Test Data
For PMP7942
04/16/2013

Power Specification

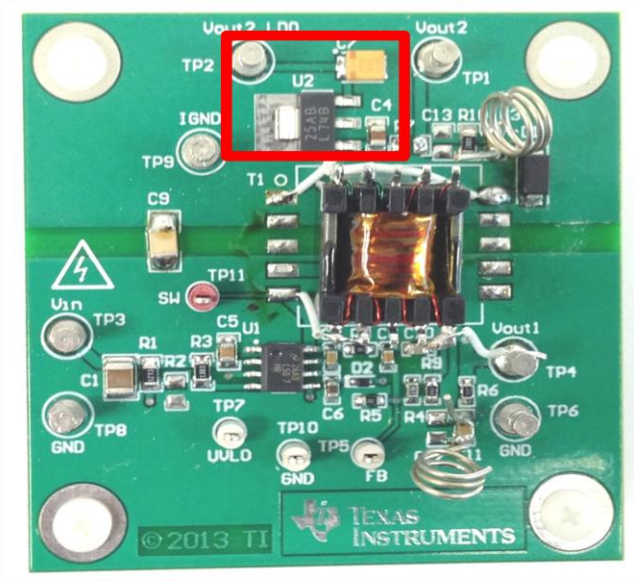
Nominal Vin = 24V

Primary Vo1 = 5V, Io1 =0.25A

Secondary Vo2= 15V, Io2=0.1A

Fsw = 450kHz

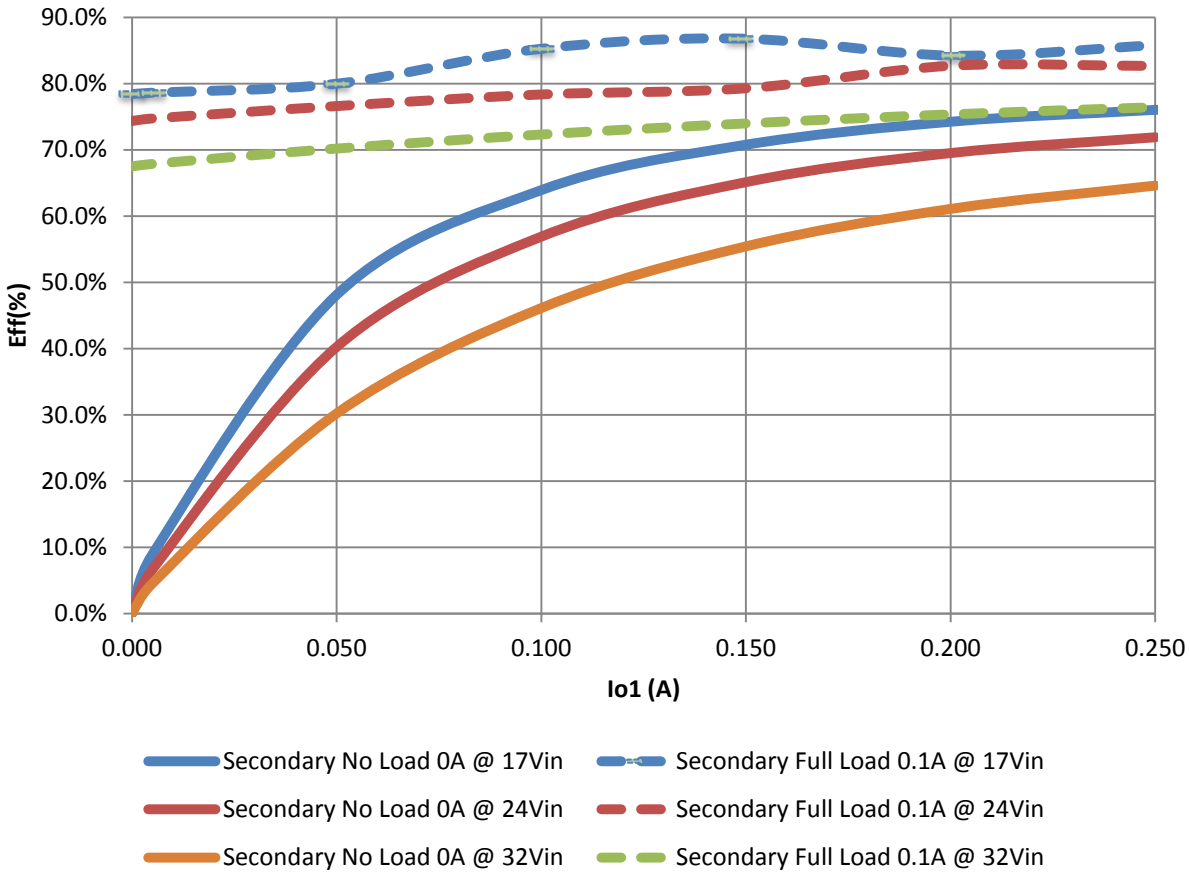
Board Photo



Note: As shown in red rectangle, it a post-regulation LDO stage after Vo2 on the secondary. But it's not used in this design and not connected in the test.

Efficiency

The efficiency is calculated for both outputs.

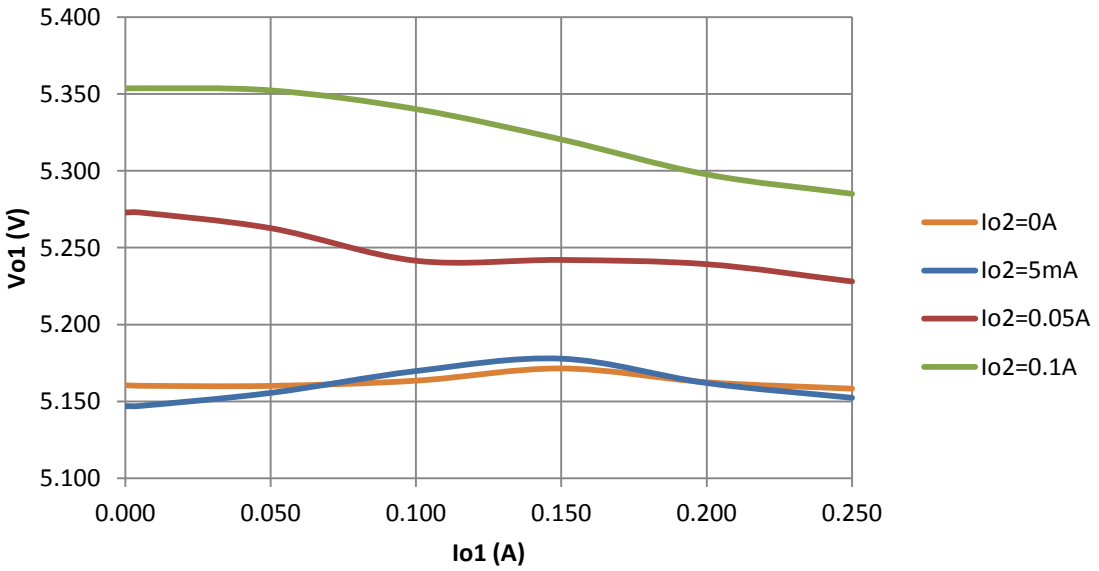


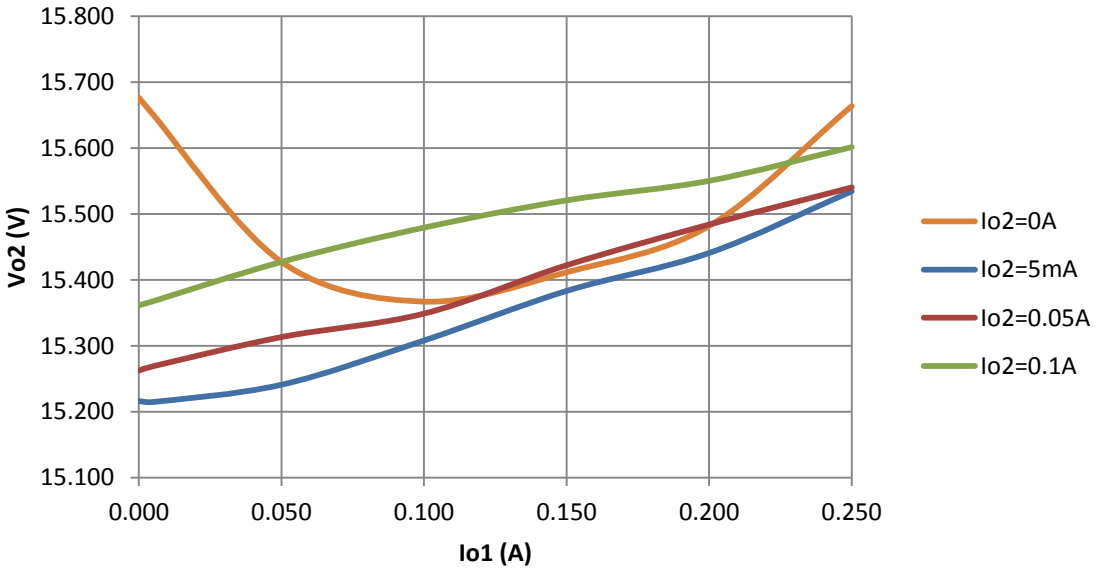
For more data at different Vin, see the Appendix.

Cross Regulation

The cross regulation was tested by sweeping different load condition on Vo1 and Vo2

Vin=24V

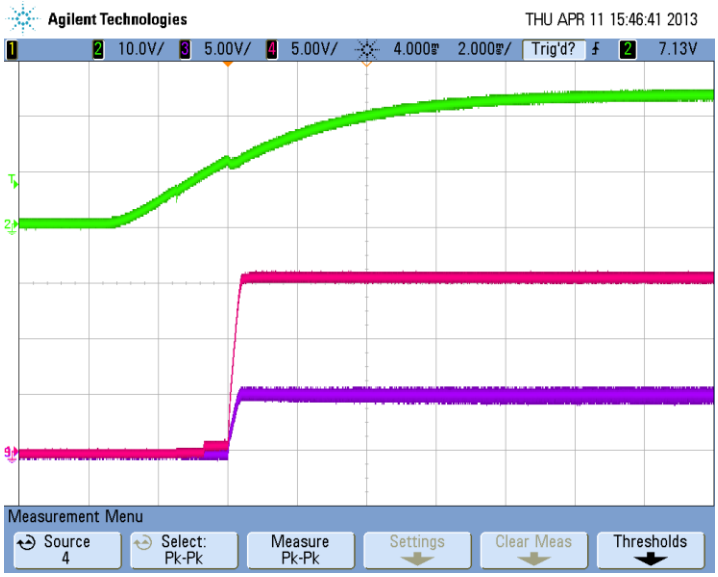




For more data at different Vin, see the Appendix.

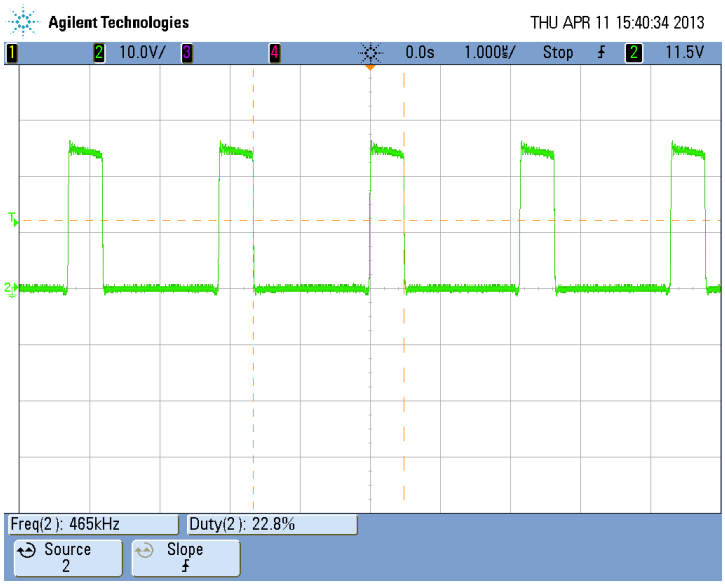
Start Up

Test condition: The input voltage was set at 24V, and both outputs were set at full load.
Ch2- Vin, Ch3-Vo1, Ch4-Vo2.



Switch Node Waveform

Test condition: The input voltage was set at 24V, and both outputs were set at full load 0A.



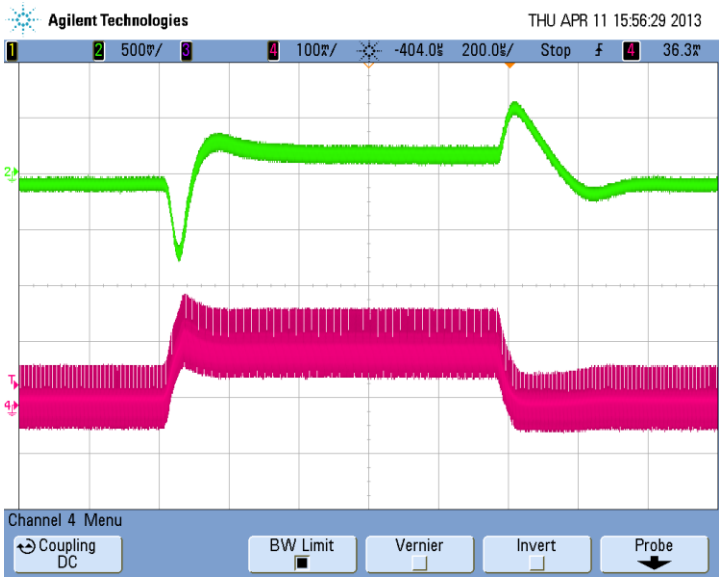
Load Transients

Vo1 Load Step

Test condition: Vin = 24V, Io1 from 0.0A to 0.25A, with no load on the other rail.
Ch2- Vo1 (AC mode), Ch4- Io1 (DC mode)

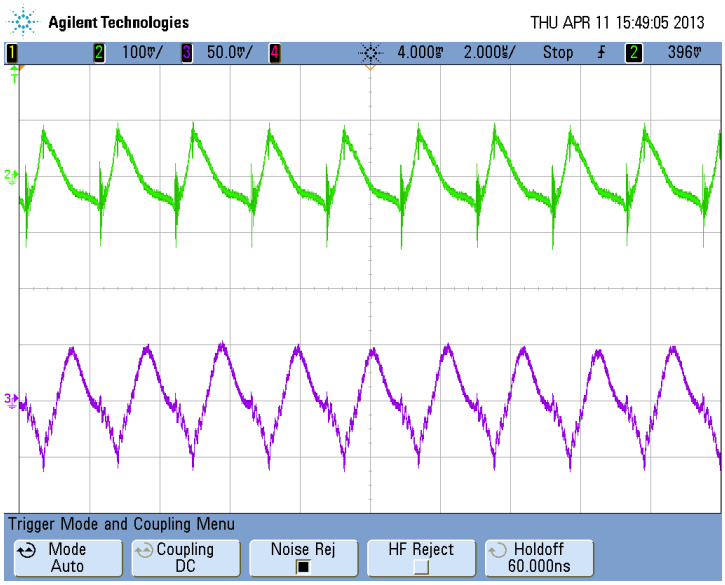
Vo2 Load Step

Test condition: Vin = 24V, Io2 from 0.0A to 0.1A, with no load on the other rail.
Ch2- Vo2 (AC mode), Ch4- Io2 (DC mode)



Output Voltage Ripples

Test condition: The input voltage was set at 24V, and both outputs were set at full load.
Ch2- Vo1(AC mode), Ch3- Vo2 (AC mode)



Appendix – Test Data

Vin=24V

	Vin (V)	Iin (A)	Vo1(V)	Io1 (A)	Vo2(V)	Io2 (A)	Eff
Io2=0A	17.410	0.015	5.136	0.000	15.236	0.000	0.1%
	17.403	0.016	5.135	0.005	15.221	0.000	8.9%
	17.394	0.031	5.139	0.050	15.185	0.000	48.1%
	17.384	0.046	5.146	0.100	15.228	0.000	63.9%
	17.396	0.062	5.136	0.148	15.294	0.000	70.6%
	17.375	0.080	5.121	0.200	15.404	0.000	74.2%
	17.361	0.097	5.121	0.250	15.472	0.000	76.0%
Io2=5mA	17.310	0.019	5.140	0.000	15.098	0.005	22.1%
	17.295	0.021	5.141	0.005	15.102	0.005	27.4%
	17.214	0.035	5.151	0.050	15.156	0.005	54.7%
	17.124	0.051	5.157	0.100	15.221	0.005	67.5%
	17.055	0.067	5.142	0.148	15.276	0.005	73.5%
	16.947	0.084	5.127	0.200	15.338	0.005	77.0%
	16.842	0.102	5.128	0.250	15.410	0.005	78.9%

Io2=0.05A	17.061	0.063	5.280	0.000	15.224	0.050	70.6%
	17.047	0.065	5.279	0.005	15.229	0.050	71.3%
	16.960	0.080	5.263	0.050	15.267	0.050	75.7%
	16.860	0.097	5.260	0.100	15.331	0.050	78.6%
	16.781	0.115	5.252	0.148	15.386	0.050	80.2%
	16.665	0.129	5.232	0.200	15.426	0.050	84.4%
	16.900	0.146	5.218	0.250	15.478	0.050	84.0%
Io2=0.1A	16.754	0.117	5.407	0.000	15.390	0.100	78.4%
	16.738	0.119	5.407	0.005	15.398	0.100	78.6%
	17.328	0.131	5.388	0.050	15.438	0.100	80.0%
	16.537	0.148	5.374	0.100	15.488	0.100	85.3%
	16.456	0.164	5.355	0.148	15.520	0.100	86.8%
	17.106	0.182	5.341	0.200	15.563	0.100	84.2%
	16.900	0.199	5.323	0.250	15.605	0.100	85.8%

Vin=17V

	Vin (V)	Iin (A)	Vo1(V)	Io1 (A)	Vo2(V)	Io2 (A)	Eff
Io2=0A	17.410	0.015	5.136	0.000	15.236	0.000	0.1%
	17.403	0.016	5.135	0.005	15.221	0.000	8.9%
	17.394	0.031	5.139	0.050	15.185	0.000	48.1%
	17.384	0.046	5.146	0.100	15.228	0.000	63.9%
	17.396	0.062	5.136	0.148	15.294	0.000	70.6%
	17.375	0.080	5.121	0.200	15.404	0.000	74.2%
	17.361	0.097	5.121	0.250	15.472	0.000	76.0%
Io2=5mA	17.310	0.019	5.140	0.000	15.098	0.005	22.1%
	17.295	0.021	5.141	0.005	15.102	0.005	27.4%
	17.214	0.035	5.151	0.050	15.156	0.005	54.7%
	17.124	0.051	5.157	0.100	15.221	0.005	67.5%
	17.055	0.067	5.142	0.148	15.276	0.005	73.5%
	16.947	0.084	5.127	0.200	15.338	0.005	77.0%
	16.842	0.102	5.128	0.250	15.410	0.005	78.9%
Io2=0.05A	17.061	0.063	5.280	0.000	15.224	0.050	70.6%
	17.047	0.065	5.279	0.005	15.229	0.050	71.3%
	16.960	0.080	5.263	0.050	15.267	0.050	75.7%
	16.860	0.097	5.260	0.100	15.331	0.050	78.6%
	16.781	0.115	5.252	0.148	15.386	0.050	80.2%
	16.665	0.129	5.232	0.200	15.426	0.050	84.4%
	16.900	0.146	5.218	0.250	15.478	0.050	84.0%
Io2=0.1A	16.754	0.117	5.407	0.000	15.390	0.100	78.4%
	16.738	0.119	5.407	0.005	15.398	0.100	78.6%
	17.328	0.131	5.388	0.050	15.438	0.100	80.0%
	16.537	0.148	5.374	0.100	15.488	0.100	85.3%
	16.456	0.164	5.355	0.148	15.520	0.100	86.8%
	17.306	0.182	5.341	0.200	15.563	0.100	83.3%
	16.900	0.199	5.323	0.250	15.605	0.100	85.8%

Vin=32V

	Vin (V)	Iin (A)	Vo1(V)	Io1 (A)	Vo2(V)	Io2 (A)	Eff
Io2=0A	32.426	0.016	5.182	0.000	16.289	0.000	0.1%
	32.410	0.017	5.182	0.005	16.249	0.000	4.5%
	32.402	0.026	5.184	0.050	15.909	0.000	30.1%
	32.395	0.035	5.185	0.100	15.679	0.000	46.2%
	32.389	0.043	5.188	0.150	15.571	0.000	55.4%
	32.382	0.053	5.197	0.200	15.600	0.000	61.1%
	32.375	0.062	5.200	0.250	15.694	0.000	64.6%
Io2=5mA	32.327	0.019	5.162	0.000	15.504	0.005	12.3%
	32.307	0.020	5.162	0.005	15.489	0.005	15.5%
	32.257	0.029	5.165	0.050	15.397	0.005	36.1%
	32.208	0.037	5.174	0.100	15.413	0.005	50.0%
	32.157	0.046	5.187	0.150	15.476	0.005	57.9%
	32.103	0.055	5.201	0.200	15.558	0.005	63.0%
	32.048	0.065	5.195	0.250	15.641	0.005	66.2%
Io2=0.05A	32.190	0.043	5.248	0.000	15.264	0.050	55.2%
	32.172	0.044	5.250	0.005	15.274	0.050	56.0%
	32.124	0.052	5.268	0.050	15.370	0.050	61.7%
	32.070	0.062	5.271	0.100	15.452	0.050	65.8%
	32.013	0.071	5.245	0.150	15.475	0.050	68.5%
	31.957	0.081	5.244	0.200	15.545	0.050	70.6%
	31.900	0.091	5.255	0.250	15.640	0.050	72.3%
Io2=0.1A	32.030	0.071	5.331	0.000	15.363	0.100	67.5%
	32.013	0.072	5.328	0.005	15.365	0.100	67.9%
	31.961	0.081	5.330	0.050	15.434	0.100	70.2%
	31.903	0.090	5.345	0.100	15.540	0.100	72.3%
	31.850	0.100	5.329	0.150	15.583	0.100	74.0%
	31.795	0.109	5.306	0.200	15.611	0.100	75.4%
	31.740	0.119	5.285	0.250	15.653	0.100	76.4%

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