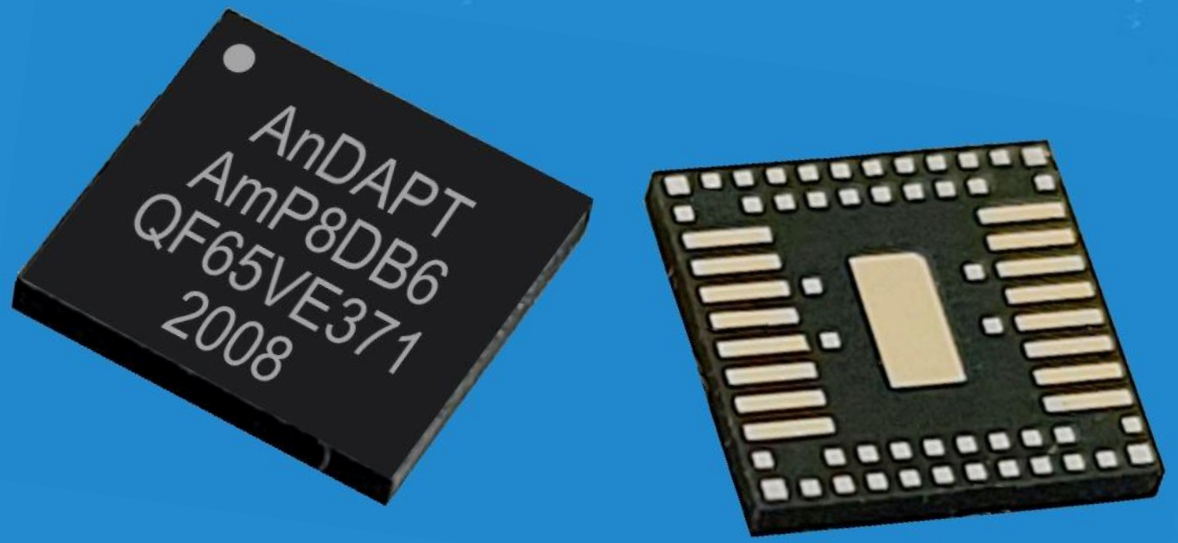


Kintex-7 (with MGT)

Mappings & Test Data

AnDAPT Marketing Team

AnDAPT

Contents

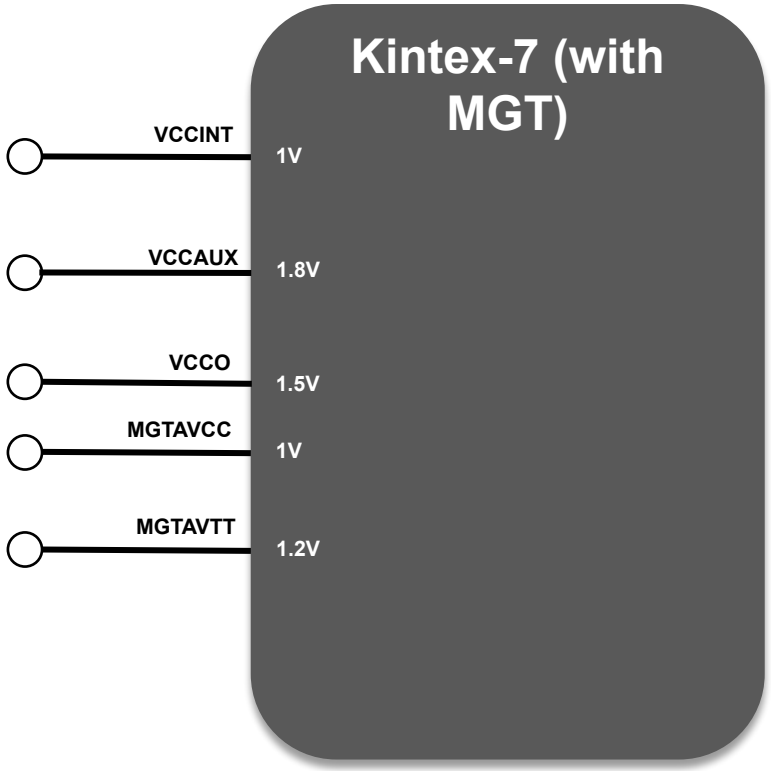
- Xilinx Kintex-7 (with MGT)+ family of devices SKUs
- Kintex-7 (with MGT) + power maps
- AnDAPT integrated power supply design
- Bench data including efficiency, transients, ripple for each power rail
- AnDAPT PMICs meet or exceed all power performance specs provided by Xilinx for Kintex-7 (with MGT)+ family FPGAs

Kintex-7 (with MGT) Device SKUs Covered

Supported SKUs
XC7K70T
XC7K160T
XC7K325T
XC7K410T
XQ7K410T
XC7K420T
XC7K480T
XC7K355T
XA7K160T
XQ7K70T

Kintex-7 (with MGT)

Can be combined if voltage same



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Power Tree: Kintex-7 (with MGT)

PVIN = 12V

#	Rail	Seq	Vout (V)	Iout (A)
1	VCCINT	1	1	2-9
2	VCCAUX	2	1.8	0.3
3	VCCO	3	1.5	1,5
4	MGTAVCC	1	1	0.25
5	MGTAVTT	2	1.2	0.2

Power Tree Mapping: Kintex-7 (with MGT)

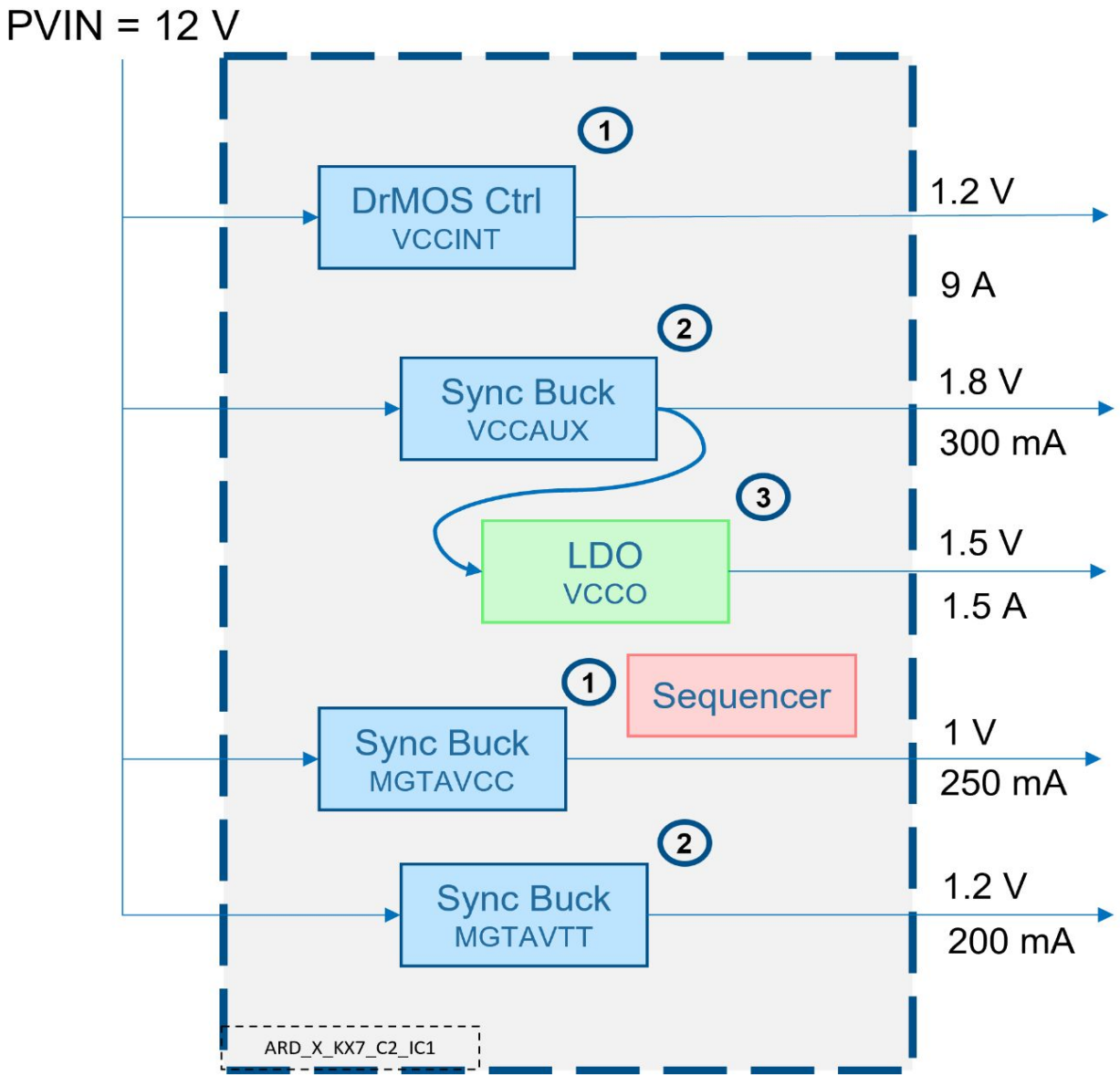
PVIN = 12V

#	Rail	Seq	Power Component	Type	Upstream Rail	Vinput (V)	Vout (V)	Iout (A)	IC
1	VCCINT, BRAM	1	C865	DrMOS Ctrl	PVIN	12	1	2 to 9	ARD_X_KX7_C2_IC1
2	VCCAUX	2	C200	Sync Buck	PVIN	12	1.8	0.3	ARD_X_KX7_C2_IC1
3	VCCO	3	C710	LDO	VCCAUX	12	1.5	1.5	ARD_X_KX7_C2_IC1
4	MGTAVCC	1	C200	Sync Buck	PVIN	12	1	0.25	ARD_X_KX7_C2_IC1
5	MGTAVTT	2	C200	Sync Buck	PVIN	12	1.2	0.2	ARD_X_KX7_C2_IC1

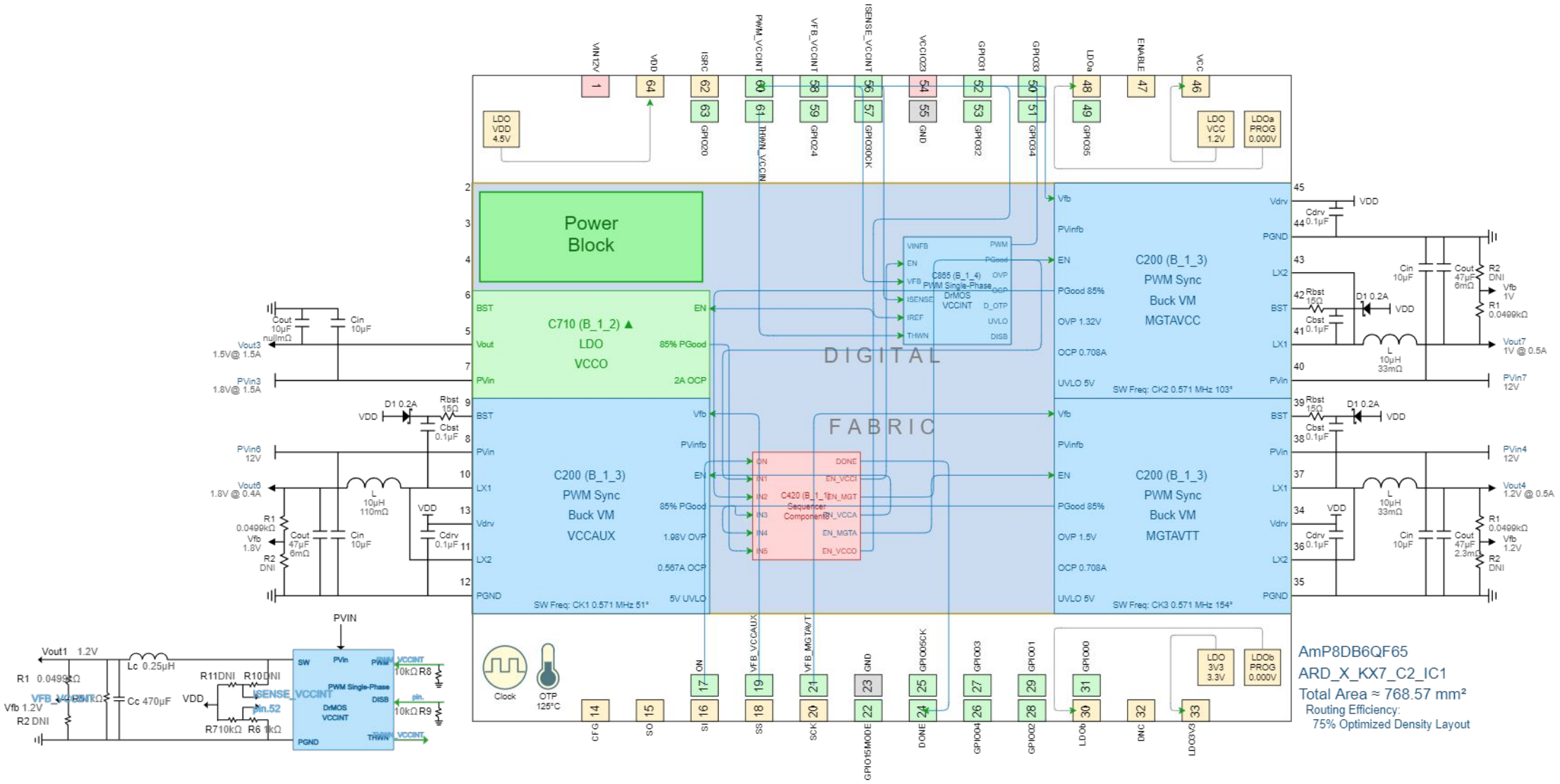
Estimated total area estimated = 768.57 mm^2

AnDAPT

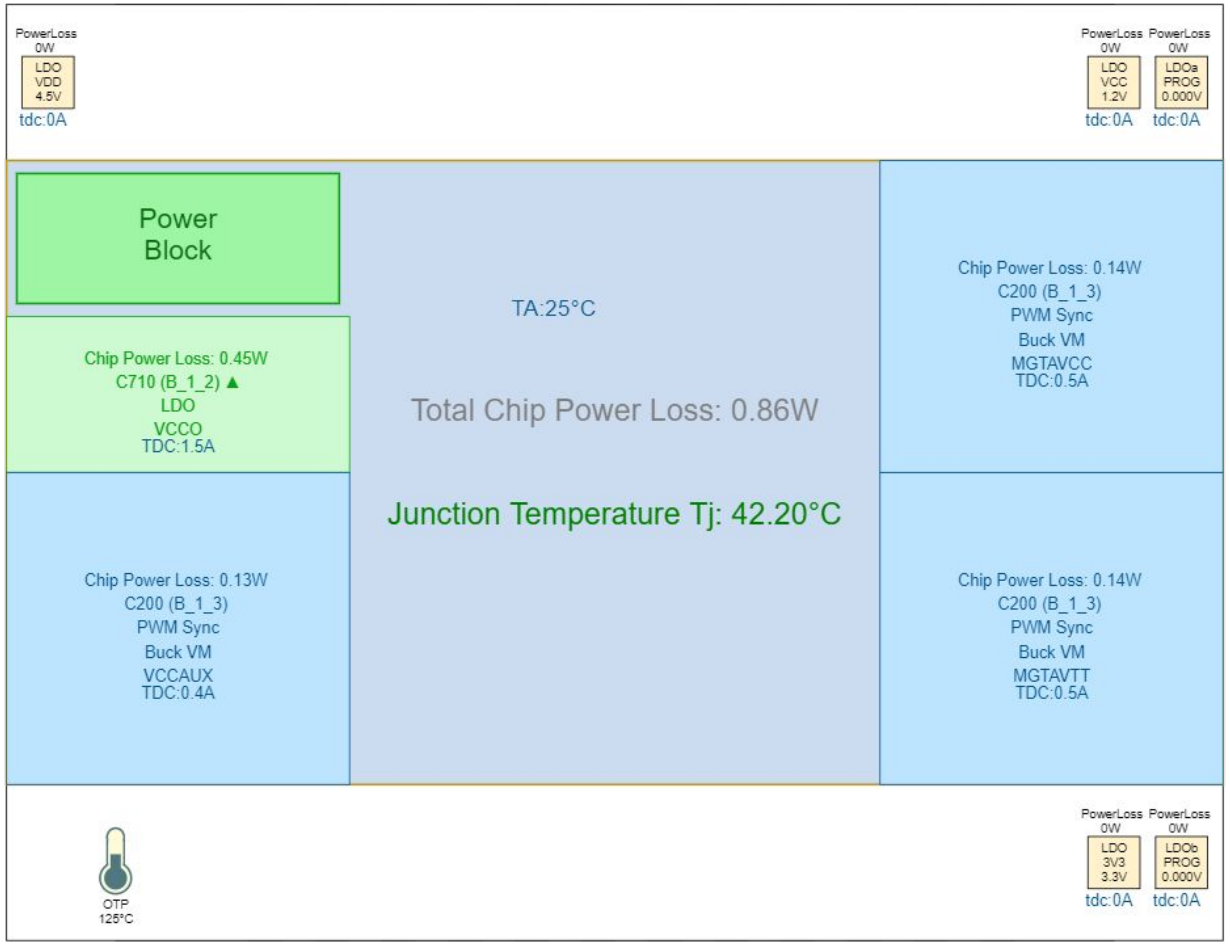
Power Tree Mapping



Mapping (WebAmP View)



Mapping (Thermal View)



AmP8DB6QF65
ARD_X_KX7_C2_IC1
Total Area ≈ 768.57 mm²
Routing Efficiency:
75% Optimized Density Layout

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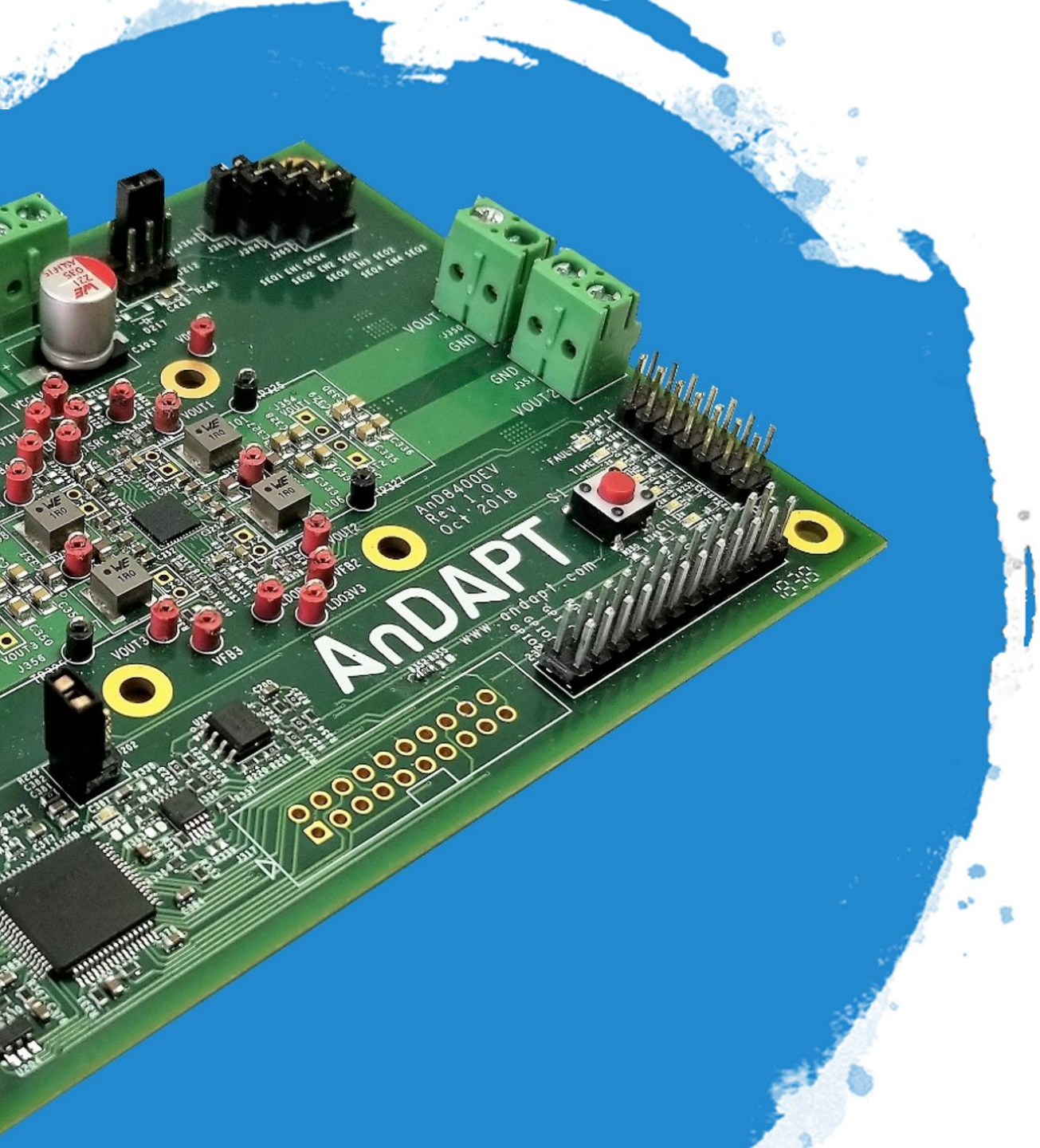

Test Data

Kintex-7 (with MGT)

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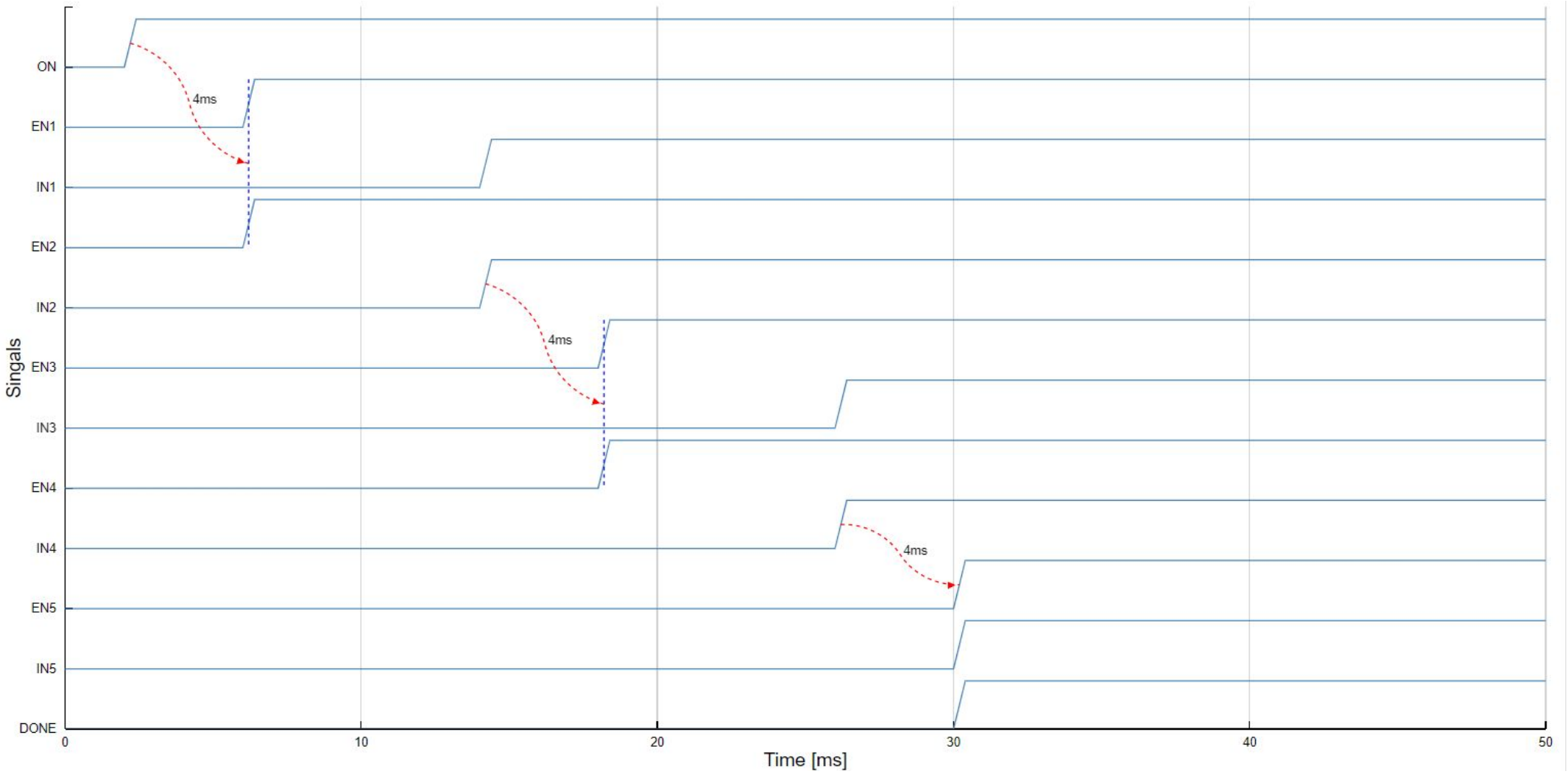
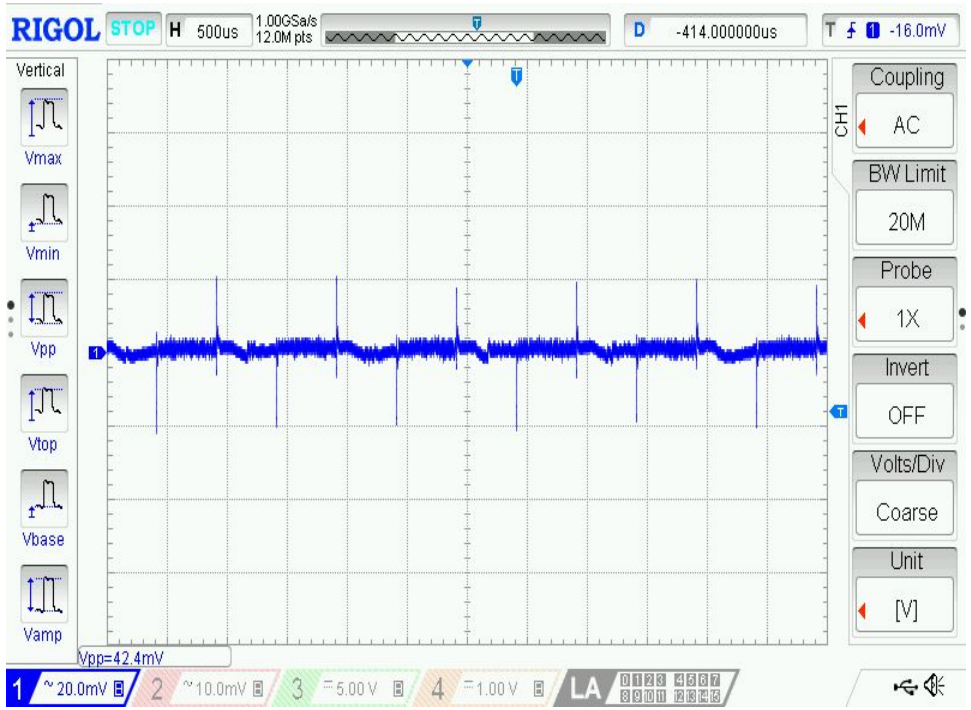
Integrated Sequencer Graphic (Turn ON)



VCCINT
1.2 V / 9 A

- C865 DrMOS Ctrl
- Fsw = 1 MHz
- L = 0.25 µH, P/N Wurth 744308033
- C = 10x47 uF

Efficiency & Transient



Vout = 1.2V
Transient 6.75A – 9A @ 10 A/µs
V_{PP} = 42.4 mV
Fsw = 1 MHz
Lout = 0.25 µH, Cout = 10 x 47 µF

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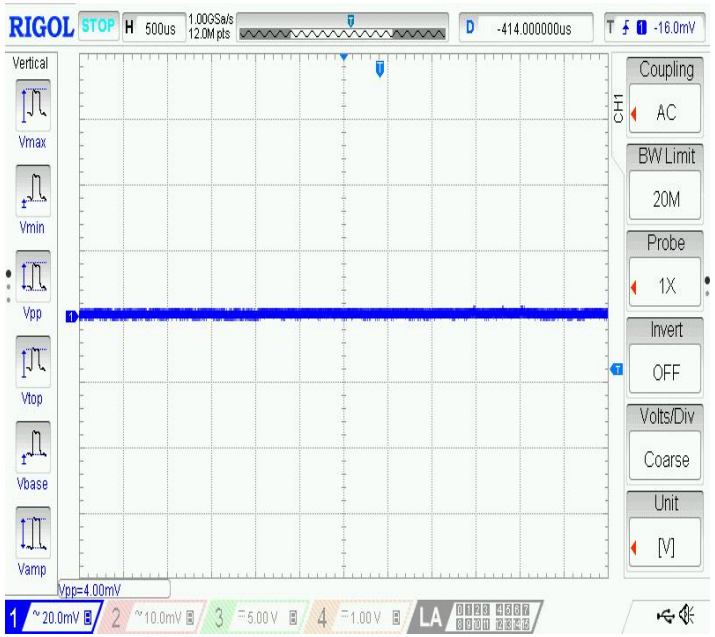
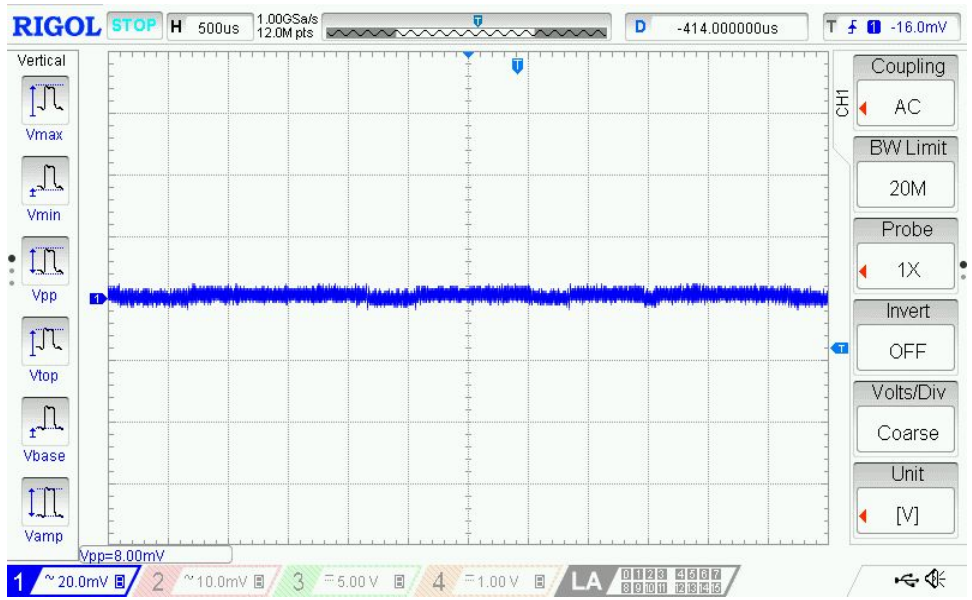
Ripple



No Load
V_{PP} = 4 mV

Vout = 1.2 V



9 A Load
V_{PP} = 8 mV

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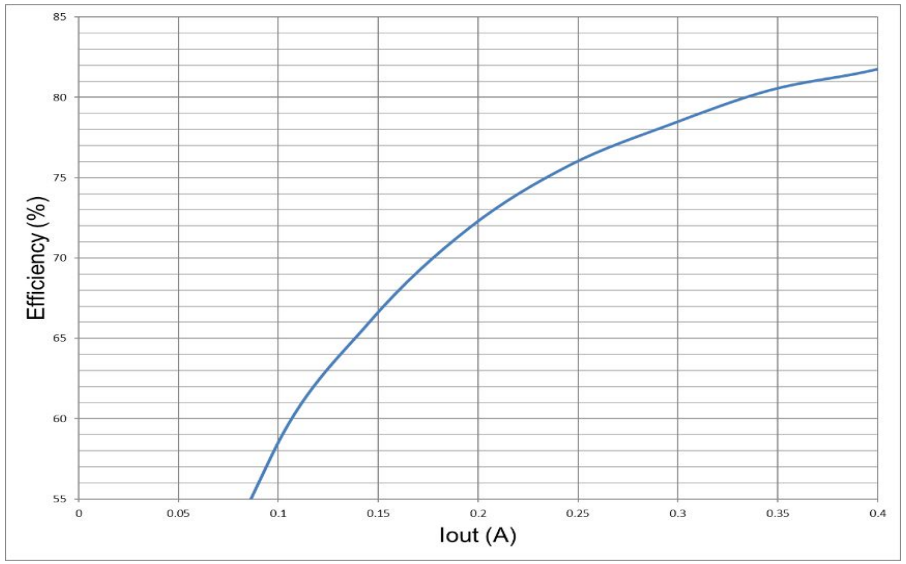
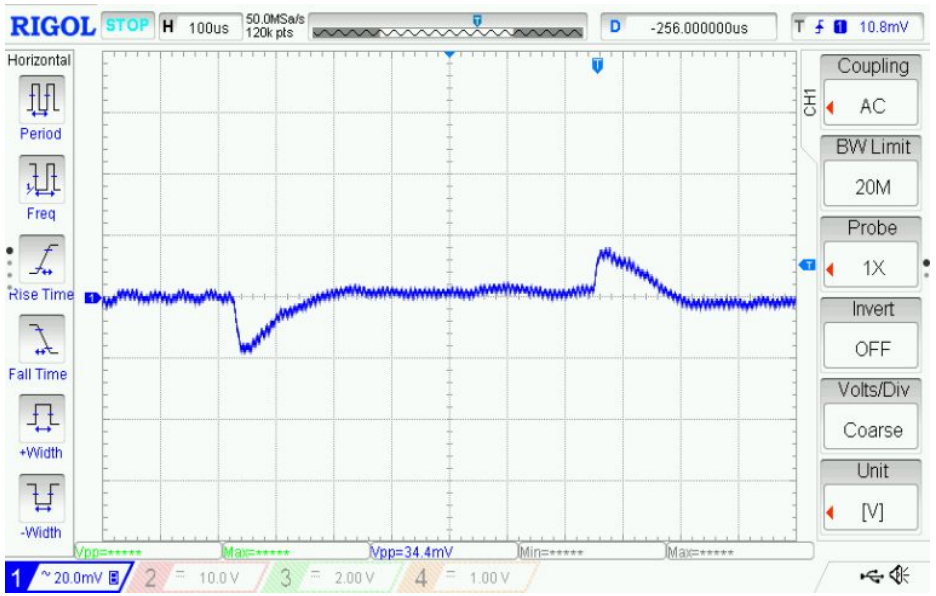
VCCAUX
1.8 V / 0.3 A

- C200 Sync Buck
- Fsw = 571 kHz
- L = 10 µH, P/N Wurth 74438357100
- C = 1x47 uF

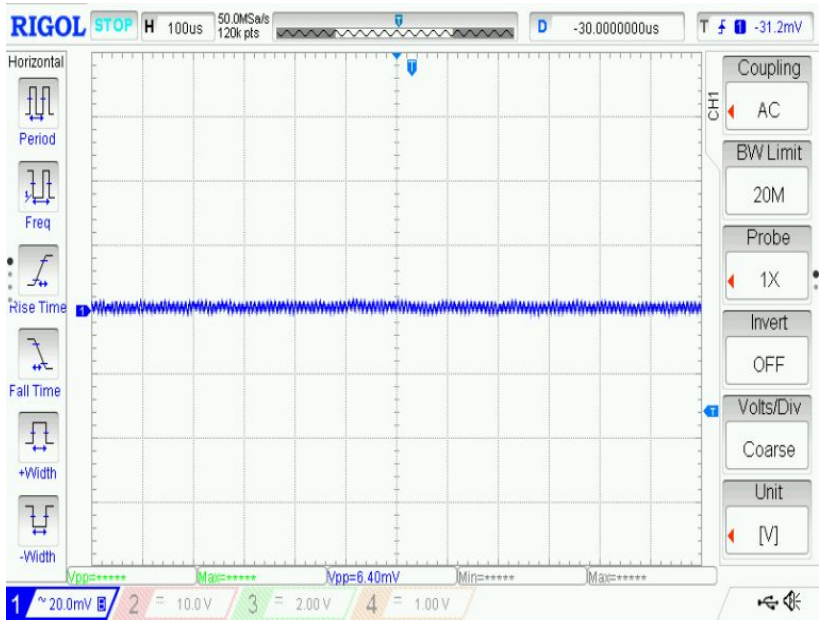
Efficiency & Transient



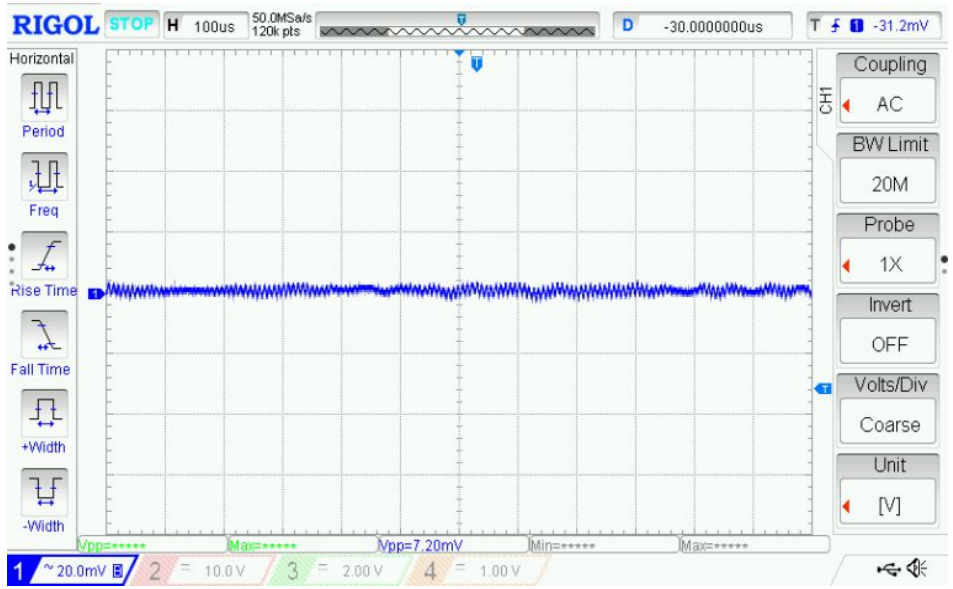


Vout = 1.8V
Transient 0.12A to 0.4A@2.5 A/us
Vpp = 34.4 mV
L = 10 uH and C = 47 uF.
f = 571 kHz

Ripple



No Load
V_{PP} = 6.4 mV



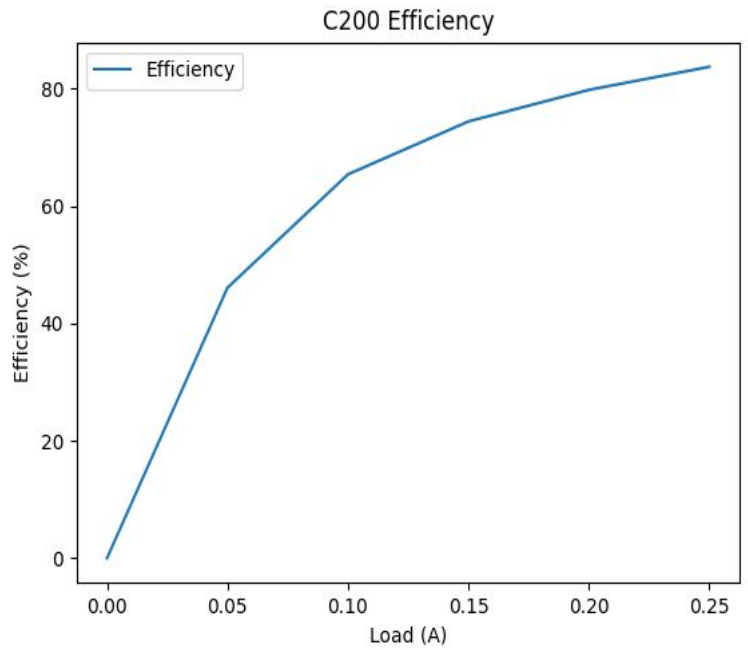
Vout = 1.8 V

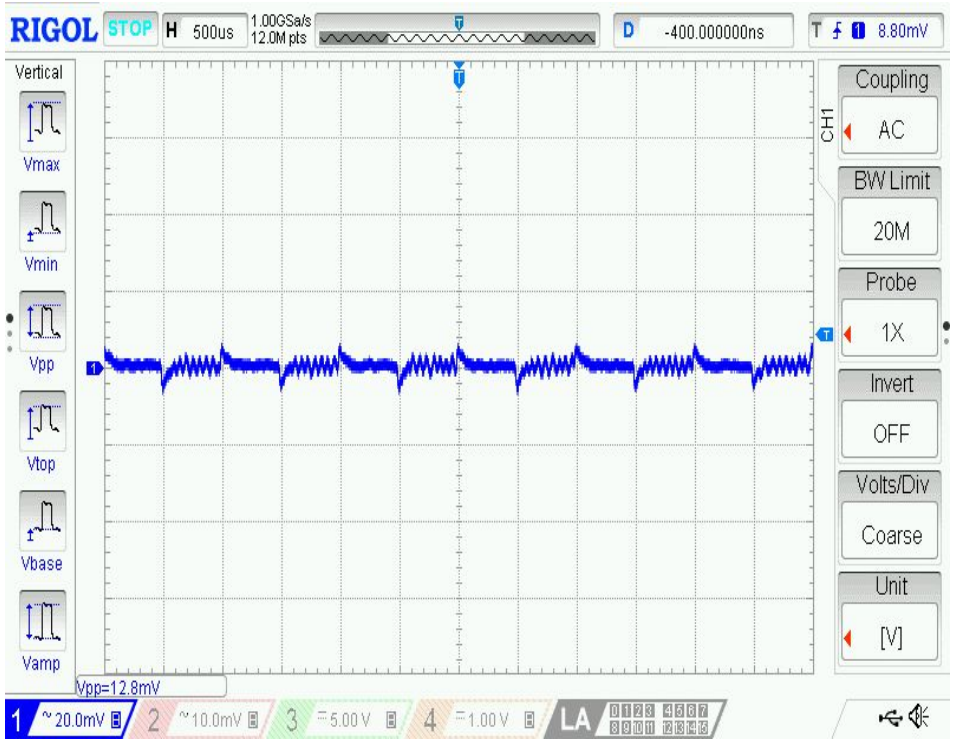
0.4A Load
V_{PP} = 7.2 mV

MGTAVCC
1 V / 0.25 A

- C200 Sync Buck
- Fsw = 571 kHz
- L = 10 µH, P/N Wurth 744314101
- C = 1x47 uF

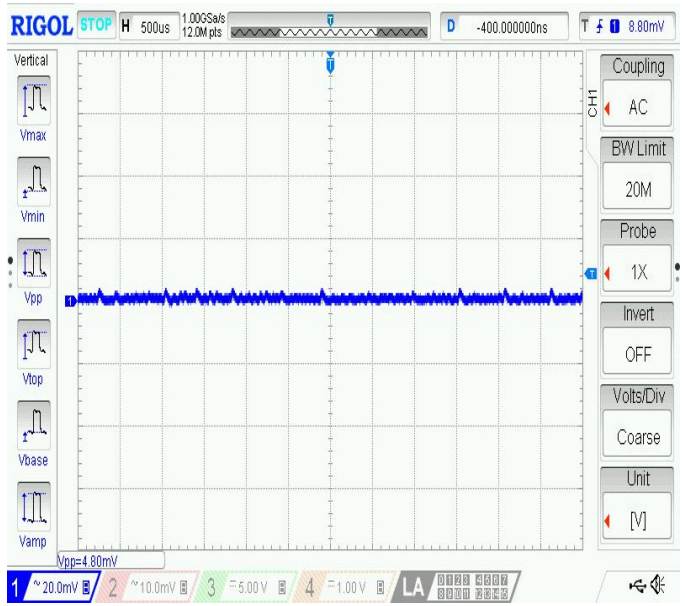
Efficiency & Transient





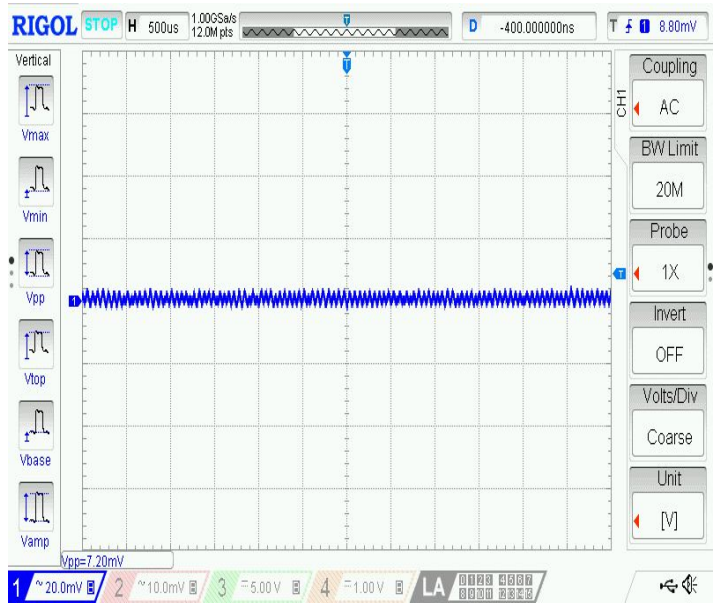
Vout = 1V
Transient 0.19A to 0.25A@2.5 A/us
Vpp = 12.8 mV
L = 10 uH and C = 47 uF.
f = 571 kHz

Ripple



No Load
V_{PP} = 4.80 mV

Vout = 1 V



0.25 A Load
V_{PP} = 7.20 mV

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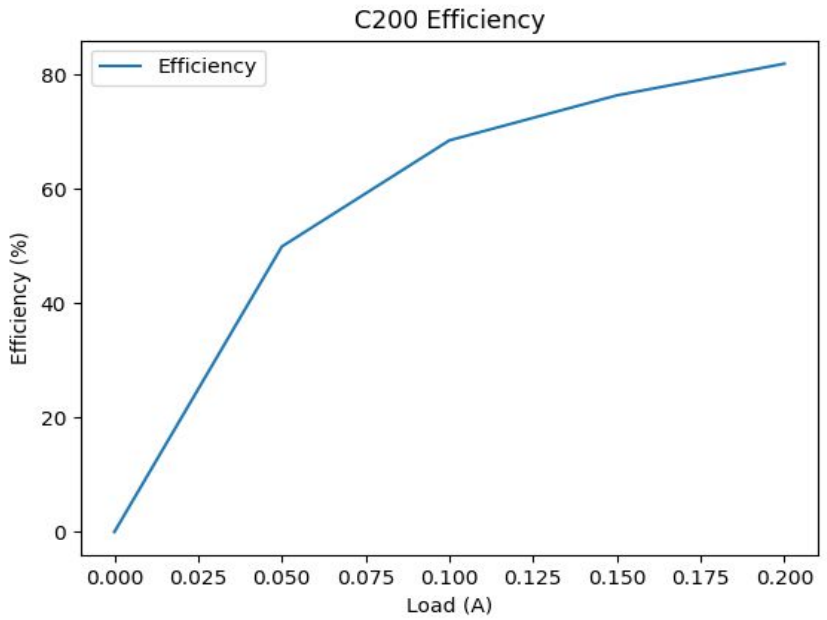
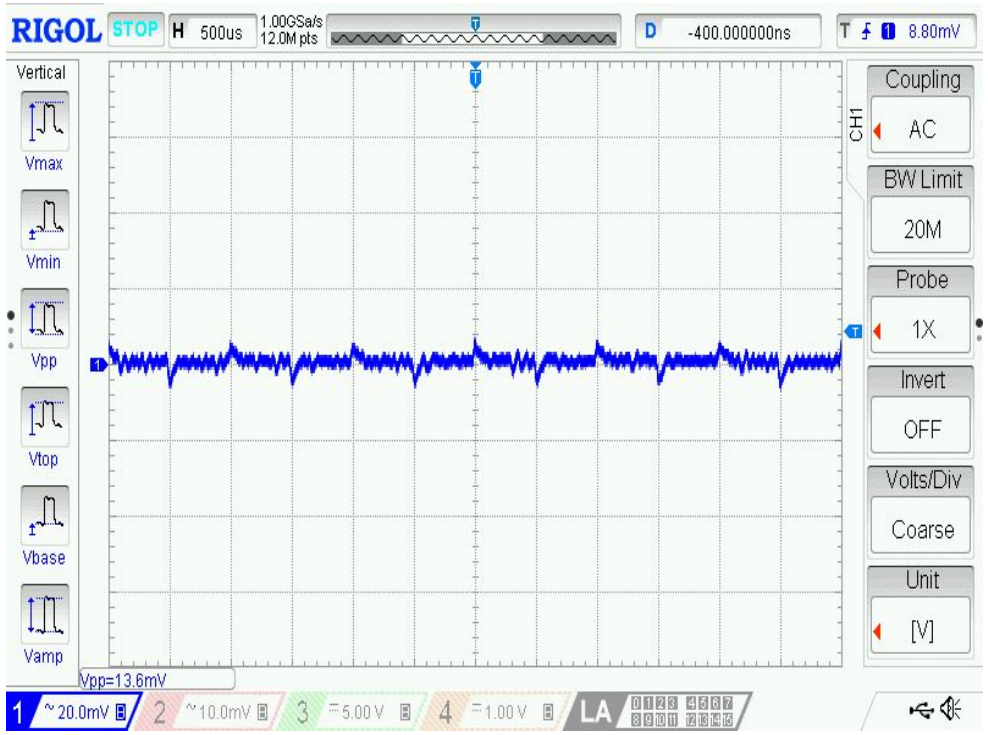
MGTAVTT
1.2 V / 0.2 A

- C200 Sync Buck
- Fsw = 571 kHz
- L = 10 µH, P/N Wurth 74437334100
- C = 1x47 uF

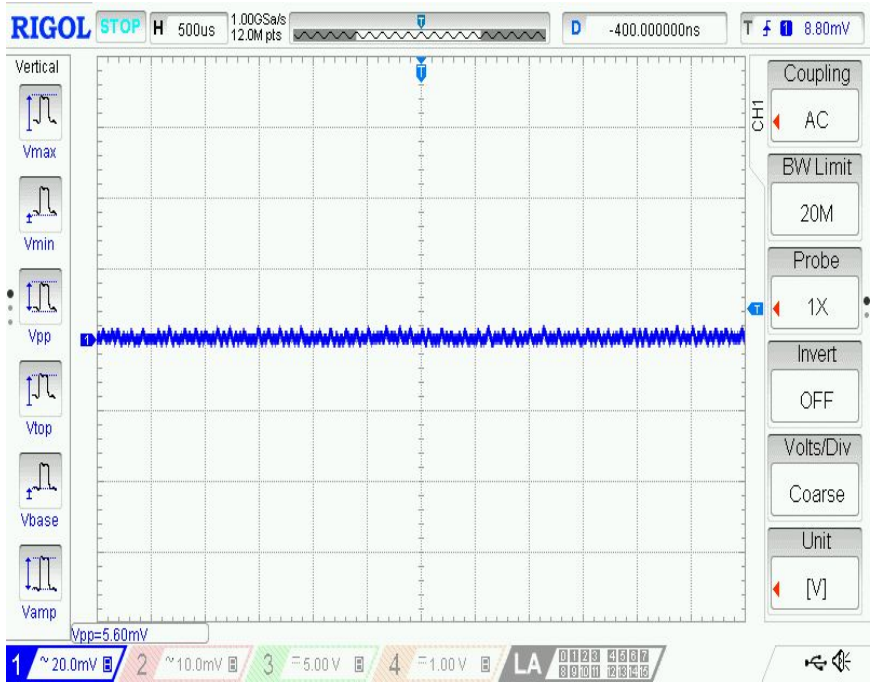
Efficiency & Transient

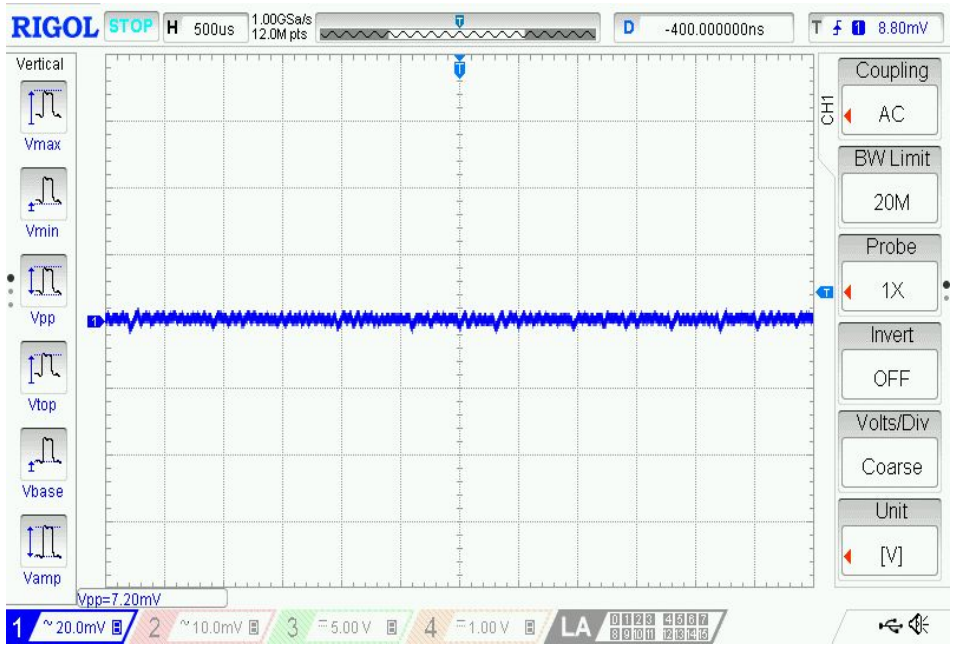




Vout = 1.2V
Transient 0.15A to 0.2A@2.5 A/us
Vpp = 13.6 mV
L = 10 uH and C = 47 uF.
f = 571 kHz

Ripple





No Load
V_{PP} = 5.60 mV

Vout = 1.2 V

0.2 A Load
V_{PP} = 7.20 mV

Thank You

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