PMP7772

PMP7772 Test Results

Literature Number:SNVU024

Non Sync Buck Regulator

TI reference design number: PMP 7772

(Formerly National Semiconductor design NSC0966)

Input: 20V to 27V DC
Output: 4.5V to 17V @ 1.4A

DC-DC Test Results

Table of Contents

1.0 Circuit Description

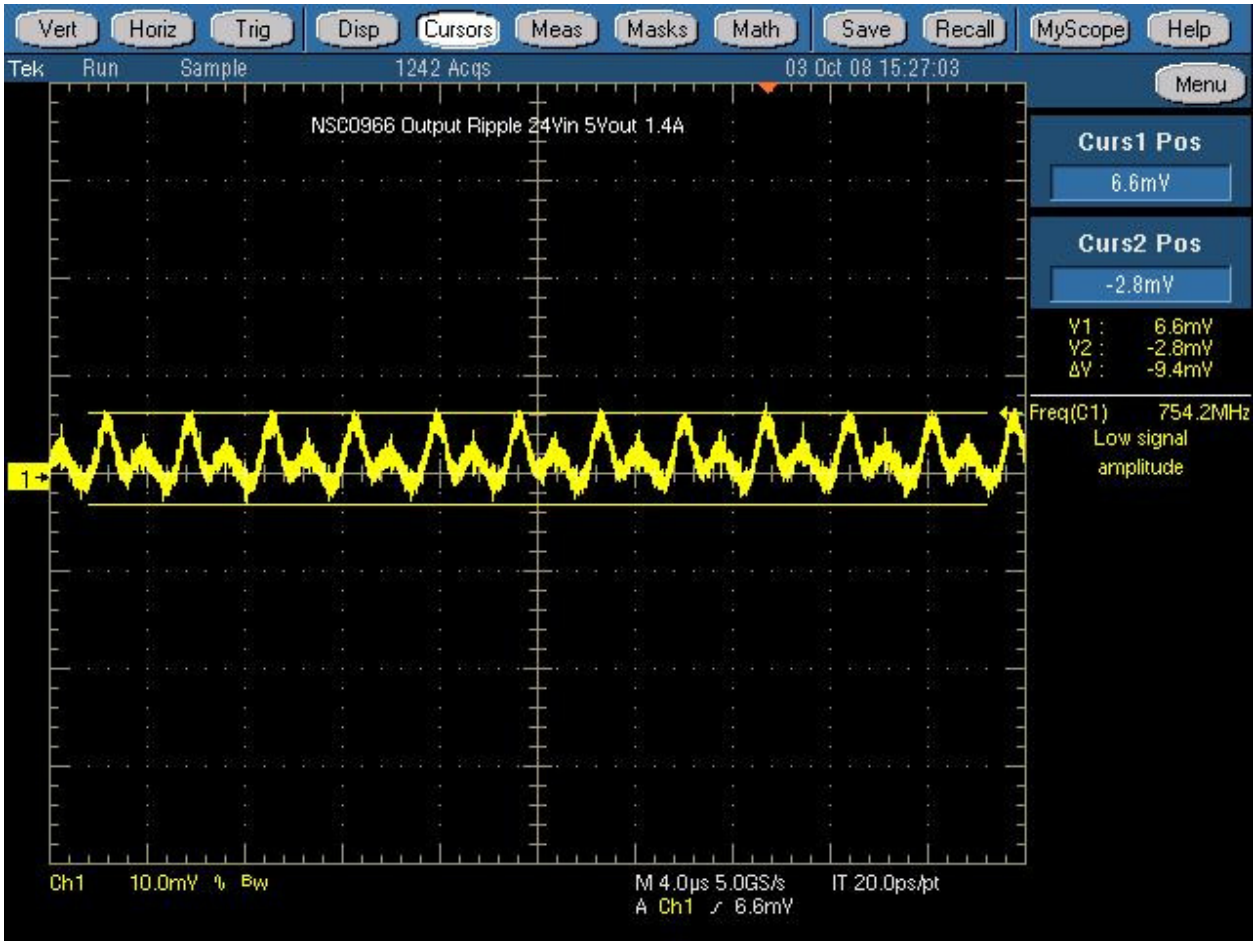
PMP7772 is a non sync buck regulator. It has an input of 20V to 27V and output of 4.5V to 17V @ 1.4A. LM5575 uses Emulated Current Mode control architecture which provides inherent line regulation, tight load transient response and ease of loop compensation without the usual limitation of low duty cycles associated with current mode regulators. It incorporates ADJ pin to smoothen the output voltage on the fly.

Some of the applications are:

- Automotive
- Industrial

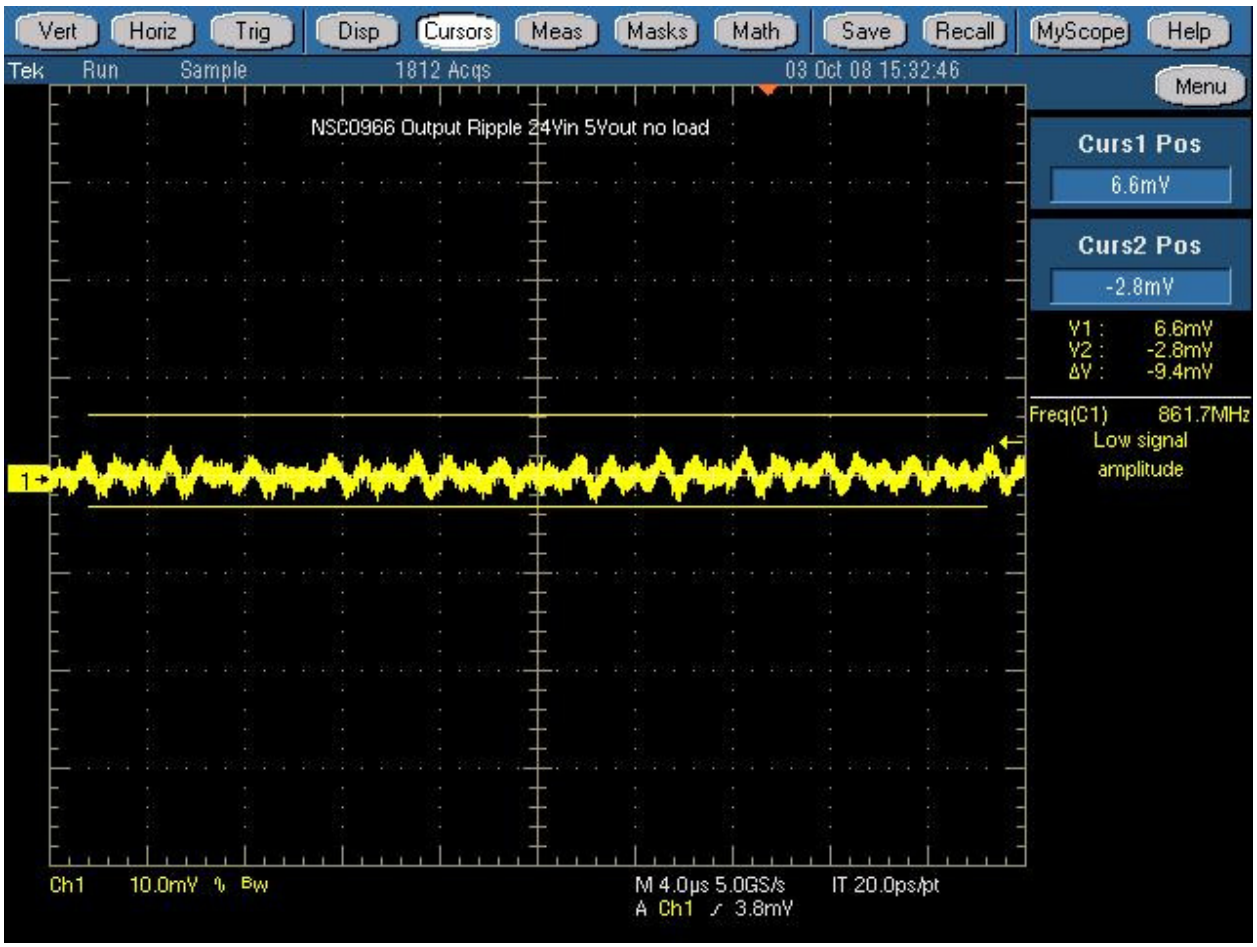
2.0 Waveforms

2.1 Output Ripple Vin = 24V, Vout = 5V Full Load



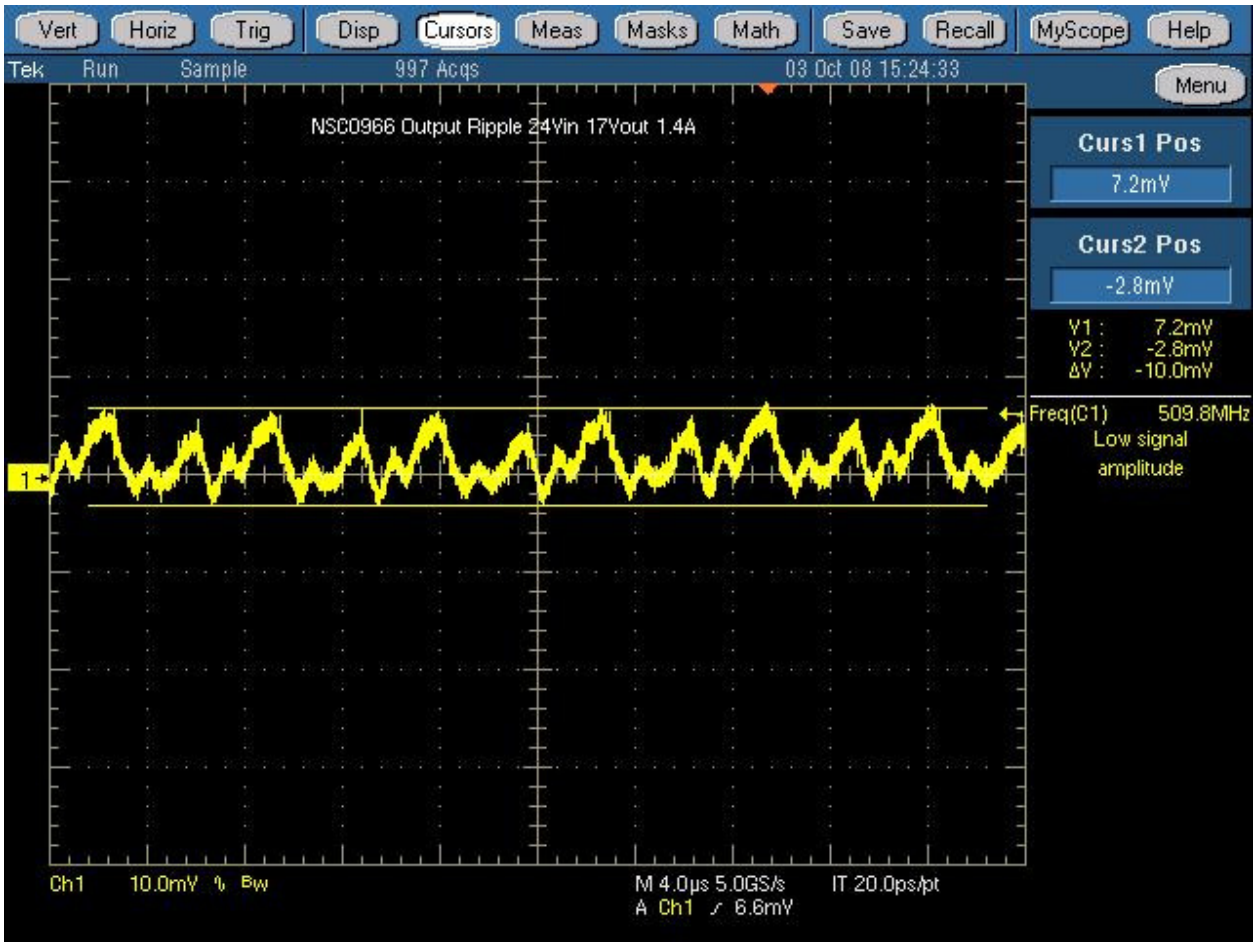
Output ripple voltage

2.2 Output Ripple Vin = 24V, Vout = 5V No Load



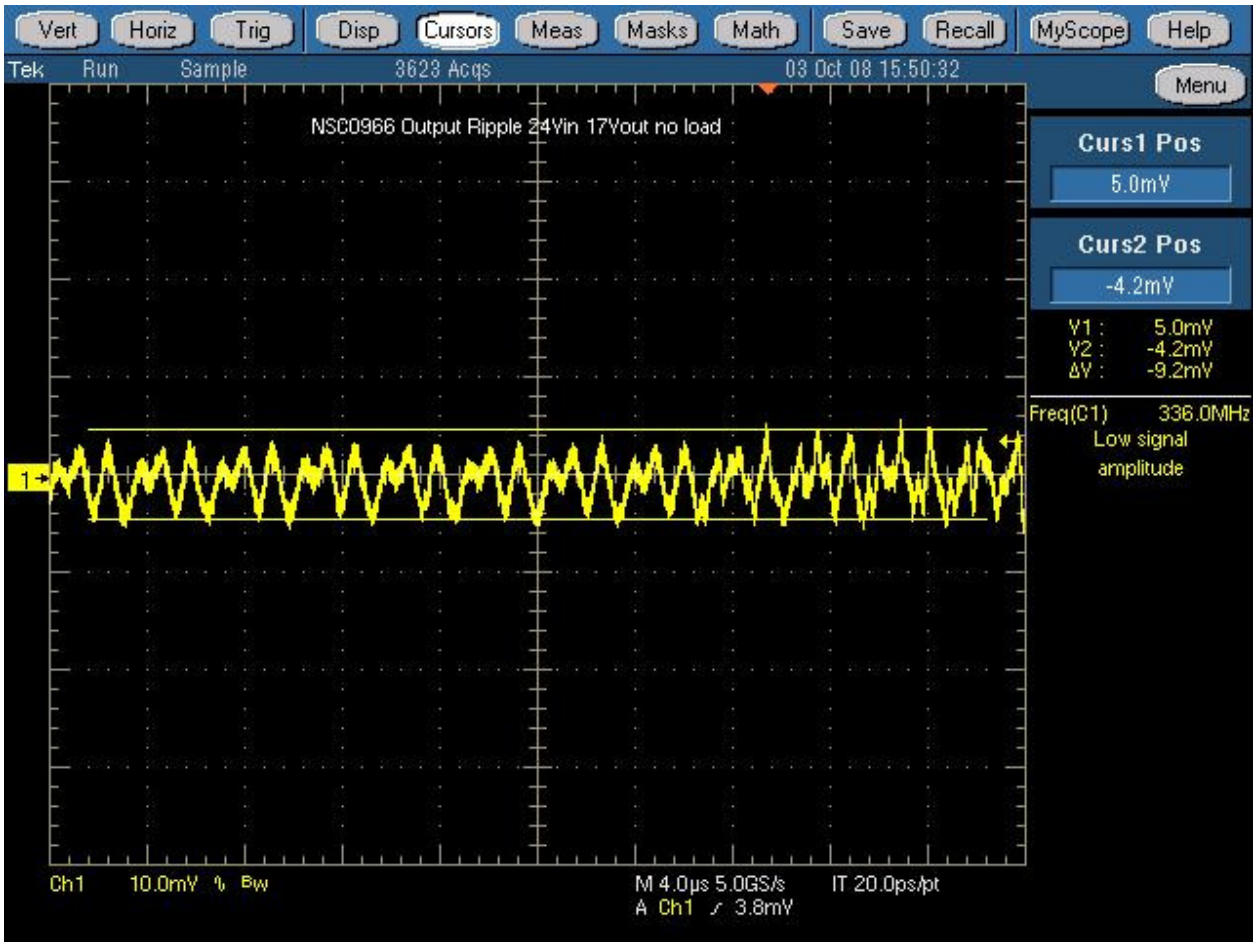
Output ripple voltage

2.3 Output Ripple Vin = 24V Vout = 17V Full Load



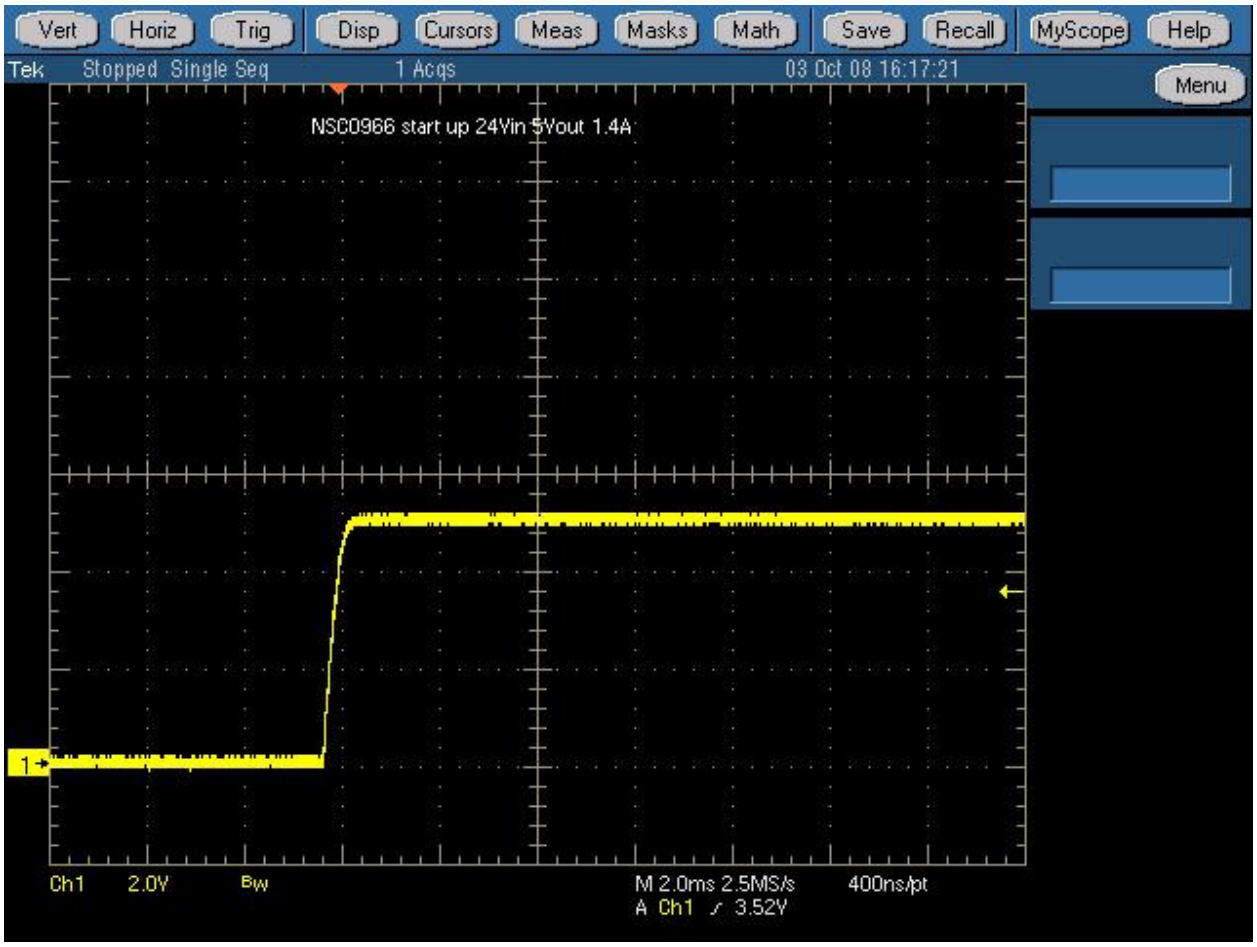
Output ripple voltage

2.4 Output Ripple Vin = 24V, Vout = 17V No Load



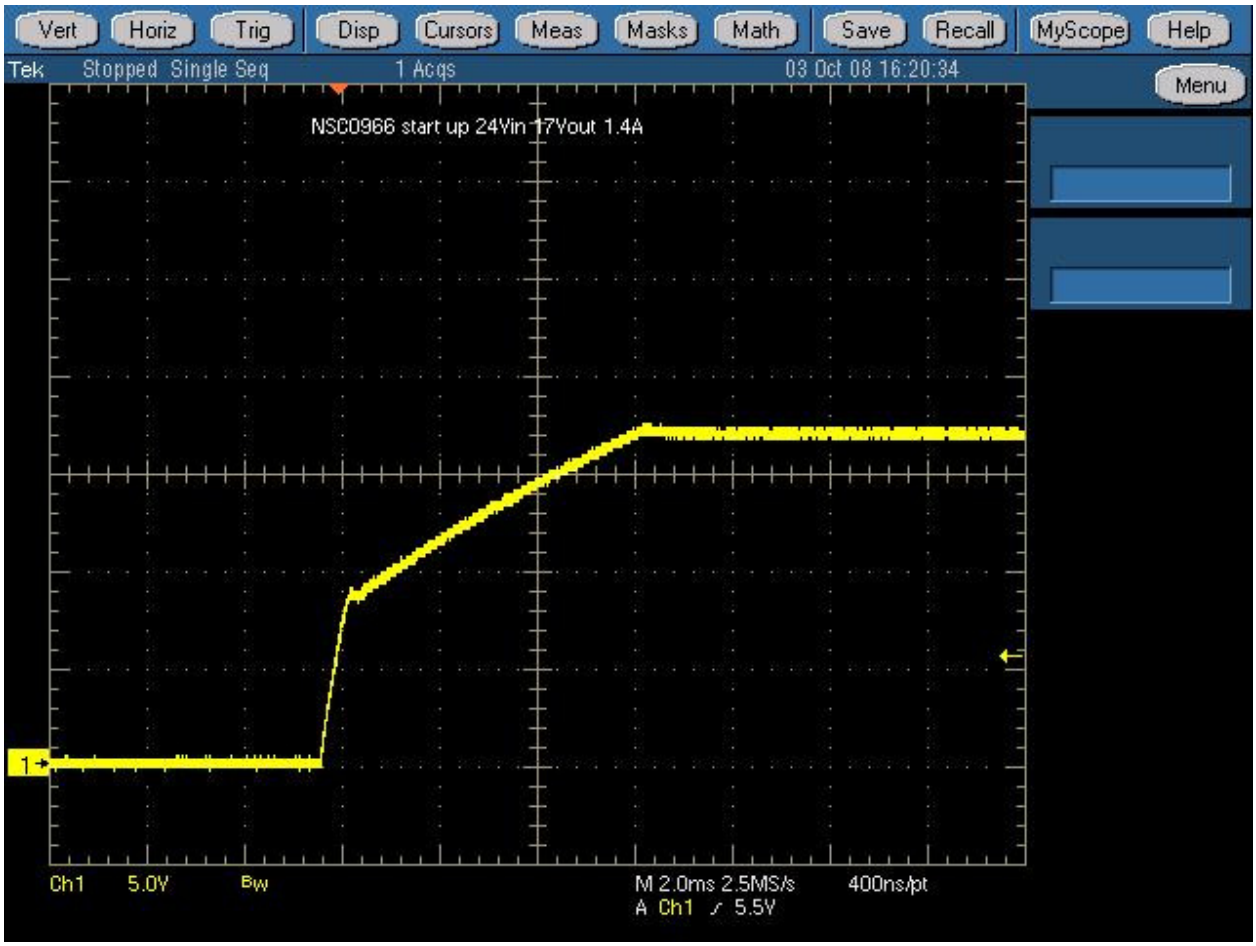
Output ripple voltage

2.5 Start up voltage Vin = 24V, Vout = 5V Full Load



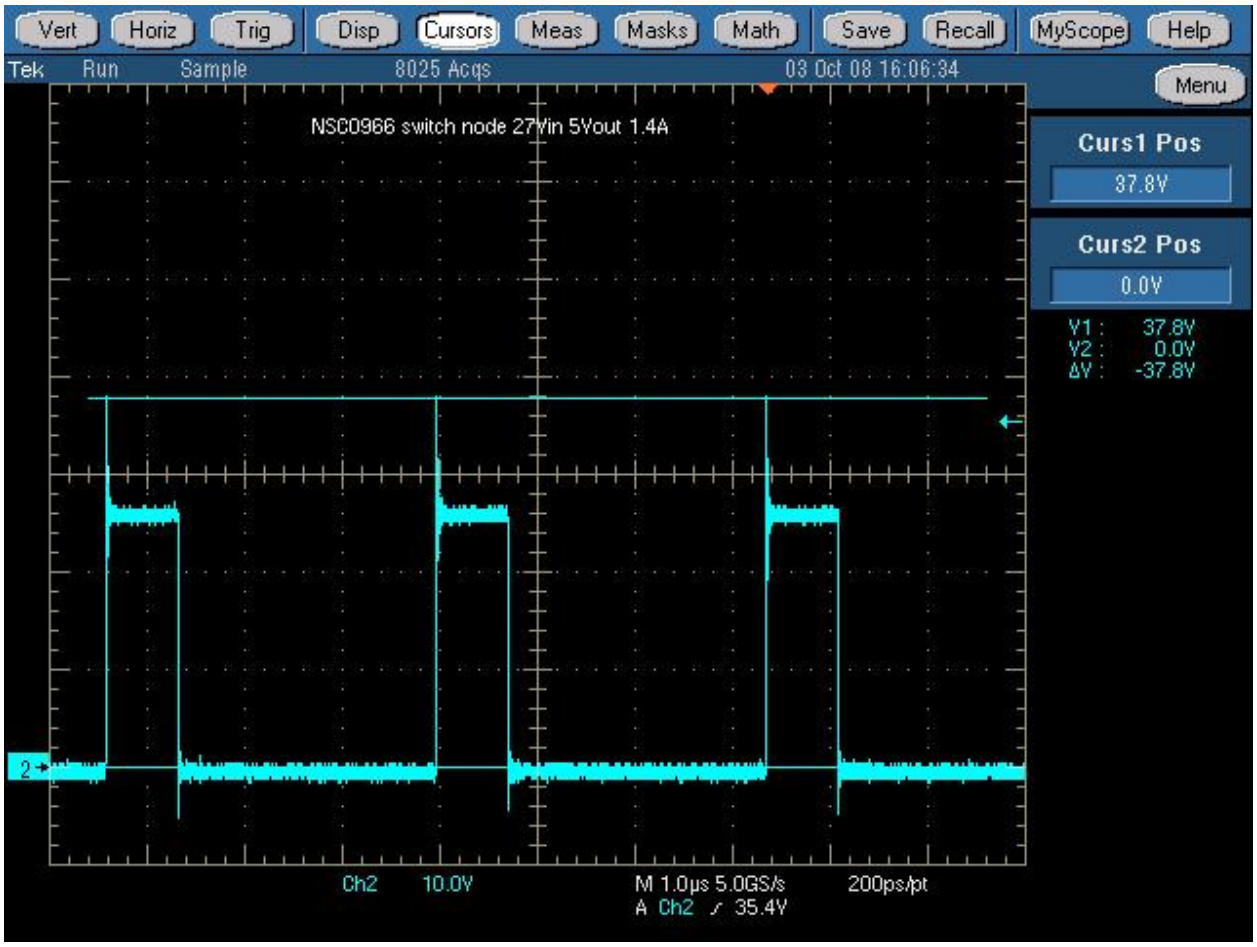
Start up voltage

2.6 Start up voltage Vin = 24V, Vout = 17V Full Load



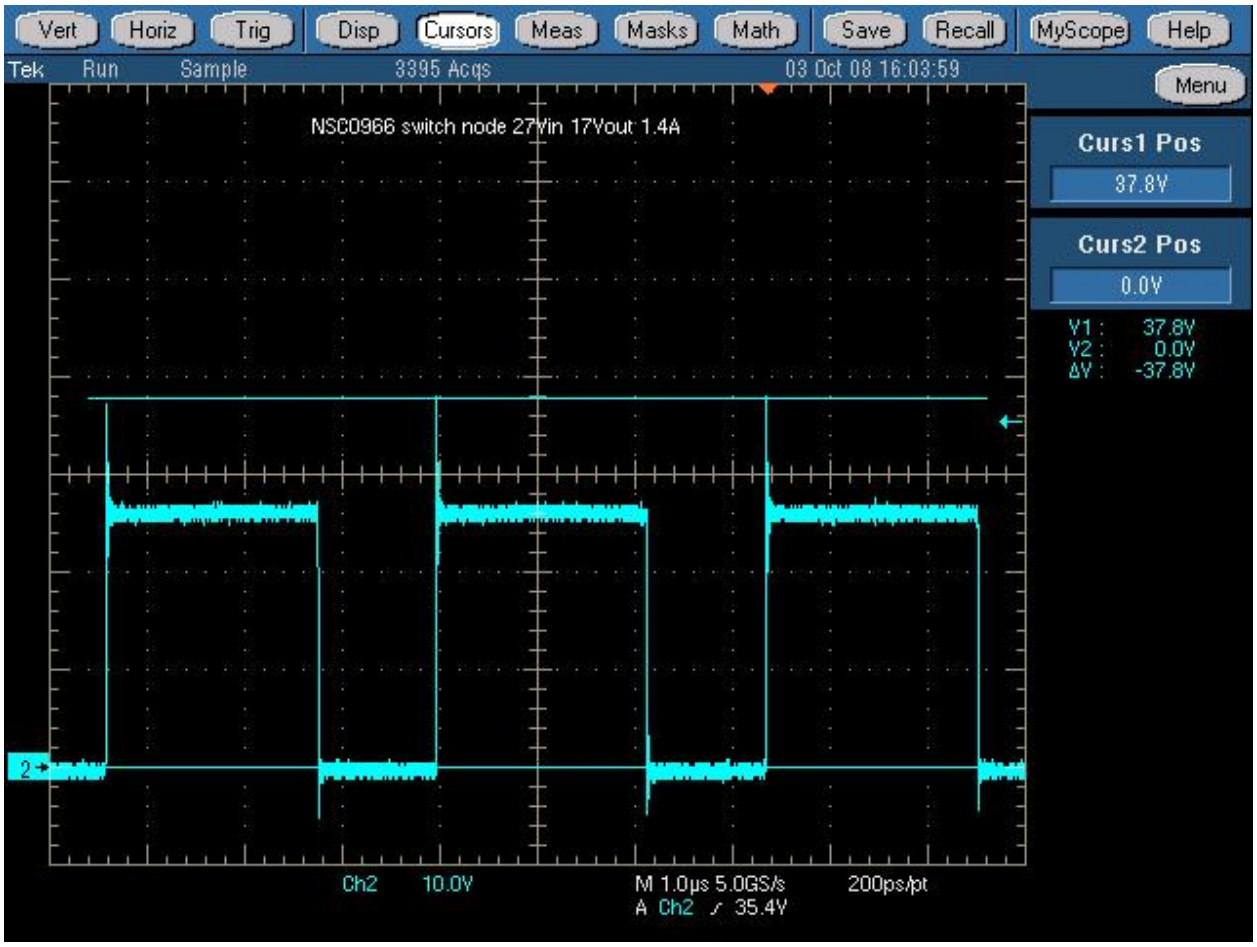
Start up voltage

2.7 Switch node voltage Vin = 27V, Vout = 5V Full Load



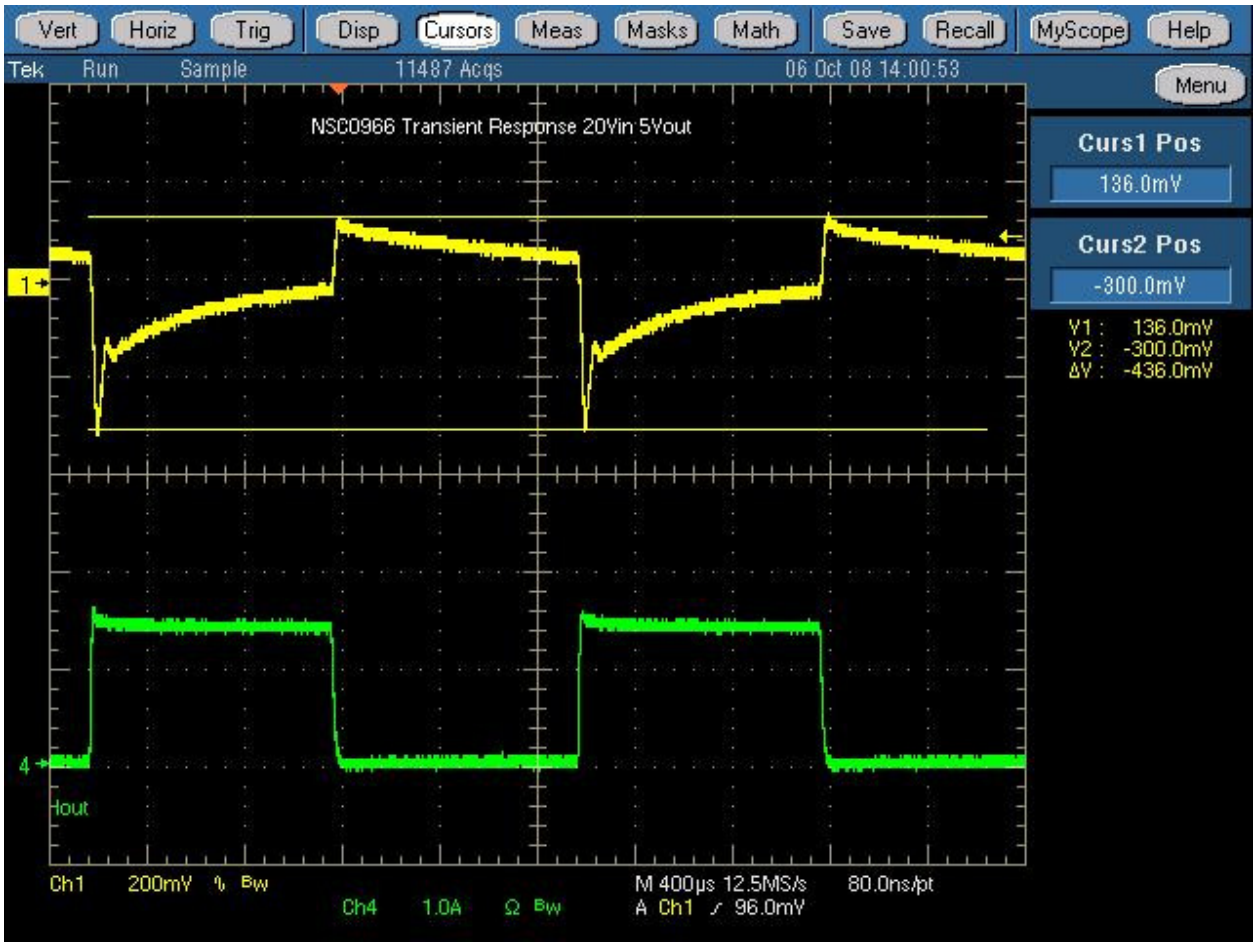
Switch node voltage

2.8 Switch node voltage Vin = 27V, Vout = 17V Full Load



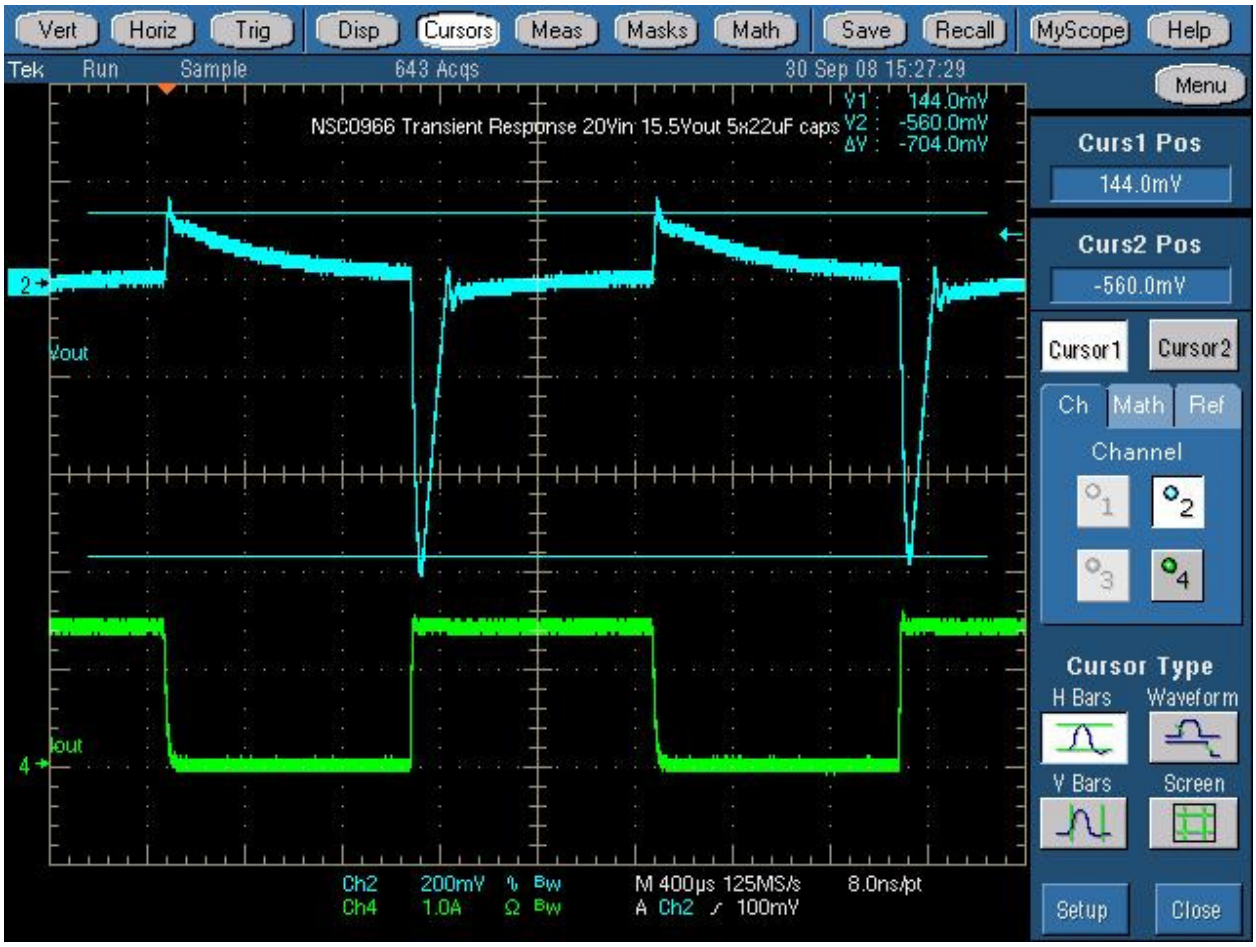
Switch node voltage

2.9 Transient response Vin = 20V, Vout = 5V



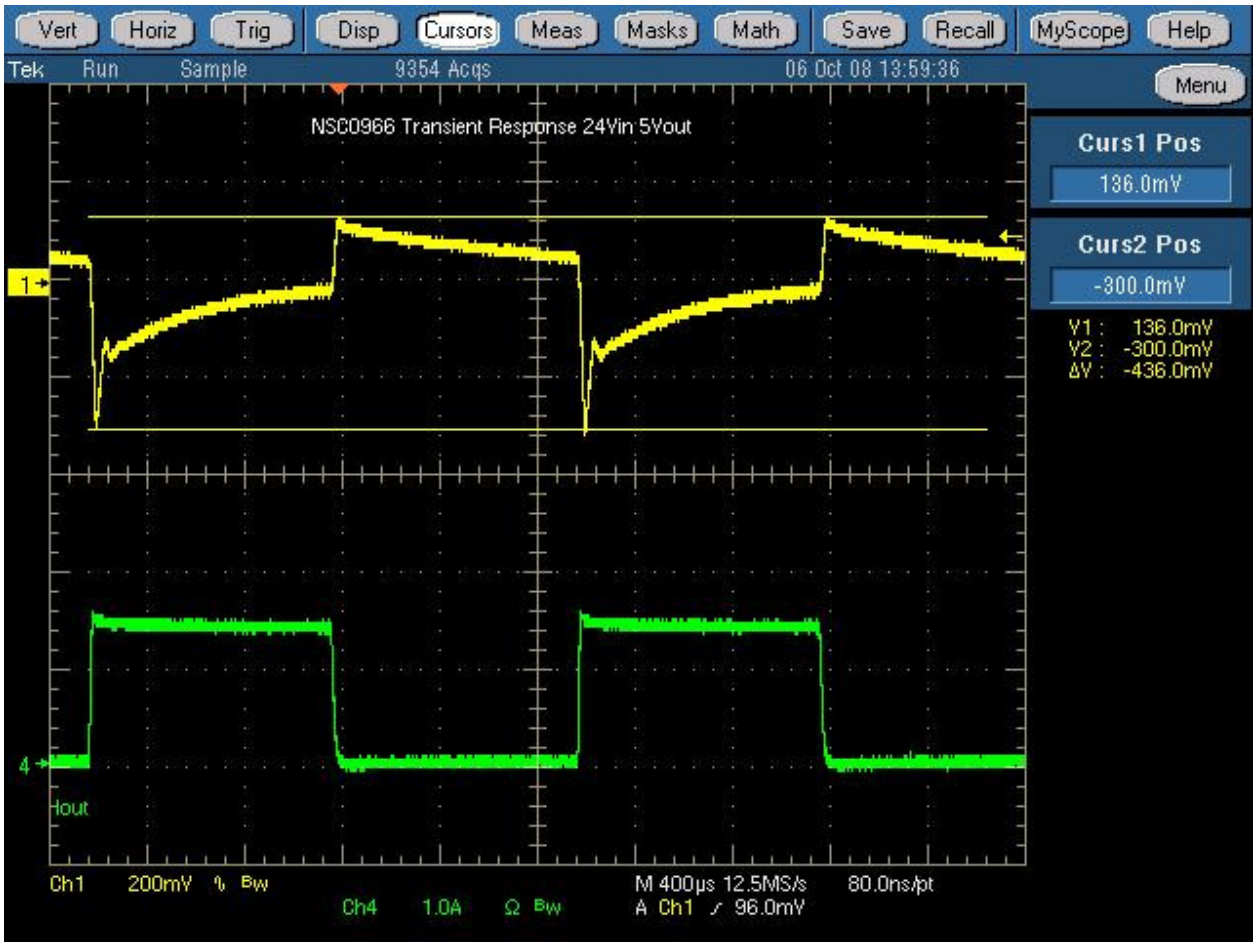
Output voltage
Output current

2.10 Transient response Vin = 20V, Vout = 15.5V



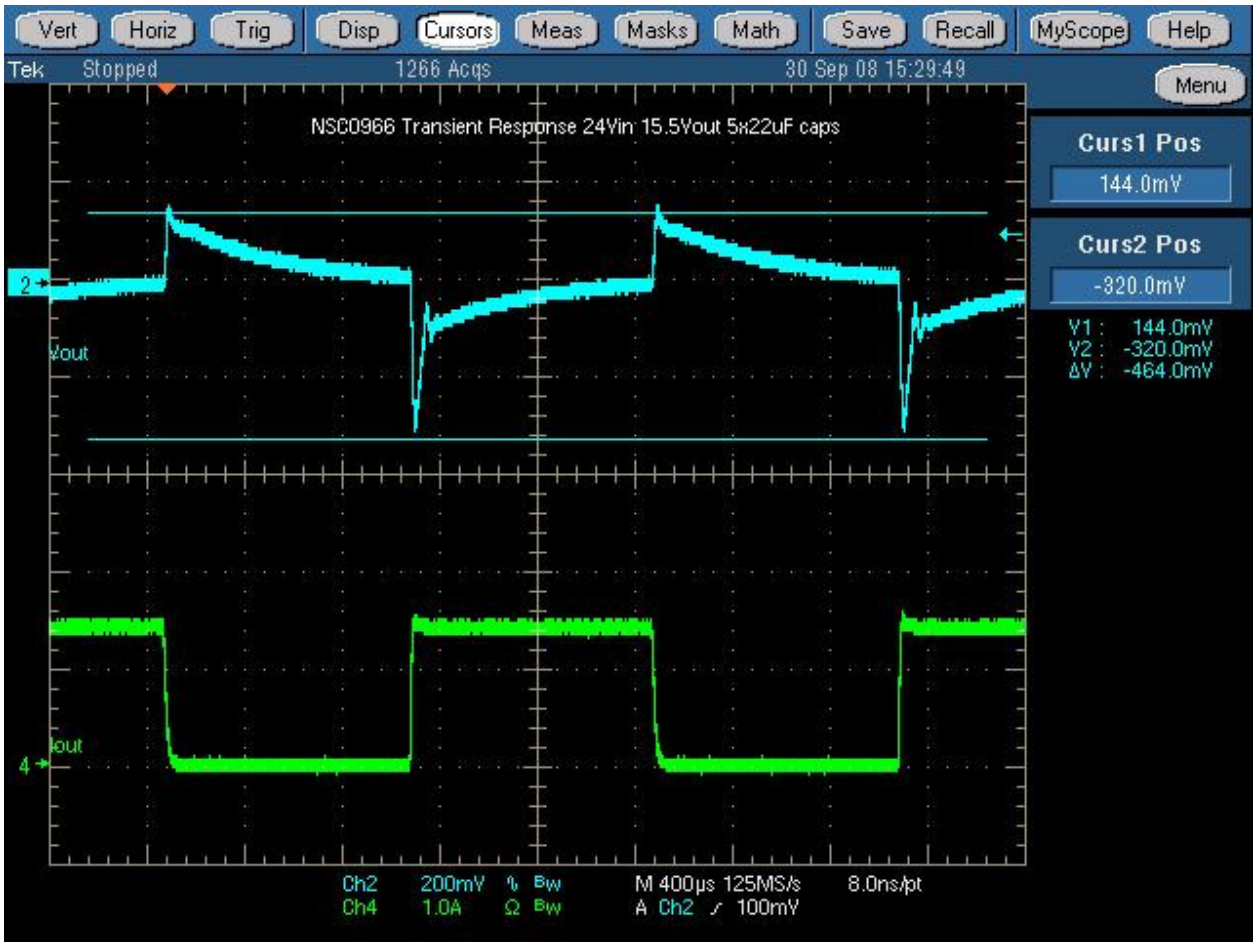
Output voltage
Output current

2.11 Transient response Vin = 24V, Vout = 5V



Output voltage
Output current

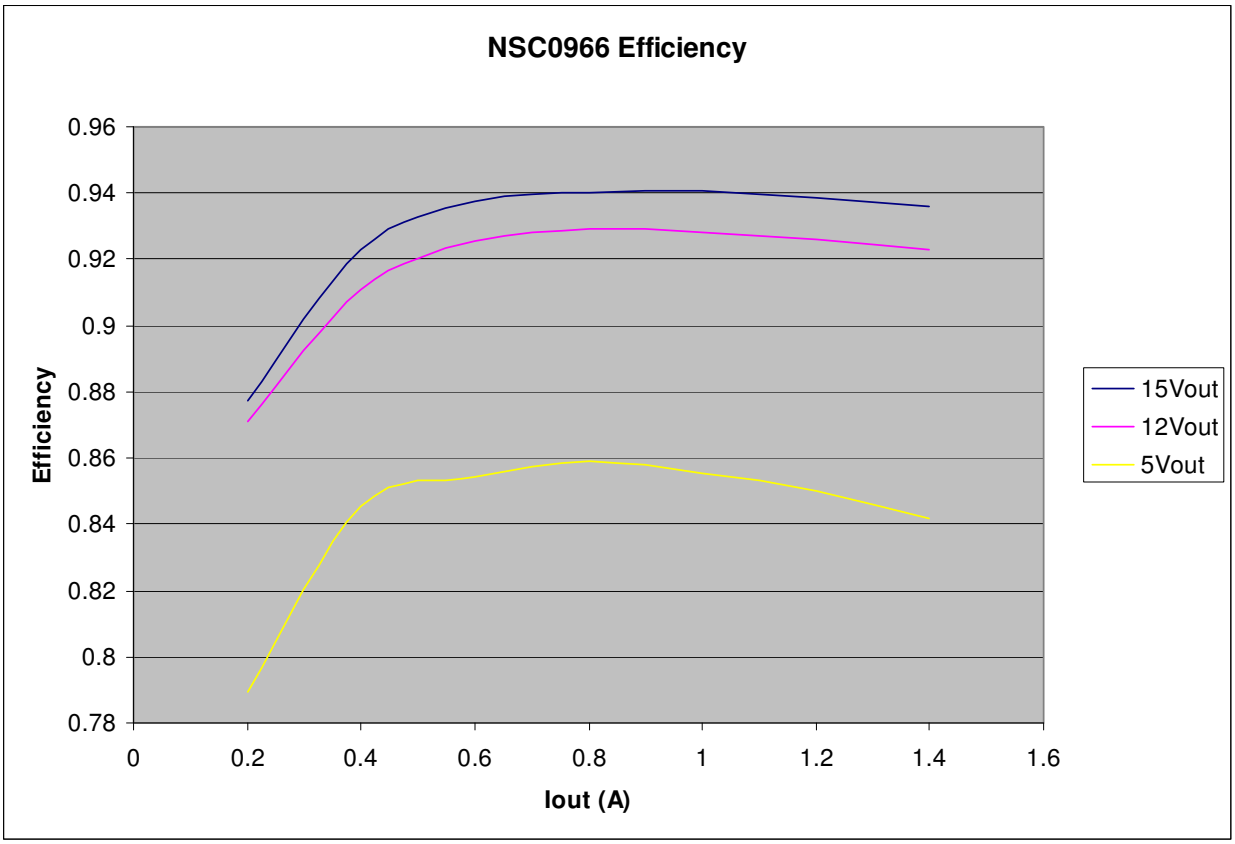
2.12 Transient response Vin = 24V, Vout = 15.5V



Output voltage
Output current

3.0 Efficiency results

Vin (V)	Iin (A)	Vout (V)	Iout (A)	Efficiency
23.990	0.053	5.0180	0.2	0.789323
23.984	0.099	5.0180	0.4	0.845345
23.978	0.147	5.0190	0.6	0.854355
23.972	0.195	5.0200	0.8	0.859122
23.966	0.245	5.0210	1.0	0.855123
23.959	0.296	5.0230	1.2	0.849932
23.953	0.349	5.0250	1.4	0.841548
23.982	0.115	12.008	0.2	0.870798
23.969	0.220	12.009	0.4	0.910949
23.956	0.325	12.011	0.6	0.925620
23.943	0.432	12.013	0.8	0.929136
23.930	0.541	12.015	1.0	0.928077
23.916	0.651	12.017	1.2	0.926206
23.902	0.763	12.020	1.4	0.922728
23.978	0.143	15.037	0.2	0.877086
23.963	0.272	15.040	0.4	0.922992
23.946	0.402	15.042	0.6	0.937557
23.930	0.535	15.044	0.8	0.940063
23.914	0.669	15.046	1.0	0.940465
23.897	0.805	15.049	1.2	0.938749
23.880	0.943	15.052	1.4	0.935785


NSC0966 Efficiency
Efficiency
0.96
0.94
0.92
0.9
0.88
0.86
0.84
0.82
0.8
0.78
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
Iout (A)
15Vout
12Vout
5Vout

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