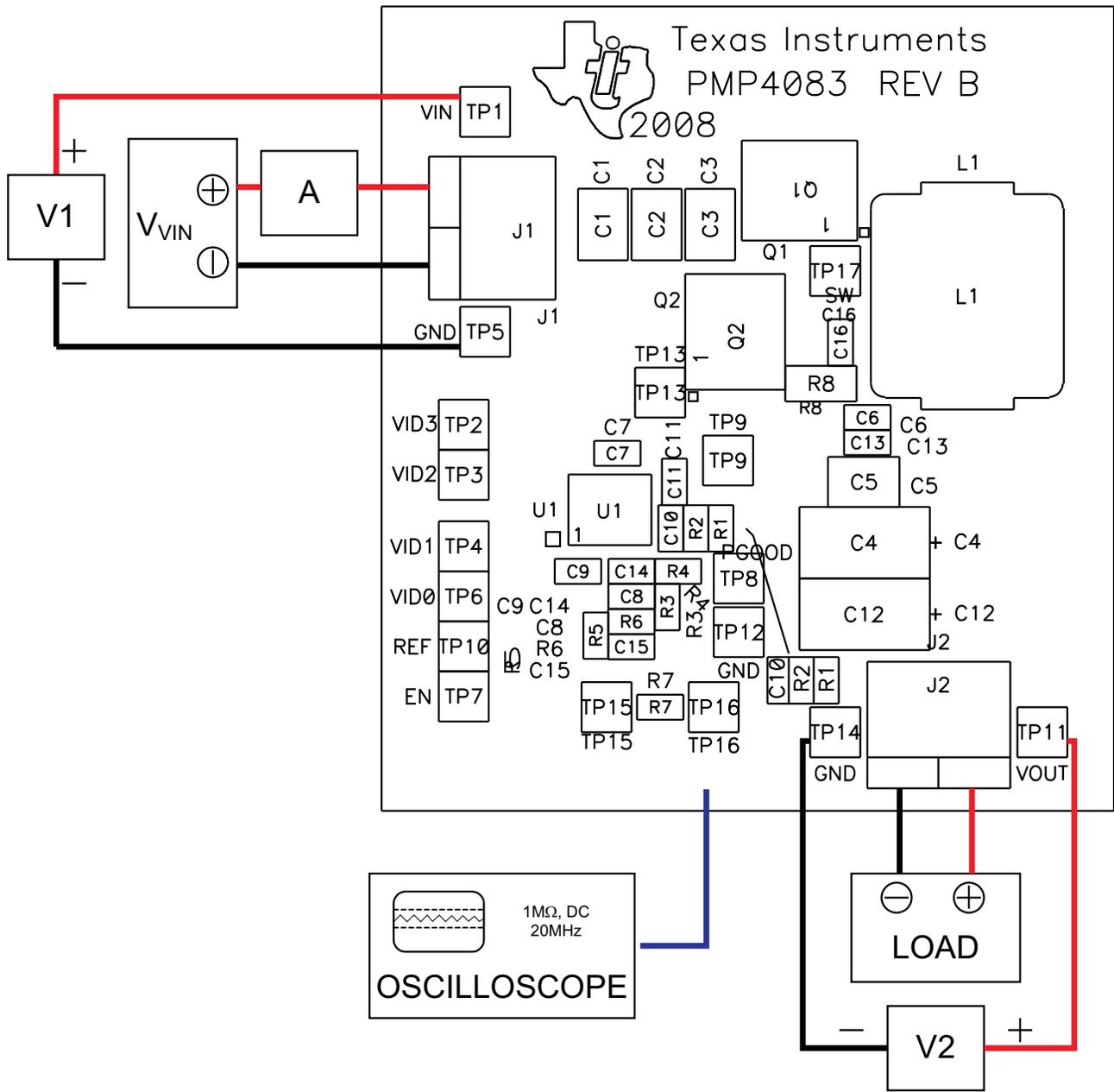
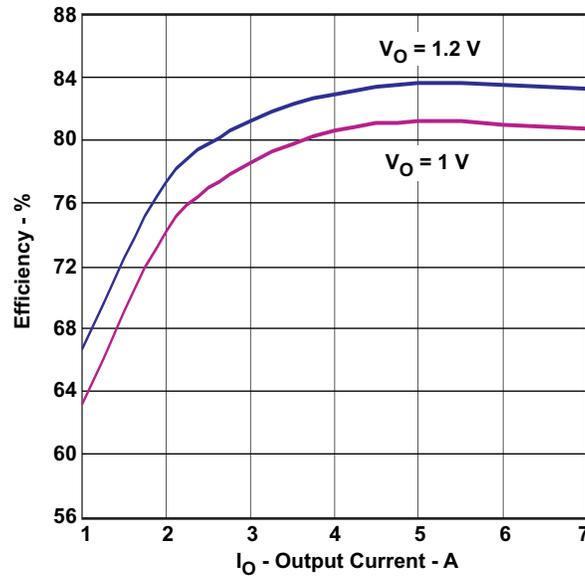


4 Diagram

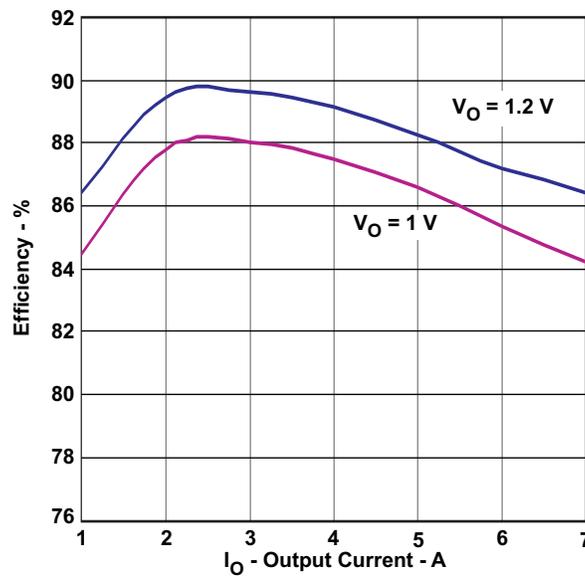


5 Efficiency

5.1 Efficiency Measurement When $V_{in} = 12\text{ V}$, $V_{out} = 1.2\text{ V/1 V}$

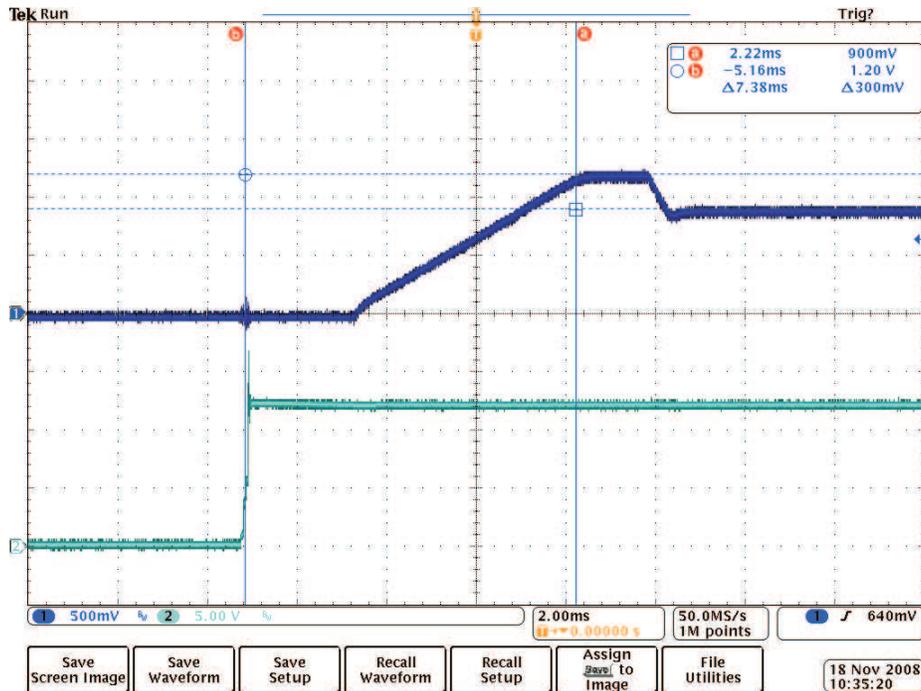


5.2 Efficiency Measurement When $V_{in} = 5\text{ V}$, $V_{out} = 1.2\text{ V/1 V}$

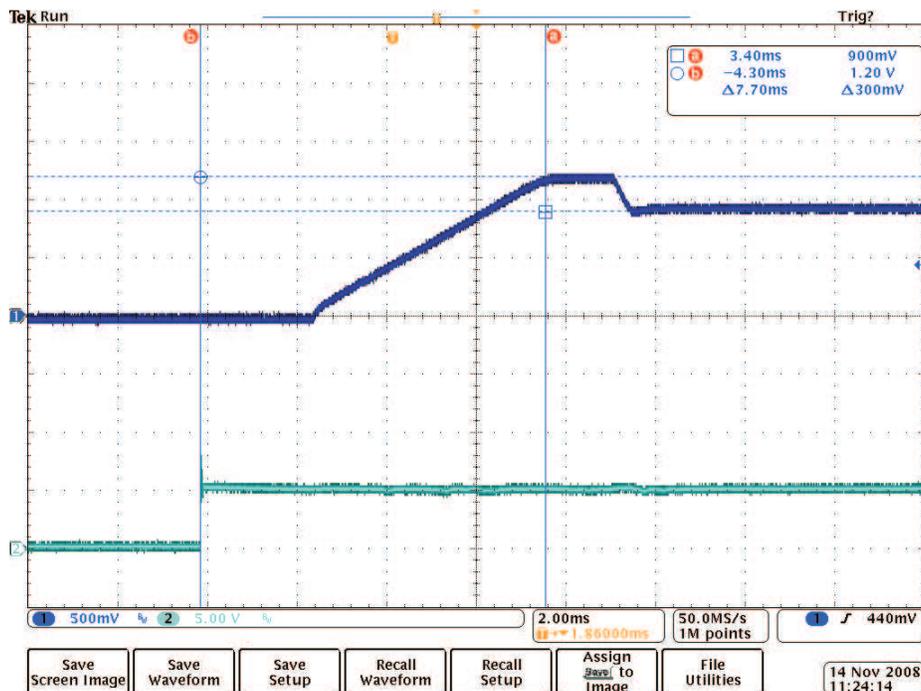


6 Waveform Measurement

6.1 Waveform Measurement When $V_{in} = 12\text{ V}$ (CH2), $V_{out} = 1.2\text{ V}/0.9$ (CH1)



6.2 Waveform Measurement When $V_{in} = 5\text{ V}$ (CH2), $V_{out} = 1.2\text{ V}/0.9\text{ V}$ (CH1)



7 TPS40197 Reference Design List of Materials

Reference Designator	QTY	Description	MFR	Part Number
C1, C2, C3	3	Capacitor, Ceramic, 16V, X7R, 20%, 22 μ F, 1210	TDK	C3225X7R1C226K
C4, C12	2	Capacitor, POSCAP, 2.5V, 20%, 1mF, 5 m Ω , D4D	Sanyo	2R5TPD1000M5
C5	1	Capacitor, Ceramic, 6.3V, X5R, 20%, 100 μ F, 1210	TDK	C3225X5R0J107K
C6, C9, C10	3	Capacitor, Ceramic, 16V, X7R, 20%, 1 μ F, 0603	Std	Std
C7	1	Capacitor, Ceramic, 10V, X5R, 20%, 470 nF, 0603	Std	Std
C8	1	Capacitor, Ceramic, 50V, NPO, 10%, 2.2 nF, 0603	Std	Std
C11	1	Capacitor, Ceramic, 6.3V, X5R, 20%, 4.7 μ F, 0603	TDK	C1608X5R0J475K
C13	1	Capacitor, Ceramic, 6.3V, X5R, 20%, 10 μ F, 0603	TDK	C1608X5R0J106K
C14	1	Capacitor, Ceramic, 50V, NPO, 10%, 15 pF, 0603	Std	Std
C15	1	Capacitor, Ceramic, 50V, X7R, 20%, 3.3 nF, 0603	Std	Std
C16	1	Capacitor, Ceramic, 50V, X7R, 20%, 4.7 nF, 0603	Std	Std
L1	1	Inductor, SMT, 27A, 1.5 μ H, 2.5 m Ω , 0.508 \times 0.520	Vishay	IHLP5050FDER1R5M01
Q1	1	MOSFET, N-Channel, 30V, 11A, 13.8 m Ω , SO-8	IR	IRF7807Z
Q2	1	MOSFET, N-Channel, 30V, 13.6A, 9.1 m Ω , SO-8	IR	IRF7821
R1	1	Resistor, Chip, 1/16W, 5%, 10 k Ω , 0603	Std	Std
R2	1	Resistor, Chip, 1/16W, 5%, 1 Ω , 0603	Std	Std
R3	1	Resistor, Chip, 1/16W, 1%, 46.4 k Ω , 0603	Std	Std
R5	1	Resistor, Chip, 1/16W, 1%, 1.33 k Ω , 0603	Std	Std
R6	1	Resistor, Chip, 1/16W, 1%, 23.2 k Ω , 0603	Std	Std
R7	1	Resistor, Chip, 1/16W, 1%, 49.9 Ω , 0603	Std	Std
R8	1	Resistor, Chip, 1/4W, 5%, 5.6 Ω , 1206	Std	Std
U1	1	IC, Synchronous buck controller with 4-bit VID interface for Smart-Reflex DSPs, QFN-16	TI	TPS40197RGY

8 PMP4083_REVB Bill of Materials

Count	RefDes	Value	Description	Size	Part Number	MFR
3	C1-C3	22 μ F	Capacitor, Ceramic, 16V, X5R	1210	C1210C226K4PACTU	Kemet
2	C4	1000 μ F	Capacitor, POSCAP, 2.5V, 5 m Ω , 20%	D4D	2R5TPD1000M5	Sanyo
1	C5	100 μ F	Capacitor, Ceramic, 6.3V, X5R	1210	C1210C107M9PACTU	Kemet
1	C6	1 μ F	Capacitor, Ceramic, vv V, [temp], [tol]	0603	GRM39yyyxxxKvvvA	Murata
1	C7	470 nF	Capacitor, Ceramic, 10 V, X5R	0603	Std	TDK
1	C8	2.2 nF	Capacitor, Ceramic, 50 V, NP0	0603	Std	TDK
2	C9	1 μ F	Capacitor, Ceramic, 16 V, X5R	0603	Std	TDK
	C10	1 μ F	Capacitor, Ceramic, 16 V, X5R	0603	Std	TDK
1	C11	4.7 μ F	Capacitor, Ceramic, 6.3 V, X5R	0603	Std	TDK
	C12	1000 μ F	Capacitor, POSCAP, 2.5 V, 5m Ω , 20%	D4D	2R5TPD1000M5	Sanyo
1	C13	10 μ F	Capacitor, Ceramic, 6.3 V, X5R	0603	Std	TDK
1	C14	15 pF	Capacitor, Ceramic, 50 V, NP0	0603	Std	TDK
1	C15	3.3 nF	Capacitor, Ceramic, 50 V, NP0	0603	Std	TDK
1	C16	4.7 nF	Capacitor, Ceramic, 50 V, X7R	0603	Std	Std
2	J1	ED555/2DS	Terminal Block, 2-pin, 15-A, 5,1 mm	0.40 \times 0.35 inch	D120/2DS	OST
	J2	ED555/2DS	Terminal Block, 2-pin, 15-A, 5,1 mm	0.40 \times 0.35 inch	D120/2DS	OST
1	L1	1.5 μ H	Inductor,SMT, 27A, 2.5 m Ω	0.51 \times 0.51 inch	IHLP5050FDER1R5M01	Vishay
1	Q1	IRF7807Z	MOSFET, N-Ch, 30V, 11A, 13.8-m Ω	PWRPAK S0-8	IRF7807Z	IR
1	Q2	IRF7821	MOSFET, N-Ch, 30V, 13.6A, 9.1-m Ω	PWRPAK S0-8	IRF7821	IR
1	R1	10k	Resistor, Chip, 1/16W, 5%	0603	Std	Std
1	R2	1	Resistor, Chip, 1/16W, 5%	0603	Std	Std
1	R3	46.4k	Resistor, Chip, 1/16W, 5%	0603	Std	Std
1	R4	OPEN	open	0603	Std	Std
1	R5	1.33k	Resistor, Chip, 1/16W, 1%	0603	Std	Std
1	R6	23.2k	Resistor, Chip, 1/16W, 1%	0603	Std	Std
1	R7	49.9	Resistor, Chip, 1/16W, 0.5%	0603	Std	Std
1	R8	5.6	Resistor, Thickfilm, 1/4 watt, \pm 5%	1206	Std	Std
1	TP1	VIN	Test Point, Red, Thru Hole Color Keyed	0.100 \times 0.100 inch	5000	Keystone
1	TP2	VID3	Test Point, Red, Thru Hole Color Keyed	0.100 \times 0.100 inch	5000	Keystone
1	TP3	VID2	Test Point, Red, Thru Hole Color Keyed	0.100 \times 0.100 inch	5000	Keystone
1	TP4	VID1	Test Point, Red, Thru Hole Color Keyed	0.100 \times 0.100 inch	5000	Keystone
3	TP5	GND	Test Point, Red, Thru Hole Color Keyed	0.100 \times 0.100 inch	5000	Keystone
1	TP6	VID0	Test Point, Red, Thru Hole Color Keyed	0.100 \times 0.100 inch	5000	Keystone
1	TP7	EN	Test Point, Red, Thru Hole Color Keyed	0.100 \times 0.100 inch	5000	Keystone
1	TP8	PGOOD	Test Point, Red, Thru Hole Color Keyed	0.100 \times 0.100 inch	5000	Keystone
1	TP9	BP	Test Point, Red, Thru Hole Color Keyed	0.100 \times 0.100 inch	5000	Keystone
1	TP10	REF	Test Point, Red, Thru Hole Color Keyed	0.100 \times 0.100 inch	5000	Keystone
1	TP11	VOUT	Test Point, Red, Thru Hole Color Keyed	0.100 \times 0.100 inch	5000	Keystone
	TP12	GND	Test Point, Red, Thru Hole Color Keyed	0.100 \times 0.100 inch	5000	Keystone
3	TP13	5000	Test Point, Red, Thru Hole Color Keyed	0.100 \times 0.100 inch	5000	Keystone
	TP14	GND	Test Point, Red, Thru Hole Color Keyed	0.100 \times 0.100 inch	5000	Keystone
	TP15	5000	Test Point, Red, Thru Hole Color Keyed	0.100 \times 0.100 inch	5000	Keystone
	TP16	5000	Test Point, Red, Thru Hole Color Keyed	0.100 \times 0.100 inch	5000	Keystone
1	TP17	SW	Test Point, Red, Thru Hole Color Keyed	0.100 \times 0.100 inch	5000	Keystone
1	U1	TPS40197RGY	IC, 4.5V to 20V Sync Buck Controller with 4-bit VID Interface and pwr-good	QFN-16	TPS40197RGY	TI

- Notes
- These assemblies are ESD sensitive, ESD precautions shall be observed.
 - These assemblies must be clean and free from flux and all contaminants. Use of no clean flux is not acceptable.
 - These assemblies must comply with workmanship standards IPC-A-610 Class 2.
 - Ref designators marked with an asterisk (***) cannot be substituted. All other components can be substituted with equivalent MFG's components.

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