Test Report

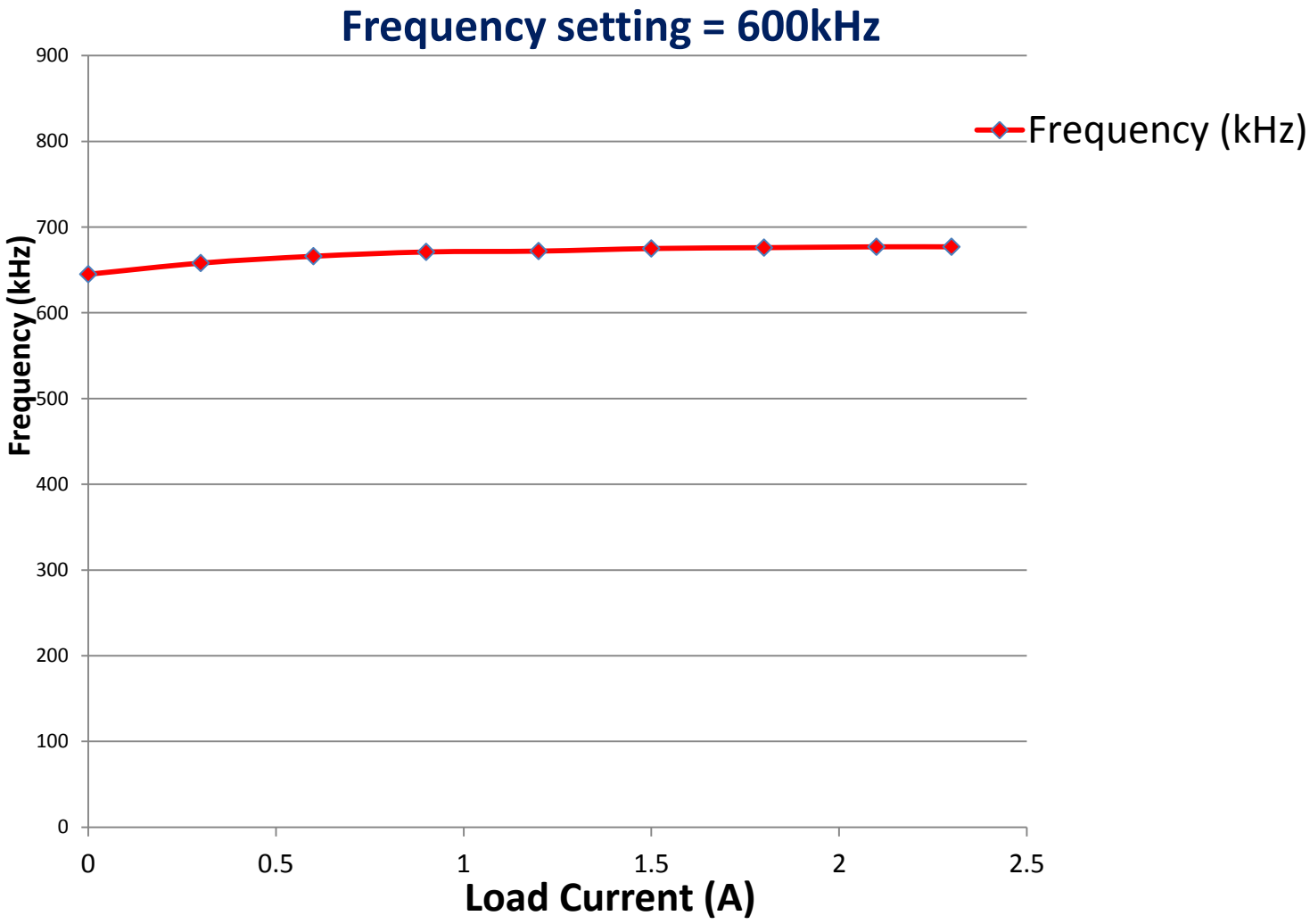
TIDA-00507

TPS53625 Intel® Atom™ C2000 PVNN

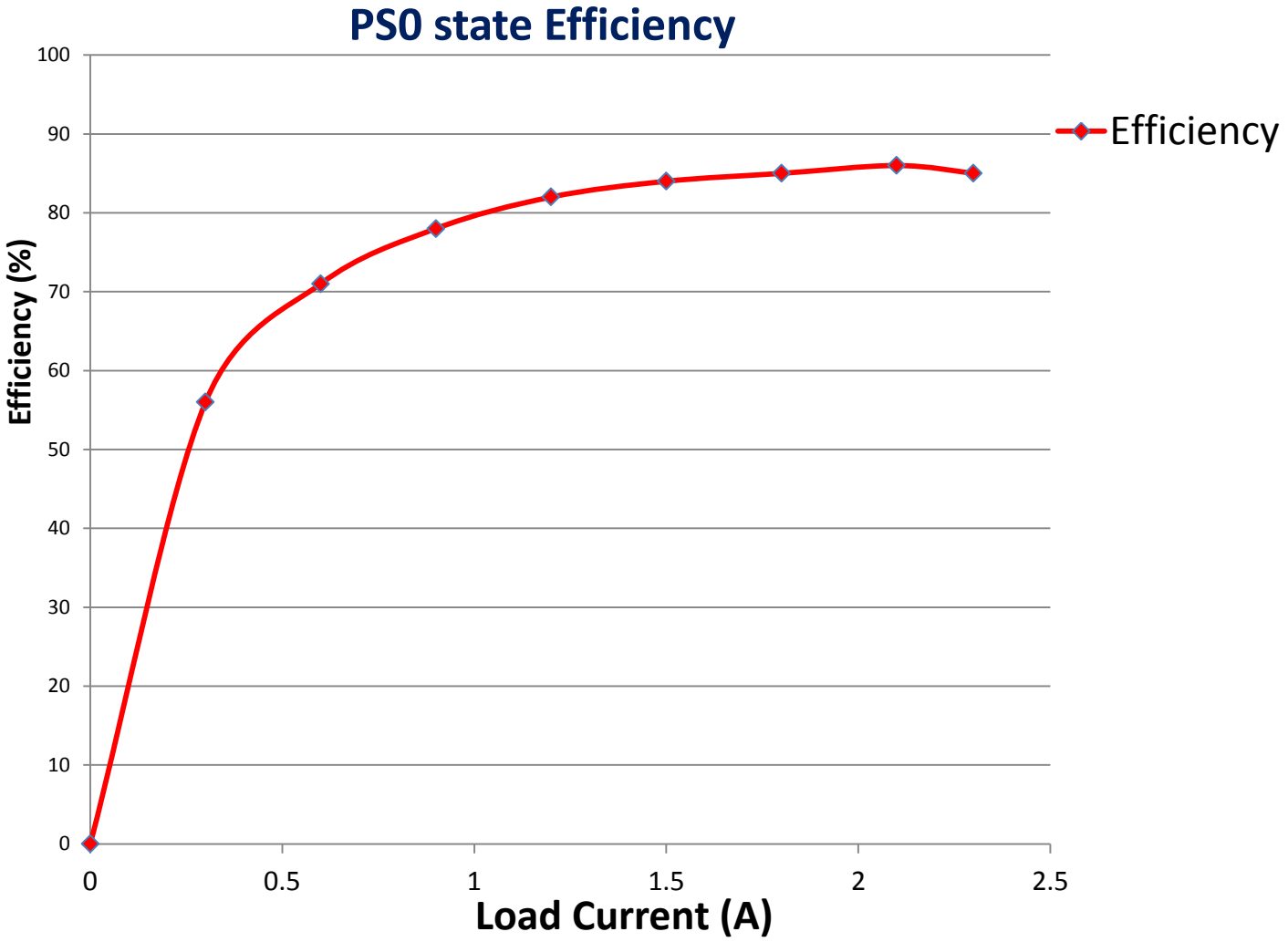
PVNN- Configuration

- 1-phase mode
- MOSFET: TI Power Stage: CSD97374Q4M
- Inductor: 2.2uH,7mohm
- Output Capacitor:
  - Bulk: No Bulk
  - Ceramic: 4x47uF
- Max Current: 2.3A
- Frequency: 600KHz
- Zero Load-line
- Ramp 100mV
- SVID Address : 01h
- OSR disabled

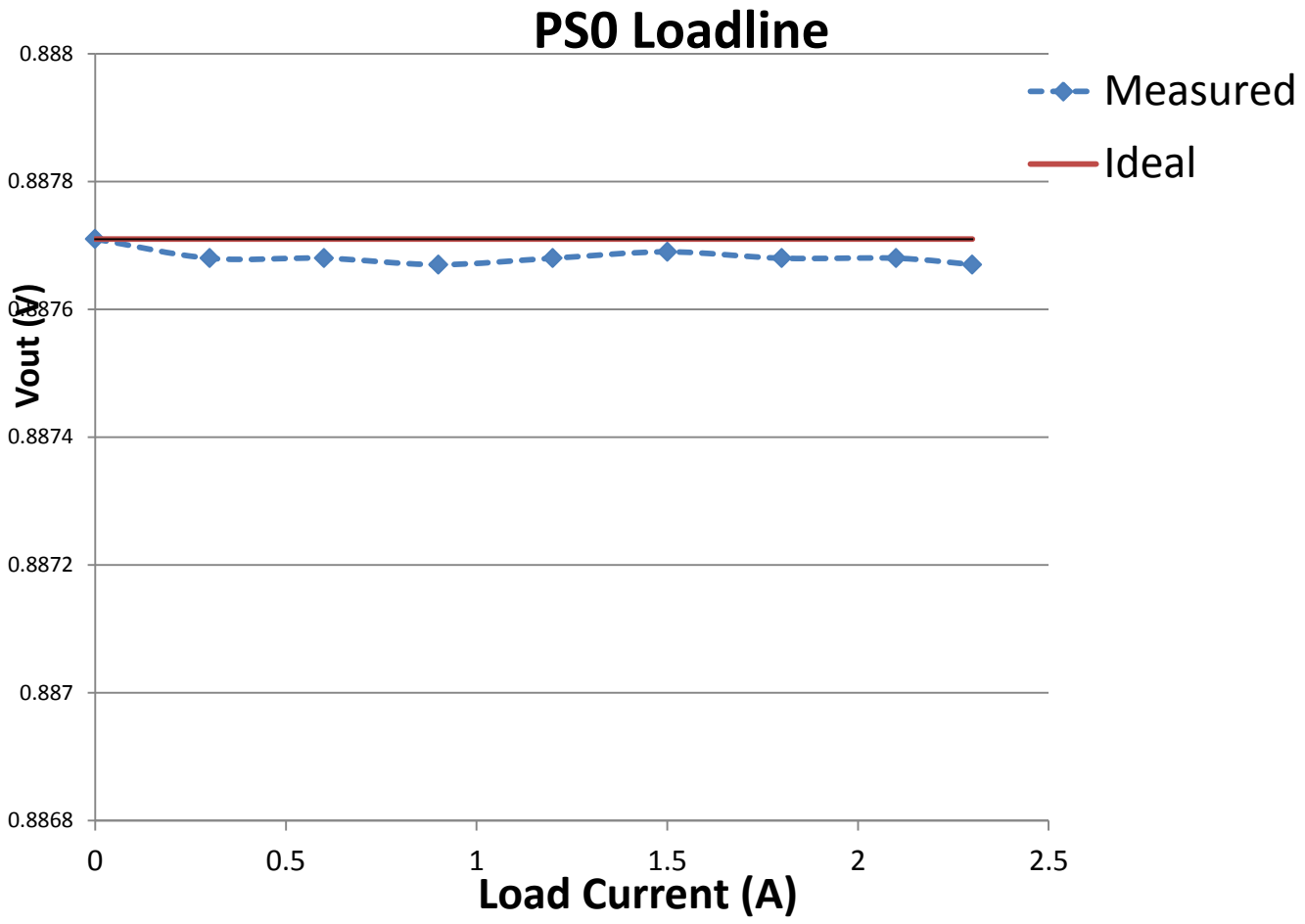
Frequency Variation



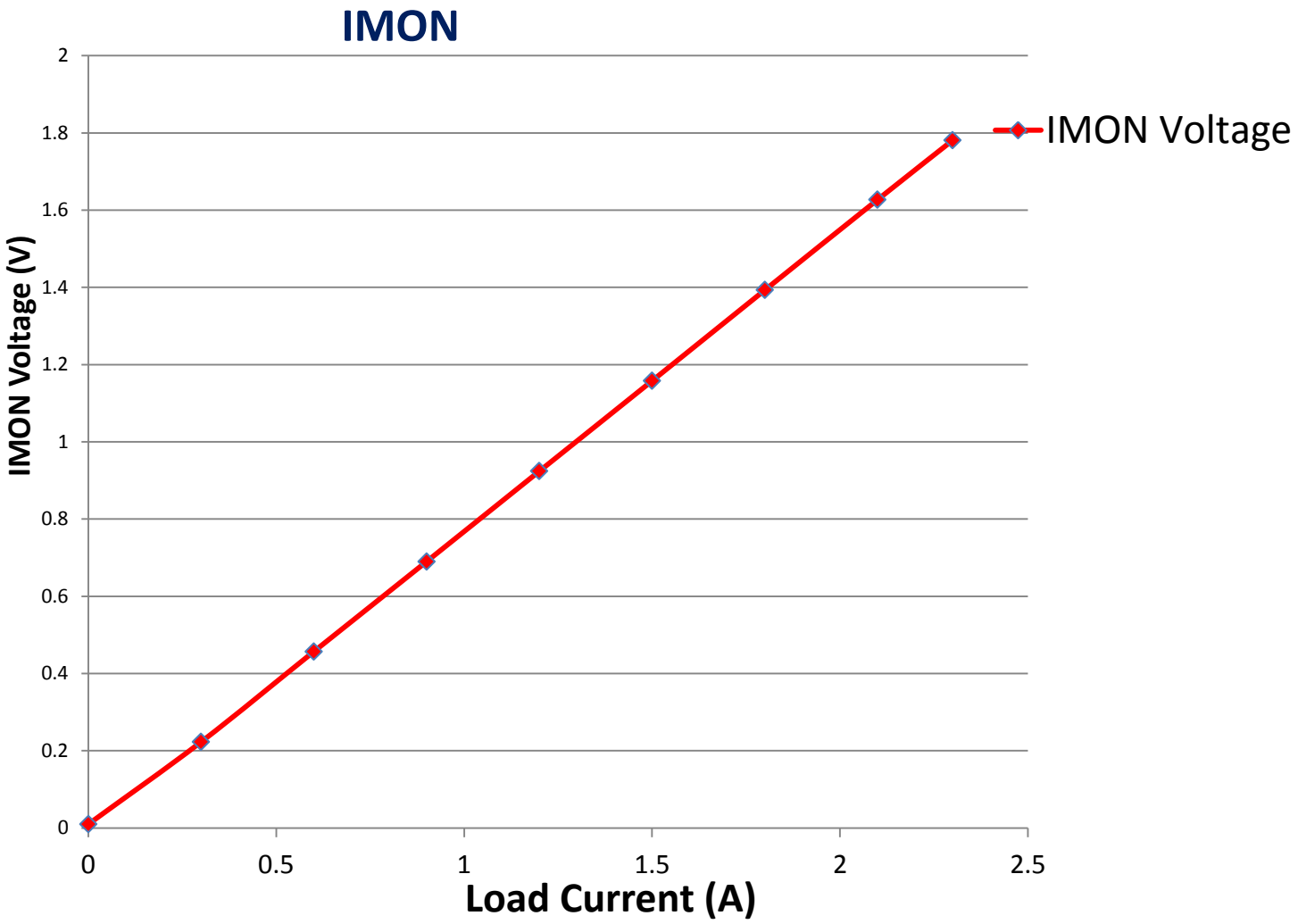
PS0 Efficiency



Loadline


PS0 Loadline
0.888
0.8878
0.8876
0.8874
0.8872
0.887
0.8868
Vout (V)
0
0.5
1
1.5
2
2.5
Load Current (A)
Measured
Ideal

Analog Current Monitor Output (IMON)

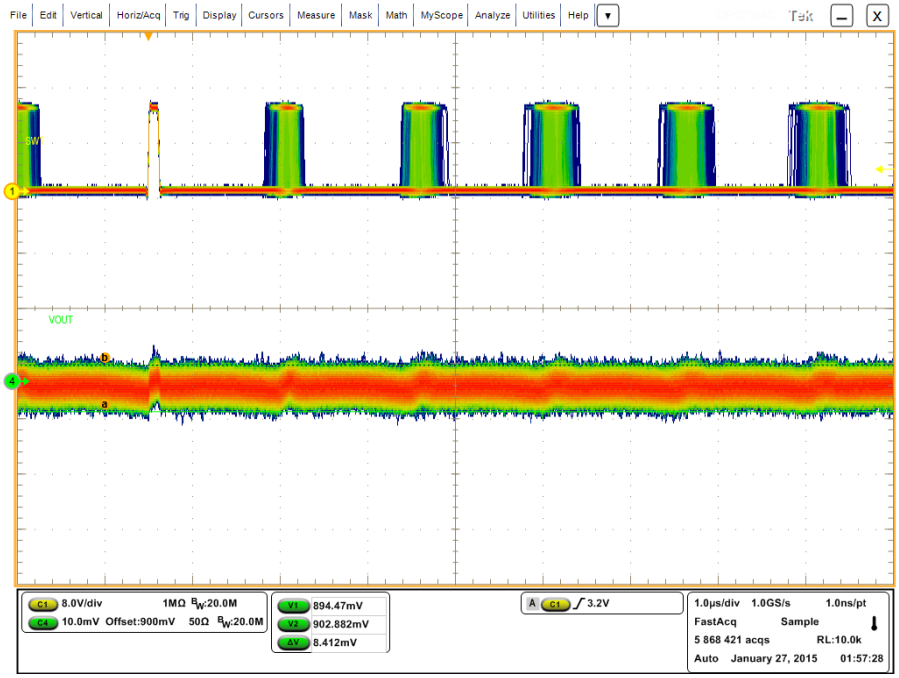


Ripple and jitter
Vin 9V

Load 0A
Ripple: 7.8mV

Load 2.3A
Ripple: 8.1mV

Ripple and jitter
Vin 12V



Load 0A
Ripple: 8.4mV

Load 2.3A
Ripple: 8.4mV

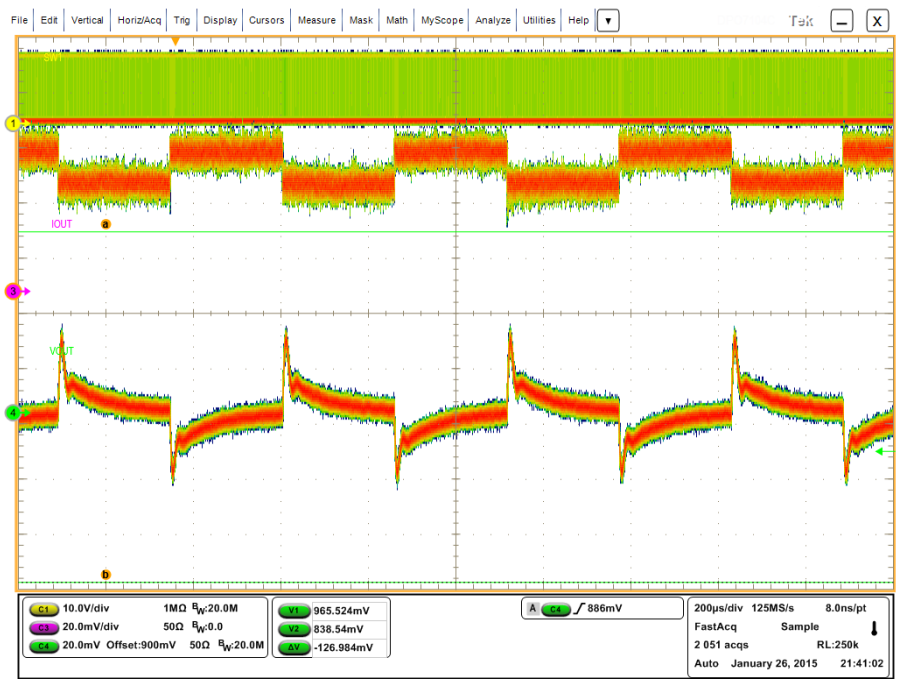
Ripple and jitter
Vin 15V

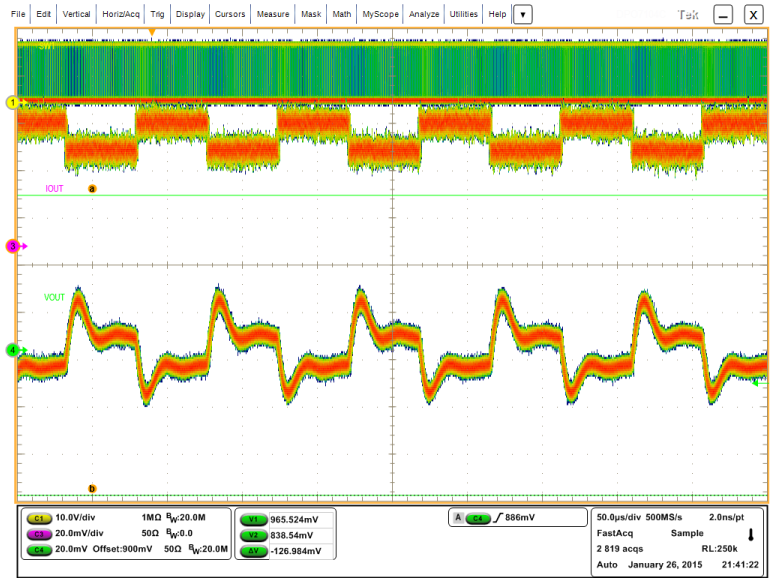
Load 0A
Ripple: 8.4mV

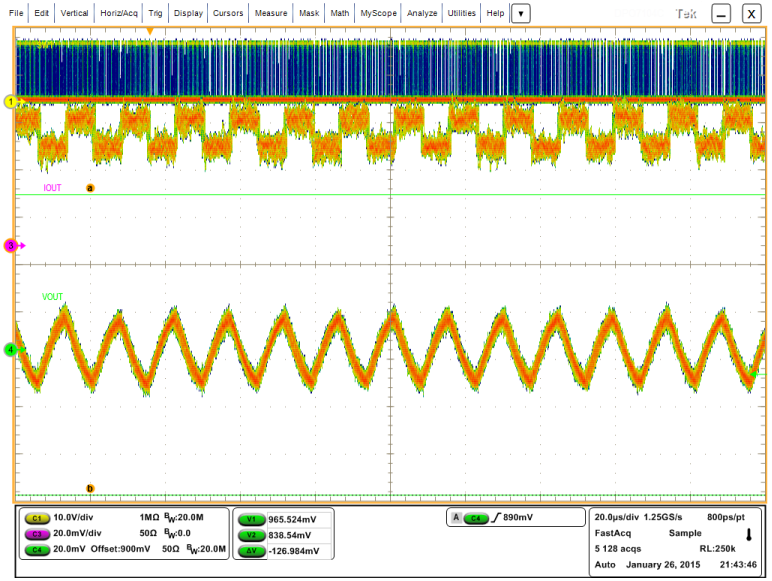
Load 2.3A
Ripple: 8.5mV

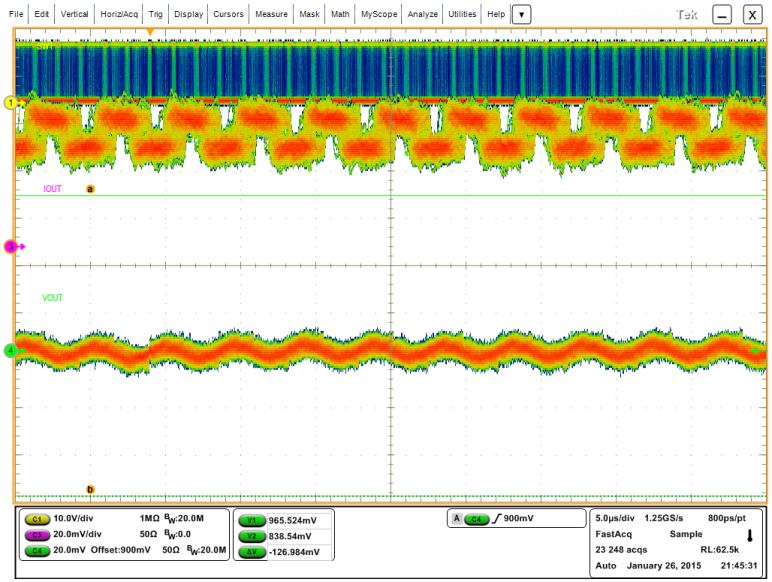
Load Transient Performance
1A to 2A (PS0 state)- 50% duty cycle

DC and AC ripple guideline: +/-64mV

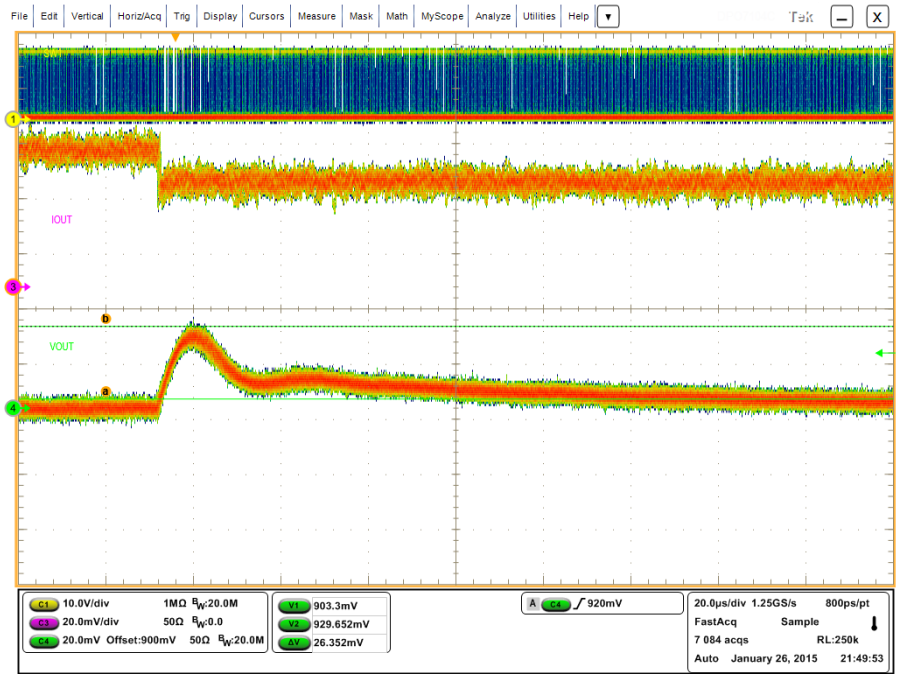


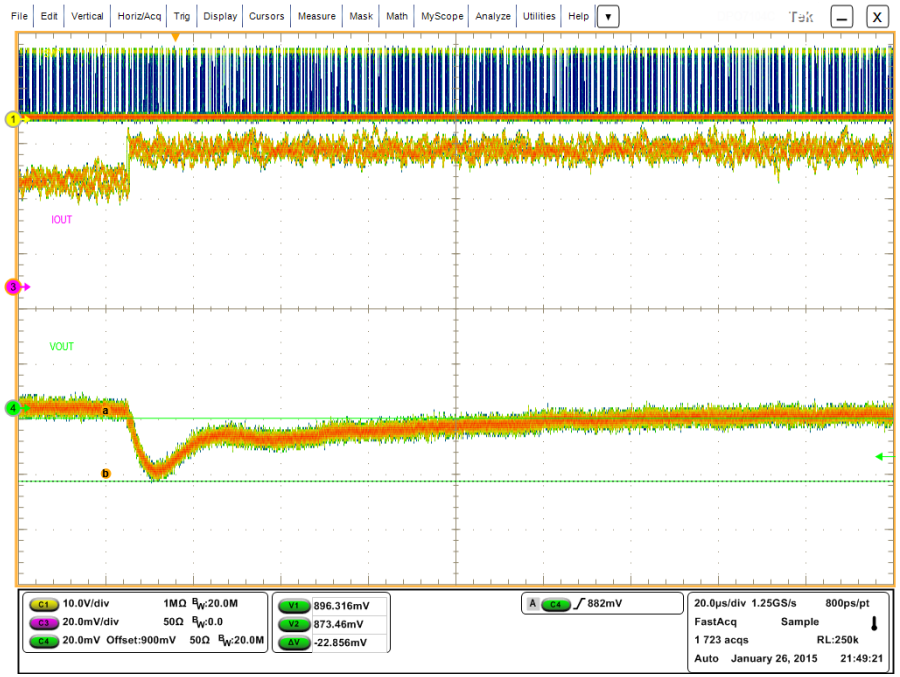






Output Voltage waveform well within the +/-64 mV lines

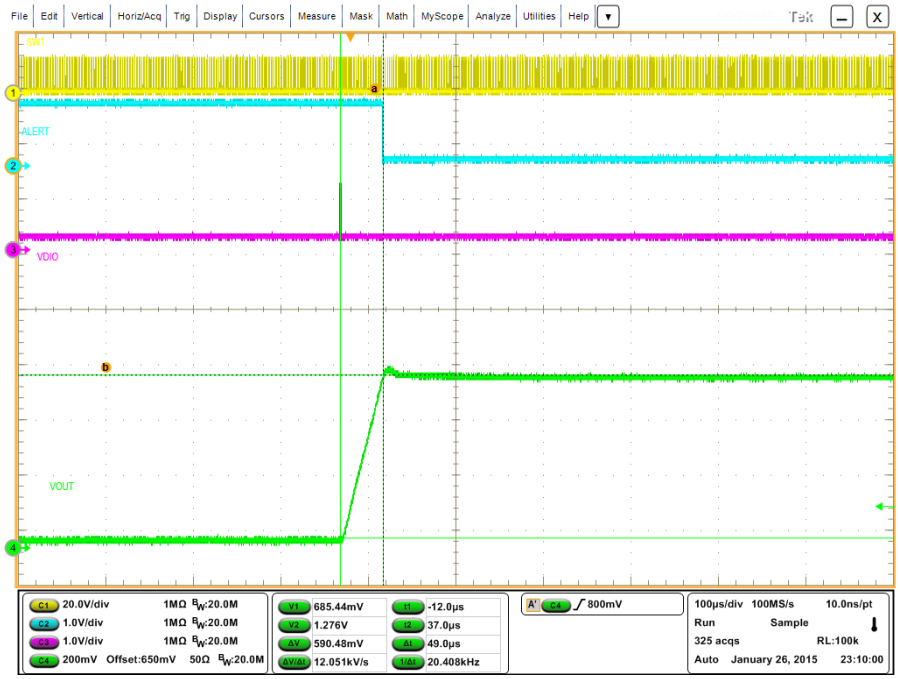


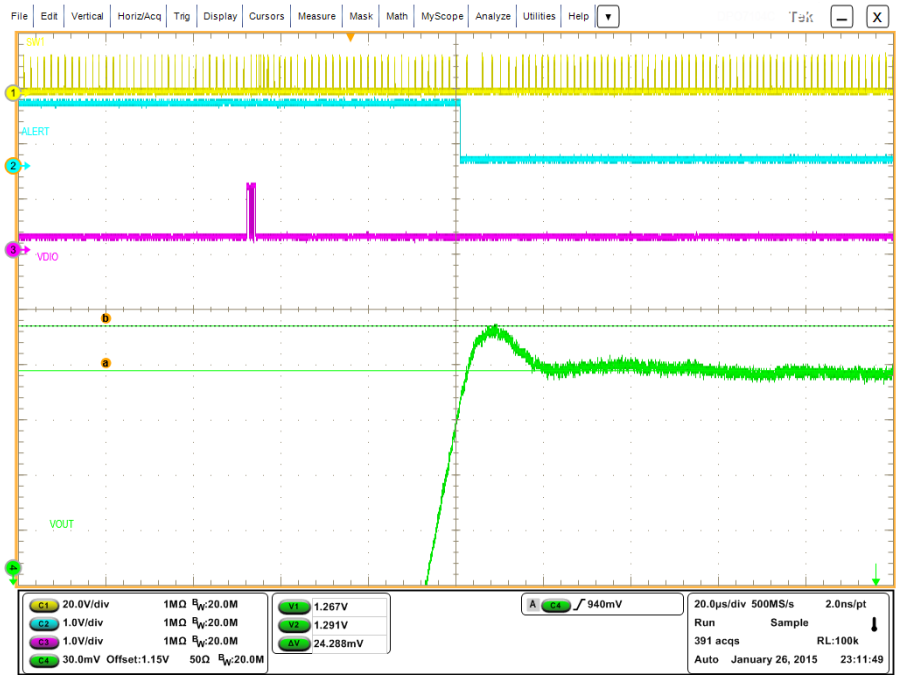


Load fall
Overshoot: 26mV

Load rise
Droop: 23mV

Dynamic VID
0.65V-1.24V Fast up 1A load

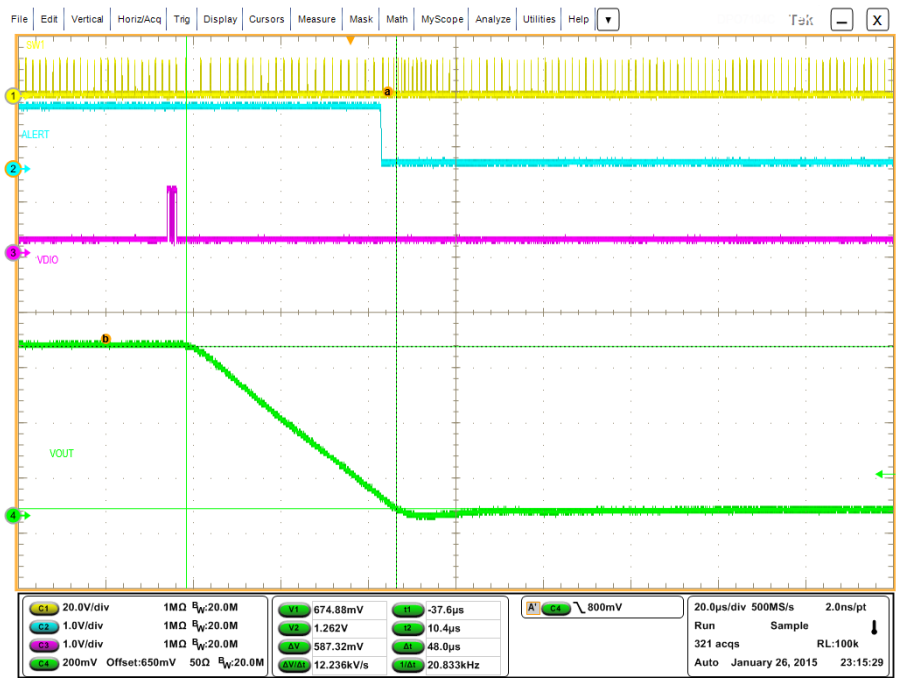


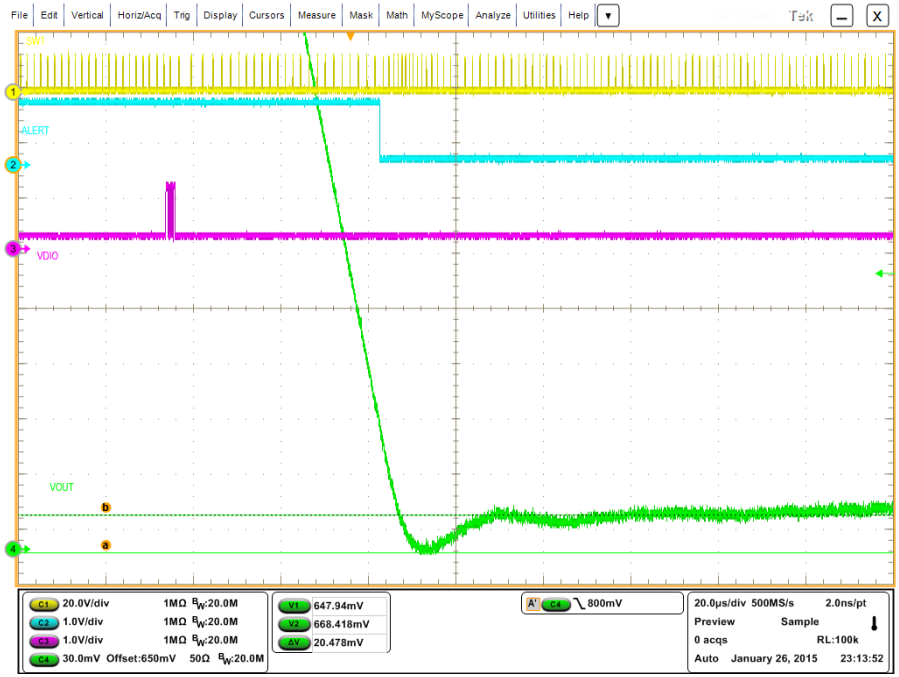


Rise Slew rate: 12.05 mV/us

Overshoot: 24.3 mV

Dynamic VID
0.65V-1.24V Fast Down 1A load

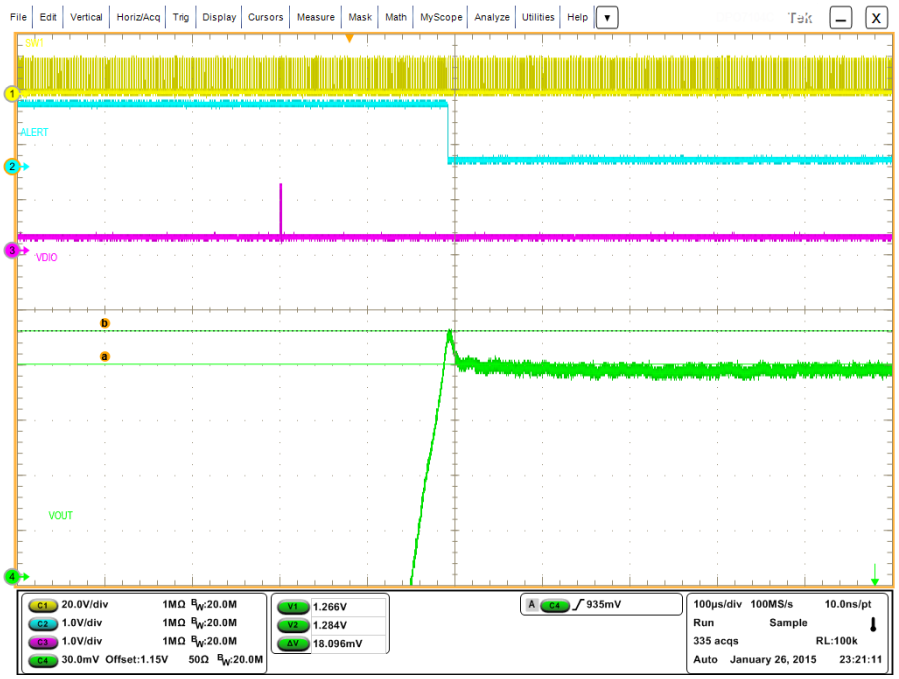




Fall Slew rate: 12.23 mV/us

Droop: 20.5mV

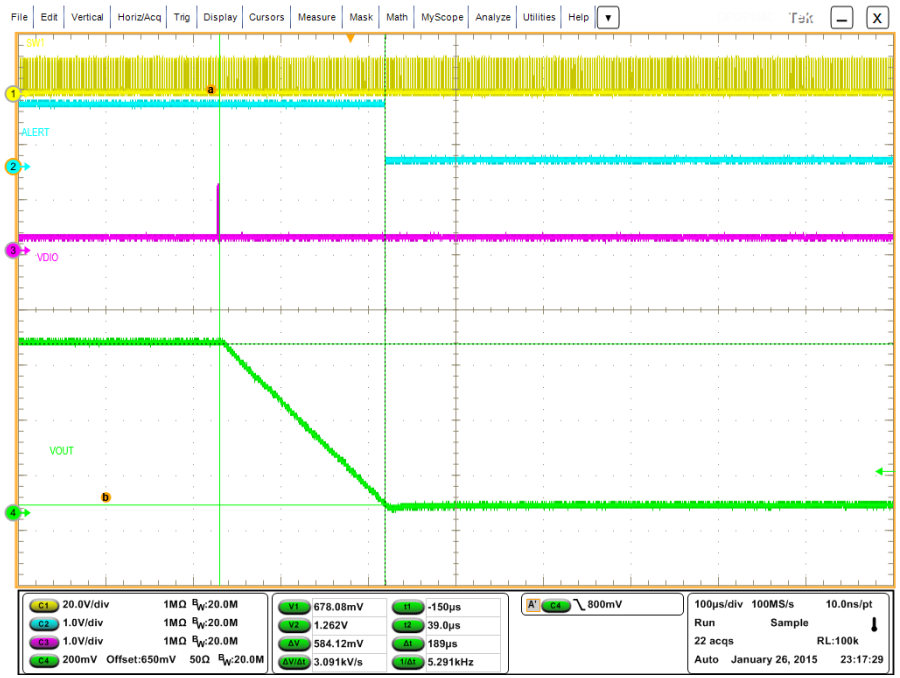
Dynamic VID
0.65V-1.24V Slow Up 1A load



Rise Slew rate: 3.21mV/us

Overshoot: 18.1mV

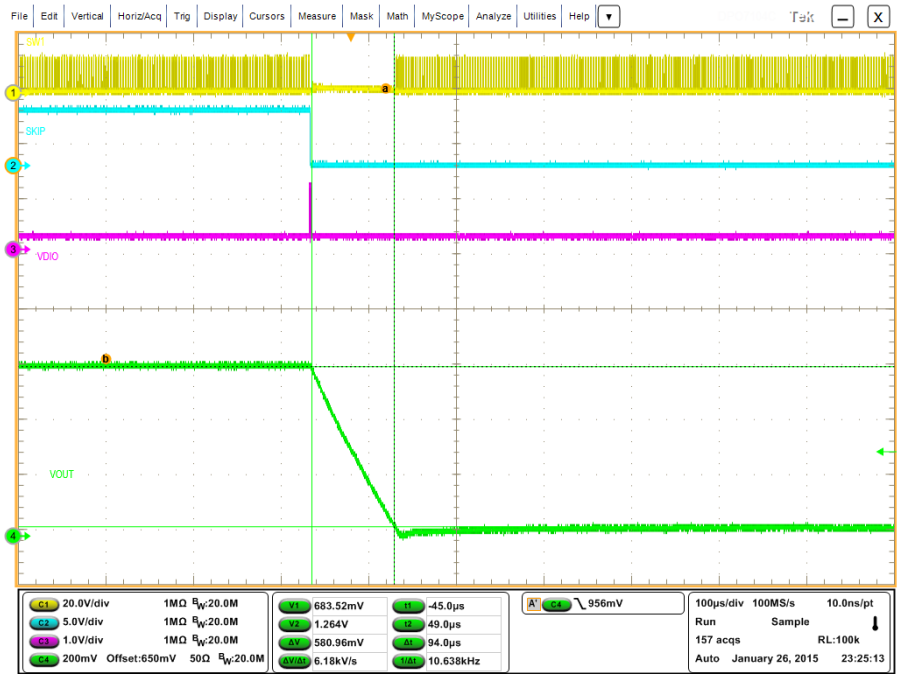
Dynamic VID
0.65V-1.24V Slow Down 1A load

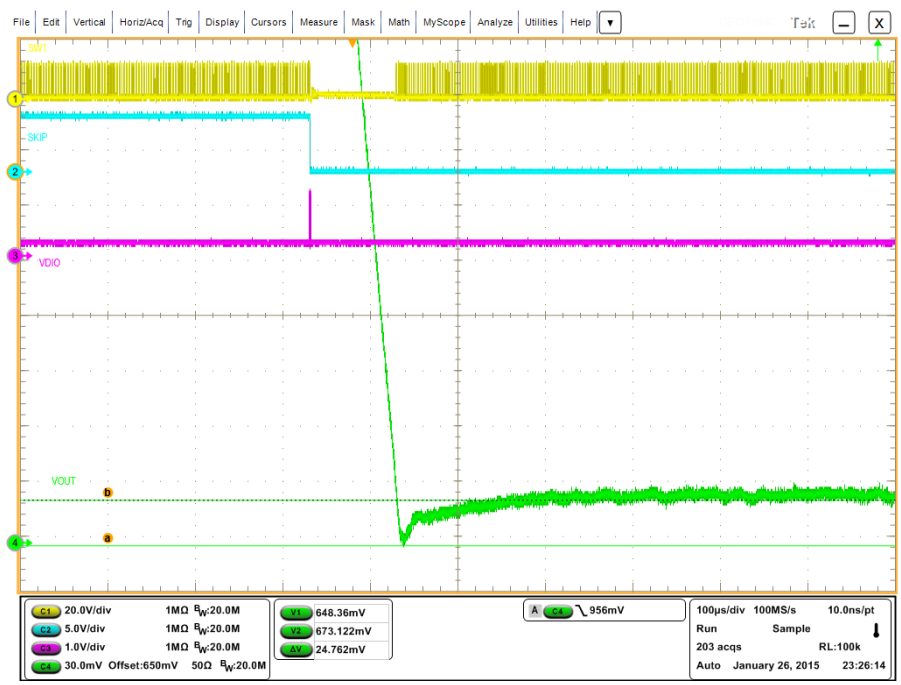


Fall Slew-rate: 3.1mV/us

Droop: 10.8mV

Dynamic VID
0.65V-1.24V Decay 1A load

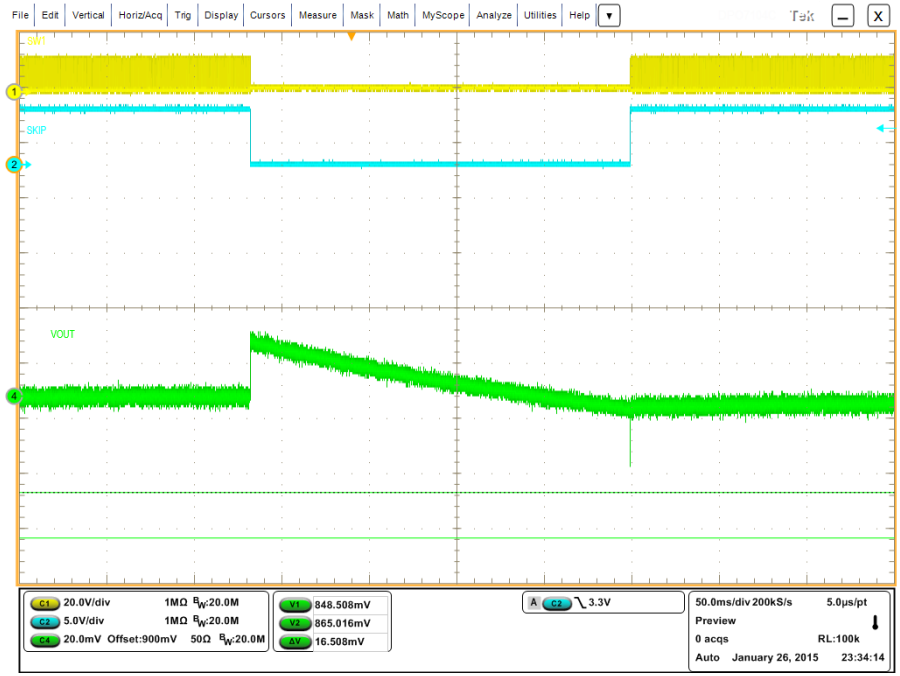




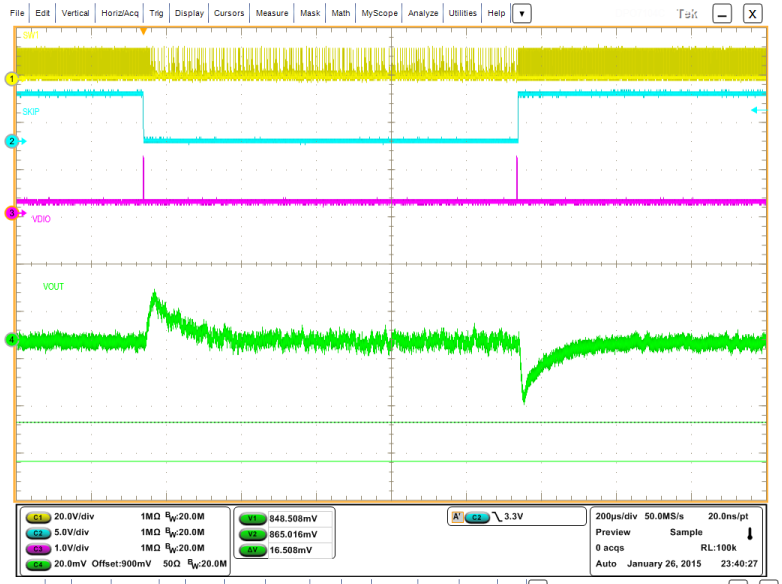
Decay Slew-rate: 6.1mV/us

Droop: 24.8 mV

PS transition
PS0-PS2 0A load



PS transition
PS0-PS2 0.1A load

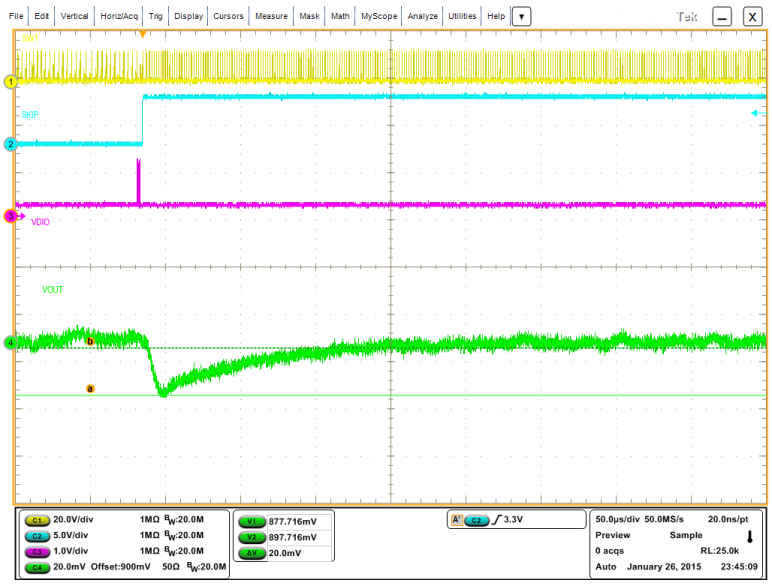


PS0 to PS2 voltage change: 17mV

PS2 to PS0 voltage change: 19mV

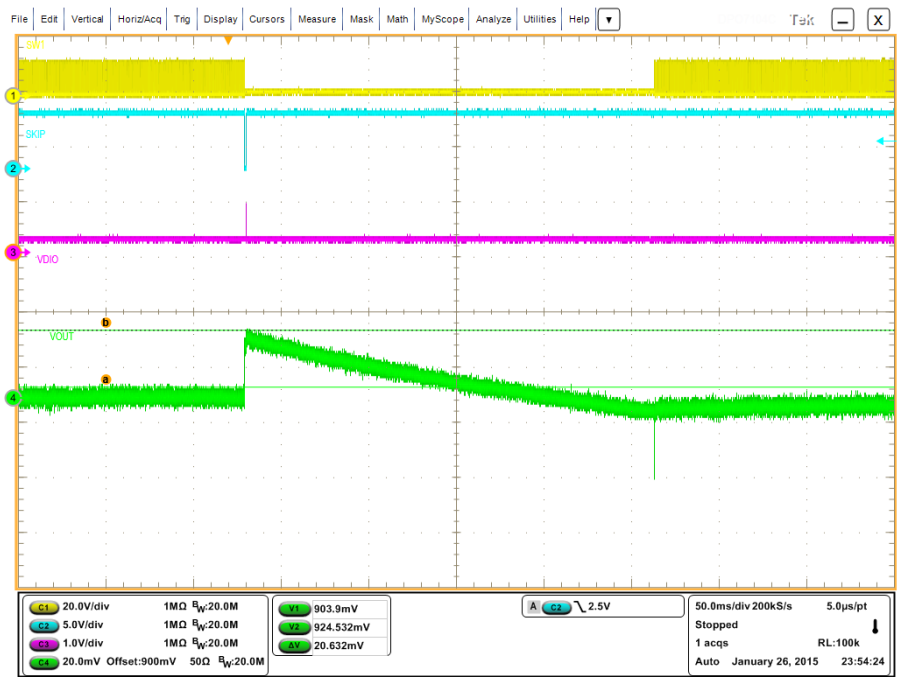
PS transition
PS0-PS2 0.2A load

PS0 to PS2 voltage change: 12mV

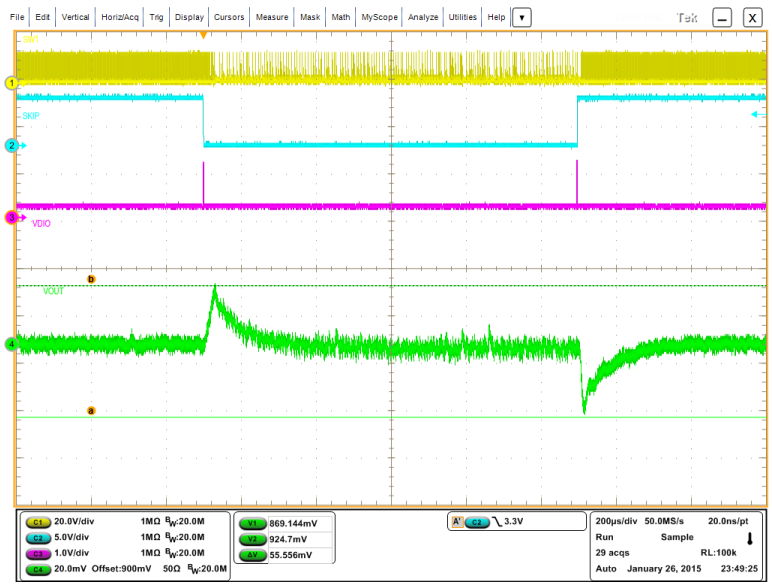


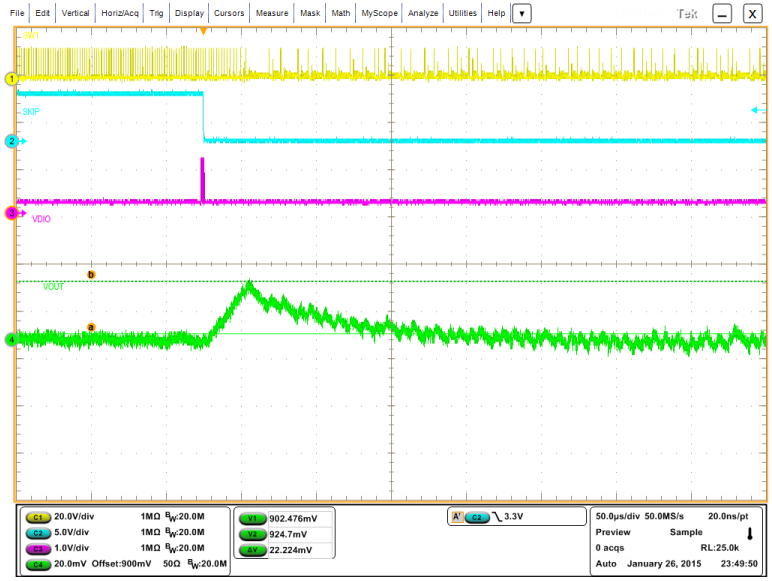
PS0 to PS2 voltage change: 20mV

PS transition
PS0-PS3 0A load

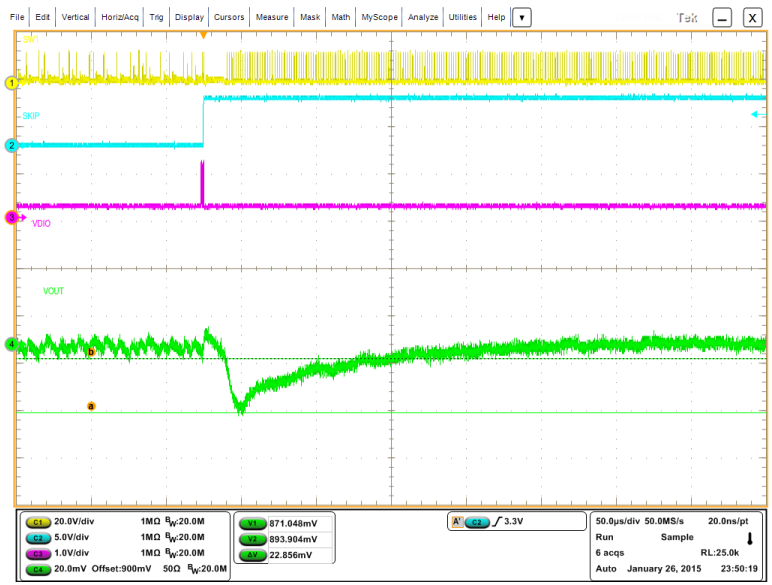


PS transition
PS0-PS3 0.1A load



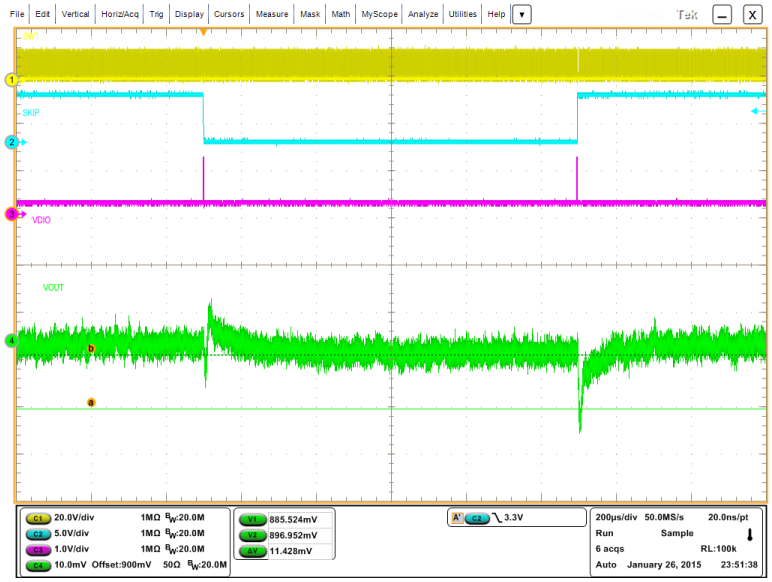


PS0 to PS3 voltage change: 22.2mV



PS3 to PS0 voltage change: 22.8mV

PS transition
PS0-PS3 0.5A load



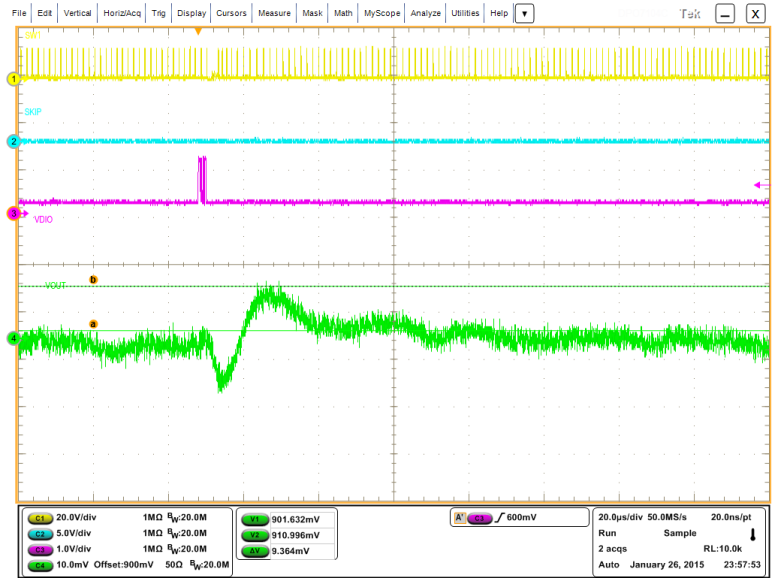
PS0 to PS3 voltage change: 6.7mV

PS3 to PS0 voltage change: 14mV

PS0-PS3 droop: 4.4mV

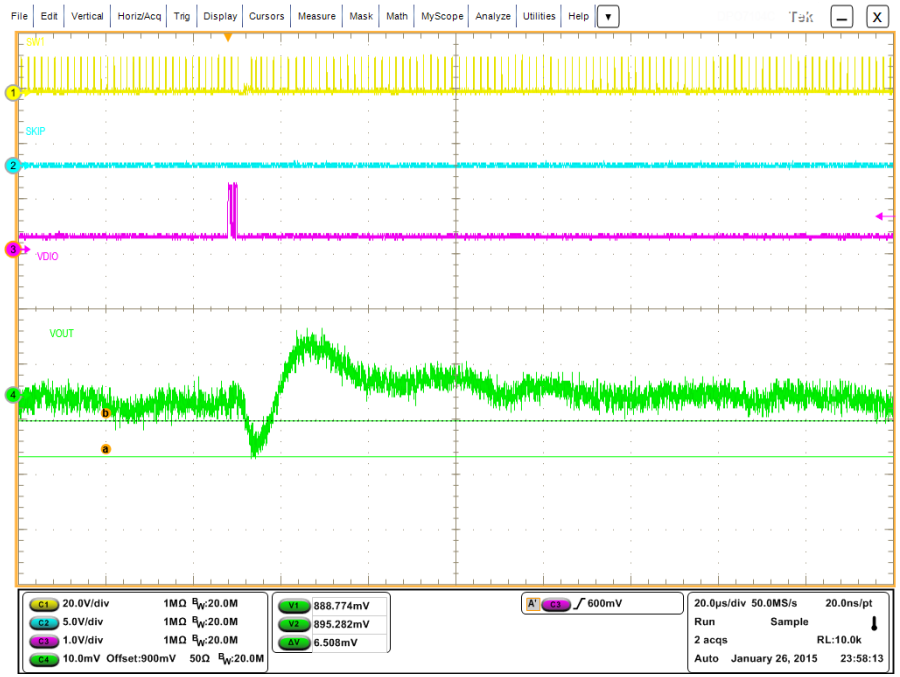
PS3-PS0 droop: 4.6mV

PS transition
PS2-PS3 0.5A load



PS2 to PS3 voltage change: 9.3mV

PS3 to PS2 voltage change: 12.5mV



PS2-PS3 droop: 4.5mV

PS3-PS2 droop: 6.2mV

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