

**Test Data
For PMP10543
10/23/2014**



Power Specification

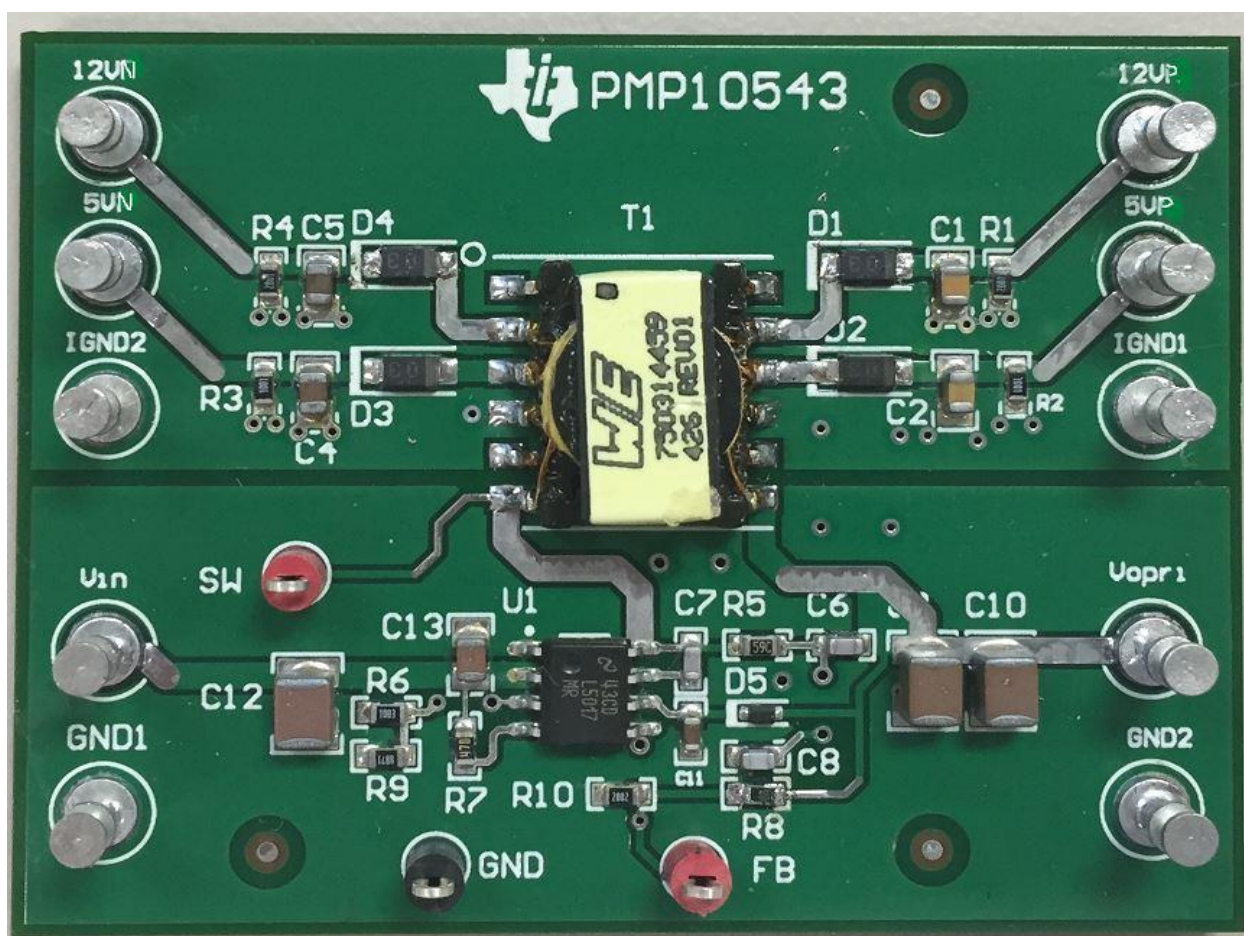
Vin range: 20V – 32V

Nominal Vin = 24V

Quad Isolated Outputs: $\pm 5\text{V}@75\text{mA}$, $\pm 12\text{V}@75\text{mA}$

Fsw = 350kHz

Board Photo

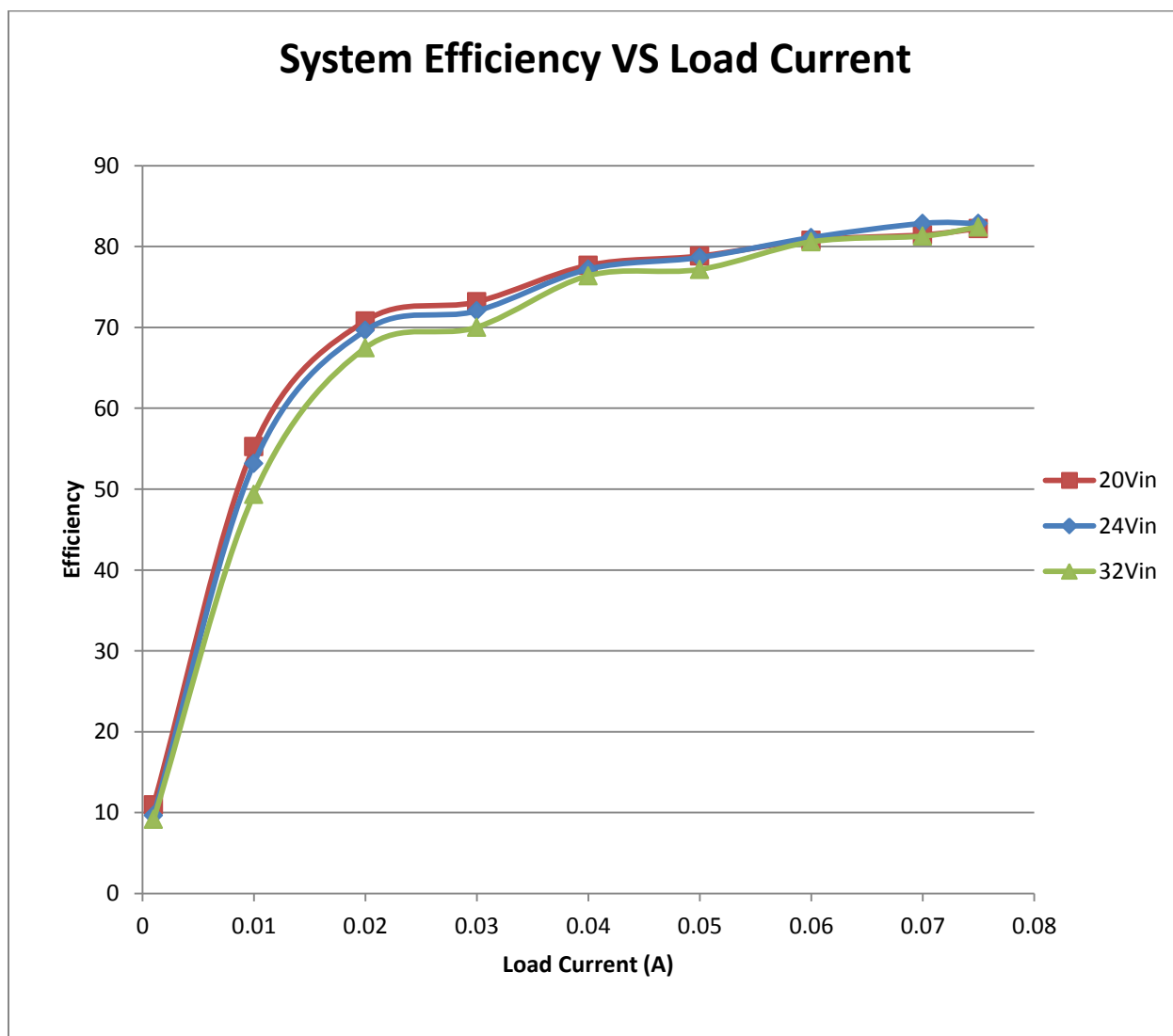


Size: 56x43mm

5VP: +5V output, 5VN: -5V output, 12VP: +12V output, 12VN: -12V output

Efficiency

The efficiency is calculated for all outputs; the load current is incremented at 10mA interval.

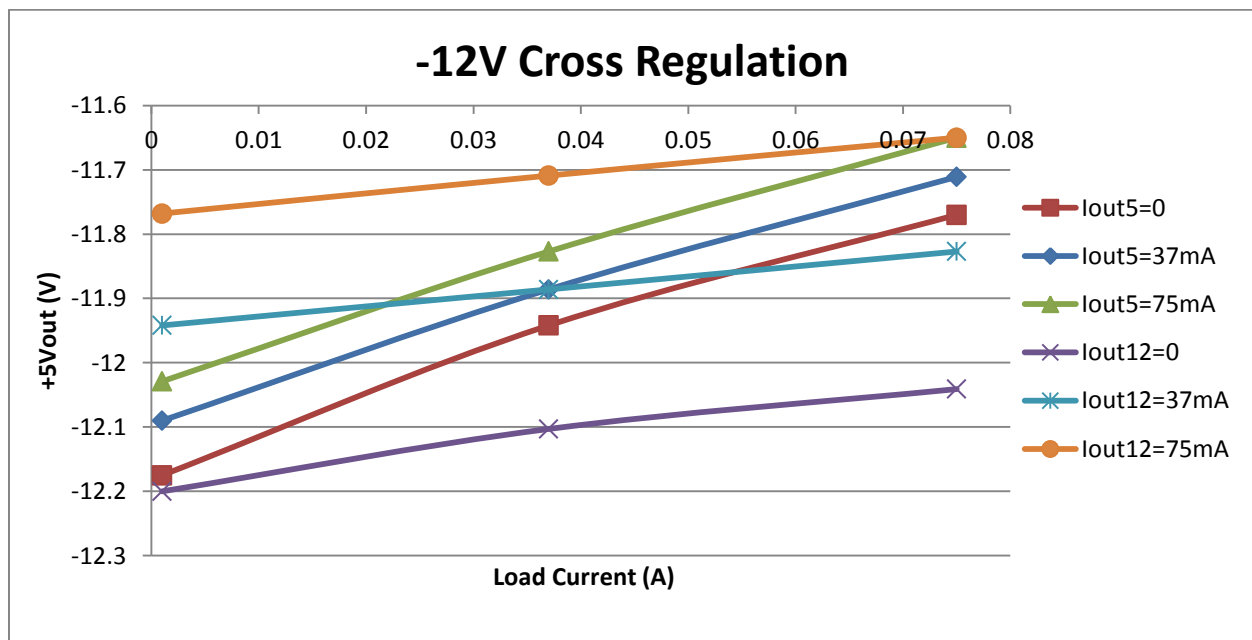
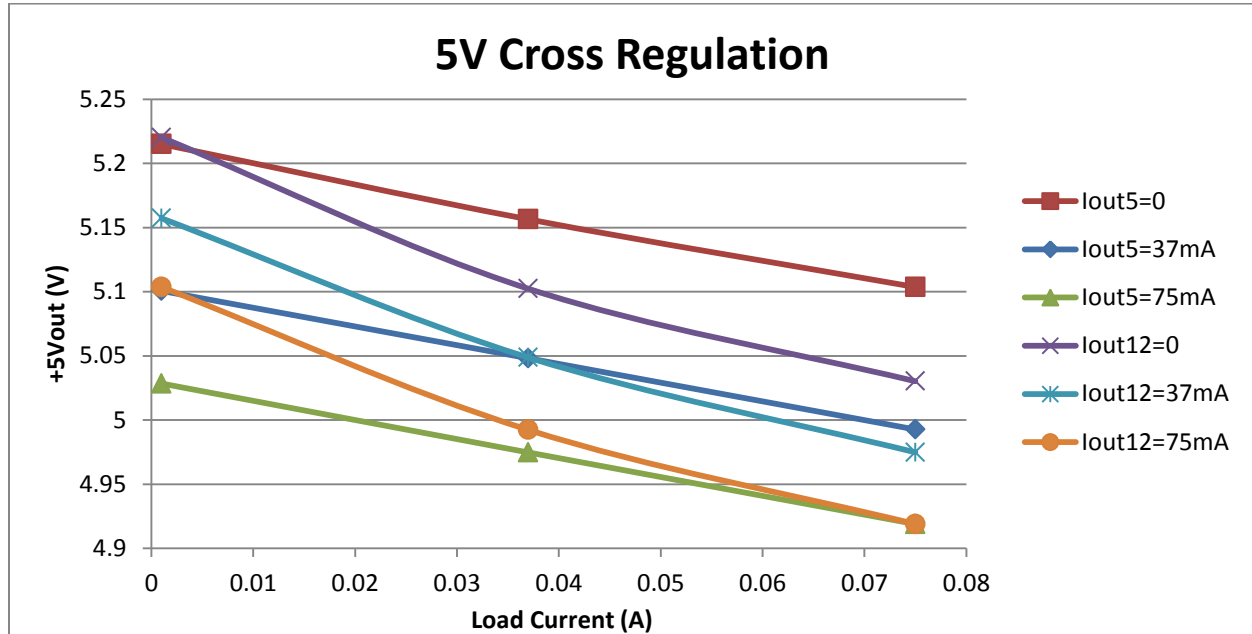


For more data at different Vin, see the Appendix.

Cross Regulation

The cross regulation was tested by sweeping different load condition on four outputs.

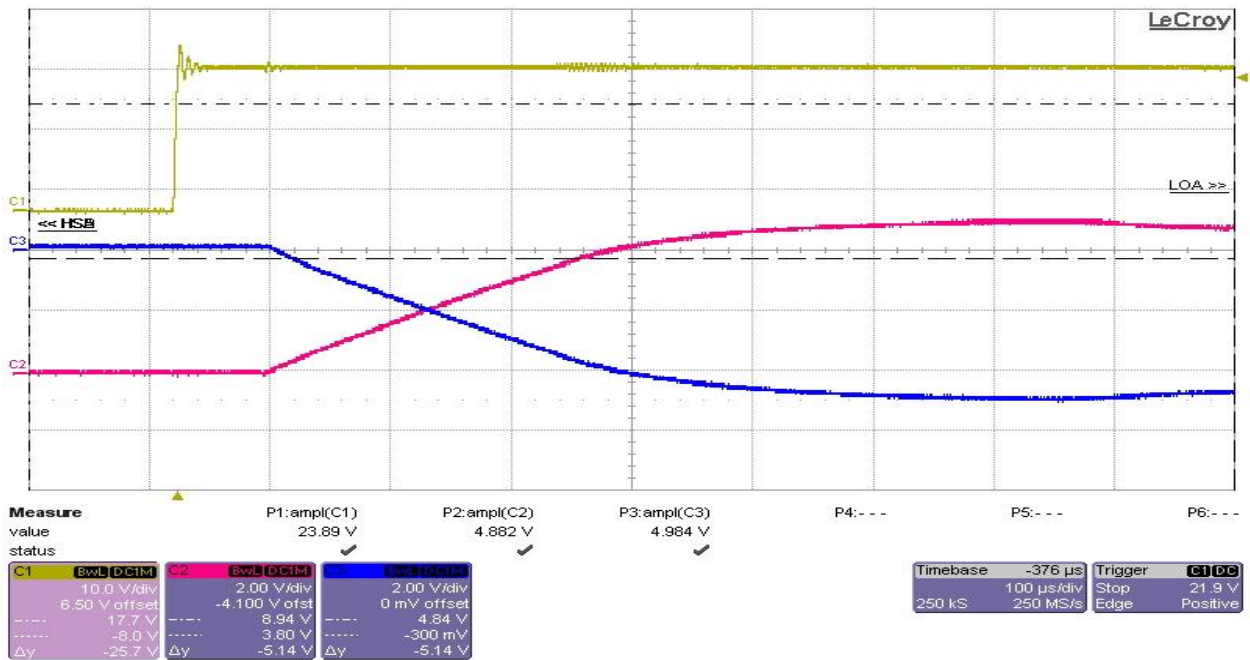
$V_{in}=24V$



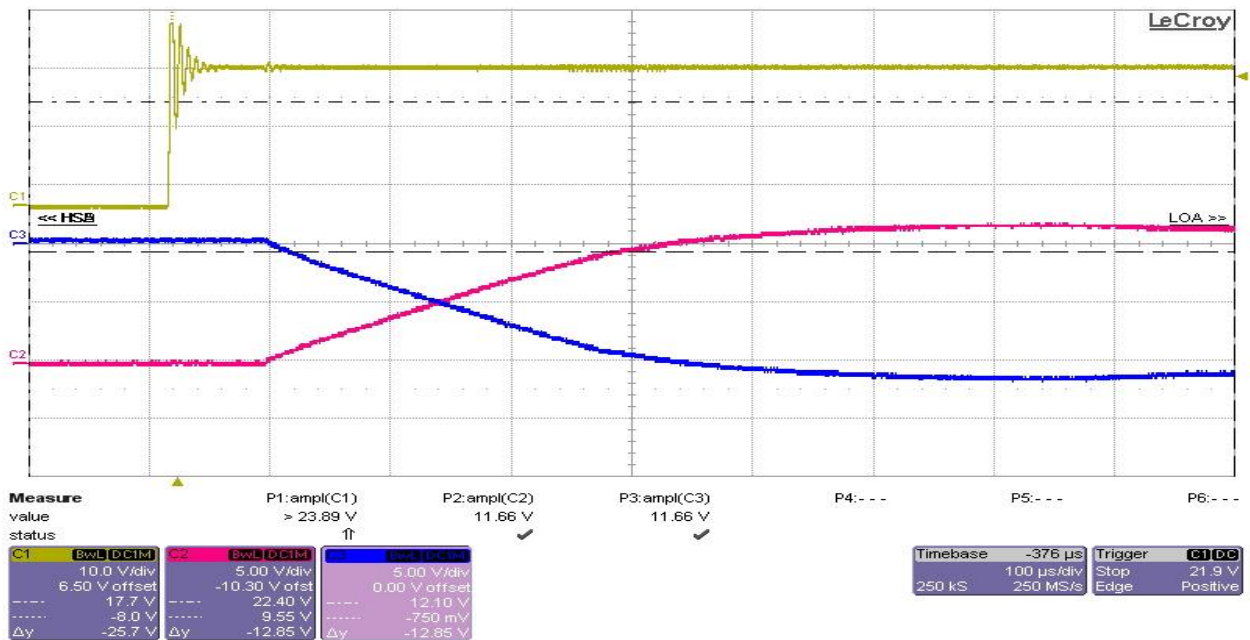
For more data of different rails, see the Appendix.

Start Up

Test condition: The input voltage was set at 24V, and both outputs were set at full load of 75mA.
Ch1 - Vin, Ch2 - 5VP (+5V), Ch3 - 5VN (-5V)



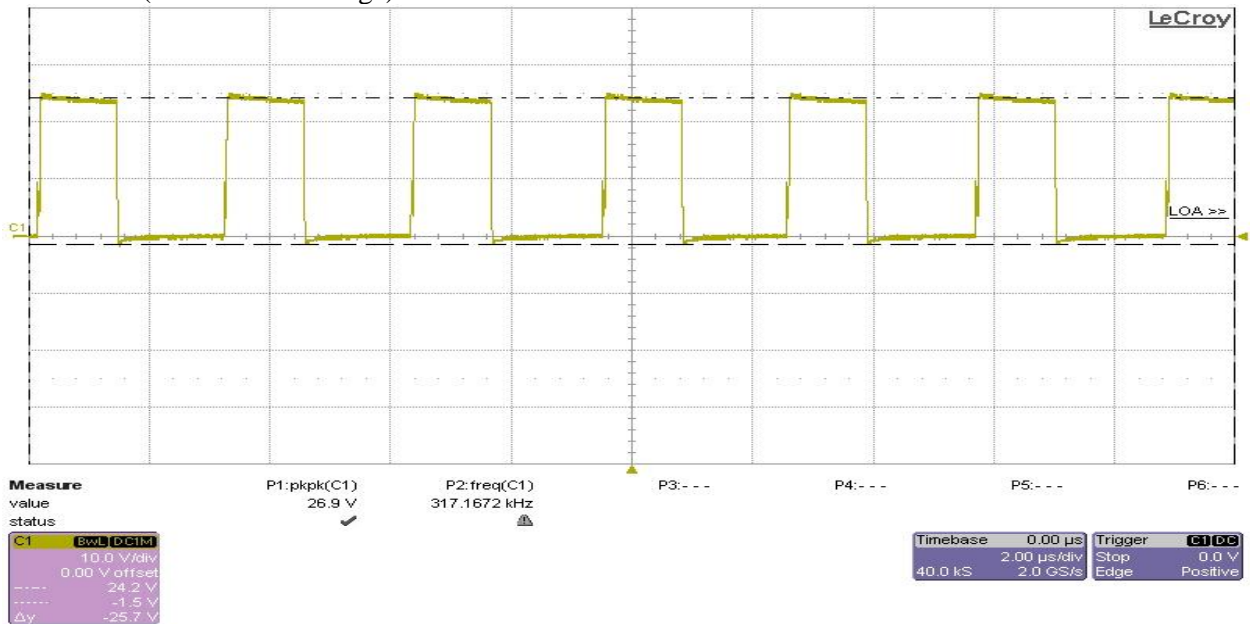
Test condition: The input voltage was set at 24V, and both outputs were set at full load of 75mA.
Ch1 - Vin, Ch2 - 12VP (+12V), Ch3 - 12VN (-12V)



Switching Waveforms

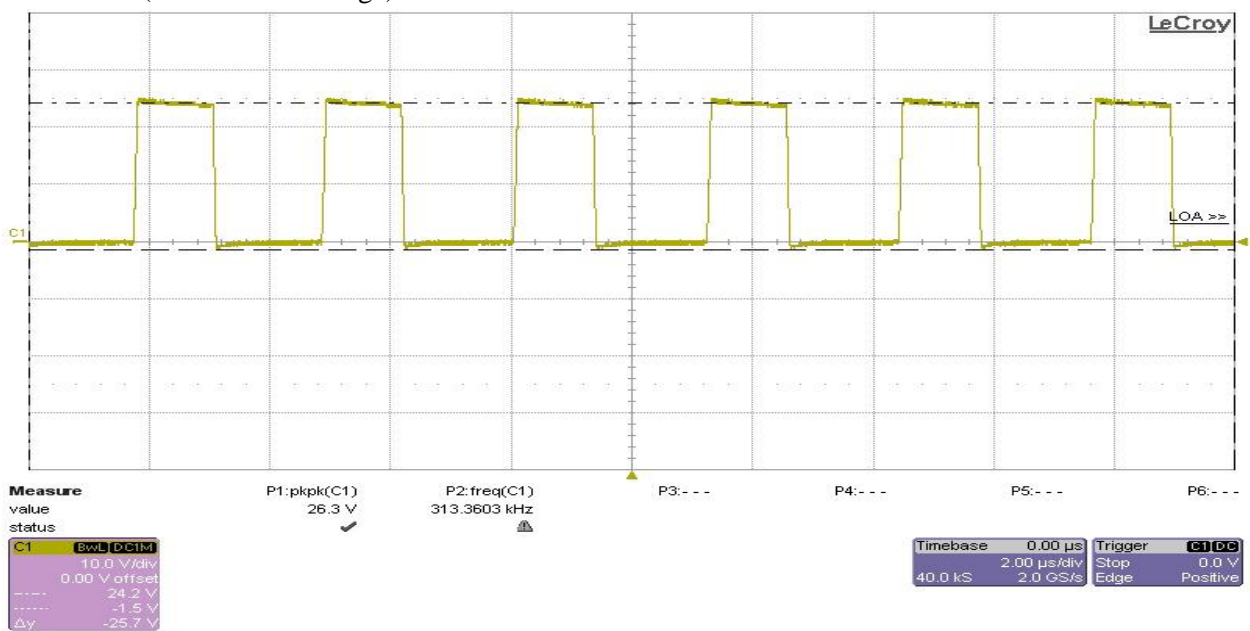
Test condition: The input voltage was set at 24V, and four outputs were set at full load.

Ch1 – Vsw (switch node voltage)



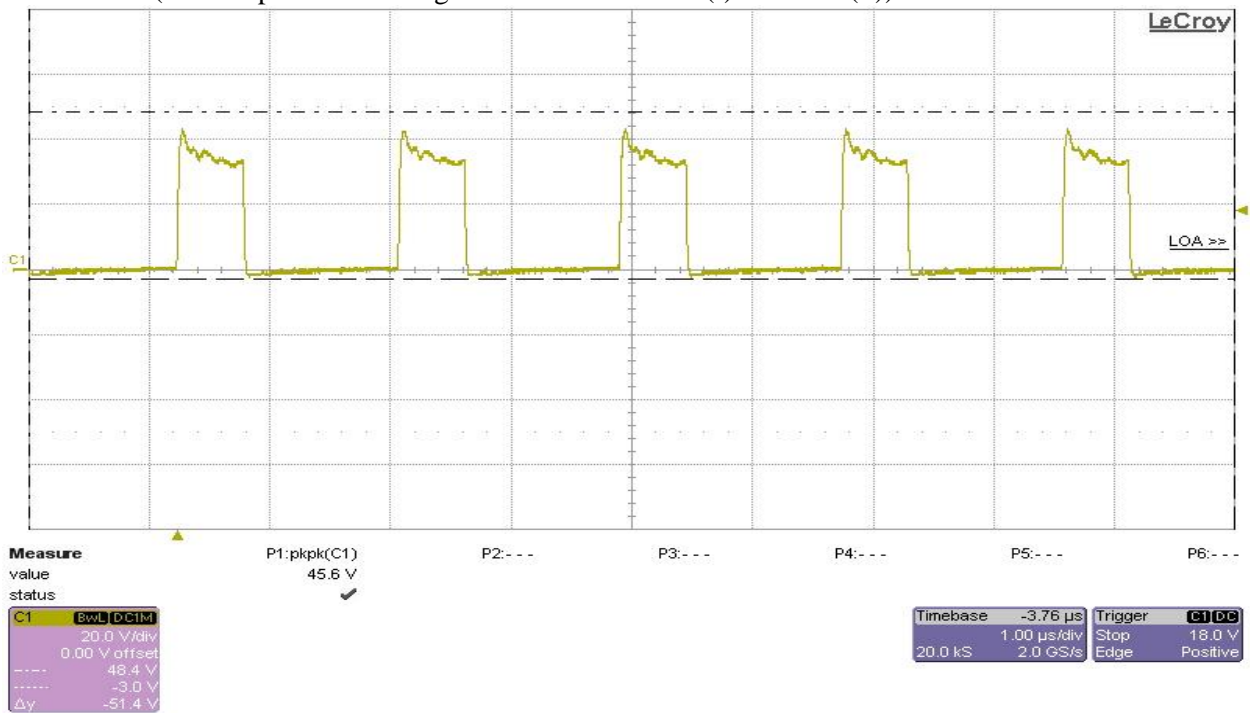
Test condition: The input voltage was set at 24V, and four outputs were set at no load.

Ch1 – Vsw (switch node voltage)



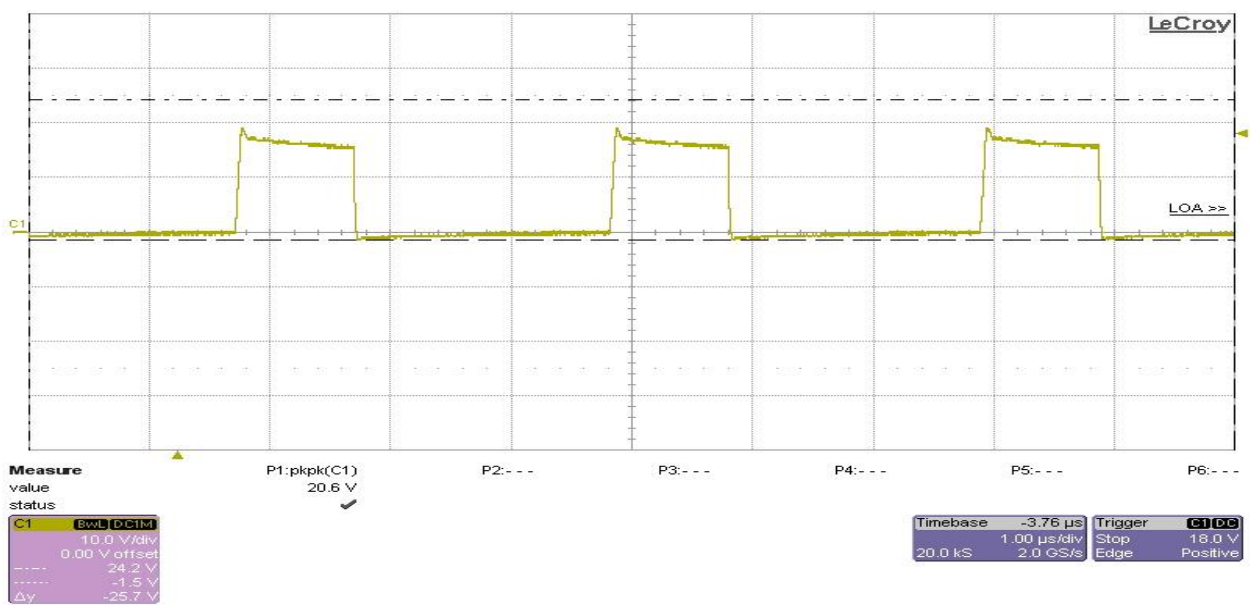
Test condition: The input voltage was set at 32V, and four outputs were set at full load of 75mA.

Ch1 – Vd12 (12V output diode voltage stress from cathode (-) to anode (+))



Test condition: The input voltage was set at 32V, and four outputs were set at full load of 75mA.

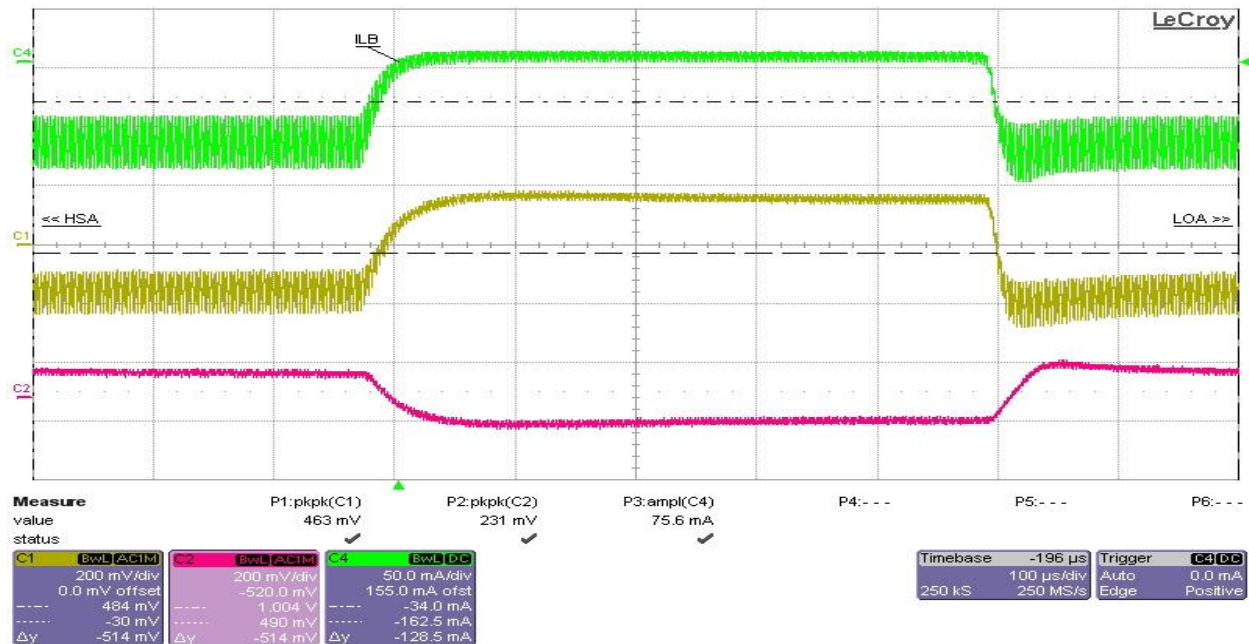
Ch1 – Vd5 (5V output diode voltage stress from cathode (-) to anode (+))



Load Transients

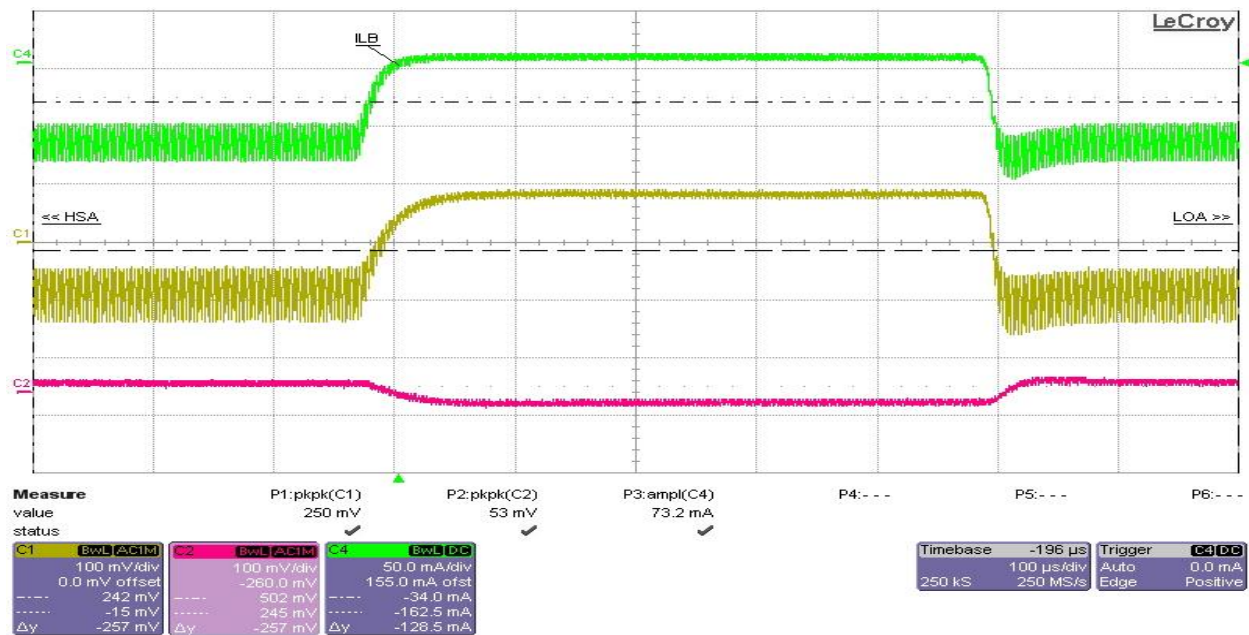
Test condition: $V_{in} = 24V$, 12VP (+12V) load from 0A to 75mA, no load at the other outputs.

Ch1- 12VP (+12V) (AC mode), Ch2- 12VN (-12V) (AC mode), Ch4- I_o (+12V output current)



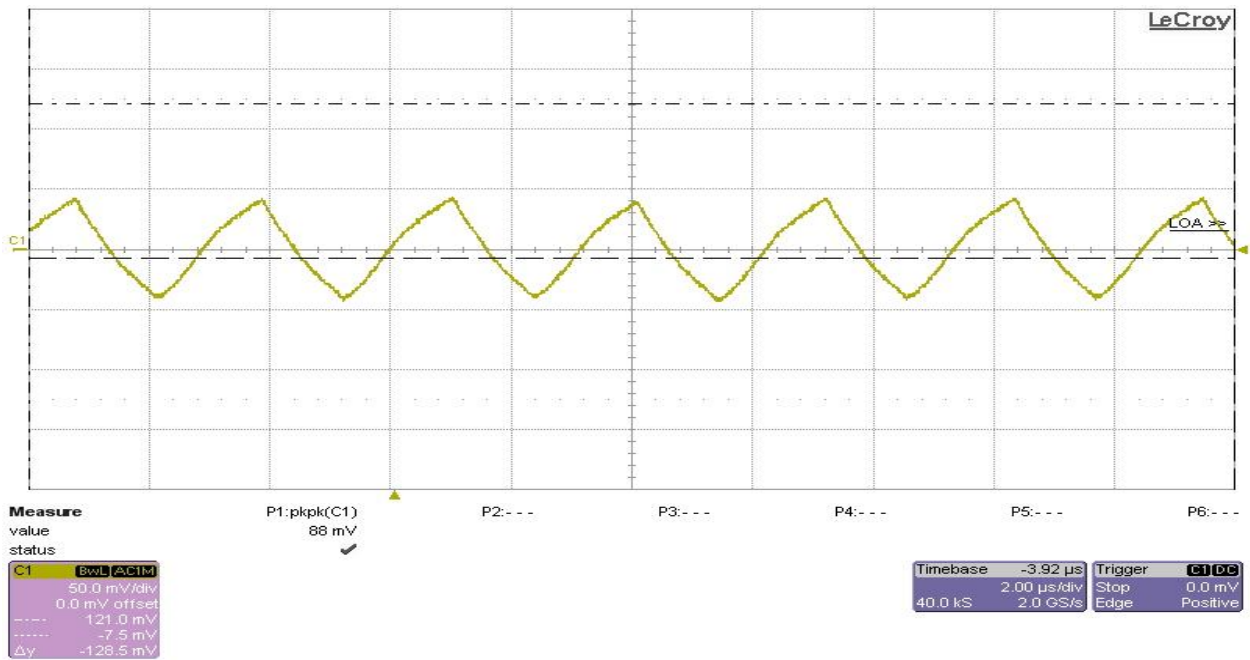
Test condition: $V_{in} = 24V$, 5VP (+5V) load from 0A to 75mA, no load at the other outputs.

Ch1- 5VP (+5V) (AC mode), Ch2- 5VN (-5V) (AC mode), Ch4- I_o (+5V output current)

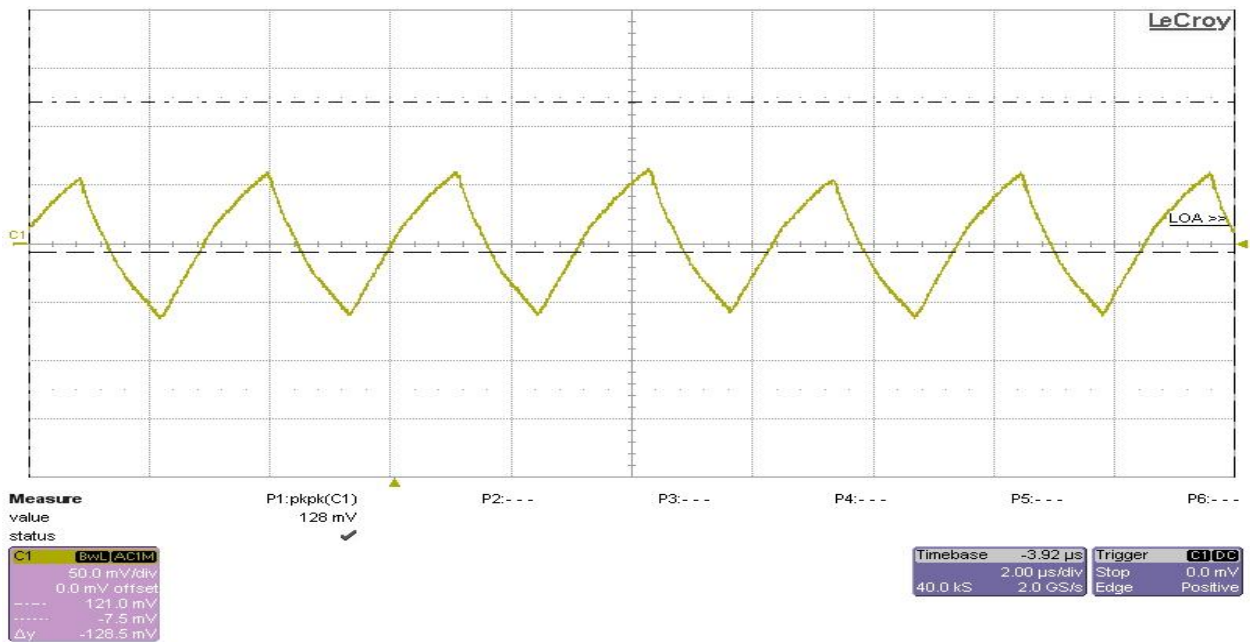


Output Voltage Ripples

Test condition: The input voltage was set at 24V, and four outputs were set at full load of 75mA.
Ch1 – 5VP (+5V) (AC coupled)



Test condition: The input voltage was set at 24V, and four outputs were set at full load of 75mA.
Ch1 – 12VP (+12V) (AC coupled)



Appendix – Test Data

V_{in}=24V

lin	12Vout	12VoutN	Iout12	5Vout	5VoutN	Iout5	Eff
0.015	12.186	12.174	0.001	5.2144	5.2087	0.001	9.661972
0.027	12.086	12.073	0.01	5.1607	5.1545	0.01	53.20093
0.041	12.02	12.006	0.02	5.1188	5.1123	0.02	69.62825
0.059	11.944	11.926	0.03	5.0719	5.0643	0.03	72.04703
0.073	11.884	11.865	0.04	5.0374	5.0289	0.04	77.20388
0.089	11.817	11.796	0.05	4.9986	4.9892	0.05	78.65356
0.103	11.76	11.736	0.06	4.9668	4.9551	0.06	81.11141
0.117	11.705	11.678	0.07	4.9342	4.9223	0.07	82.862
0.125	11.678	11.648	0.075	4.9166	4.9041	0.075	82.86675

V_{in}=20V

lin	12Vout	12VoutN	Iout12	5Vout	5VoutN	Iout5	Eff
0.0158	12.111	12.098	0.001	5.1829	5.1767	0.001	10.93943
0.031	12.013	11.999	0.01	5.126	5.1194	0.01	55.25387
0.048	11.931	11.914	0.02	5.0747	5.0667	0.02	70.805
0.069	11.828	11.808	0.03	5.0147	5.005	0.03	73.16457
0.086	11.748	11.724	0.04	4.9694	4.9582	0.04	77.67349
0.105	11.656	11.628	0.05	4.9183	4.9052	0.05	78.82738
0.122	11.575	11.544	0.06	4.8747	4.8591	0.06	80.78557
0.14	11.487	11.451	0.07	4.8283	4.8107	0.07	81.4425
0.148	11.449	11.412	0.075	4.8065	4.7886	0.075	82.23674

V_{in}=32V

lin	12Vout	12VoutN	Iout12	5Vout	5VoutN	Iout5	Eff
0.012	12.316	12.309	0.001	5.2668	5.2645	0.001	9.155286
0.022	12.18	12.167	0.01	5.2021	5.1966	0.01	49.35469
0.032	12.118	12.104	0.02	5.1655	5.1599	0.02	67.47539
0.046	12.062	12.047	0.03	5.1297	5.1238	0.03	70.03227
0.056	12.02	12.004	0.04	5.104	5.0976	0.04	76.39643
0.069	11.977	11.958	0.05	5.0768	5.0696	0.05	77.17708
0.079	11.938	11.919	0.06	5.0533	5.0456	0.06	80.59153
0.091	11.896	11.875	0.07	5.0289	5.0207	0.07	81.29952
0.096	11.879	11.858	0.075	5.0173	5.0093	0.075	82.43066

Iout5 = 0

5Vout	5VoutN	12Vout	12VoutN	Iout12
5.2151	-5.2095	12.187	-12.175	0.001
5.1565	-5.1471	11.957	-11.942	0.037
5.1037	-5.0902	11.79	-11.77	0.075

Iout5 = 0.037

5Vout	5VoutN	12Vout	12VoutN	Iout12
5.1007	-5.097	12.105	-12.09	0.001
5.0482	-5.04	11.904	-11.886	0.037
4.9927	-4.9793	11.735	-11.711	0.075

Iout5 = 0.075

5Vout	5VoutN	12Vout	12VoutN	Iout12
5.0285	-5.026	12.047	-12.029	0.001
4.9748	-4.9677	11.849	-11.827	0.037
4.919	-4.9064	11.679	-11.65	0.075

Iout12=0

5Vout	5VoutN	12Vout	12VoutN	Iout5
5.2203	-5.2151	12.212	-12.2	0.001
5.1024	-5.0988	12.119	-12.103	0.037
5.0303	-5.0281	12.058	-12.041	0.075

Iout12 = 0.037

5Vout	5VoutN	12Vout	12VoutN	Iout5
5.1573	-5.1479	11.957	-11.942	0.001
5.0488	-5.0405	11.905	-11.886	0.037
4.9749	-4.9678	11.849	-11.827	0.075

Iout12 = 0.075

5Vout	5VoutN	12Vout	12VoutN	Iout5
5.1037	-5.0904	11.788	-11.768	0.001
4.9924	-4.9791	11.733	-11.709	0.037
4.919	-4.9064	11.679	-11.65	0.075

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