

PMP7764

PMP7764 Test Results



Literature Number:SNVU016

Non Isolated Flyback DC-DC Converter

TI reference design number: PMP 7764
(Formerly National Semiconductor design NSC1011)

Input: 30 V to 800V DC
Output: 20V @ 250mA

DC-DC Test Results

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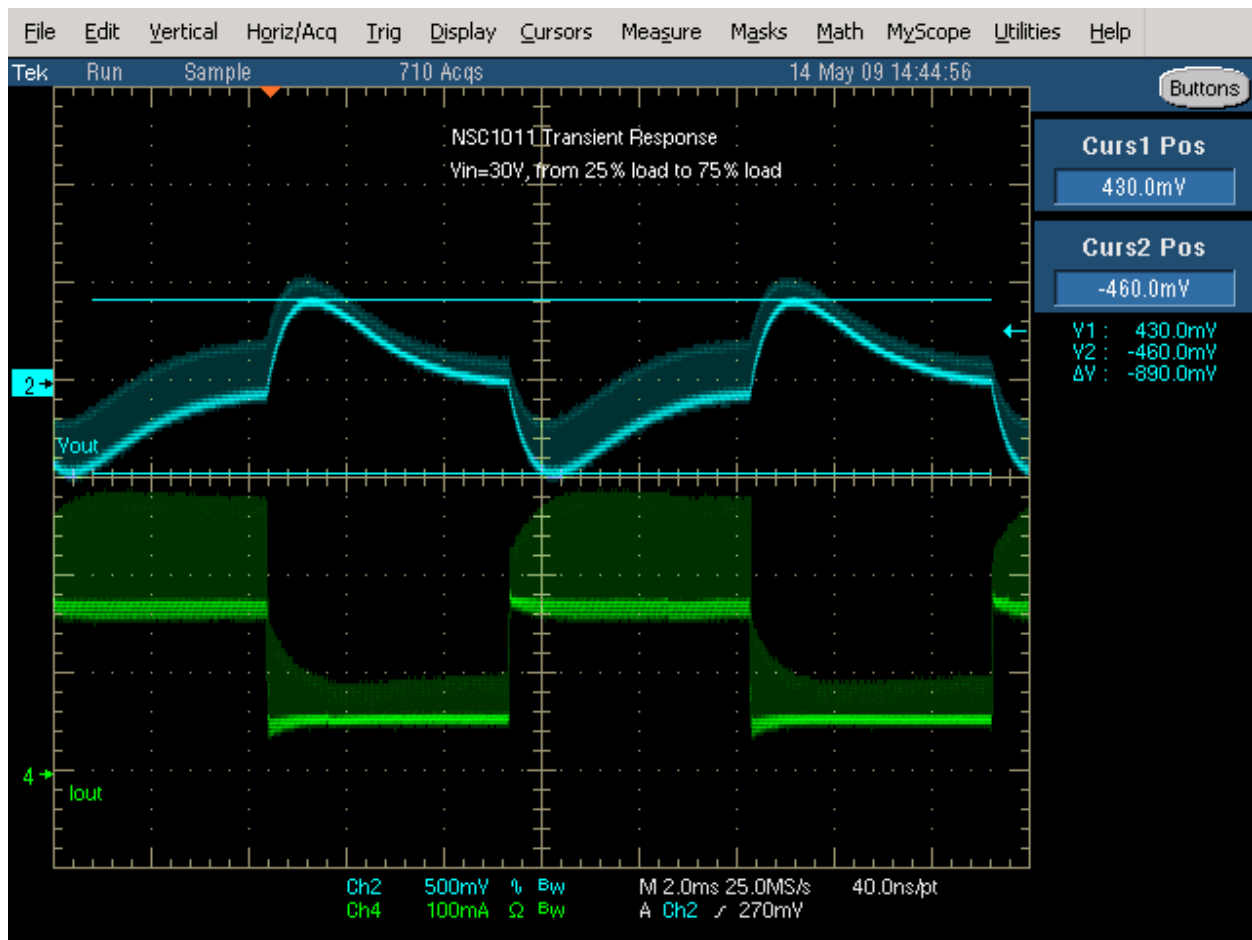
1.0 Circuit Description

PMP7764 is a non-isolated flyback converter. The input voltage ranges from 30V to 800V DC. The output is 20V @ 250mA. It has a high voltage hold off circuit.

It uses LM5022 where output voltage regulation is based on current-mode control, which eases the design of loop compensation while providing inherent input voltage feed-forward. Additional features in this part include an error amplifier, precision reference, line under-voltage lockout, cycle-by-cycle current limit, slope compensation, soft-start, external synchronization capability and thermal shutdown.

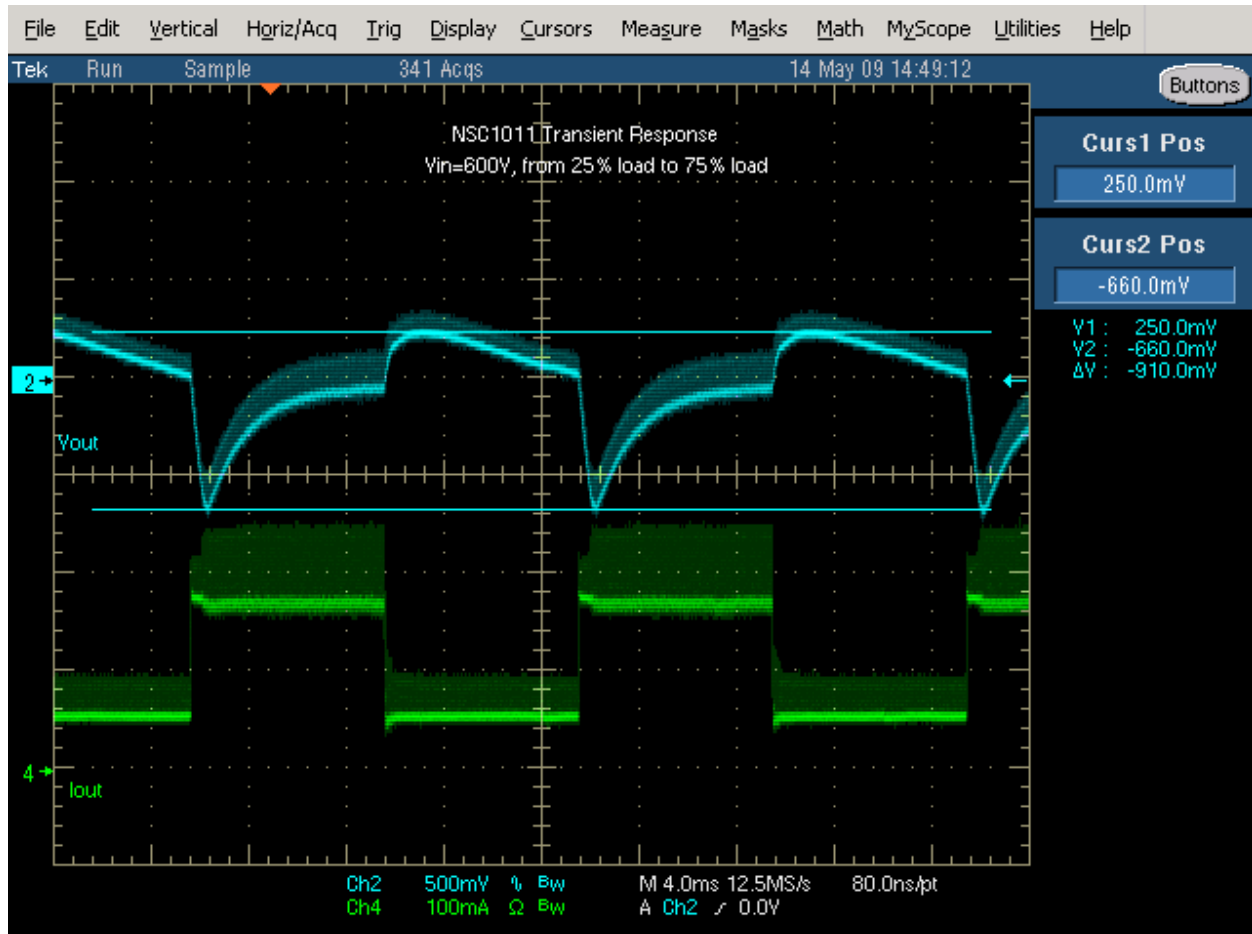
2.0 Waveforms

2.1 Transient response $V_{in} = 30V$



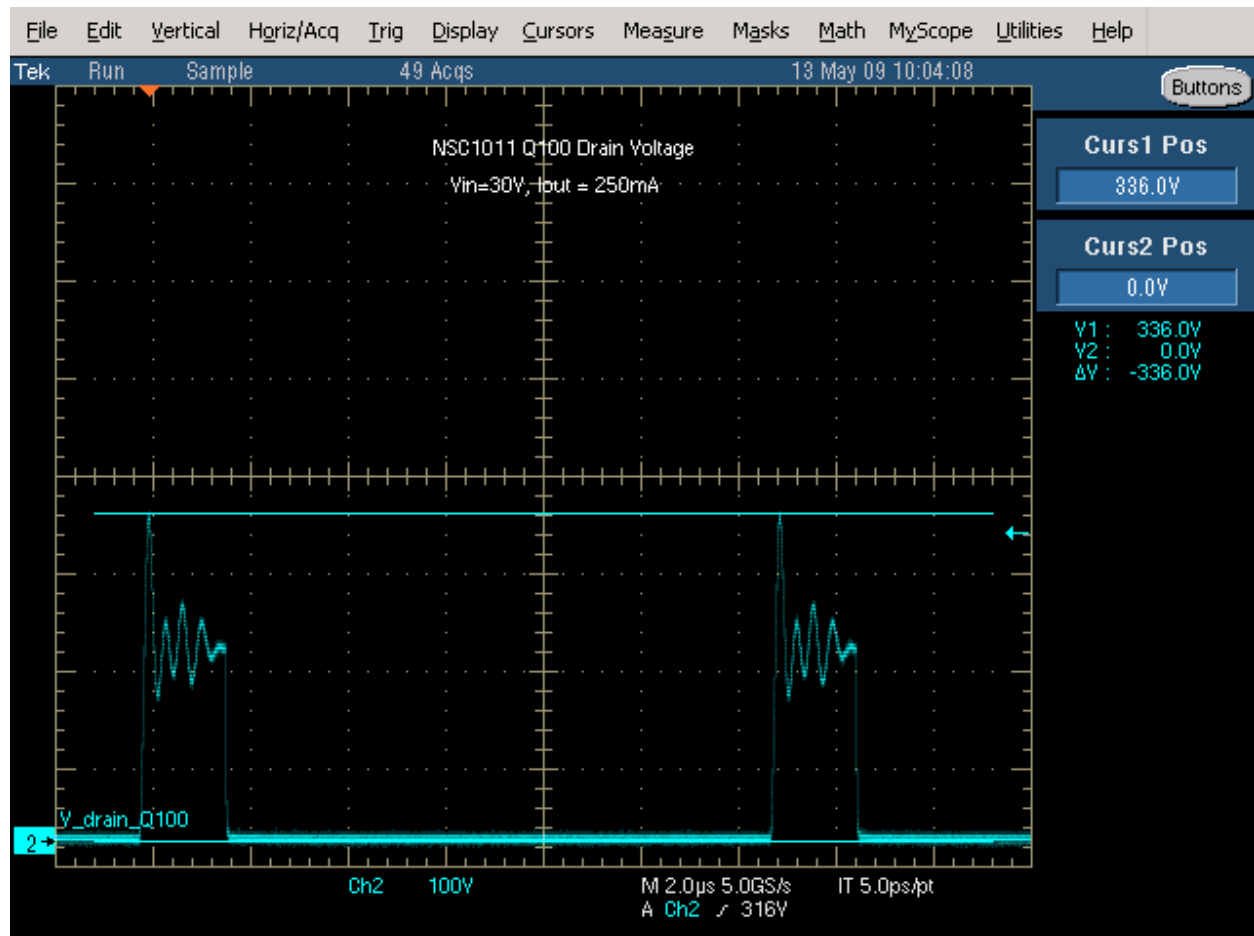
■ Output voltage
■ Output current

2.2 Transient response $V_{in} = 600V$



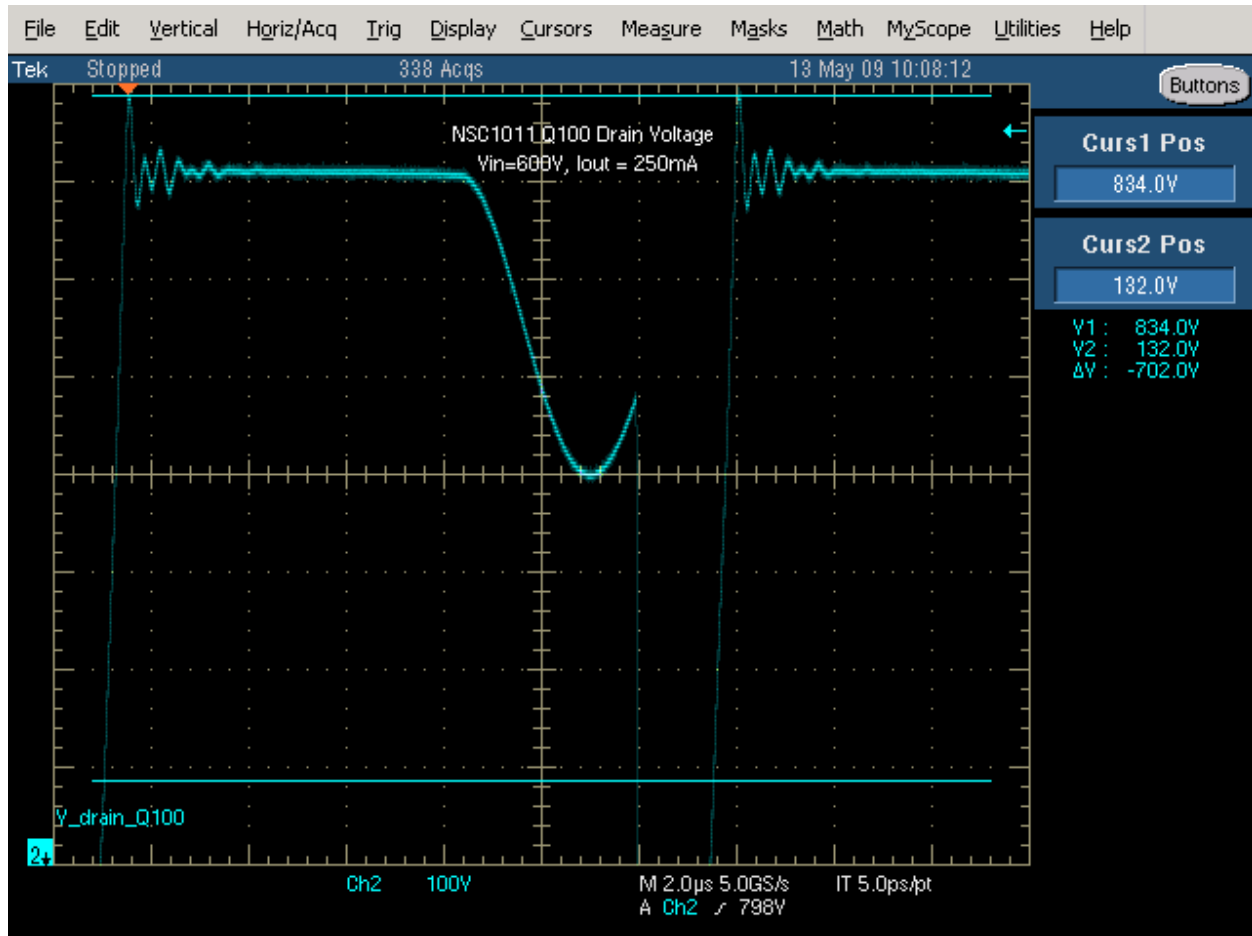
■ Output voltage
■ Output current

2.3 Drain voltage $V_{in} = 30V$



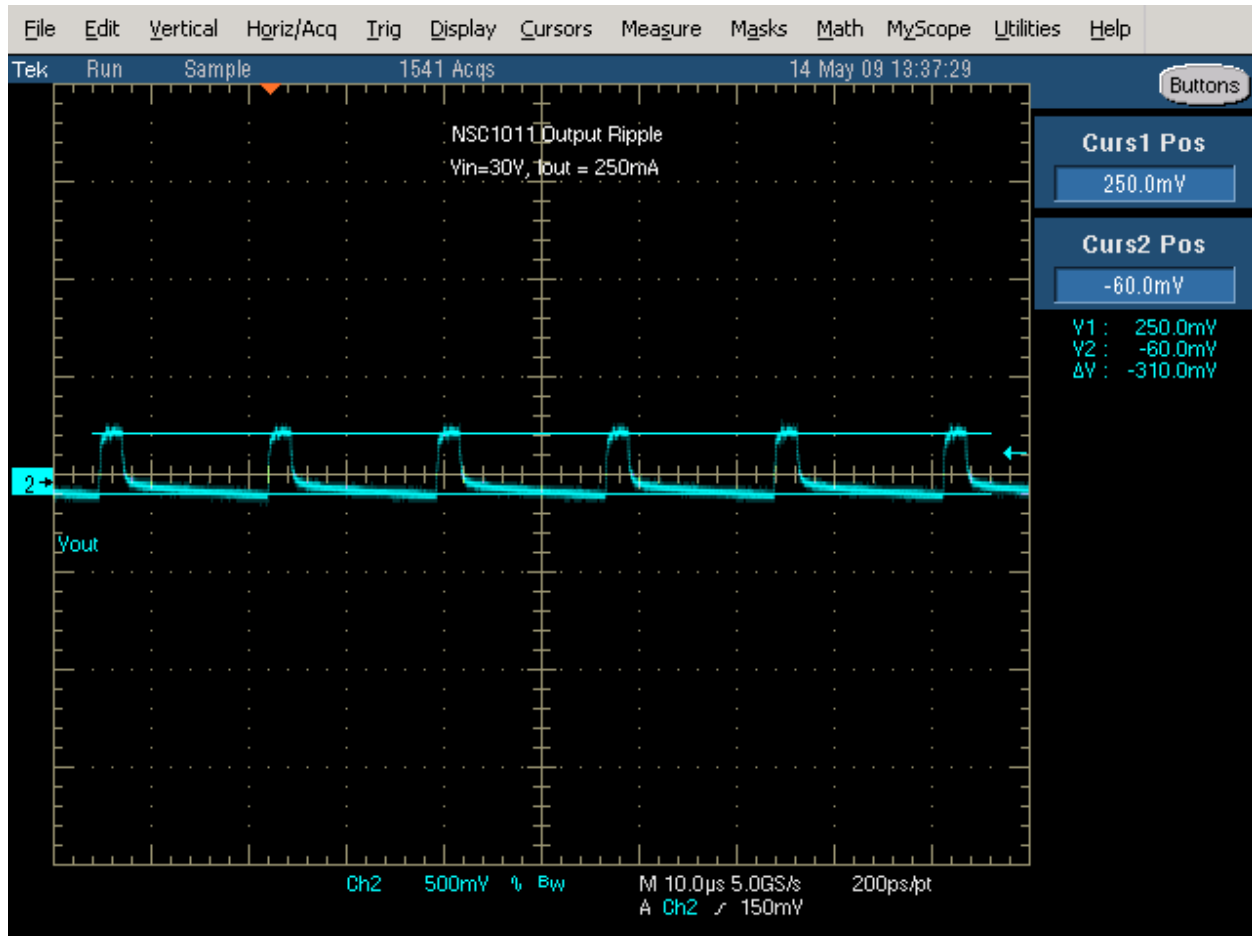
■ Drain voltage

2.4 Drain voltage $V_{in} = 600V$



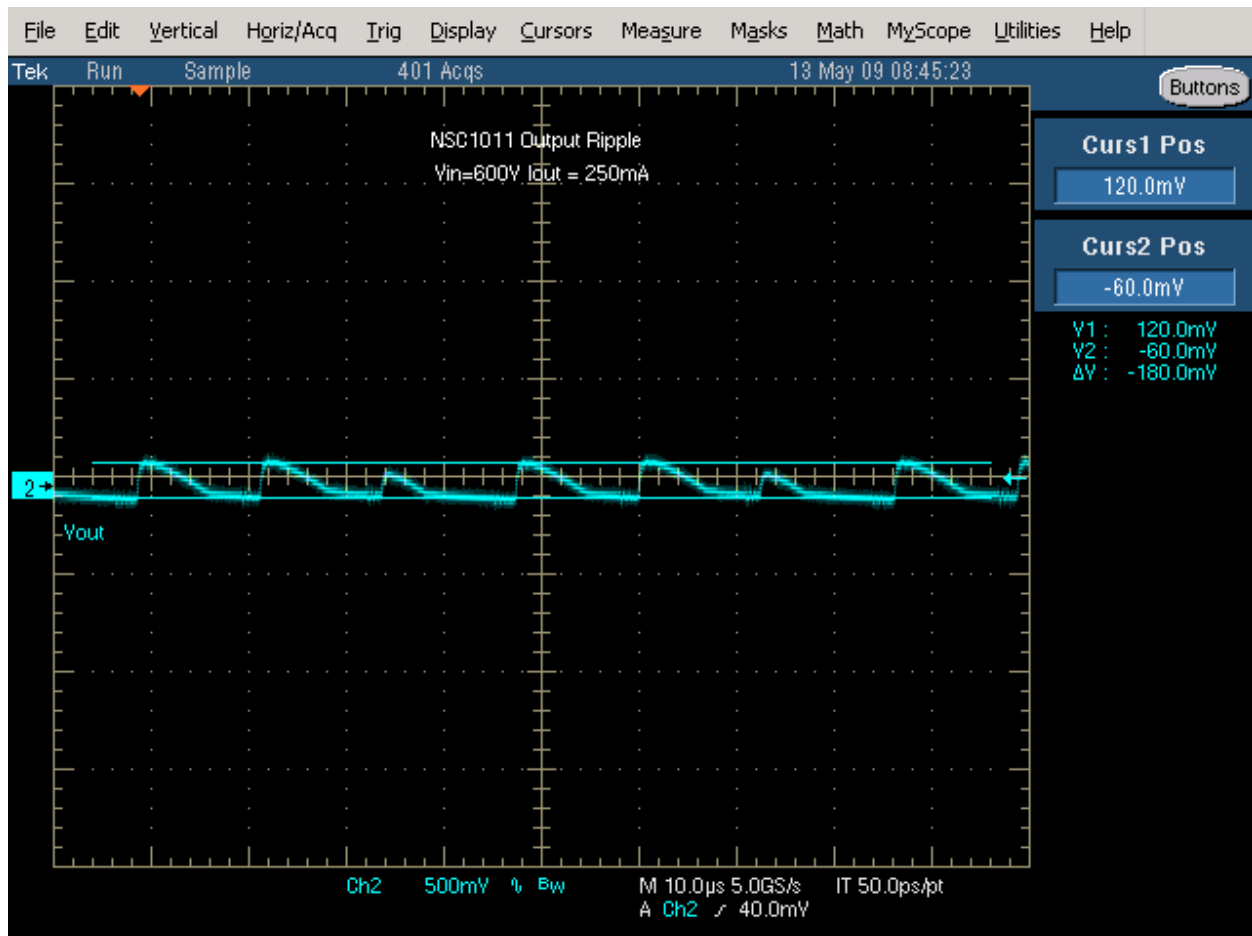
■ Drain voltage

2.5 Output Ripple voltage $V_{in} = 30V$, $I_{out} = 250mA$



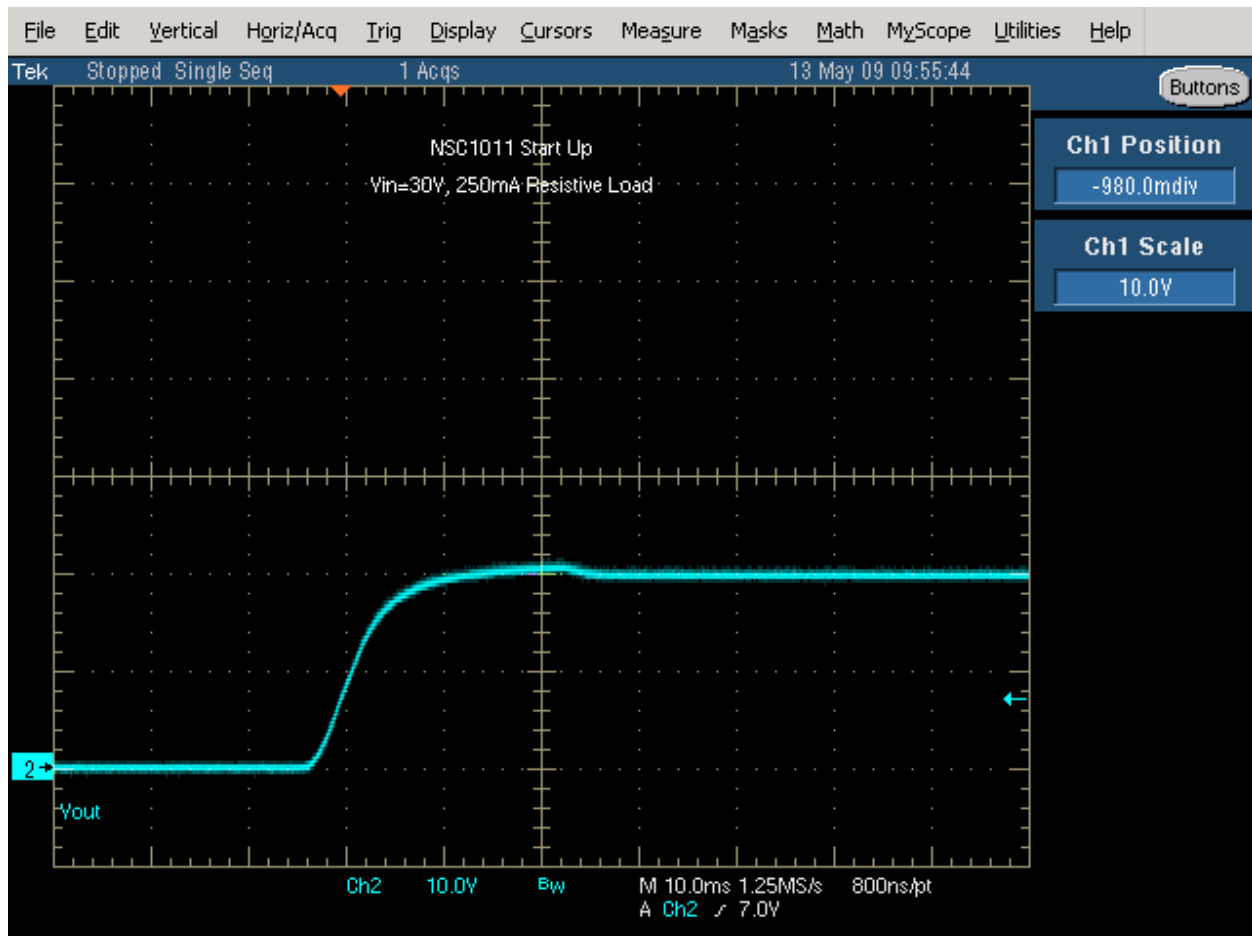
■ Output ripple

2.6 Output Ripple voltage $V_{in} = 600V$, $I_{out} = 250mA$



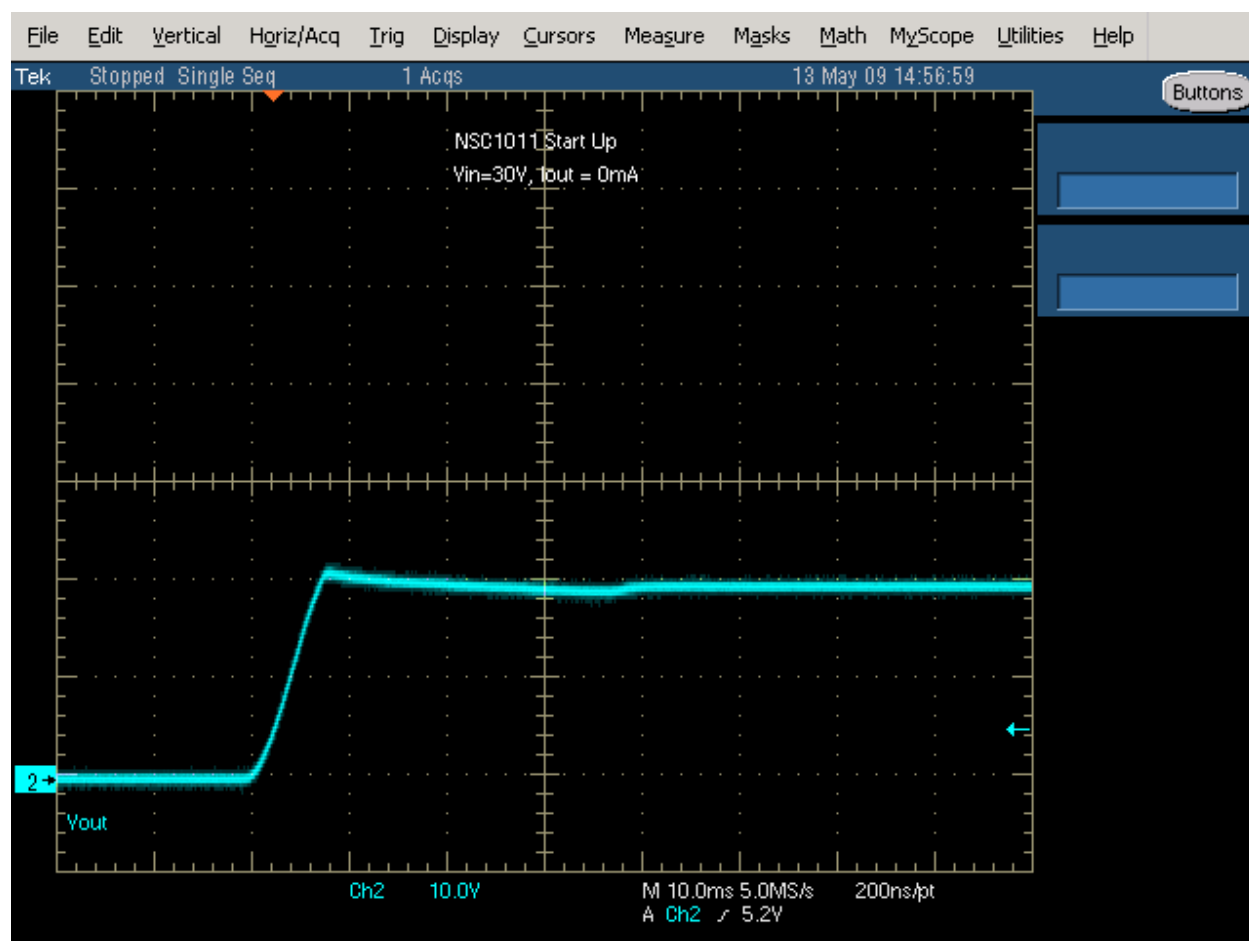
■ Output ripple

2.7 Start up $V_{in} = 30V$ Full Load



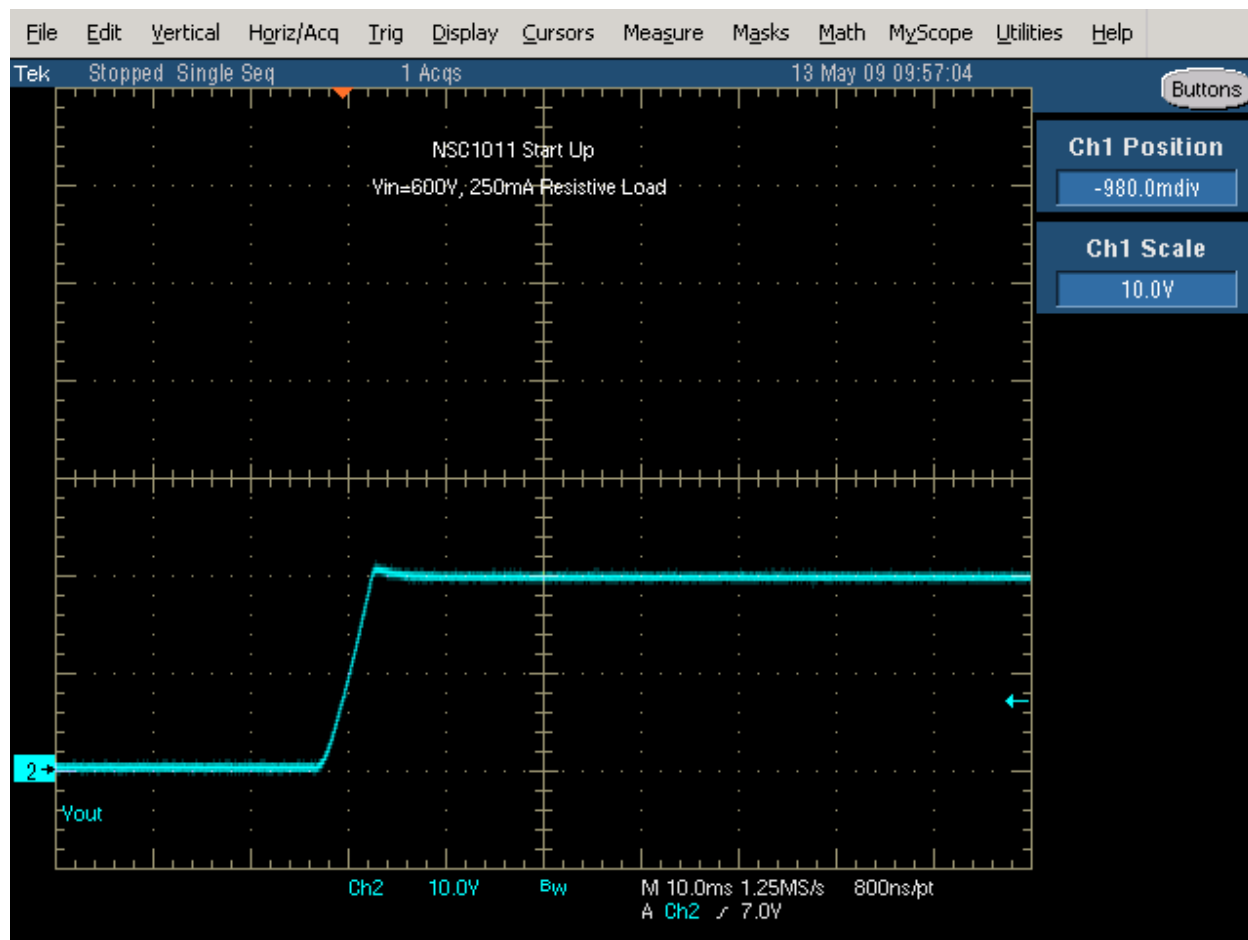
■ Start up voltage

2.8 Start up $V_{in} = 30V$ No Load



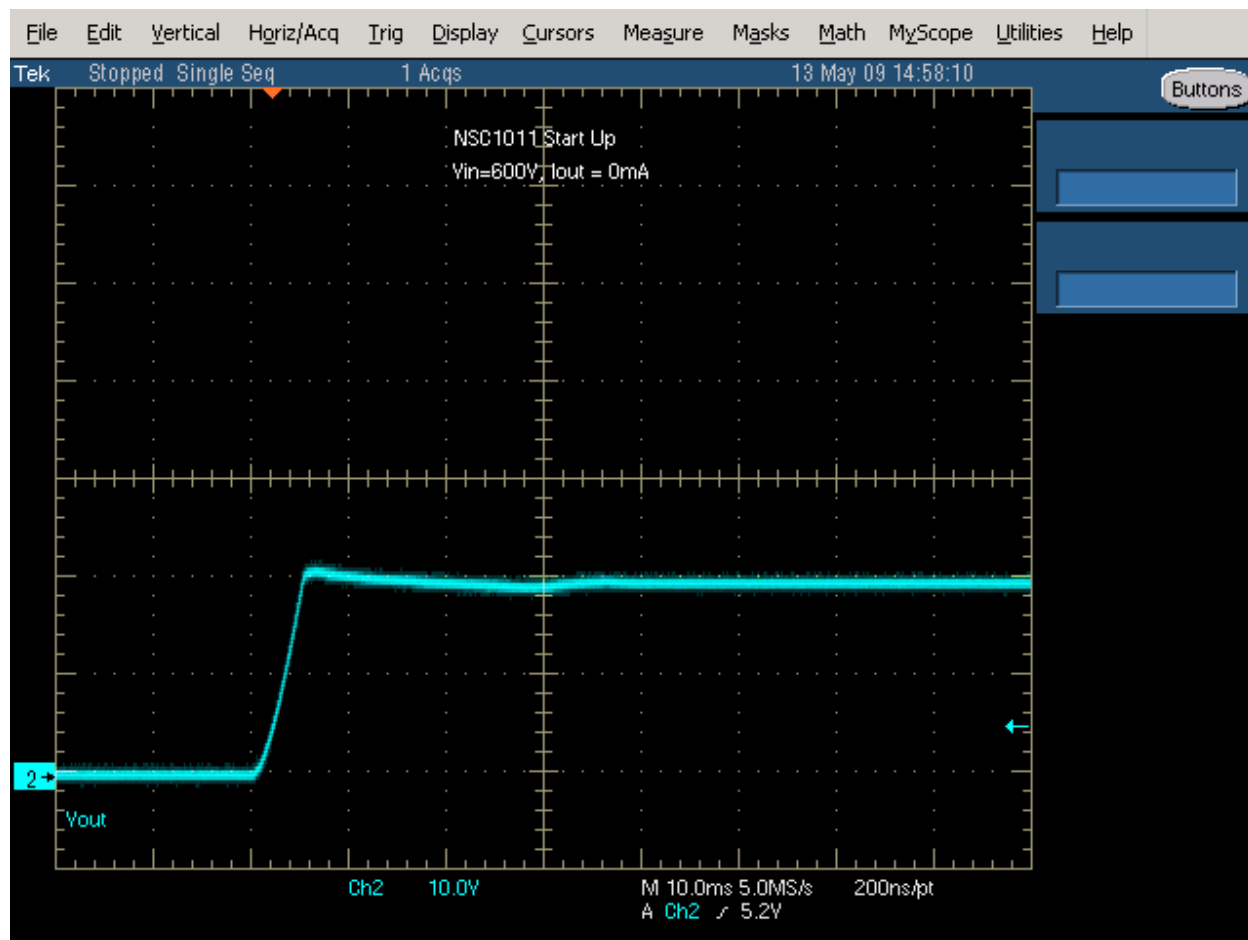
■ Start up voltage

2.9 Start up $V_{in} = 600V$ Full Load



■ Start up voltage

2.10 Start up Vin = 600V No Load



■ Start up voltage

3.0 Efficiency results

Vin (V)	Iin (mA)	Vout (V)	Iout (mA)	Efficiency	Vin (V)	Iin (mA)	Vout (V)	Iout (mA)	Efficiency
30.140	42.000	19.800	50.000	78.2	600.000	5.000	19.800	50.000	33.0
30.140	81.000	19.800	100.000	81.1	600.000	7.000	19.800	100.000	47.1
30.130	121.000	19.800	150.000	81.5	600.000	9.000	19.800	150.000	55.0
30.130	165.000	19.800	200.000	79.7	600.000	11.000	19.800	200.000	60.0
30.170	214.000	19.800	250.000	76.7	600.000	12.000	19.800	250.000	68.8

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