MP5470-0014 Test Report

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Updated 7/2024

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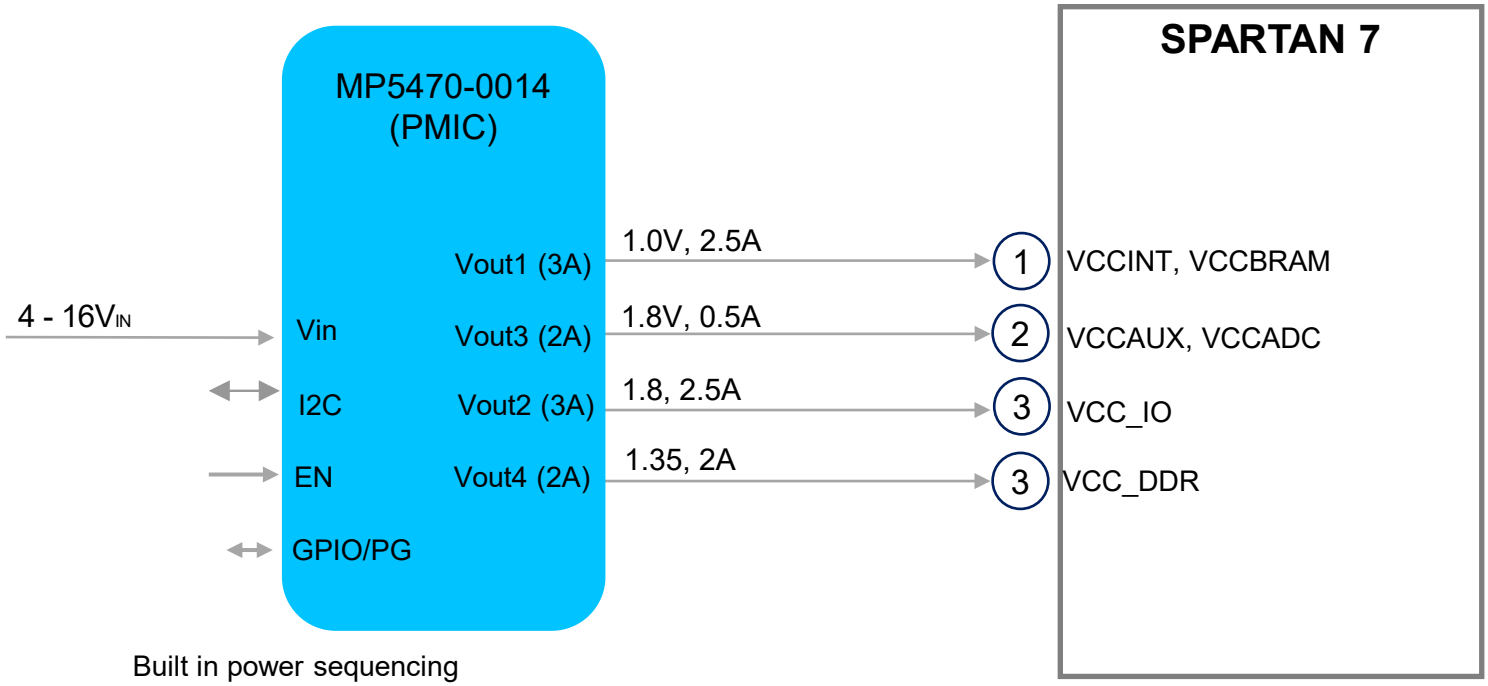
MP5470-0014 Power Tree



MP5470-0014 DC Output Voltage

Output	Rail Name	Power Sequence	Design Target (V)
Buck 1	VCCINT, VCCBRAM	1	1.0V
Buck 2	VCCIO	3	1.8V
Buck 3	VCCAUX, VCCADC	2	1.8V
Buck 4	VCCDDR	3	1.35V

MP5470-0014 Test specs

Rail Name	MPS Part#	Vin	VOUT	Max Current	Step load	Slew Rate
VCCINT, VCCBRAM	MP5470-0014 (Buck 1)	12V	1.0V	2.5A	1.25A→1.88A→1.25A	10A/us
VCCIO	MP5470-0014 (Buck 2)	12V	1.8V	1.0A	0.5A→0.75A→0.5A	10A/us
VCCAUX, VCCADC	MP5470-0014 (Buck 3)	12V	1.8V	0.5A	0.25A→0.375A→0.25A	10A/us
VCCDDR	MP5470-0014 (Buck 4)	12V	1.35V	2.0A	1.0A→1.50A→1.0A	10A/us

MP5470-0014 - DC Voltage Accuracy

Power Rail	Rail Name	Input Voltage	Design Target	Vout (No Load)	Vout (Half Load)	Vout (Full Load)
Buck 1	VCCINT, VCCBRAM	12V	1.0V	1.001V	0.999V	0.997V
Buck 2	VCCIO	12V	1.8V	1.799V	1.798V	1.798V
Buck 3	VCCAUX, VCCADC	12V	1.8V	1.801V	1.801V	1.801V
Buck 4	VCCDDR	12V	1.35V	1.354V	1.354V	1.354V

Buck 1 - 12Vin - Steady State Ripple

No load

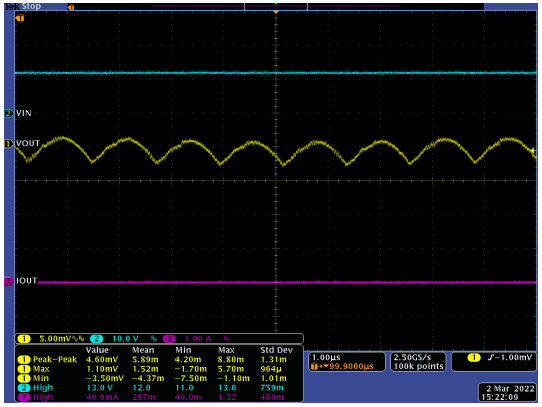
Half Load (1.25A)

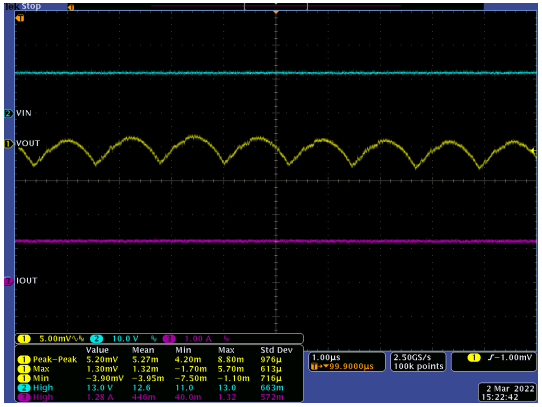
Max Load (2.50A)

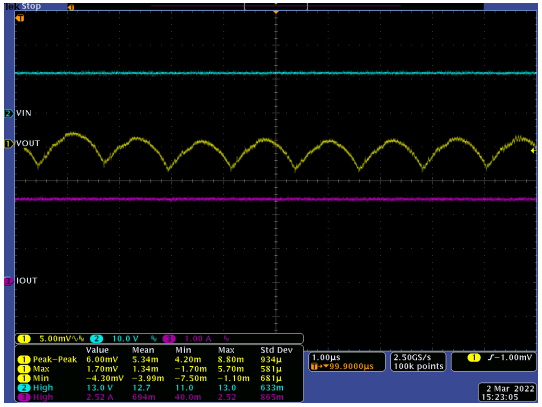
VIN

VOUT

IOUT







- 4.60 mV peak-peak ripple at No load
- 5.20 mV peak-peak ripple at Half load
- 6.00 mV peak-peak ripple at Max load

Buck 2 - 12Vin - Steady State Ripple

No load

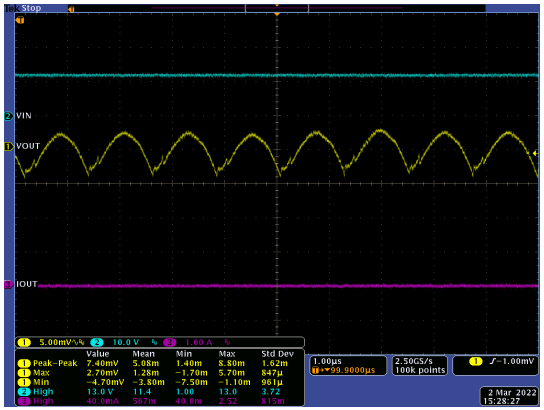
Half Load (0.50A)

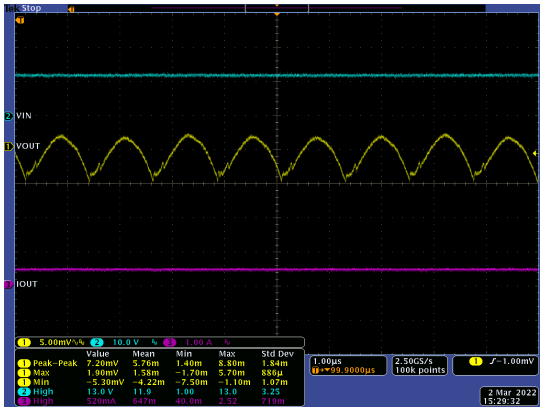
Max Load (1.00A)

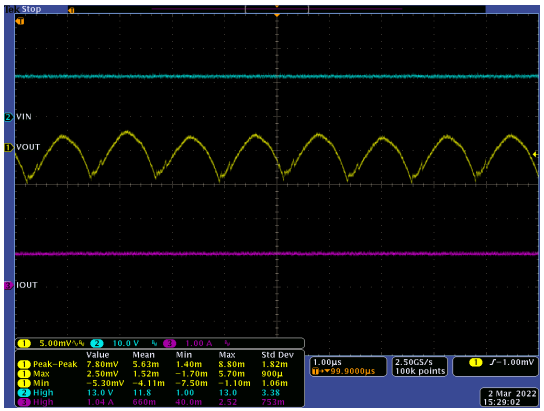
VIN

VOUT

IOUT







- 7.40 mV peak-peak ripple at No load
- 7.20 mV peak-peak ripple at Half load
- 7.80 mV peak-peak ripple at Max load

Buck 3 - 12Vin - Steady State Ripple

No load

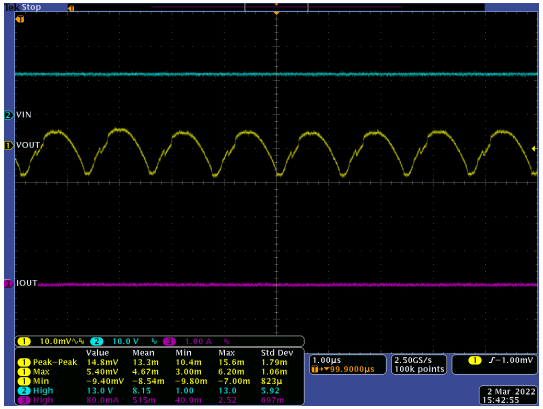
Half Load (0.25A)

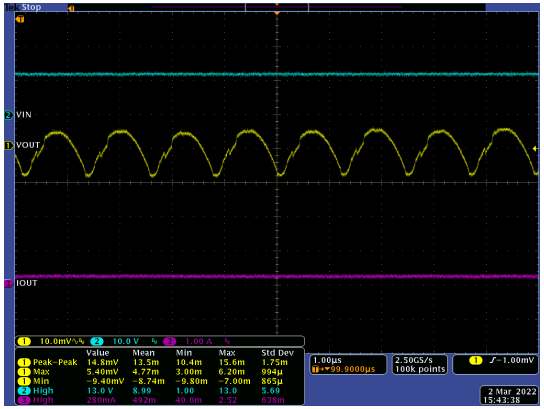
Max Load (0.50A)

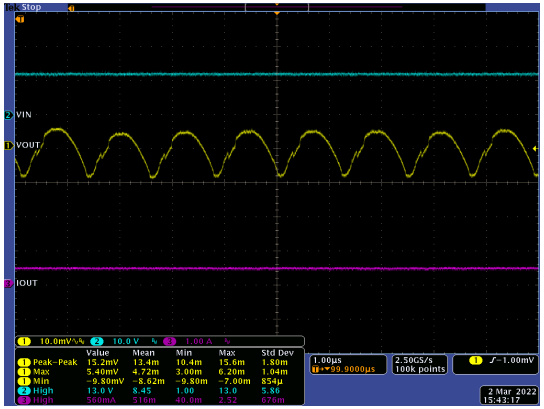
VIN

VOUT

IOUT







- 14.8 mV peak-peak ripple at No load
- 14.8 mV peak-peak ripple at Half load
- 15.2 mV peak-peak ripple at Max load

Buck 4 - 12Vin - Steady State Ripple

No load

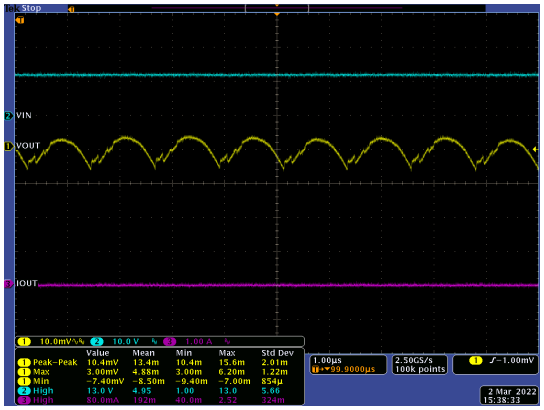
Half Load (1.00A)

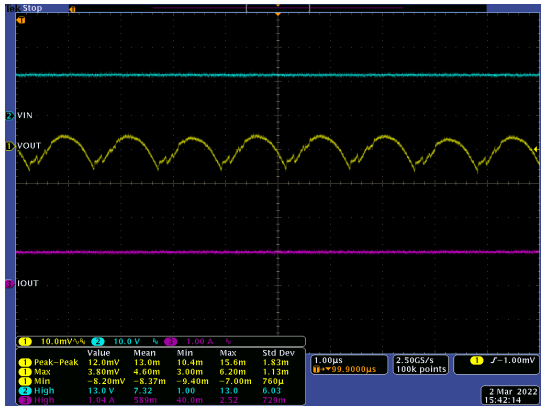
Max Load (2.00A)

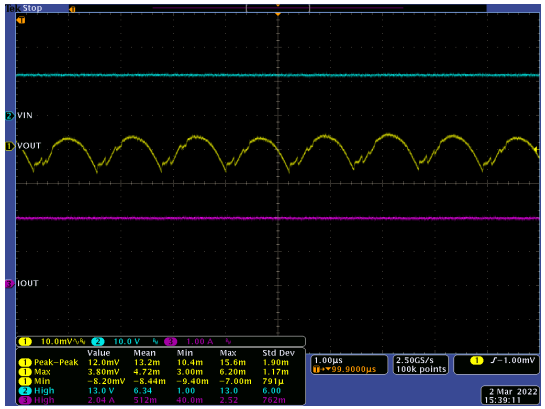
VIN

VOUT

IOUT



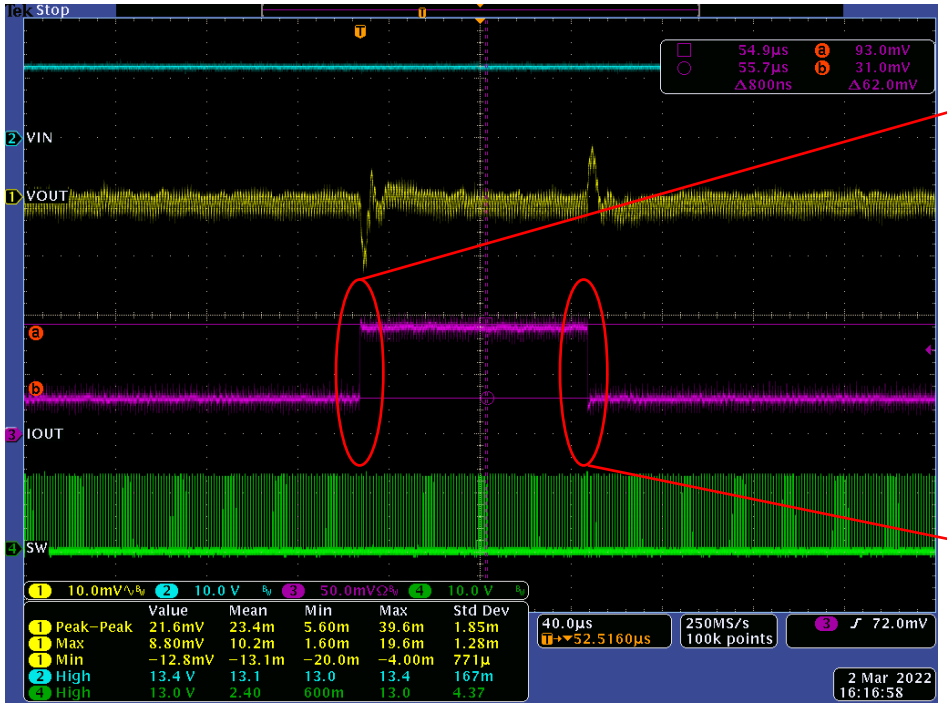




- 10.4 mV peak-peak ripple at No load
- 12.0 mV peak-peak ripple at Half load
- 12.0 mV peak-peak ripple at Max load

Buck 1 - 12Vin -Transient test

Step Load 1.25A→1.88A→1.25A, 10A/us



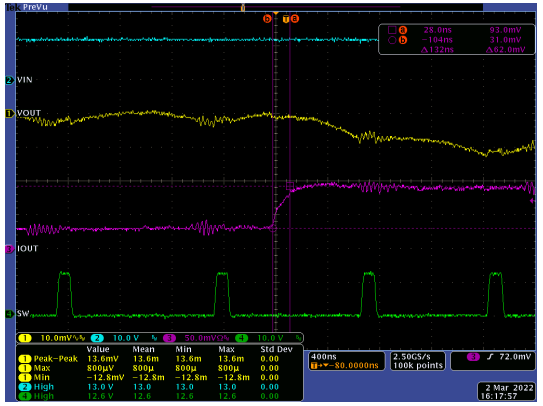
VIN

VOUT

IOUT

SW

Rising Edge



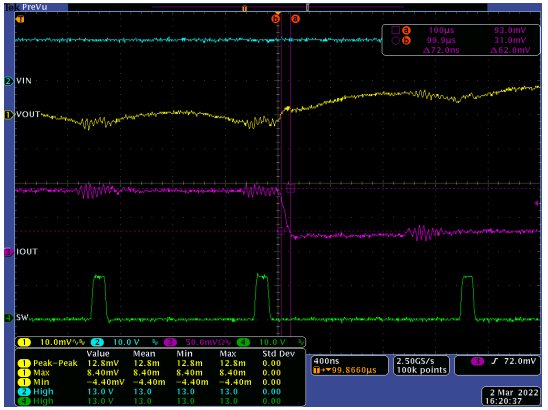
VIN

VOUT

IOUT

SW

Falling Edge



- Vout ripple -1.28% (-12.8mV) to +0.88% (8.80mV) with load transient

Buck 2 - 12Vin -Transient test

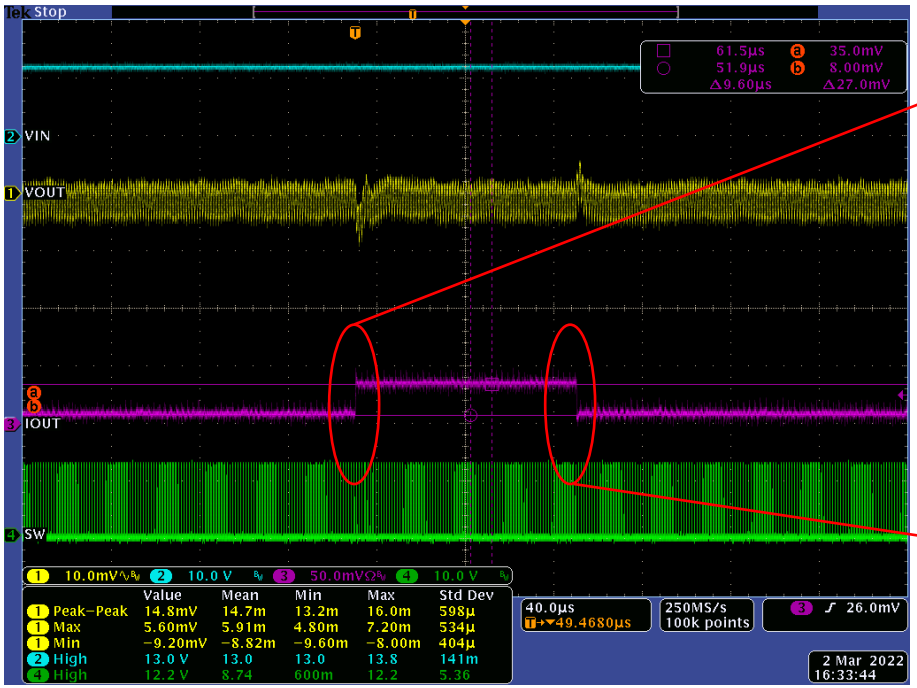
Step Load 0.50A→0.75A→0.50A, 10A/us

VIN

VOUT

IOUT

SW



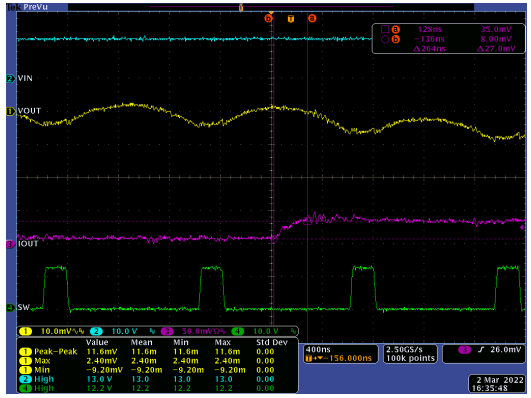
Rising Edge

VIN

VOUT

IOUT

SW



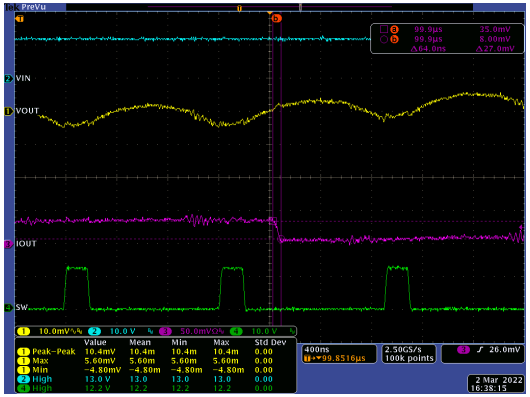
Falling Edge

VIN

VOUT

IOUT

SW



- Vout ripple -0.51% (-9.20mV) to +0.31% (5.60mV) with load transient

Buck 3 - 12Vin -Transient test

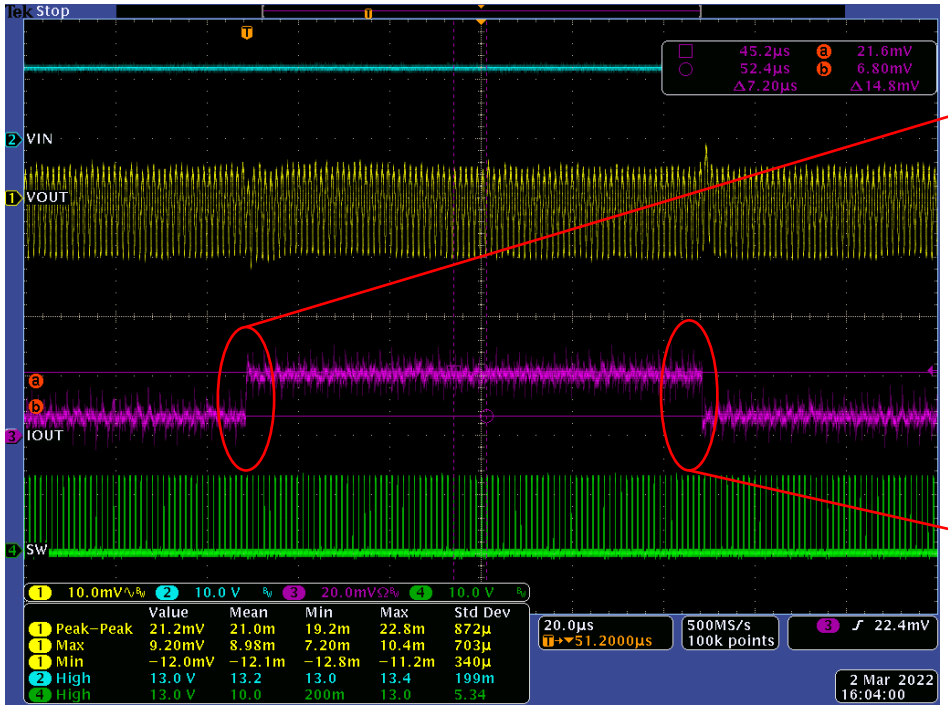
Step Load 0.25A→0.75A→0.25A, 10A/us

VIN

VOUT

IOUT

SW



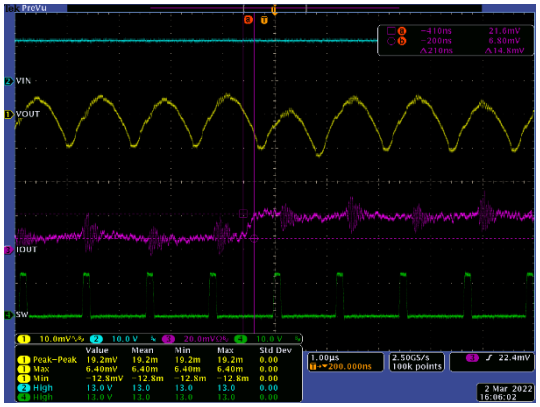
Rising Edge

VIN

VOUT

IOUT

SW



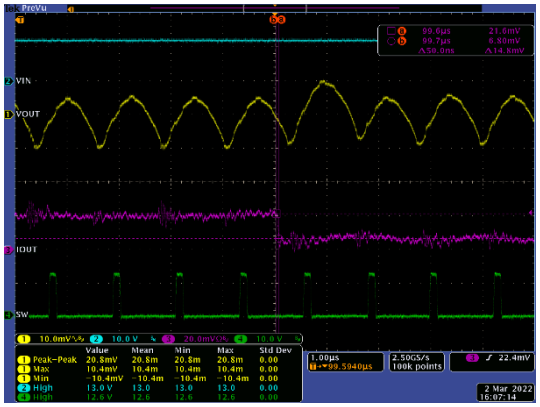
Falling Edge

VIN

VOUT

IOUT

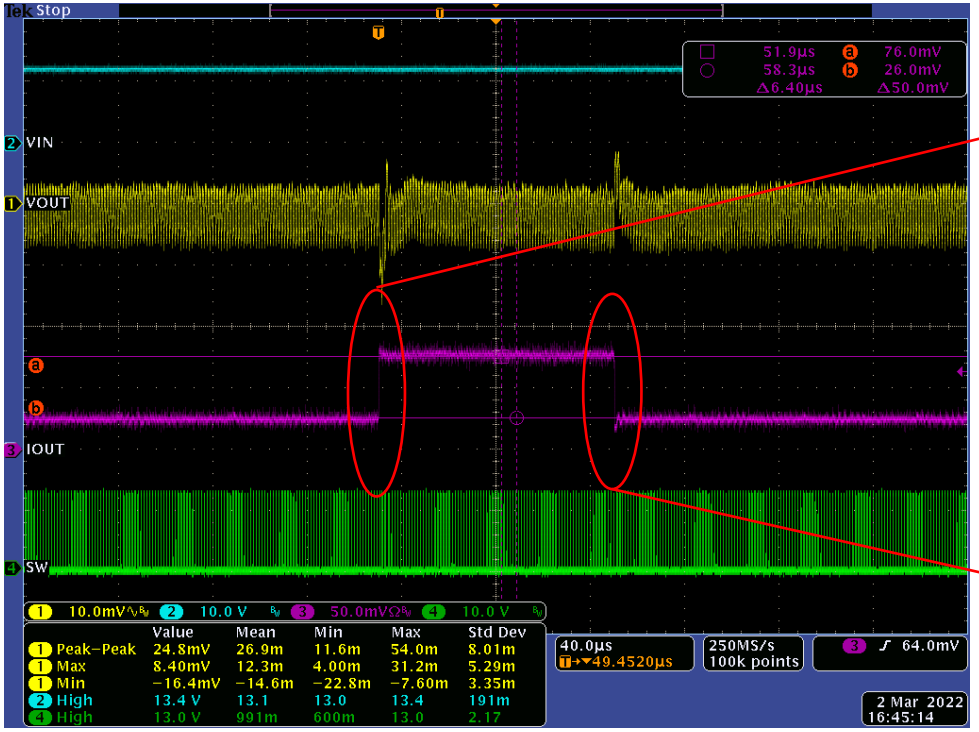
SW



- Vout ripple -0.67% (-12.0mV) to +0.51% (9.20mV) with load transient

Buck 4 - 12Vin -Transient test

Step Load 1.00A→1.50A→1.00A, 10A/us



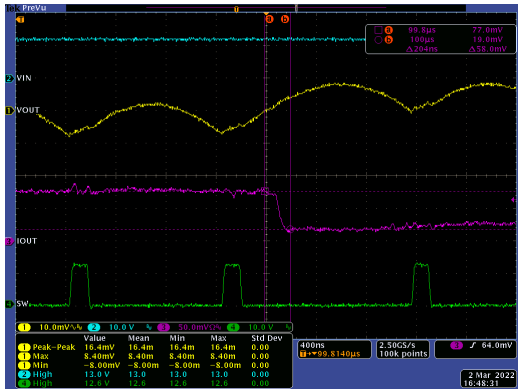
VIN

VOUT

IOUT

SW

Rising Edge



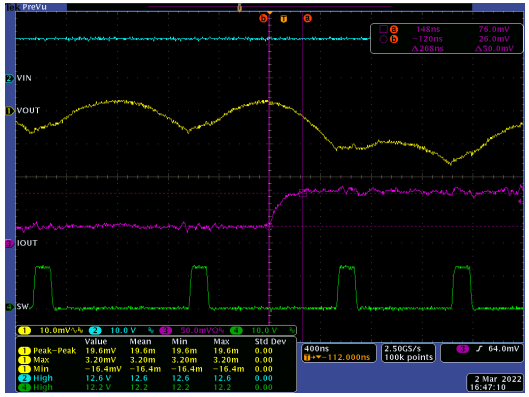
VIN

VOUT

IOUT

SW

Falling Edge



VIN

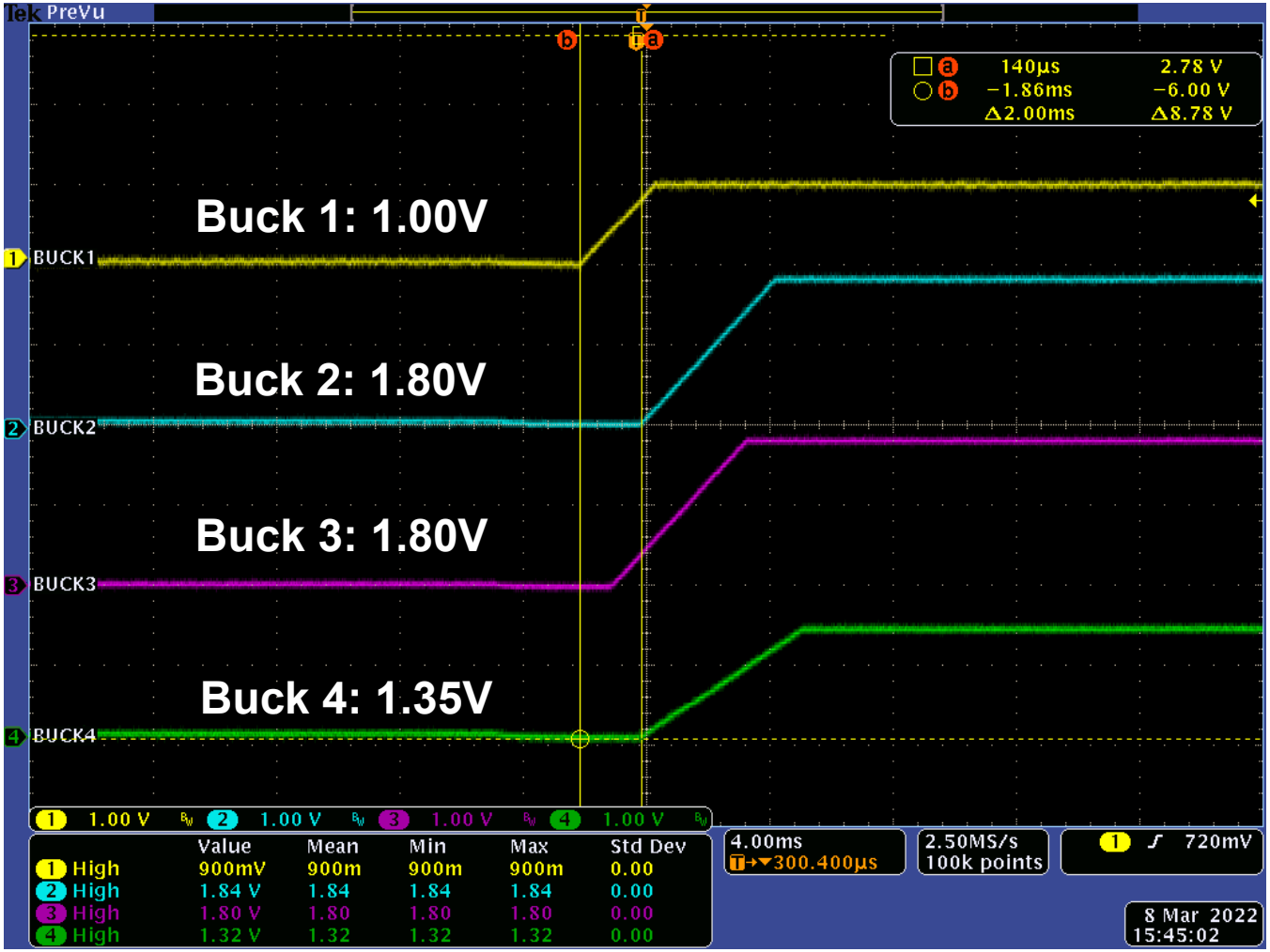
VOUT

IOUT

SW

- **Vout ripple -1.21% (-16.4mV) to +0.62% (8.40mV) with load transient**

Power-Up Sequence



Power-Down Sequence