

PMP7758

PMP7758 Test Results



Literature Number:SNVU010

Non Sync Buck Controller

TI reference design number: PMP 7758

(Formerly National Semiconductor design NSC1035)

Input: 6V to 20V

Output: 3.3V @ 1A

DC-DC Test Results

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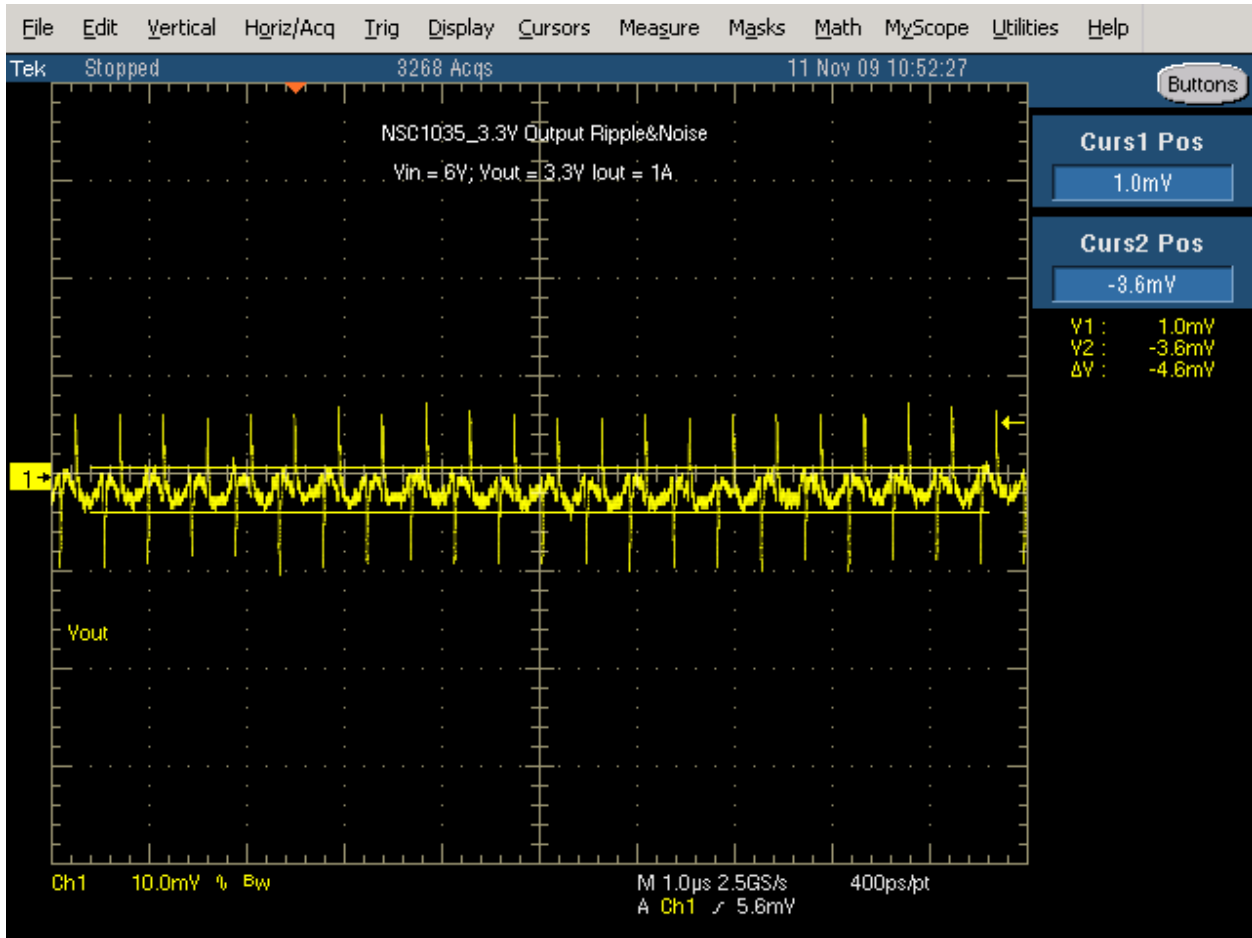
1.0 Circuit Description

PMP7758 is a non-synchronous buck DC-DC controller with 6-20V DC input and 3.3V @ 1A output. It is a low cost, efficient switching regulator. It uses LM25011 which contains an N-Channel Buck switch, a startup regulator, current limit detection, and internal ripple control. The constant on-time regulation principle requires no loop compensation, results in fast load transient response, and simplifies circuit implementation.

Additional features include: Low output ripple, VIN under-voltage lock-out, adjustable soft-start timing, thermal shutdown, gate drive pre-charge, gate drive under-voltage lock-out, and maximum duty cycle limit.

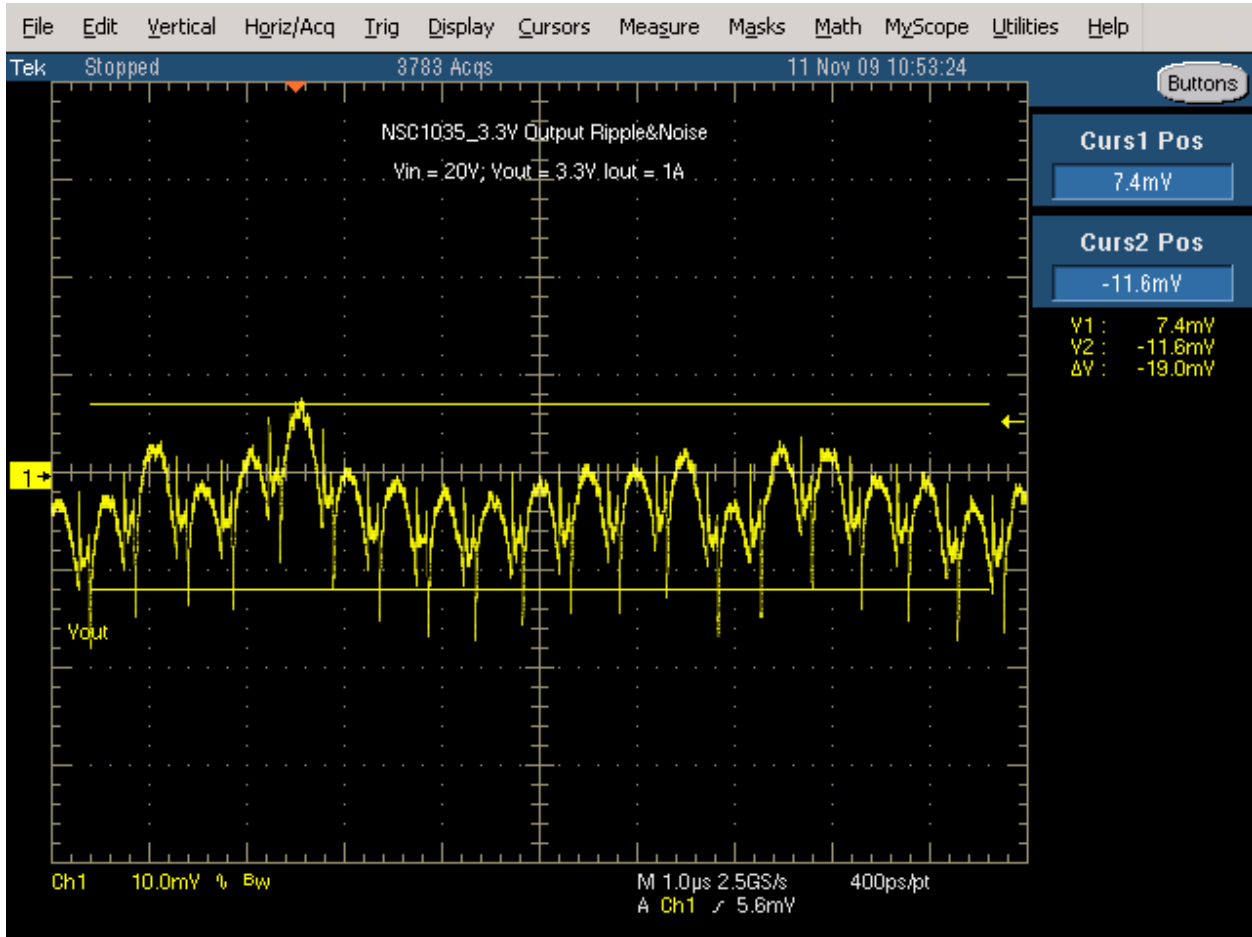
2.0 Waveforms

2.1 Output Ripple and Noise for $V_{in} = 6V$



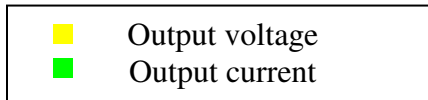
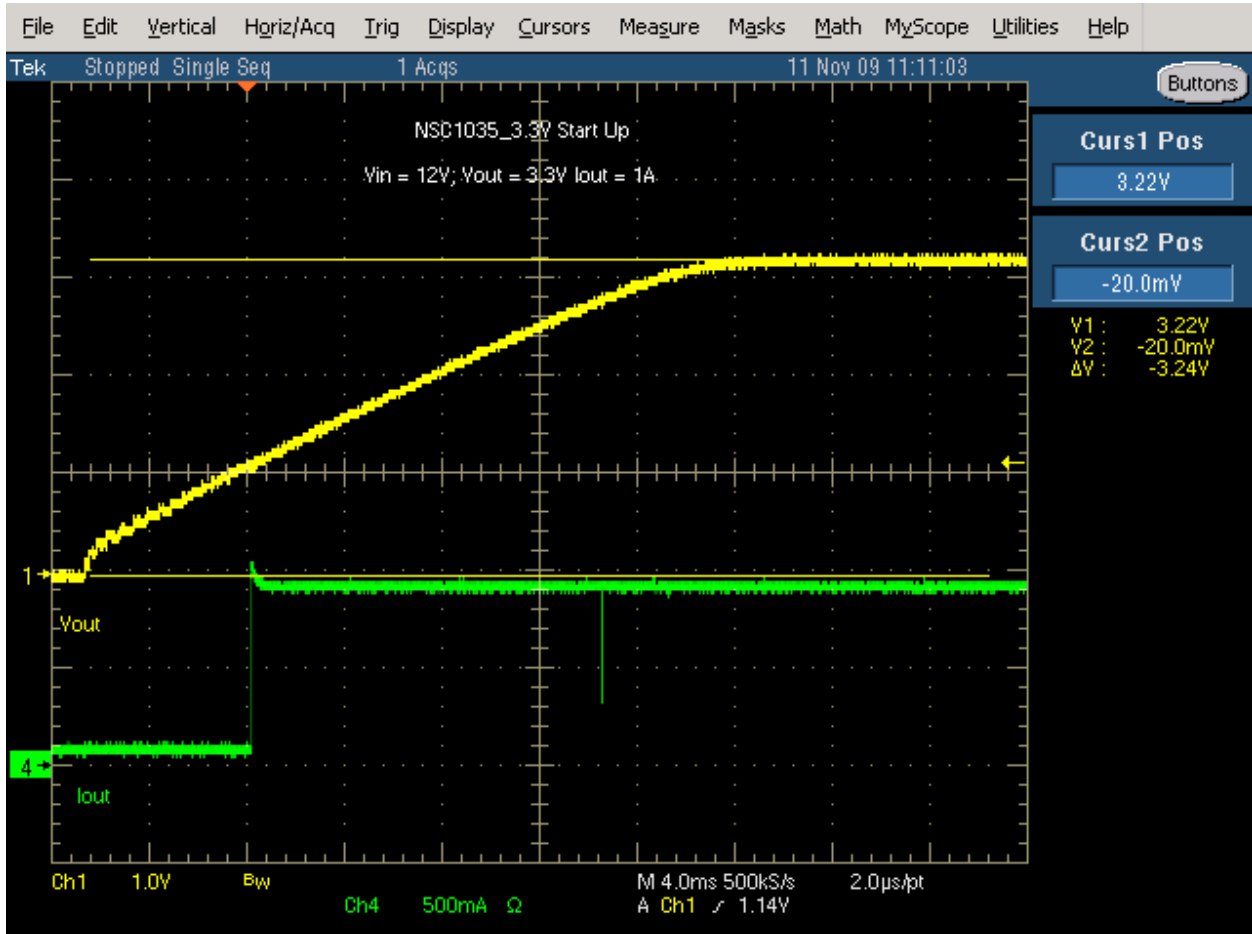
■ Output ripple & noise

2.2 Output Ripple and Noise for $V_{in} = 20V$

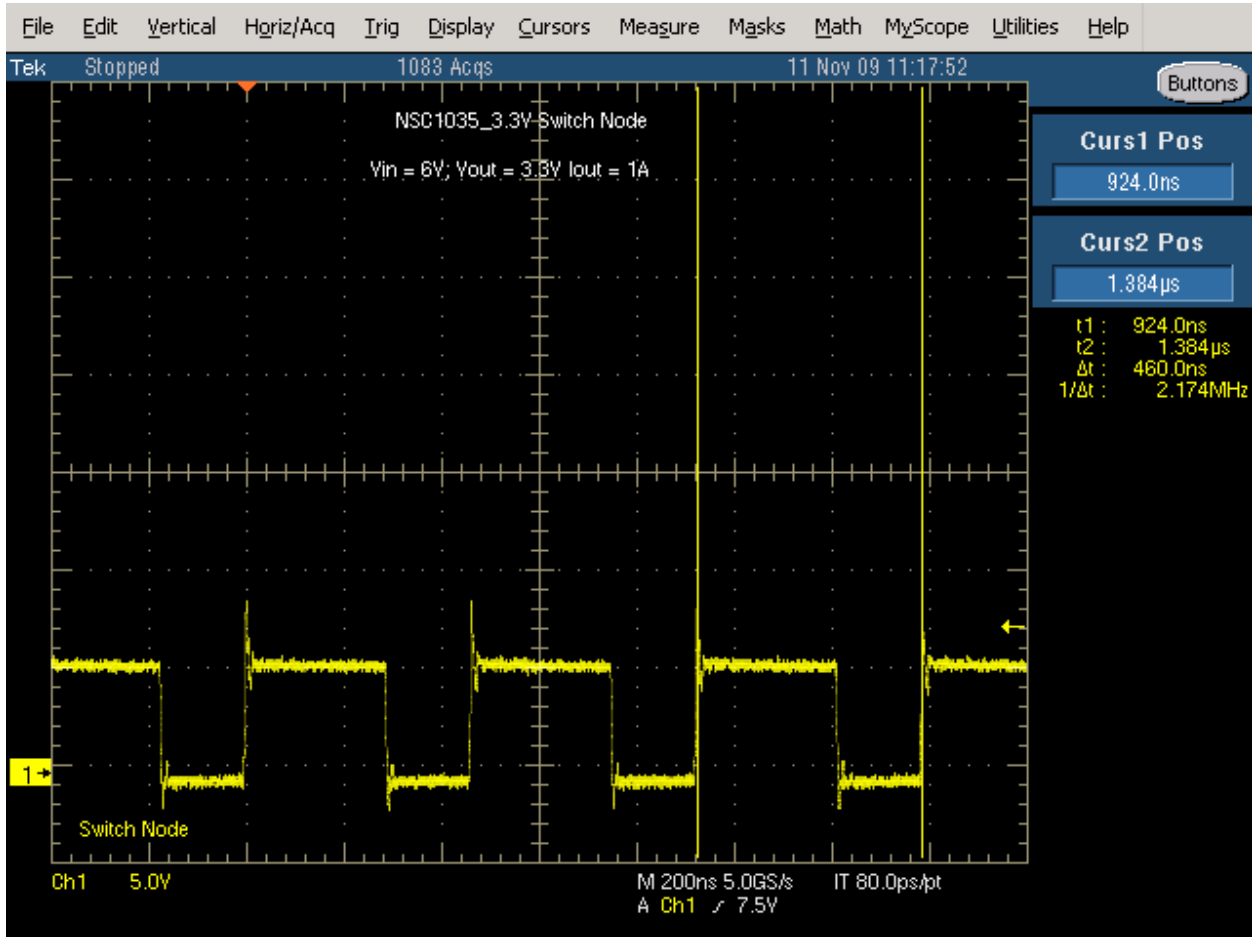


Output ripple & noise

2.3 Startup voltage for Vin = 12V

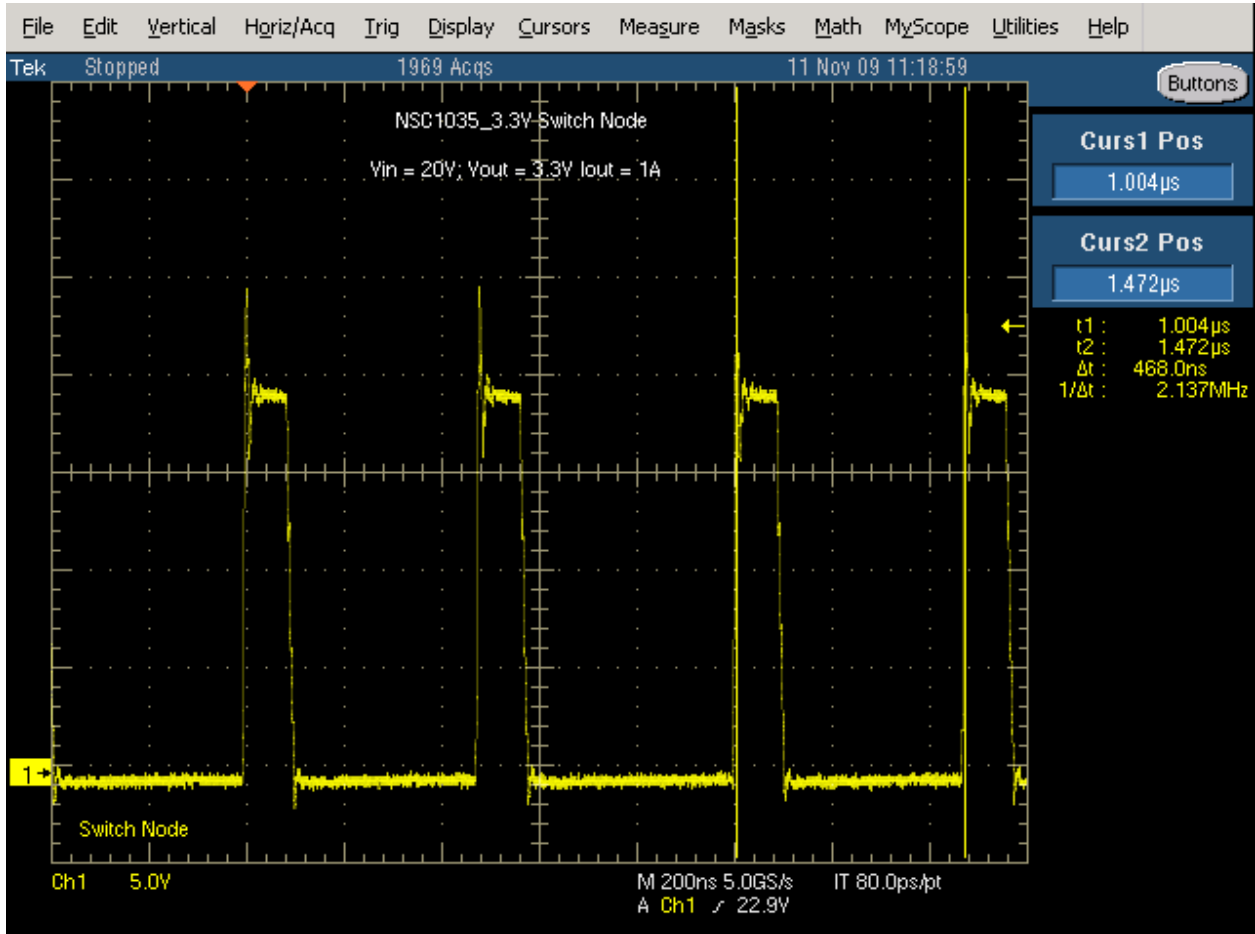


2.4 Switch node voltage for Vin = 6V

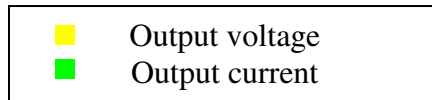
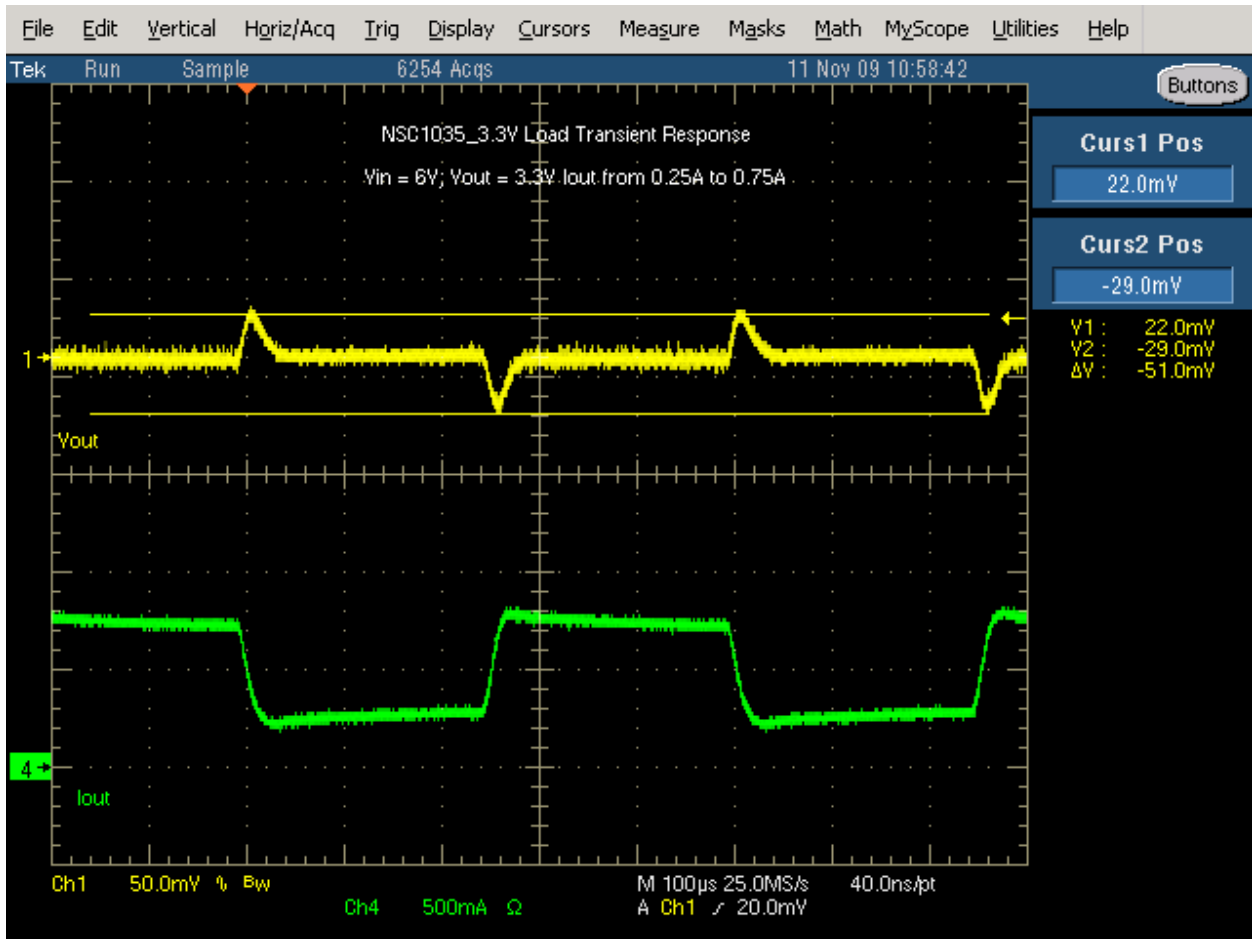


■ Switch node voltage

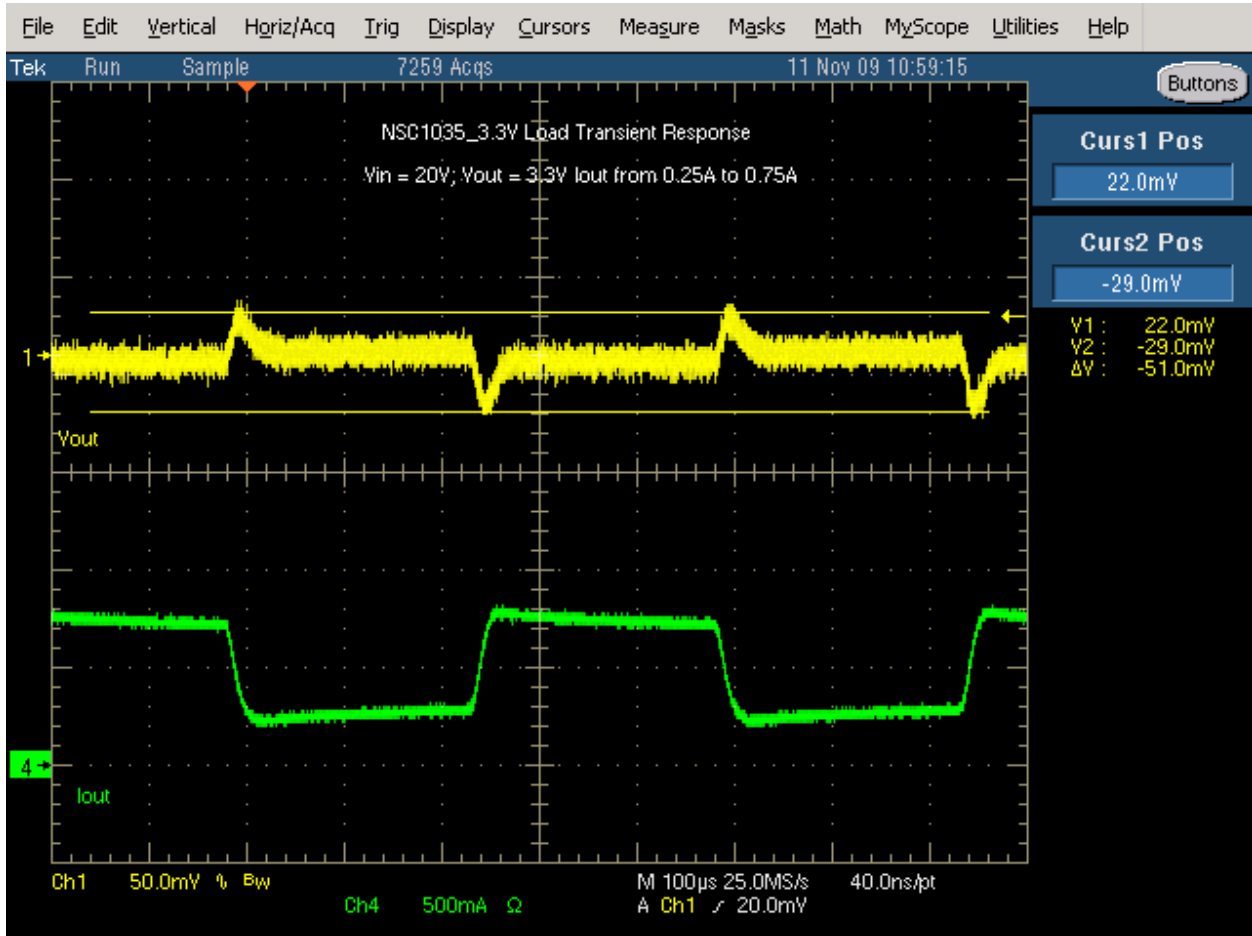
2.5 Switch node voltage for Vin = 20V



2.6 Load transient response for $V_{in} = 6V$



2.7 Load transient response for $V_{in} = 20V$



■	Output voltage
■	Output current

3.0 Efficiency results

Vin (V)	Iin (A)	Vout (V)	Iout (A)	Efficiency	Vin (V)	Iin (A)	Vout (V)	Iout (A)	Efficiency
6	0.131	3.255	0.2	82.82%	12	0.081	3.269	0.2	67.26%
6	0.254	3.252	0.4	85.35%	12	0.146	3.264	0.4	74.52%
6	0.38	3.25	0.6	85.53%	12	0.212	3.261	0.6	76.91%
6	0.51	3.248	0.8	84.92%	12	0.279	3.259	0.8	77.87%
6	0.646	3.246	1	83.75%	12	0.349	3.256	1	77.75%
		Vin (V)	Iin (A)	Vout (V)	Iout (A)	Efficiency			
		20	0.054	3.291	0.2	60.94%			
		20	0.105	3.276	0.4	62.40%			
		20	0.146	3.274	0.6	67.27%			
		20	0.188	3.272	0.8	69.62%			
		20	0.232	3.271	1	70.50%			

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