60W HiPF-PSR with 0-10V LED driver

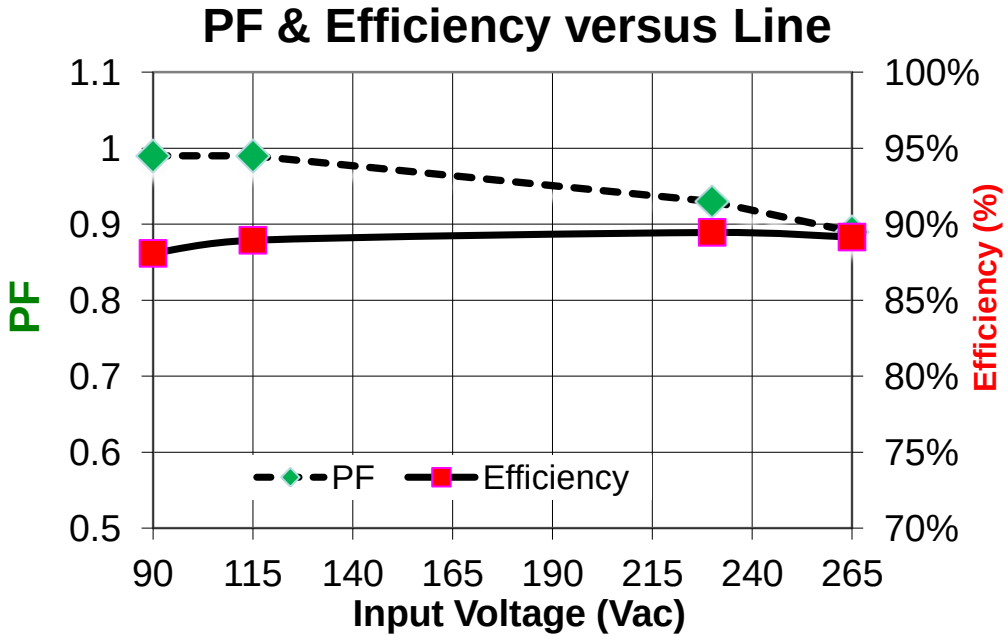
Device	Application	Input Voltage	Output Power	Output Voltage	Efficiency	Topology	Isolation	PFC	Dimming
NCL30086	LED Driver	90-264 Vac	60 W	30~43	>88%	PFC & PSR	Isolated	>0.9	0-10V dim

Feature :

- Single stage flyback topology, PF >0.9, THD <15%
- Primary Side Regulation (PSR) for CC output
- No opto-coupler or secondary control circuitry
- Precise LED Current Regulation of ±2% typical
- Support for wide range of LED forward voltages
- Fast Startup time, typically <1S
- Low Bill-of-material count
- 0 -10V dimmable , minimum Iout <5%

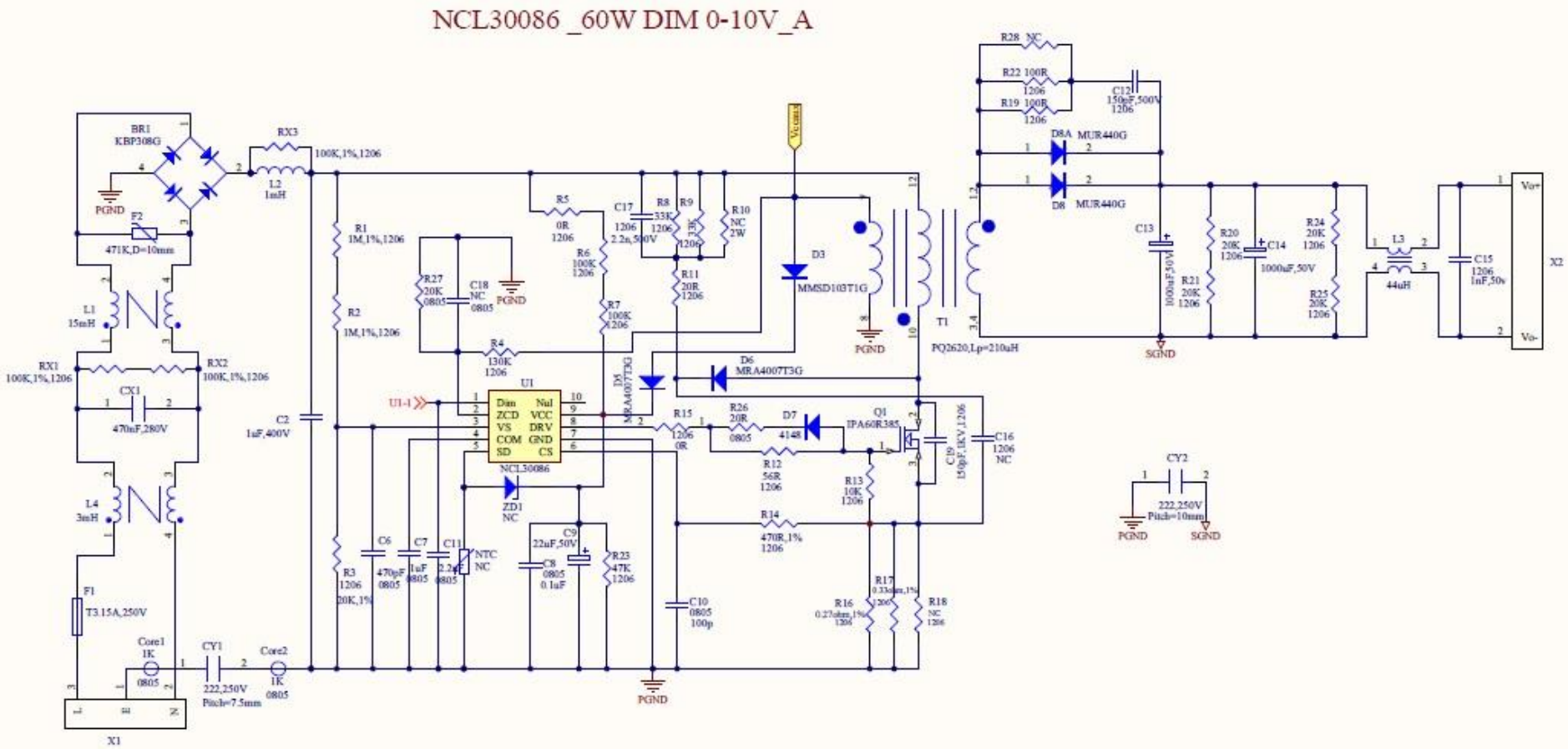
126mm x 43.6mm

Available by end of March



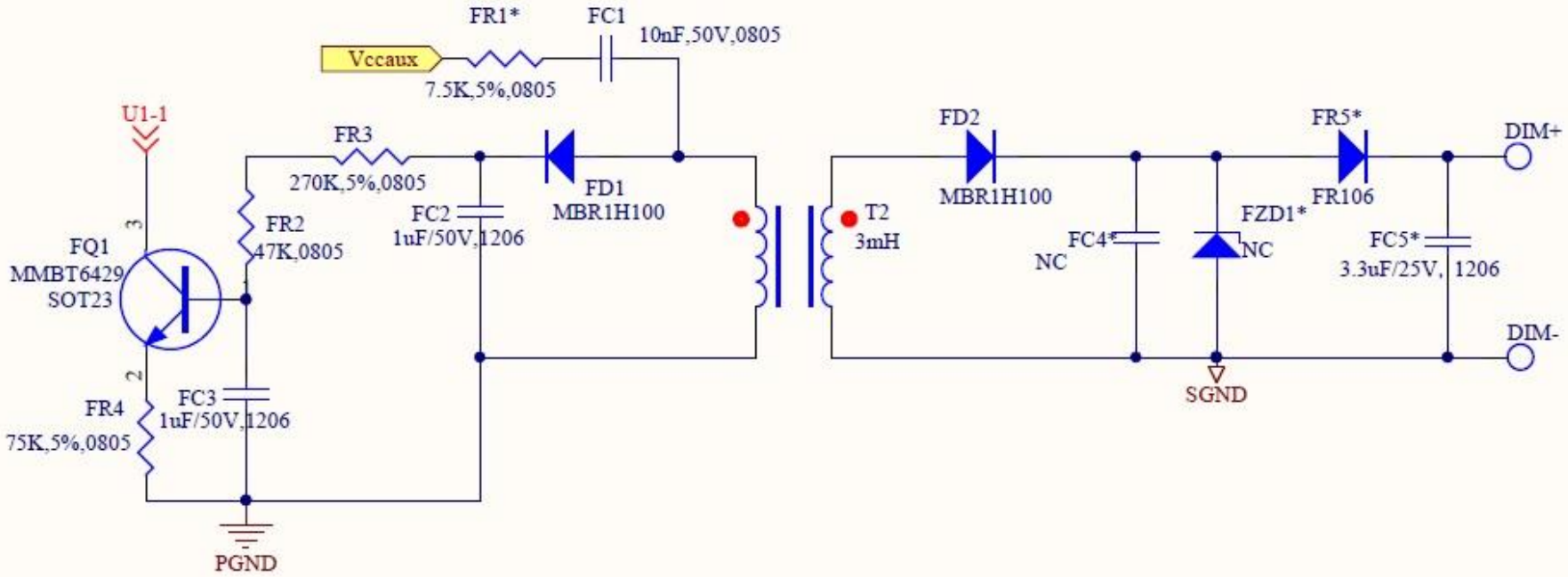
Application:
Ideal for 30~60W 0-10V dimmable LED driver, LED Ballasts.

60W HiPF-PSR Application Schematic



- Rev:3

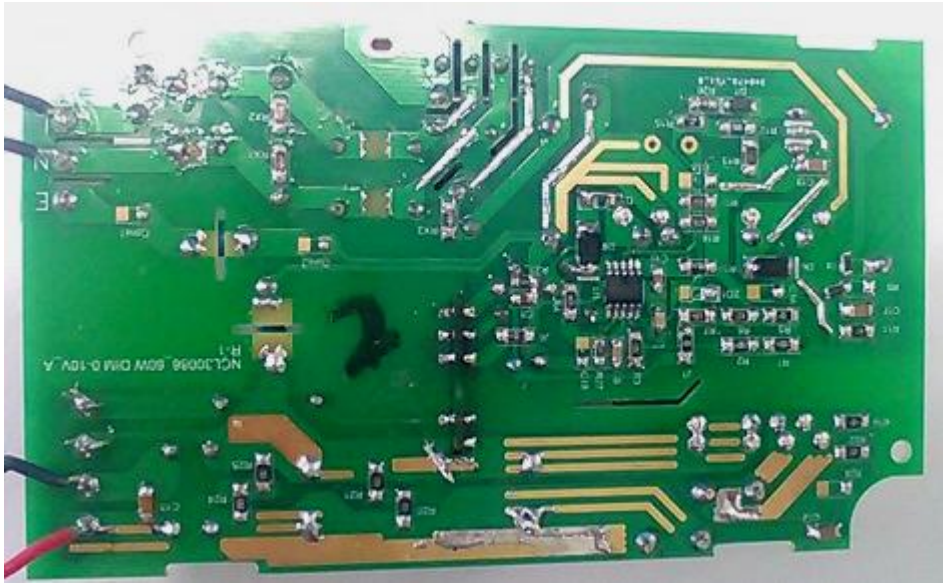
60W HiPF-PSR Application Schematic



- Rev:4

Demo Picture

Top view



Bottom view

DVT Unit#1 test data

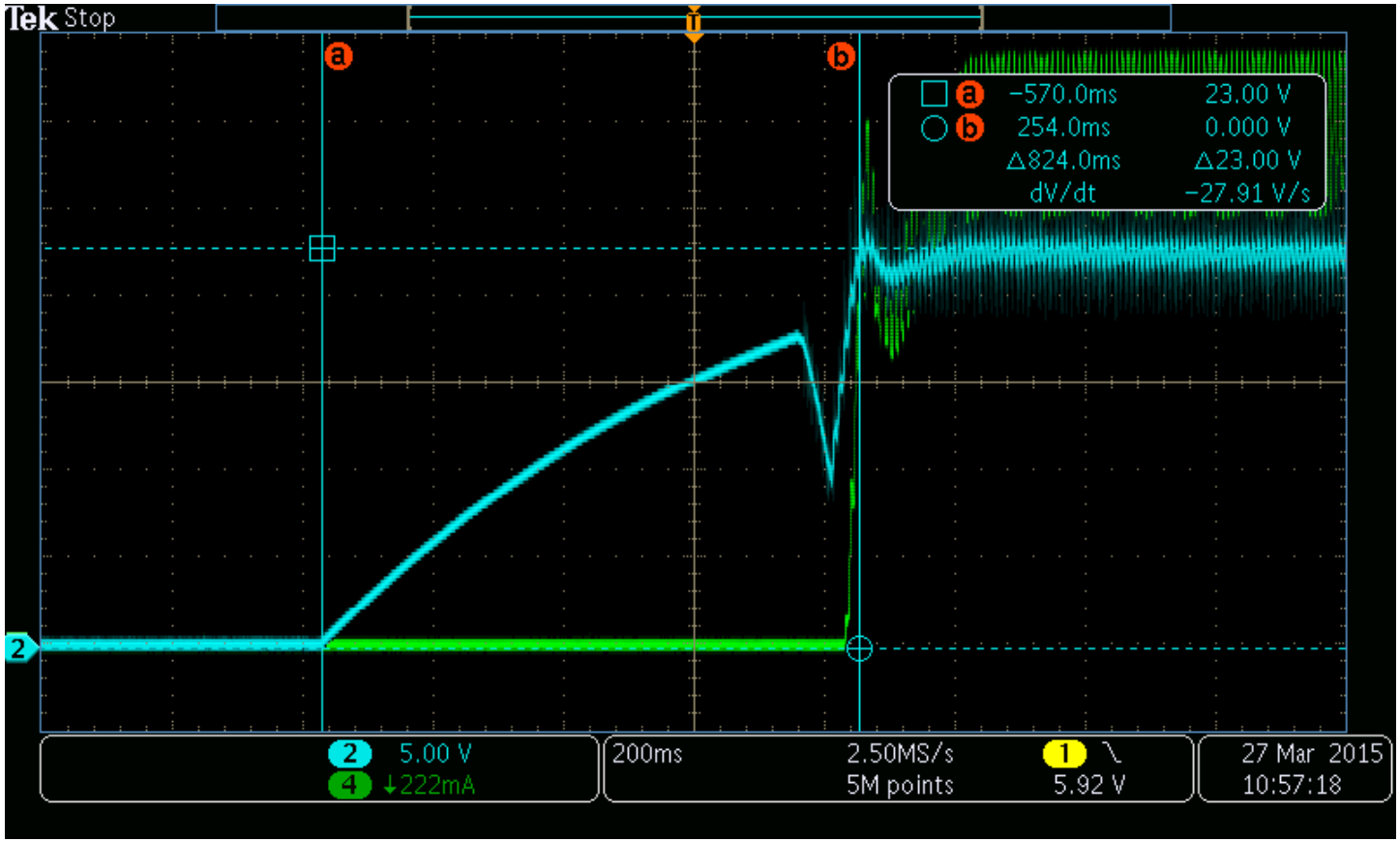
Vin(V)	Vo(V)	Io(A)	Pi(W)	PF	THD(%)	Po(W)	Eff
90	40.9	1.301	60.55	0.99	4.3	53.2	87.9%
115	40.9	1.290	59.24	0.99	4.5	52.21	89.4%
230	40.90	1.293	59.05	0.93	9.24	52.71	89.6%
264	40.90	1.292	59.17	0.89	12.14	52.82	89.3%

0-10V dim test data

Sample NO.	115Vin, 60Hz					230Vin, 50Hz				
	0-10 input (V)	Pin1 (Dim) (V)	Iout (mA)	Range (%)	Fliker (Y/N)	Dim input (V)	Pin1 (Dim) (V)	Iout (mA)	Range (%)	Fliker (Y/N)
Unit3	Open		1280	100	N	Open		1280	100	N
	10.0	2.400	1280	100	N	10.0	2.440	1272	99	N
	9.0	2.230	1145	89	N	9.0	2.270	1145	89	N
	8.0	2.040	1014	79	N	8.0	2.090	1026	80	N
	7.0	1.860	871	68	N	7.0	1.900	883	69	N
	6.0	1.660	717	56	N	6.0	1.720	753	59	N
	5.0	1.480	576	45	N	5.0	1.520	586	46	N
	4.0	1.290	435	34	N	4.0	1.350	454	35	N
	3.0	1.120	350	27	N	3.0	1.180	393	31	N
	2.0	0.954	218	17	N	2.0	1.010	257	20	N
	1.0	0.847	93	7	N	1.0	0.875	158	12	N
	0.8	0.826	68	5	N	0.8	0.851	131	10	N
	0.5	0.812	42	3	N	0.5	0.826	100	8	N
	0	0.807	26	2	N	0	0.800	51	4	N

Performance test

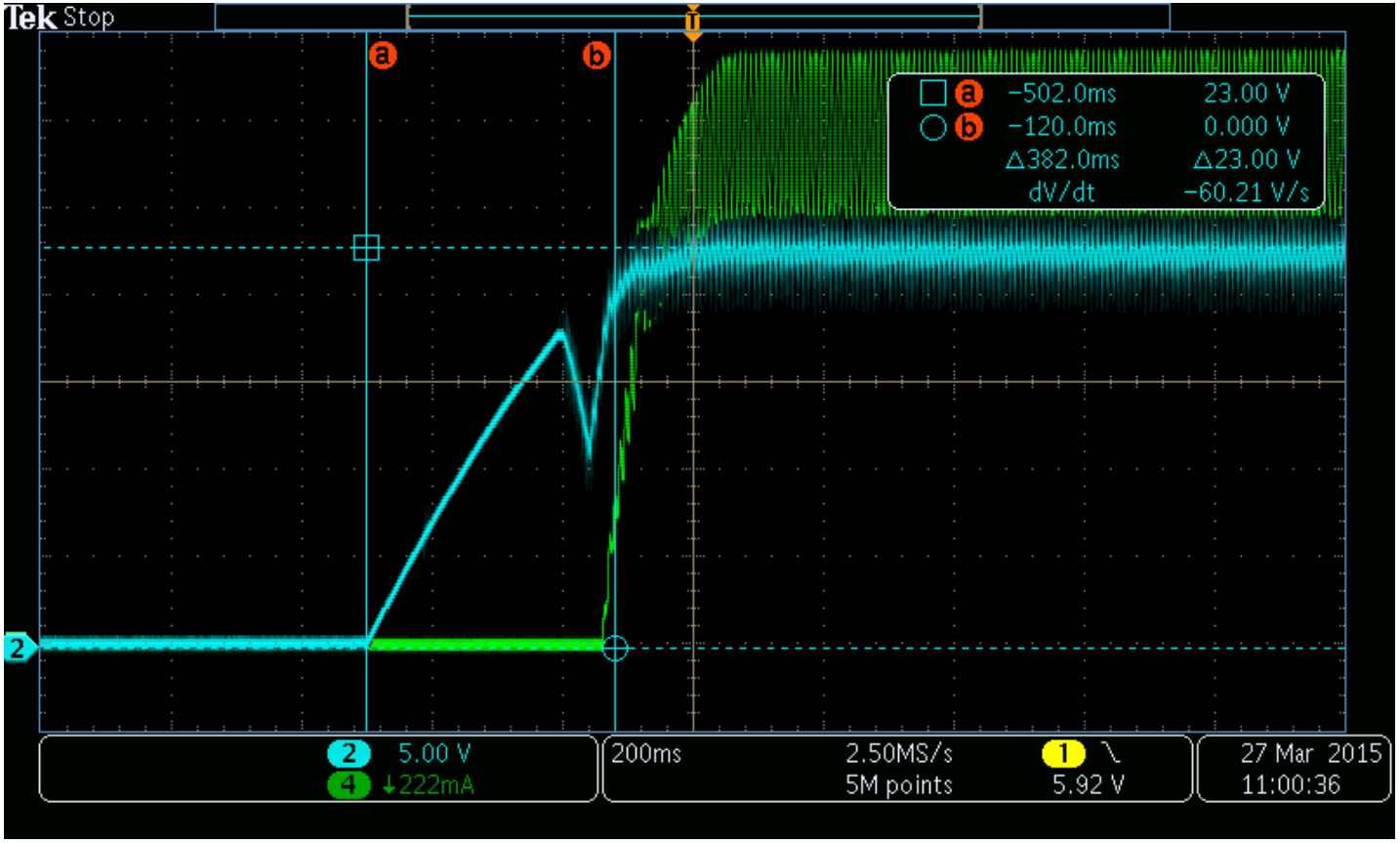
1. Startup time: 0.824 S at 120Vac input



CH2: Vcc
CH4: Iout

Performance test

1. Startup time: 0.38 at 230Vac input



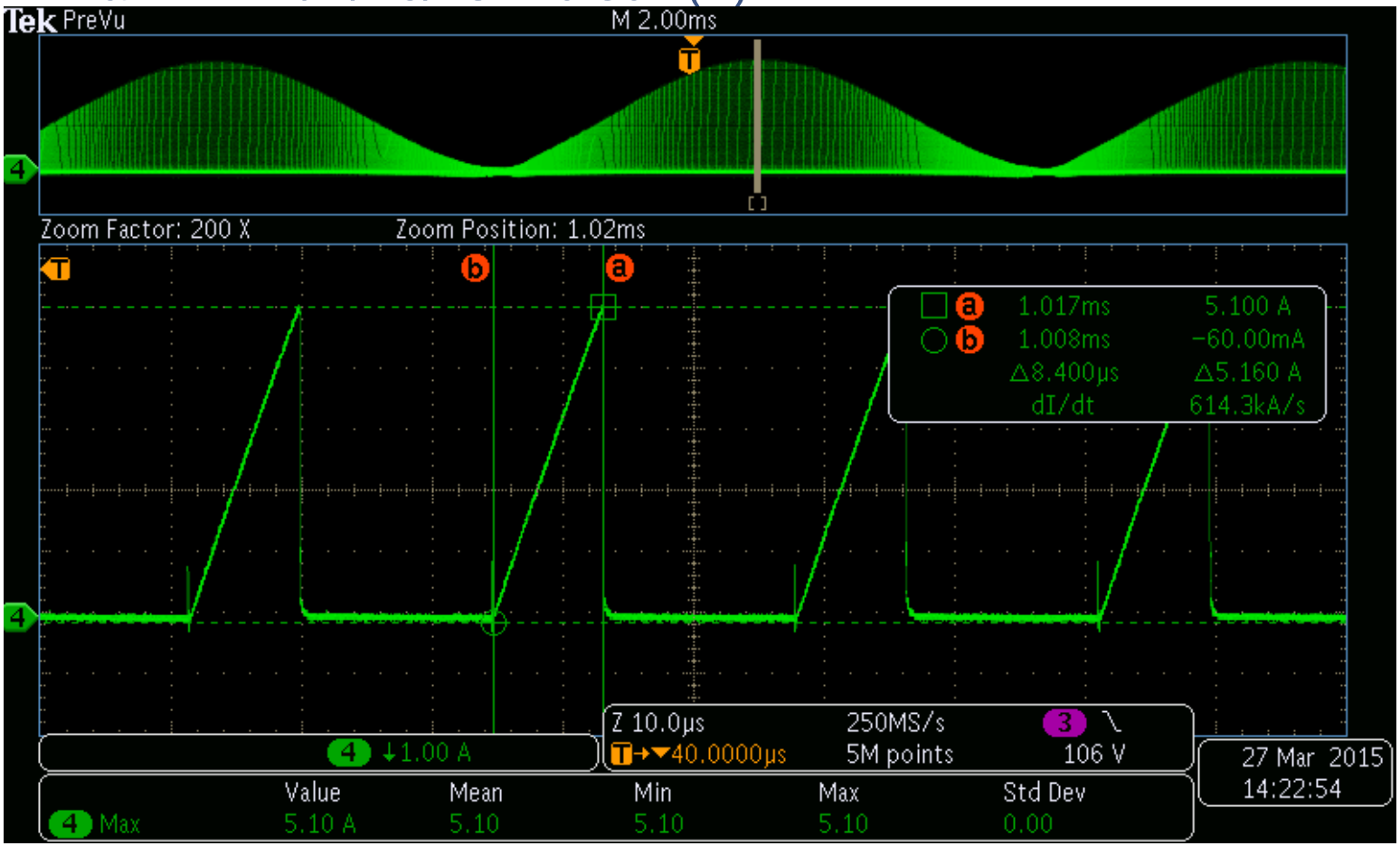
CH2: Vcc
CH4: Iout

Performance test

2. 90Vac input test result:

Ipk-max =5.1A D=38.3% Fsw:44KHz

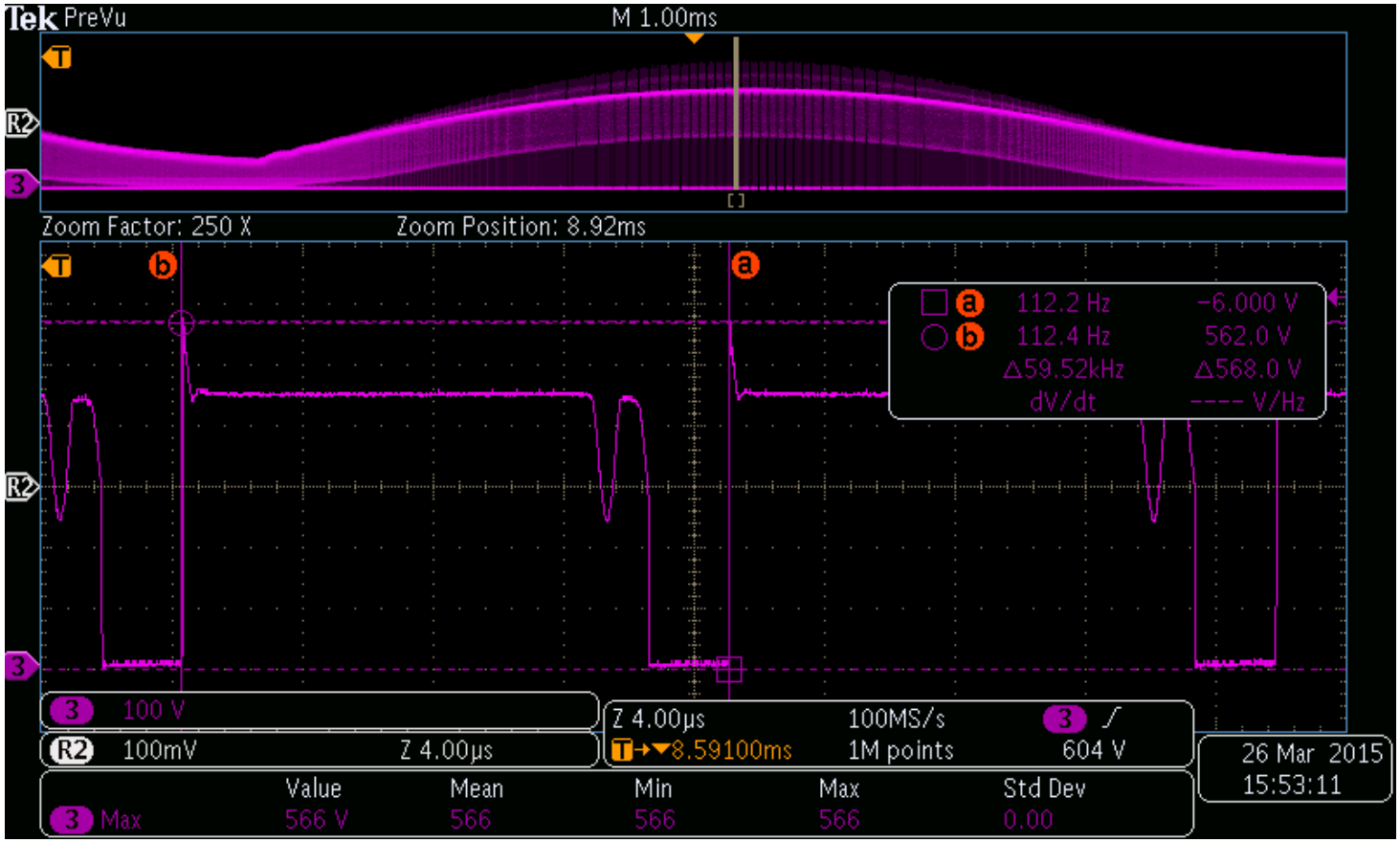
B-max=Vin*D/N/Ae/Fsw=0.301 (T)



Performance test

3. 264Vac input test result :

Vds-max: 566V@264V

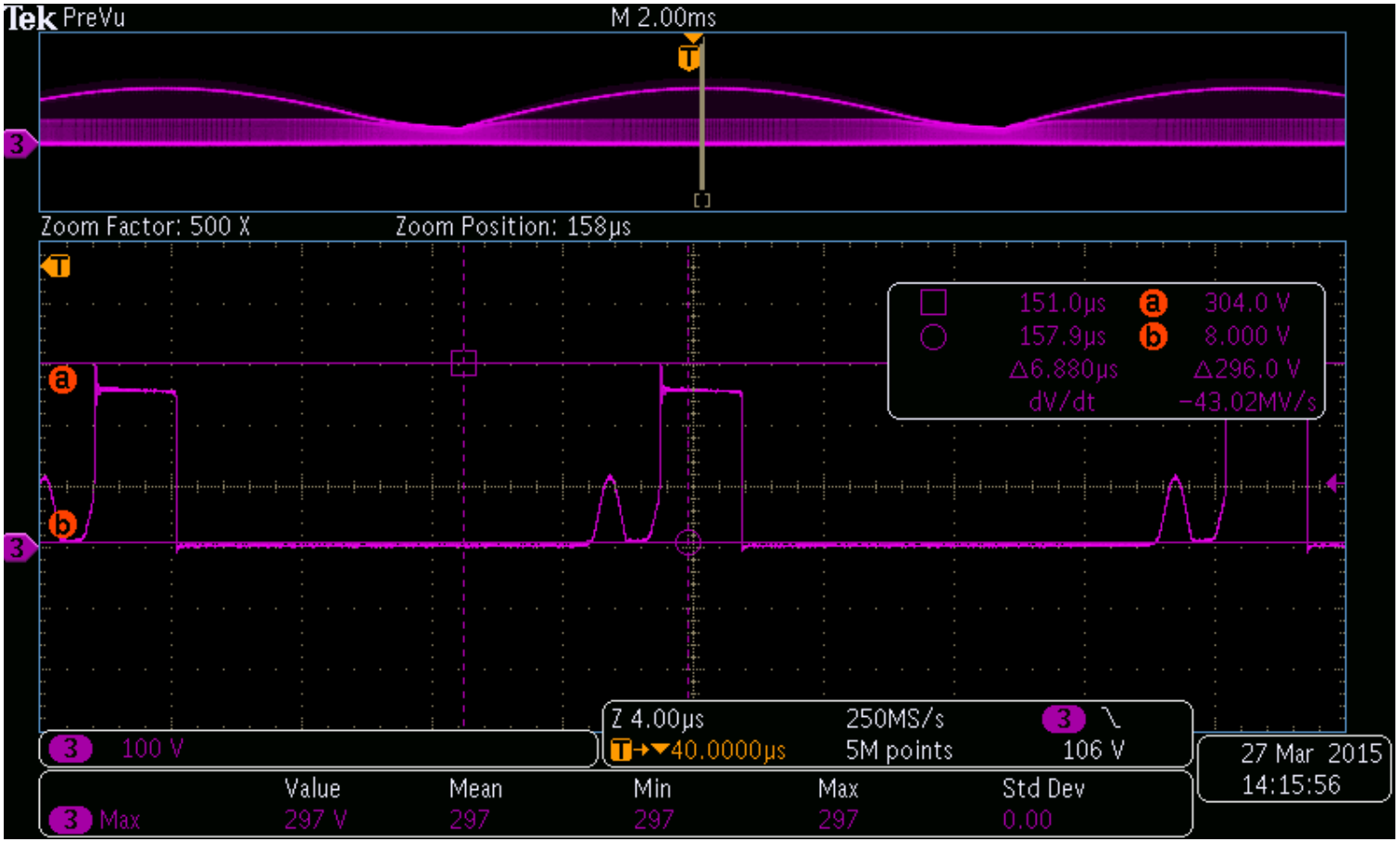


CH3:Vds

Performance test

4. Output Retifier

VR-max: 297V at 264Vac Input

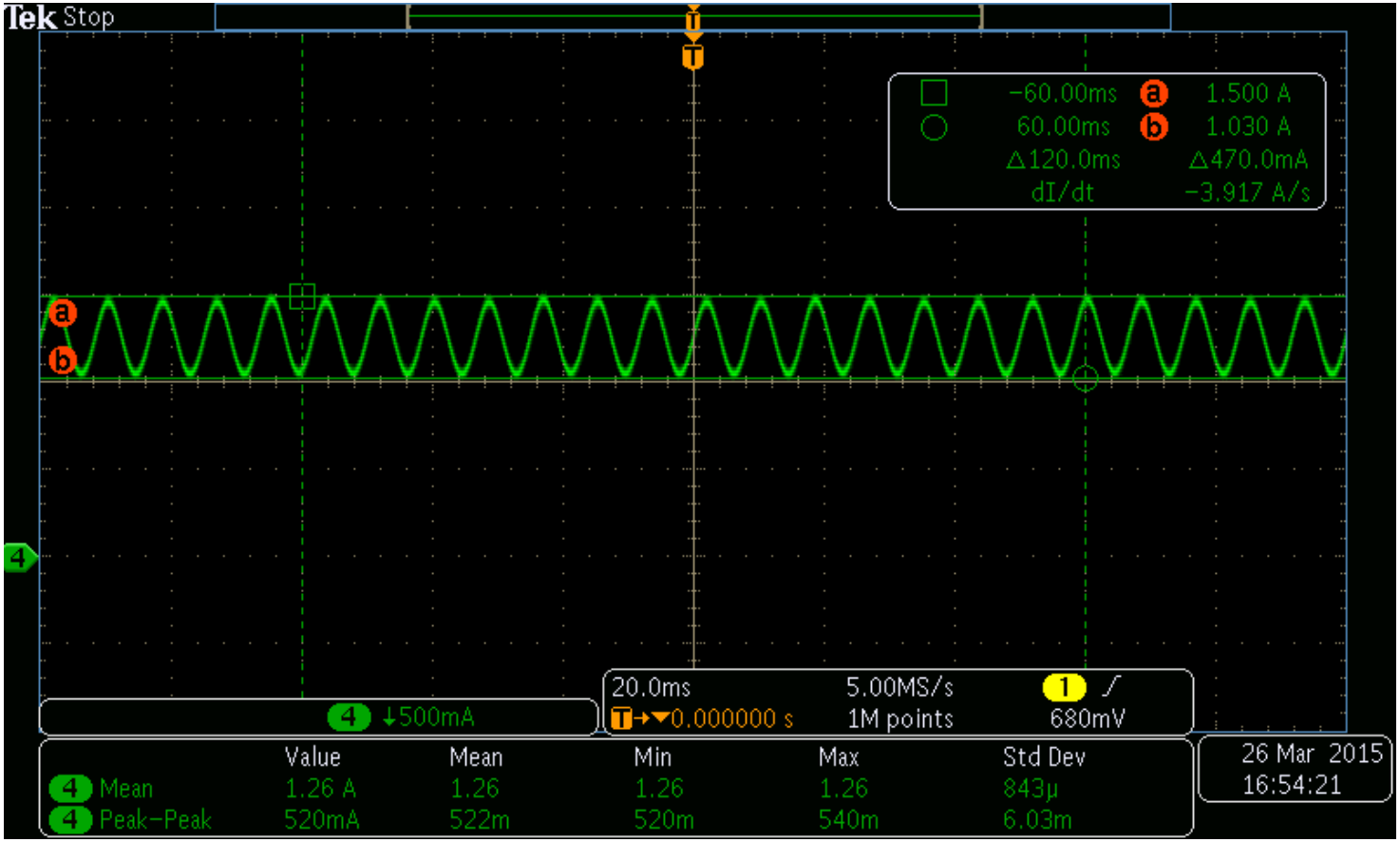


CH3:VR

Performance test

5. Output current ripple: 36%

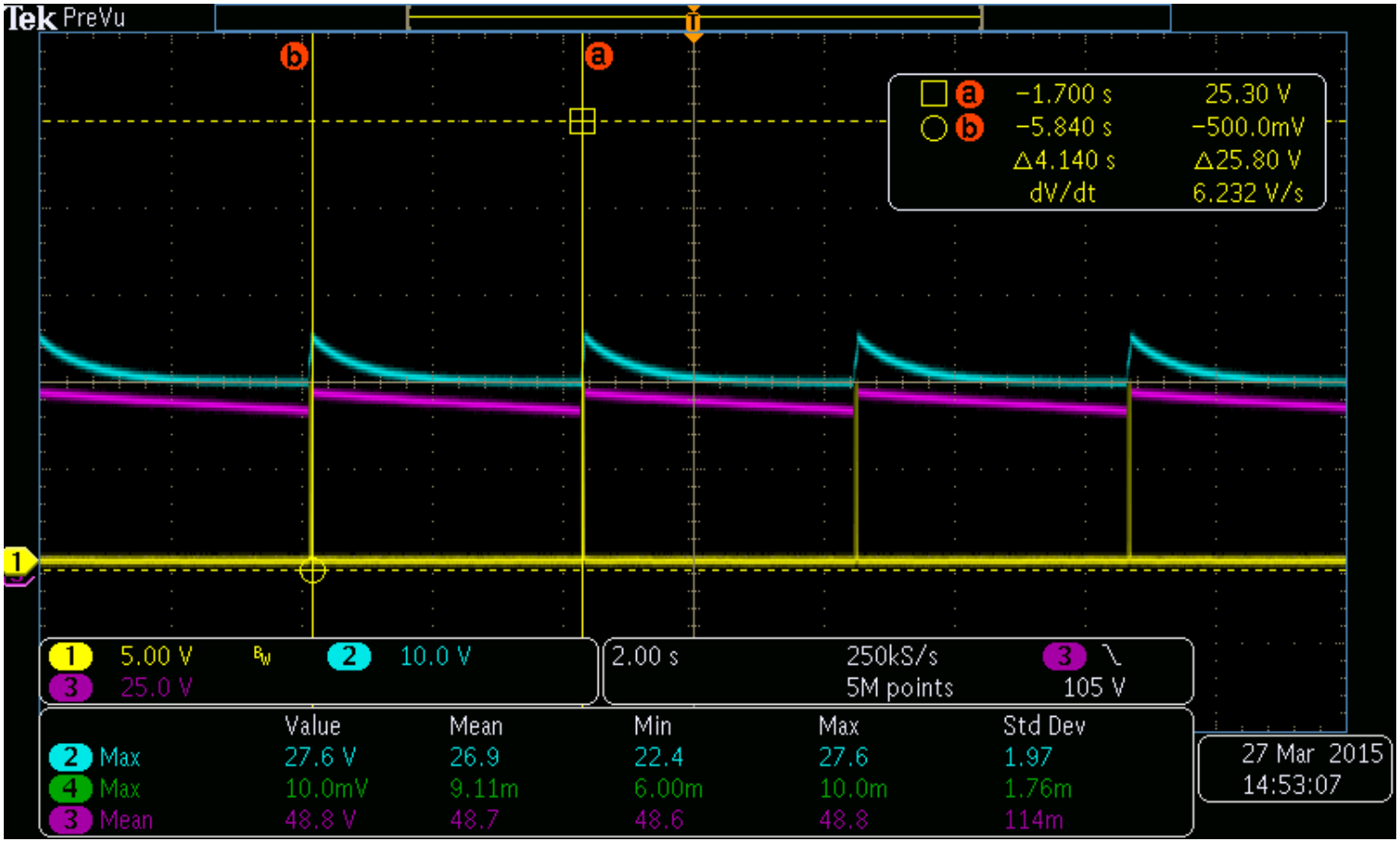
   Ipk-pk : 470mA ; Iavg : 1.3 A



CH4: Iout

Performance test

6. Open load test

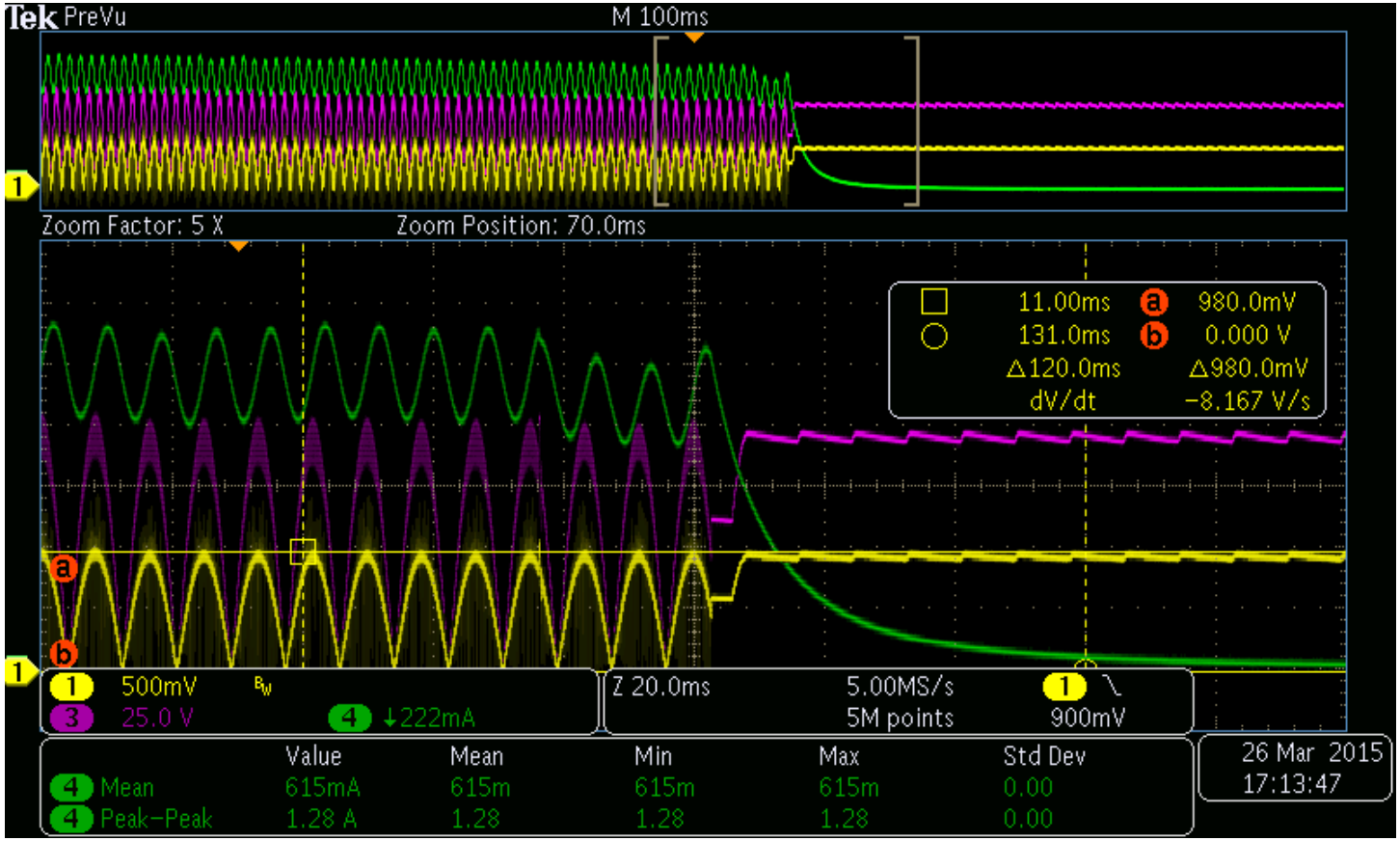


CH1:Drv
CH2: Vcc
CH3: Vout

Performance test

7. Brown-in and Brow-out test

   Shutdown at 70Vac input



CH1:Vs
CH3: Vbulk
CH4: Iout

Performance test

8. Thermal test

Test Condition : Vin=90Vac, Ta=25C
Mosfet (IPD60R380) : 55 C
Transformer core: 80 C
Transformer Winding: 86.5
Sec side rectifier (MUR460 x2pcs): 80.6 C

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THANKS!