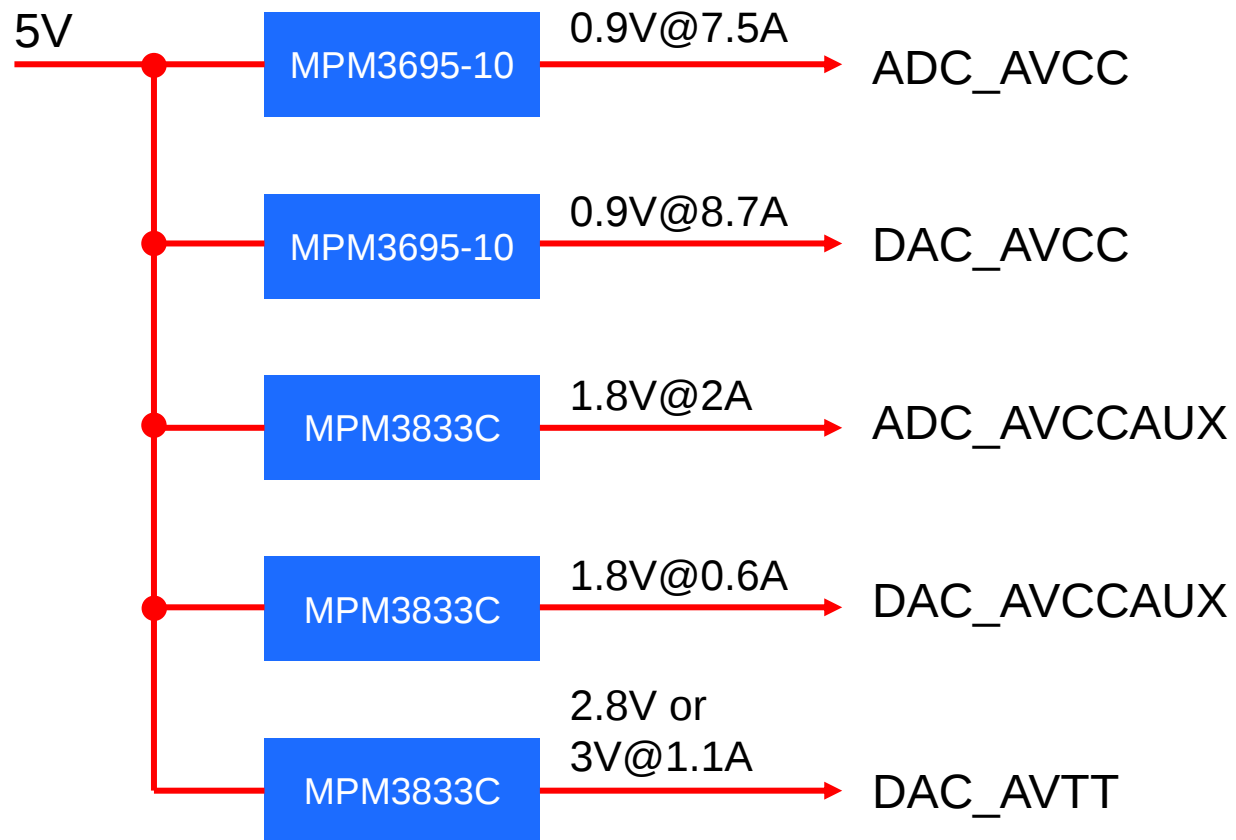


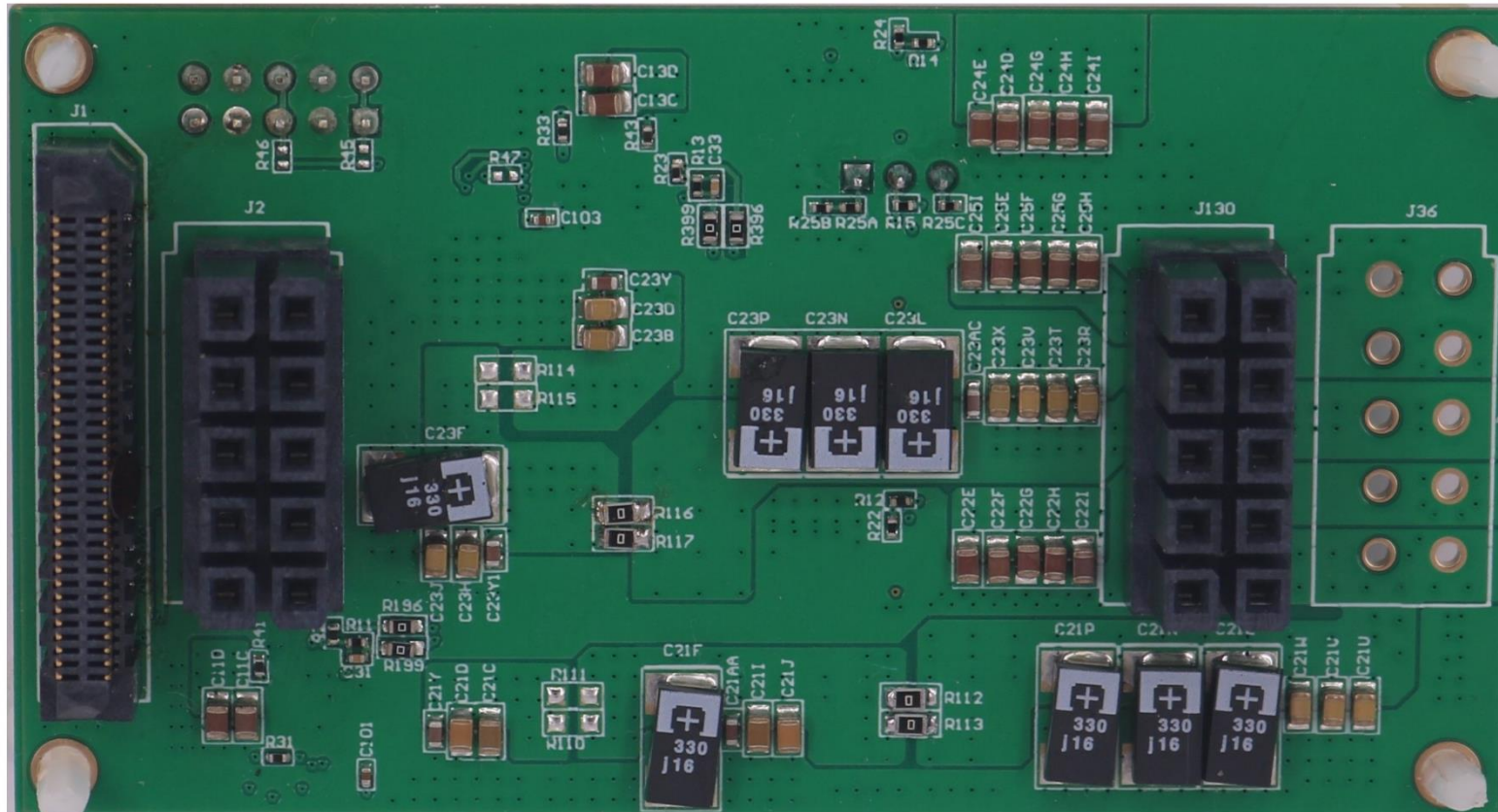
Xilinx Reference Design EVREF0106 Test Report

March 2022

EVREF0106 Power Tree



EVREF0106 Board



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EVB Specification

Rail	Power Rail	Vin (V)	Nominal Vout (V)	DC Accuracy (%)	AC Ripple	Load Step	Iout (A)	MPS part#
Rail1	ADC_AVCC	5	0.9	+/-3%	0.25mV	10%--100%, 0.8A/ μ s	7.5A	MPM3695-10
Rail2	DAC_AVCC	5	0.9	+/-3%	0.32mV	10%--100%, 0.8A/ μ s	8.7A	MPM3695-10
Rail3	ADC_AVCCAUX	5	1.8	+/-3%	1.2mV	50%--100%, 0.8A/ μ s	2A	MPM3833C
Rail4	DAC_AVCCAUX	5	1.8	+/-3%	1mV	80%--100%, 0.8A/ μ s	0.6A	MPM3833C
Rail5	DAC_AVTT	5	2.8 or 3	+/-3%	2mV	20%--100%, 0.8A/ μ s	1.1	MPM3833C

DC Voltage Accuracy– No Load and Full Load

Rail	Power Rail	Target Voltage (V)	Iout (A)	Actual Voltage (V)	DC Error(%)	MPS part#	Note
Rail1	ADC_AVCC	0.9	0A	0.8970	-0.33	MPM3695-10	L11, L21 = 0Ω resistor
			7.5A	0.8853	-1.63		
Rail2	DAC_AVCC	0.9	0A	0.8975	-0.28	MPM3695-10	L13, L23 = 0Ω resistor
			8.7A	0.8836	-1.82		
Rail3	ADC_AVCCAUX	1.8	0A	1.8043	0.24	MPM3833C	
			2.0A	1.8020	0.11		
Rail4	DAC_AVCCAUX	1.8	0A	1.8012	0.07	MPM3833C	
			0.6A	1.8002	0.01		
Rail5	DAC_AVTT	2.8	0A	2.7883	-0.42	MPM3833C	
			1.1A	2.7877	-0.44		
		3.0	0A	2.996	-0.13		
			1.1A	2.9952	-0.16		

Ripple and Transient summary

		EVREF0106	
		Vout, load	Ripple (mV)
Rail1	ADC_AVCC	0.9V, 0A	0.64
		0.9V, 7.5A	0.64
Rail2	DAC_AVCC	0.9V, 0A	0.68
		0.9V, 8.7A	0.68
Rail3	ADC_AVCCAUX	1.8V, 0A	1.68
		1.8V, 2A	1.44
Rail4	DAC_AVCCAUX	1.8V, 0A	1.92
		1.8V, 0.6A	1.84
Rail5	DAC_AVTT	2.8V, 0A	0.68
		2.8V, 1.1A	1.68

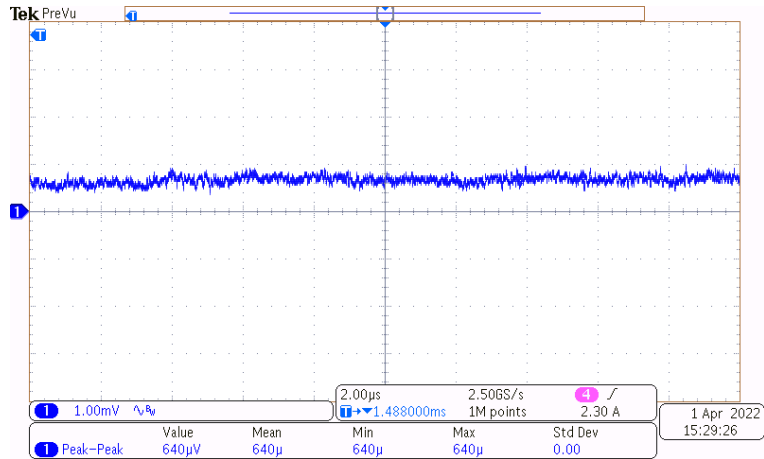
		EVREF0106			
		Step size (A)	Transient pp	Overshoot %	Undershoot %
Rail1	ADC_AVCC	0.945-3.15	15mVpp	0.71	0.98
		0.75-7.5	38mVpp	1.44	2.78
Rail2	DAC_AVCC	0.565-5.65	29mVpp	1.24	1.96
		0.87-8.7	44mVpp	2.22	2.67
Rail3	ADC_AVCCAUX	1.0-2.0	43mVpp	1.7	1.22
Rail4	DAC_AVCCAUX	0.48-0.6	4.8mVpp	0.17	0.01
Rail5	DAC_AVTT	0.22-1.1	38mVpp	0.71	0.64

Rail 1: ADC_AVCC – Steady State Ripple

Test condition: Vin=5V, Vo=0.9V, F=1000kHz, replace L11 L21 by 0Ω resistor

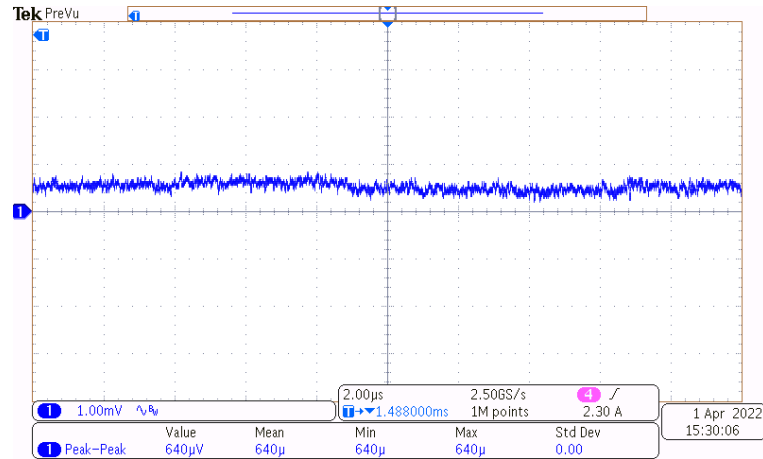
Load (A)	Ripple p-p(mV)
No Load	0.64
Full Load	0.64

IOUT=0A



VOUT/AC

IOUT=7.5A

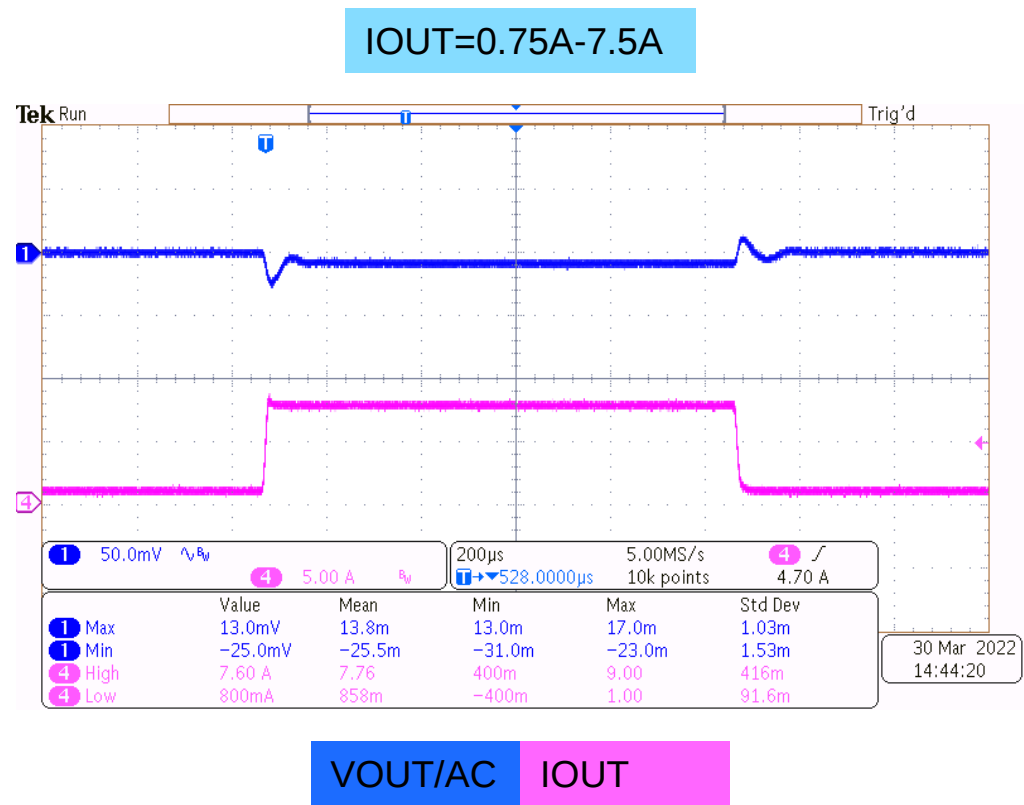


VOUT/AC

Rail 1: ADC_AVCC – Transient

Test condition: Vin=5V, Vo=0.9V, F=1000kHz, replace L11 L21 by 0Ω resistor, step 0.75A– 7.5A, slew rate=0.8A/μs

Item	Ripple(%)
Overshoot	1.44
Undershoot	-2.78



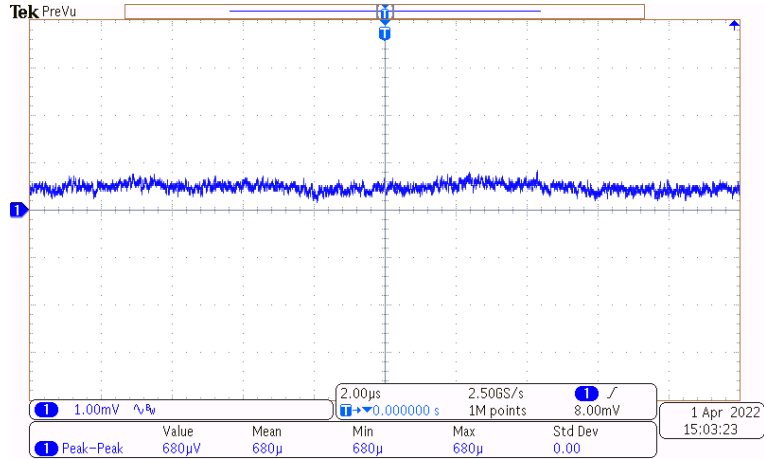
Rail 2: DAC_AVCC – Steady State Ripple

Test condition: Vin=5V, Vo=0.9V, F=1000kHz, replace L13 L23 by 0Ω resistor

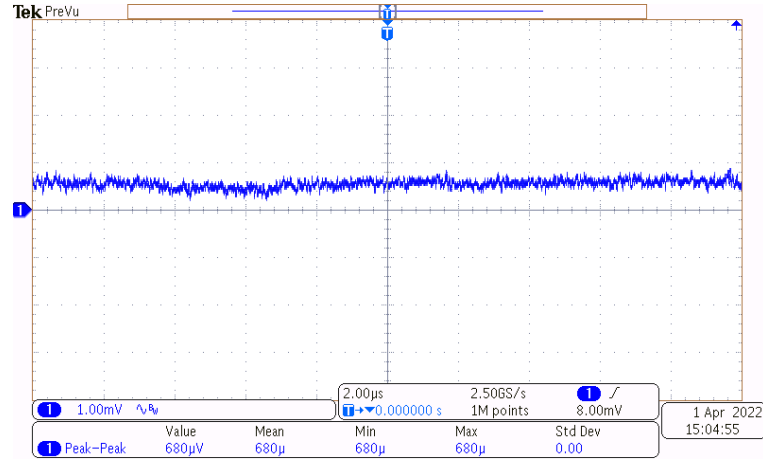
Load (A)	Ripple p-p(mV)
No Load	0.68
Full Load	0.68

IOUT=0A

IOUT=8.7A



VOUT/AC



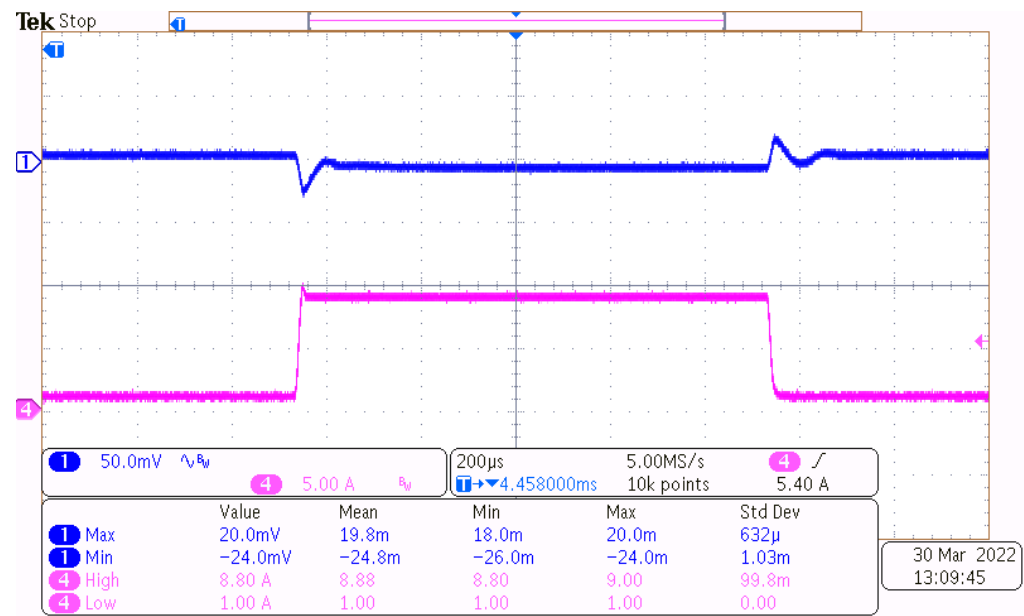
VOUT/AC

Rail 2: DAC_AVCC – Transient

Test condition: Vin=5V, Vo=0.9V, F=1000kHz, replace L13 L23 by 0Ω resistor, step 0.87A– 8.7A, slew rate=0.8A/μs

Item	Ripple(%)
Overshoot	2.22
Undershoot	-2.67

IOUT=0.87A-8.7A



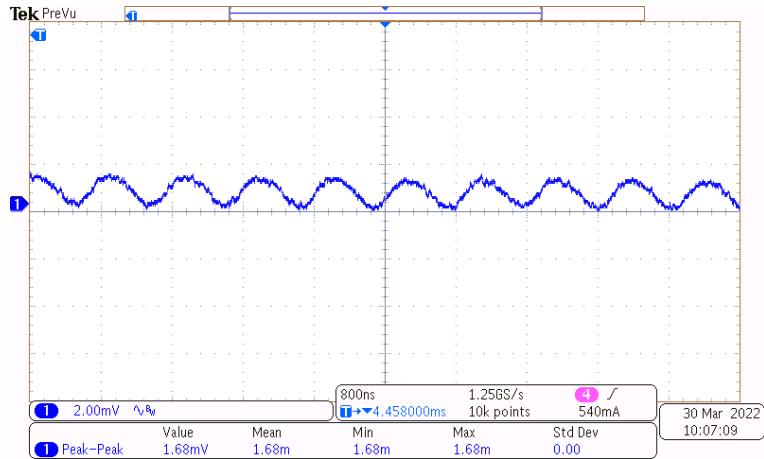
VOUT/AC IOUT

Rail 3: ADC_AVCCAUX – Steady State Ripple

Test condition: Vin=5V, Vo=1.8V, F=1150kHz

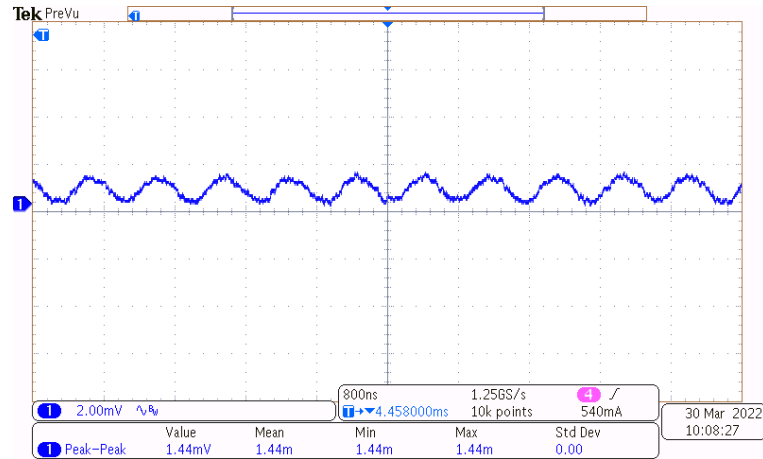
Load (A)	Ripple p-p(mV)
No Load	1.68
Full Load	1.44

IOUT=0A



VOUT/AC

IOUT=2A

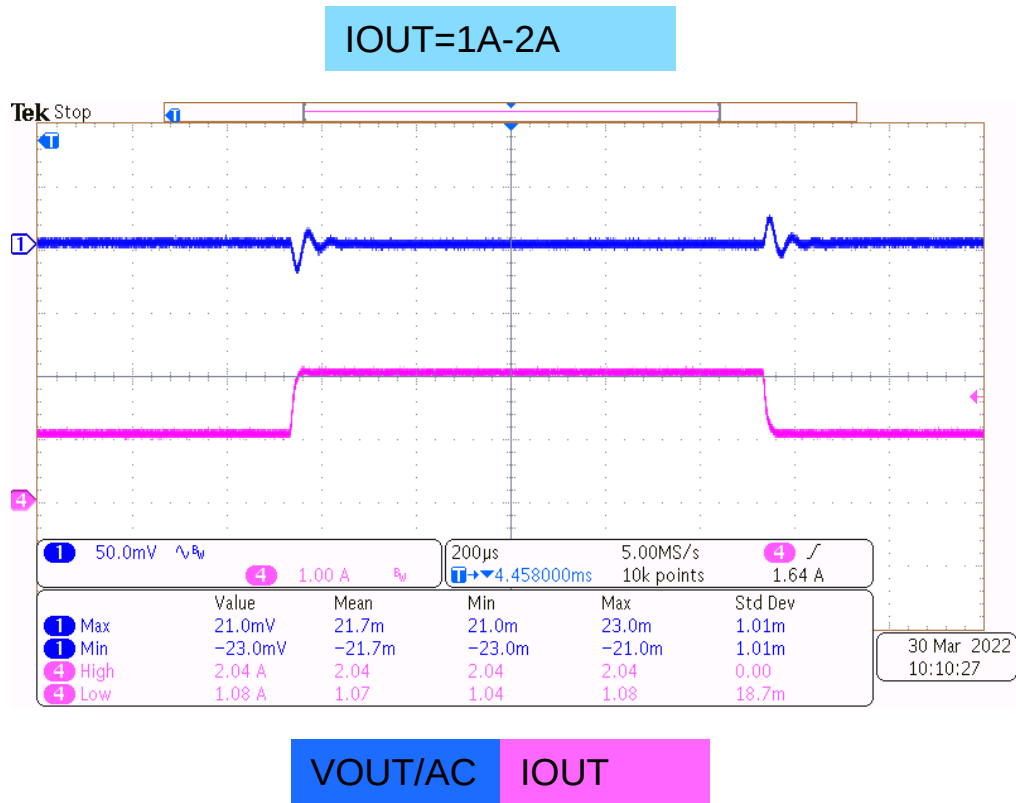


VOUT/AC

Rail 3: ADC_AVCCAUX– Transient

Test condition: Vin=5V, Vo=1.8V, F=1150kHz, step 1A– 2A, slew rate=0.8A/μs

Item	Ripple(%)
Overshoot	1.17
Undershoot	-1.33

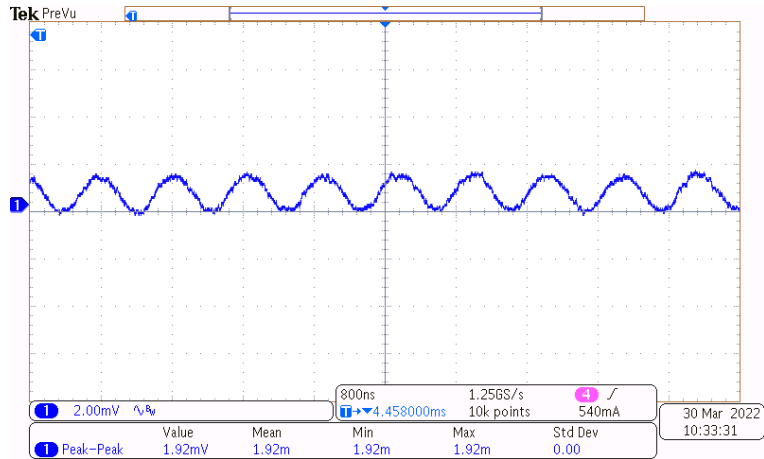


Rail 4: DAC_AVCCAUX – Steady State Ripple

Test condition: Vin=5V, Vo=1.8V, F=1150kHz

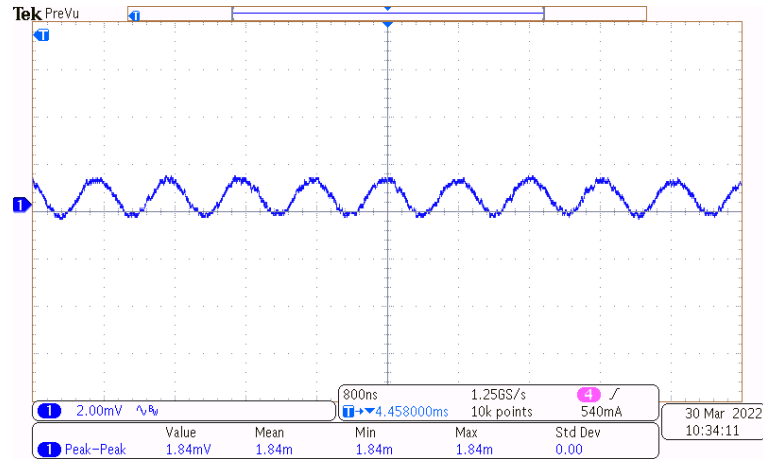
Load (A)	Ripple p-p(mV)
No Load	1.92
Full Load	1.84

IOUT=0A



VOUT/AC

IOUT=0.6A



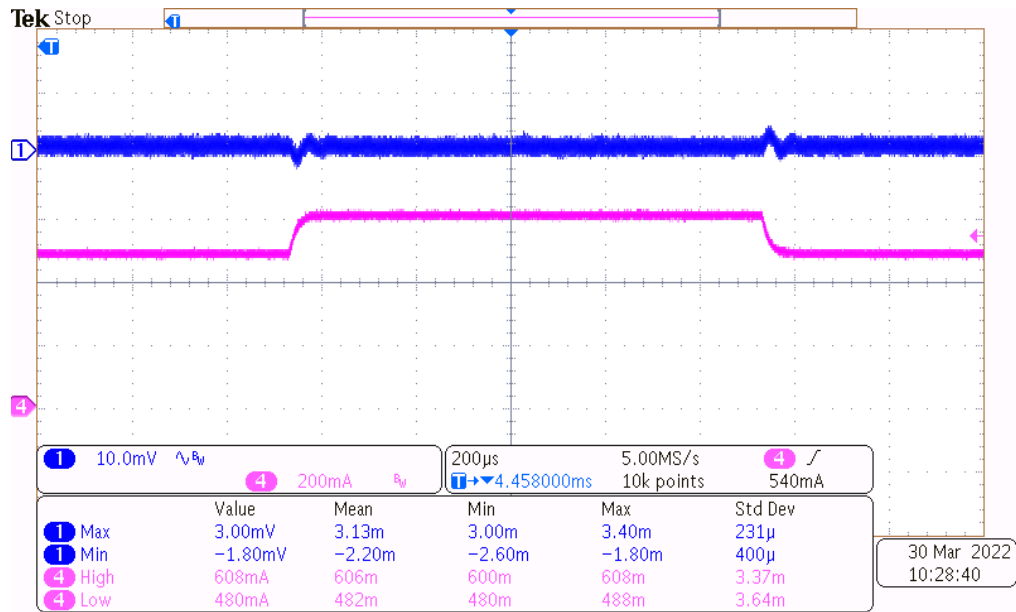
VOUT/AC

Rail 4: DAC_AVCCAUX– Transient

Test condition: Vin=5V, Vo=1.8V, F=1150kHz, step 0.48A– 0.6A, slew rate=0.8A/μs

Item	Ripple(%)
Overshoot	0.17
Undershoot	-0.1

IOUT=0.48A-0.6A



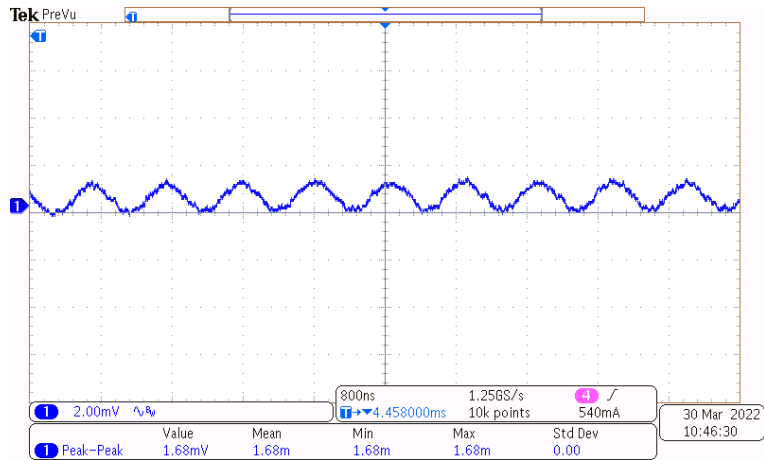
VOUT/AC IOUT

Rail 5: DAC_AVTT – Steady State Ripple

Test condition: Vin=5V, Vo=2.8V, F=1150kHz

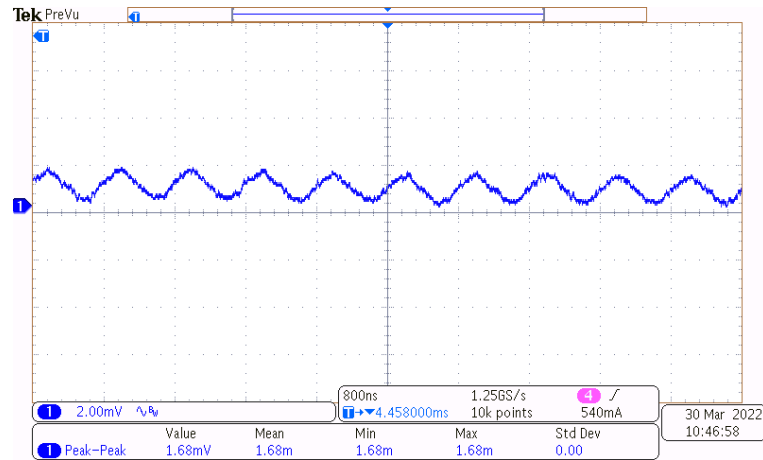
Load (A)	Ripple p-p(mV)
No Load	0.68
Full Load	1.68

IOUT=0A



VOUT/AC

IOUT=1.1A



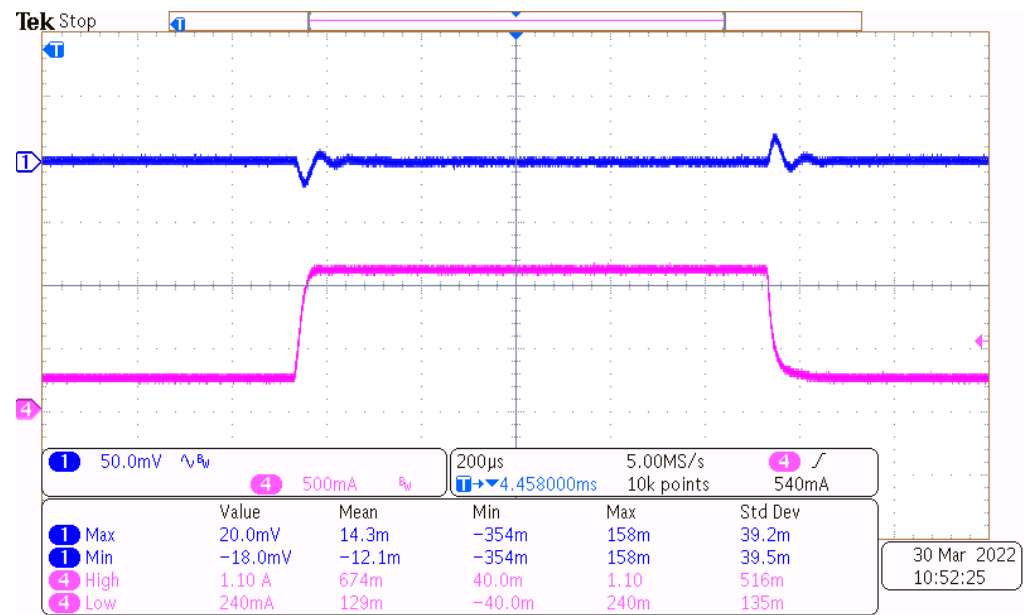
VOUT/AC

Rail 5: DAC_AVTT– Transient

Test condition: Vin=5V, Vo=2.8V, F=1150kHz, step 0.22A– 1.1A, slew rate=0.8A/μs

Item	Ripple(%)
Overshoot	0.71
Undershoot	-0.64

IOUT=0.22A-1.1A



VOUT/AC IOUT

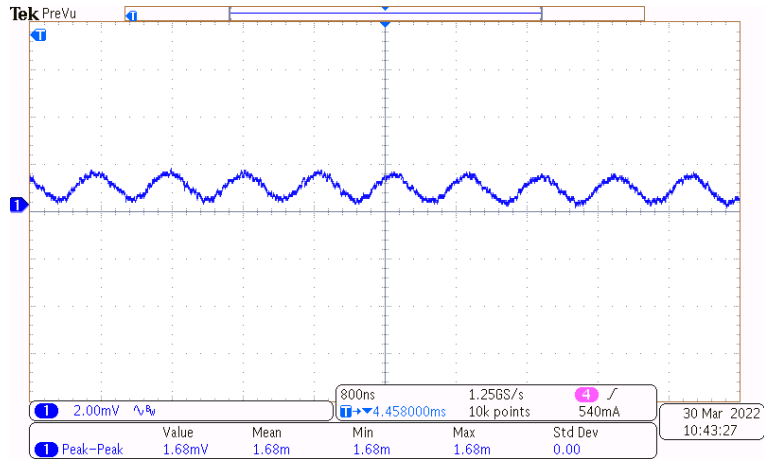
Rail 5: DAC_AVTT – Steady State Ripple

Test condition: Vin=5V, Vo=3V, F=1150kHz

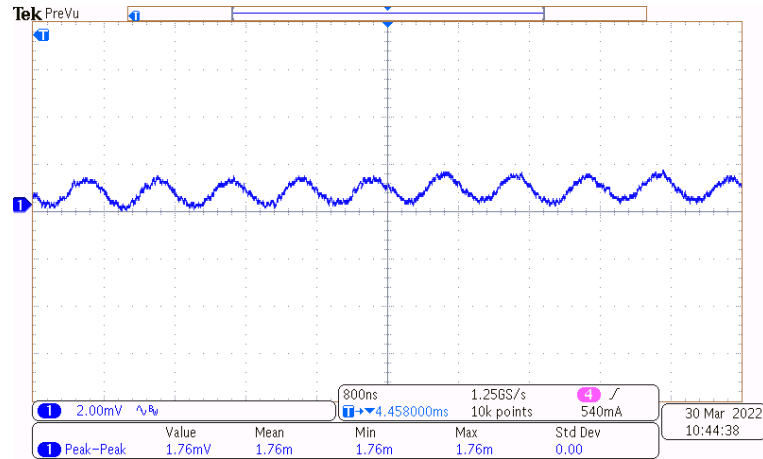
Load (A)	Ripple p-p(mV)
No Load	1.68
Full Load	1.76

IOUT=0A

IOUT=1.1A



VOUT/AC



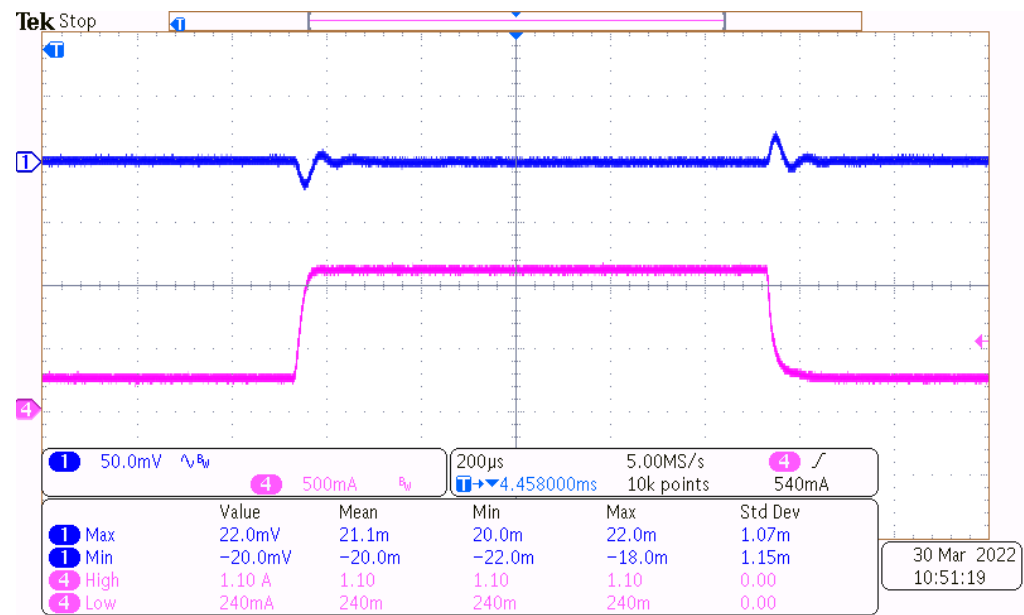
VOUT/AC

Rail 5: DAC_AVTT– Transient

Test condition: Vin=5V, Vo=3V, F=1150kHz, step 0.22A– 1.1A, slew rate=0.8A/μs

Item	Ripple(%)
Overshoot	0.73
Undershoot	-0.67

IOUT=0.22A-1.1A



VOUT/AC IOUT

Thank you