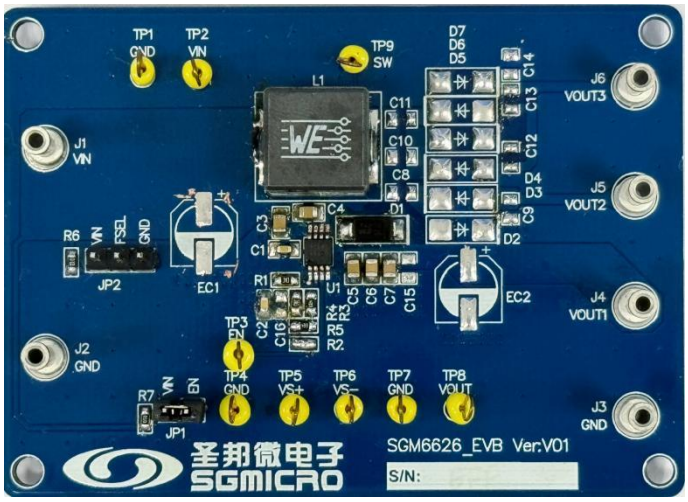
SGM6626 Demo Board Test Report

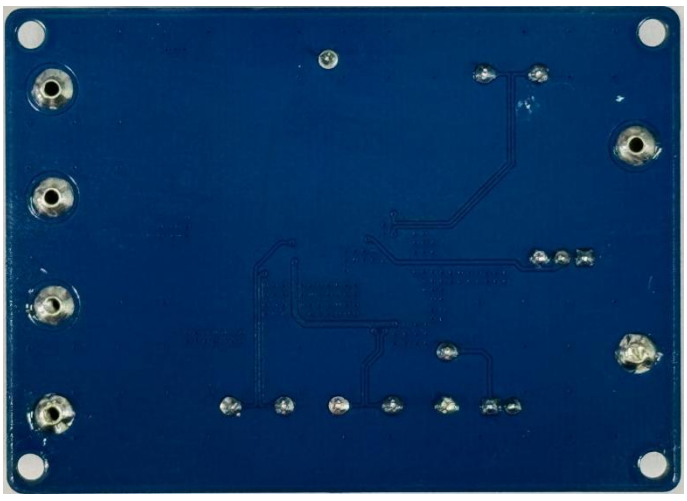
2.5V to 7.5V Input, 8V Output, 2A Switch Peak Current

1.35MHz Non-Synchronous Boost Converter

Demo Board Pictures:



Top Layer



Bottom Layer

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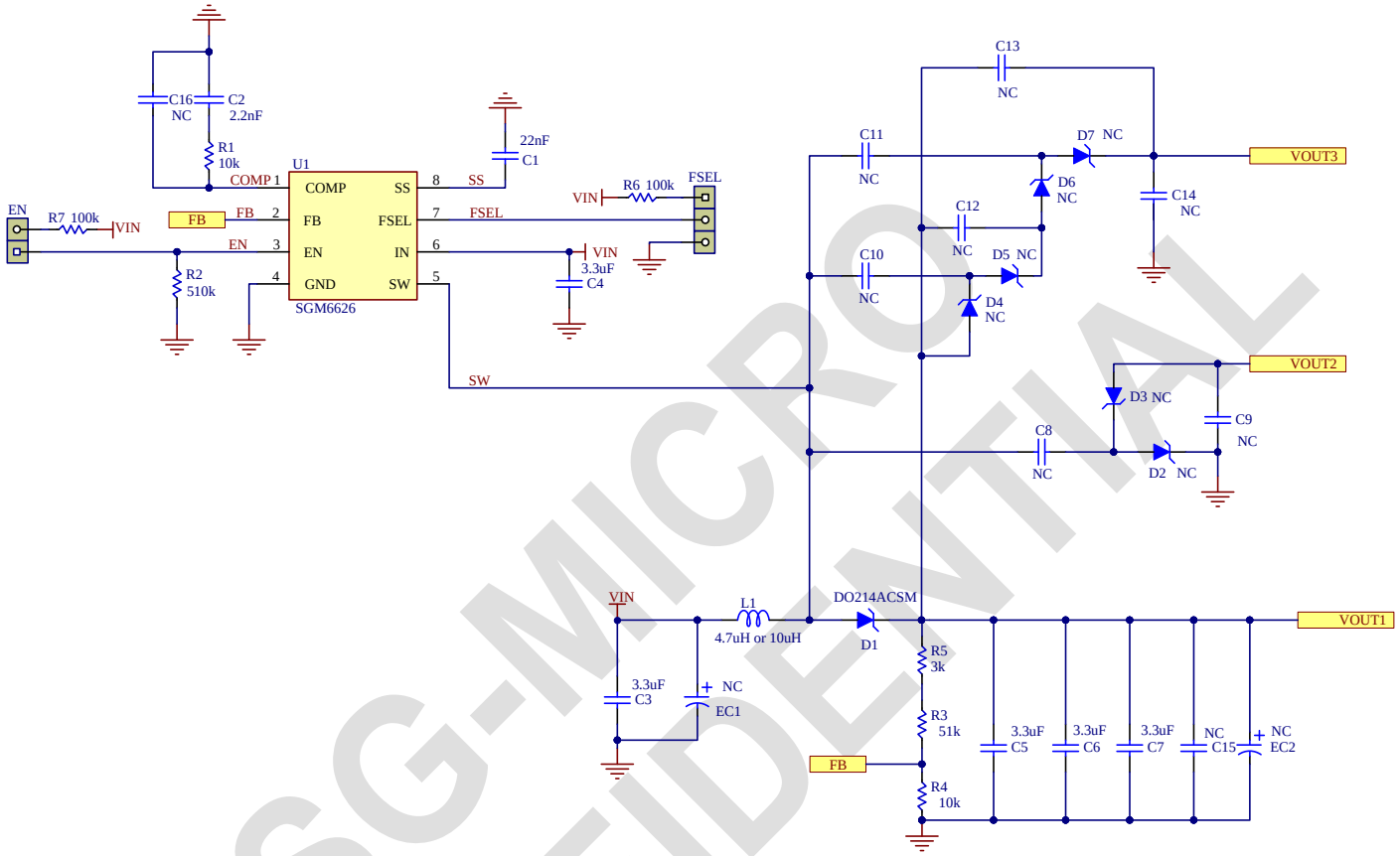
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1. Schematic, BOM List and PCB Layout

1.1 Schematic



1.2 BOM List

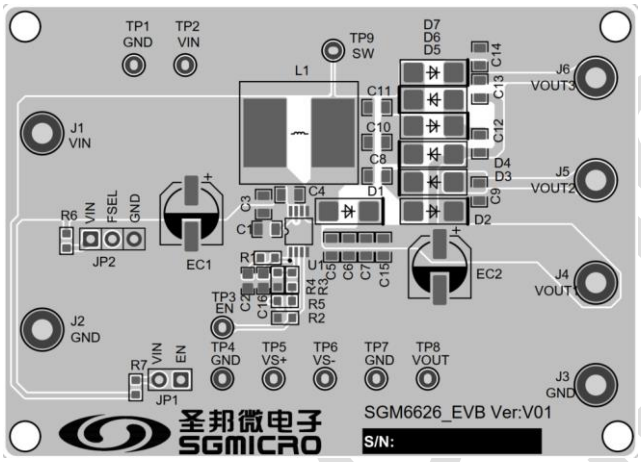
Item	Designator	Quantity	Description	Manufactory
1	C1	1	Ceramic capacitor,22nF,50V,±10%,X5R,0805	
2	C2	1	Ceramic capacitor,2.2nF,50V,±10%,X5R,0603	
3	C3,C4,C5,C6,C7	5	Ceramic capacitor,3.3uF,35V,±10%,X7R,0805	TDK C2012X7R1V335KT000E
4	C8,C9,C10,C11, C12,C13,C14,C15,C16,EC1,EC2	0	NC	
5	D1	1	Schottky Diode,V_{RWM}=40V,I_O=2A,DO214ACSM	DIODE B240A-13-F
6	D2,D3,D4,D5,D6, D7	0	NC	
7	L1	1	Inductor,4.7μH,±20%,Irms=15.5A,Isat=17A, DCR=7.9mΩ	WRUTH 7443320470
8	R1,R4	2	Film resistor,10kΩ,0.1W,1%,0603	
9	R2	1	Film resistor,510kΩ,0.1W,1%,0603	

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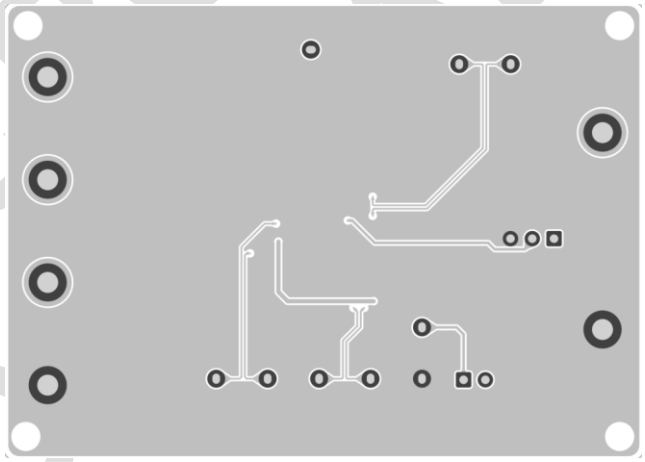
10	R3	1	Film resistor,51kΩ,0.1W,1%,0603	
11	R5	1	Film resistor,3kΩ,0.1W,1%,0603	
12	R6,R7	2	Film resistor,100kΩ,0.1W,1%,0603	
13	U1	1	700KHz/1.35MHz Boost Converter with a 2A Switch,MSOP8-3X3	SGMicro SGM6626
Conclusion: Total 17 components.				

1.3 PCB Layout

Top Layer



Bottom Layer



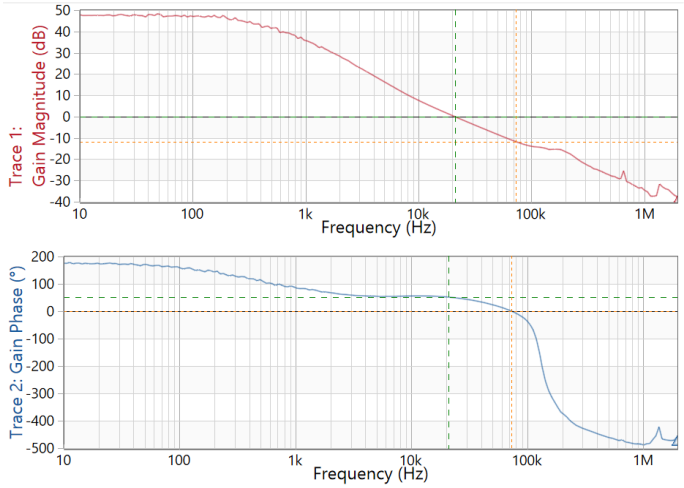
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2. Demo Board Test Items

2.1 Bode Plot

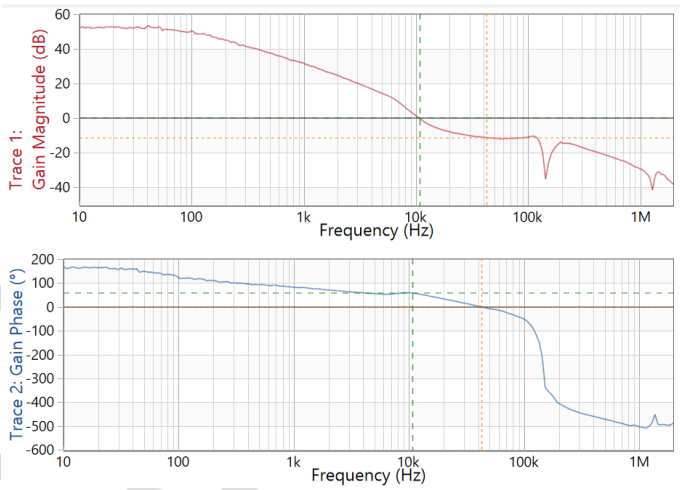
Test conditions: V_{IN}=3.3V, V_{OUT}=8V, I_{OUT}=0.5A/1A, measure the close-loop bode plot of the device.

V_{IN}=3.3V,V_{OUT}=8V,I_{OUT}=0.5A



BW=21kHz, PM=51°,GM=-12dB

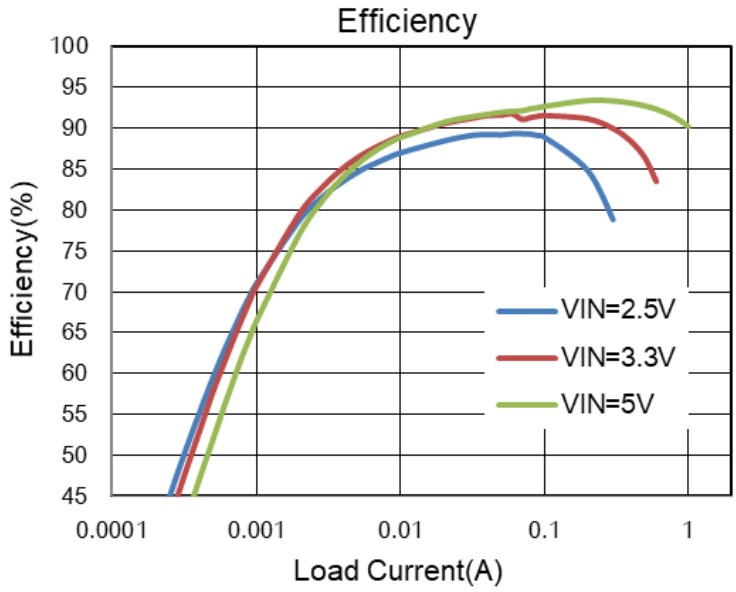
V_{IN}=3.3V,V_{OUT}=8V,I_{OUT}=1A



BW=11kHz, PM=58°,GM=-11dB

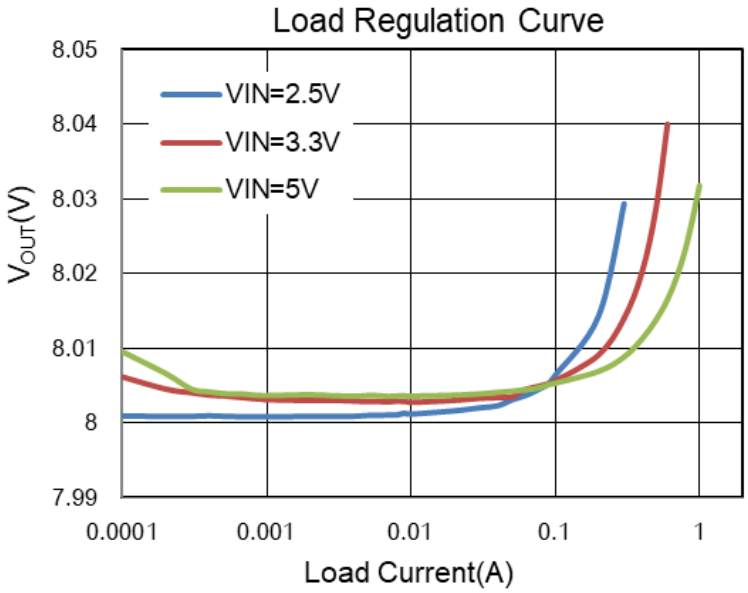
2.2 Efficiency

Test conditions: V_{IN}=2.5V/3.3V/5V, V_{OUT}=8V, I_{OUT}=0.5mA to 1A, measure the efficiency.



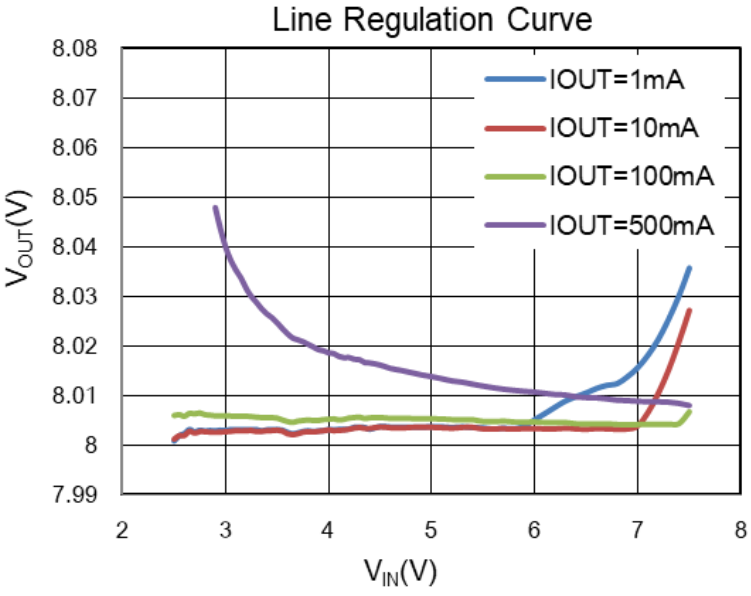
2.3 Load Regulation

Test conditions: V_{IN}=2.5V/3.3V/5V, V_{OUT}=8V, I_{OUT}=0.1mA to 1A, measure the load regulation.



2.4 Line Regulation

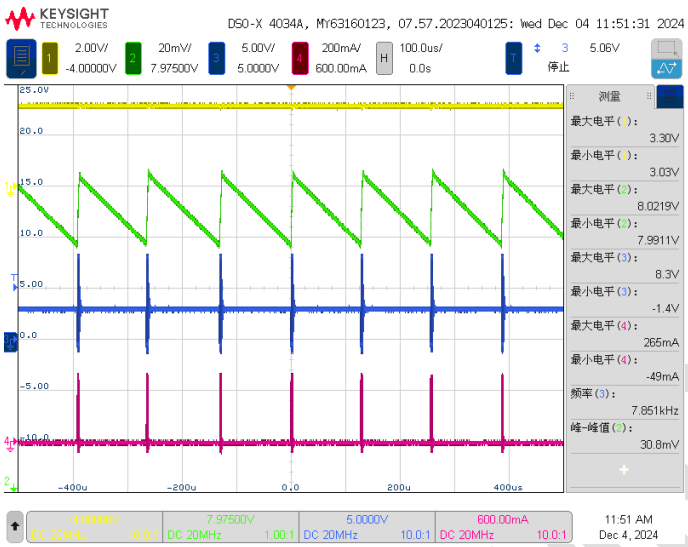
Test conditions: V_{IN}=2.5V to 7.5V, V_{OUT}=8V, I_{OUT}=10mA/100mA, measure the line regulation.



2.5 Output Voltage Ripple

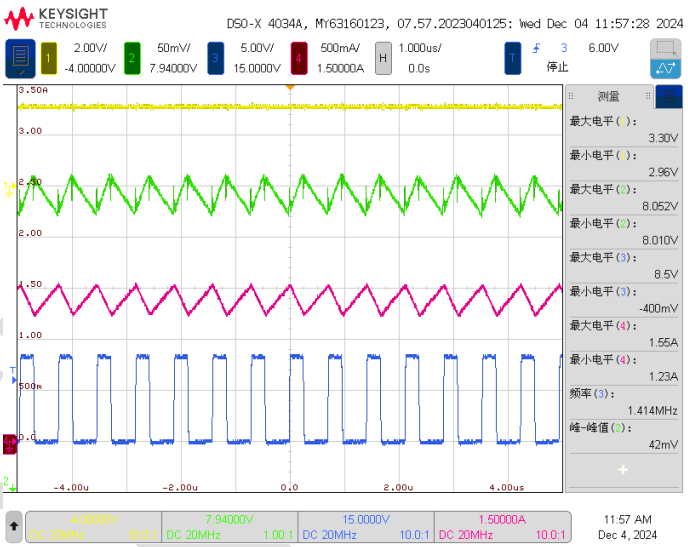
Test conditions: V_{IN}=3.3V, V_{OUT}=8V, measure the output voltage ripple.

I_{OUT}=0A



CH1-V_{IN}, CH2-V_{OUT}, CH3-V_{SW}, CH4-I_L

I_{OUT}=0.5A

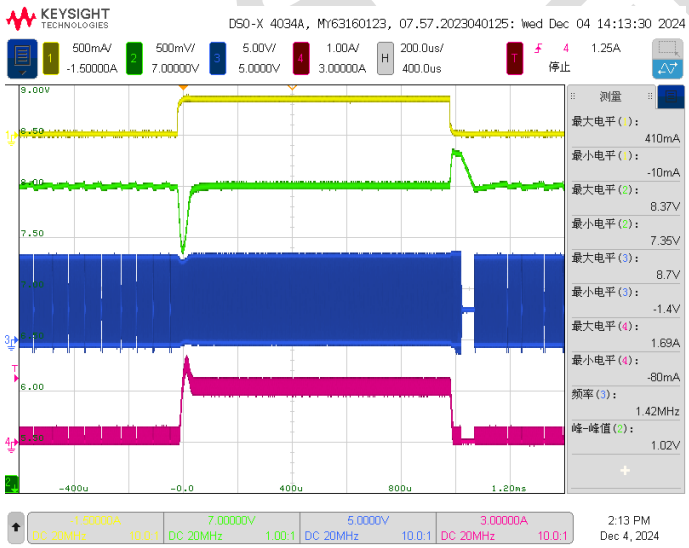


CH1-V_{IN}, CH2-V_{OUT}, CH3-V_{SW}, CH4-I_L

2.6 Load Transient

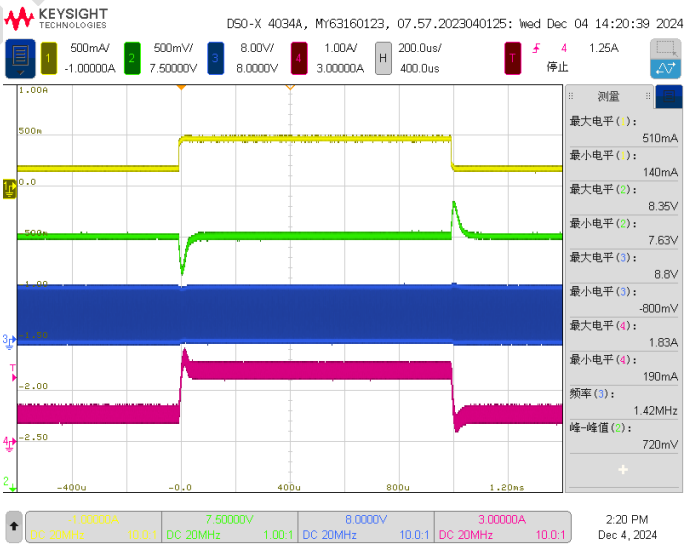
Test conditions: V_{IN}=3.3V, V_{OUT}=8V, E-load slew rate is 1A/us, measure the load transient.

I_{OUT}=40mA to 400mA to 40mA



CH1-I_{OUT}, CH2-V_{OUT}, CH3-V_{SW}, CH4-I_L

I_{OUT}=200mA to 500mA to 200mA



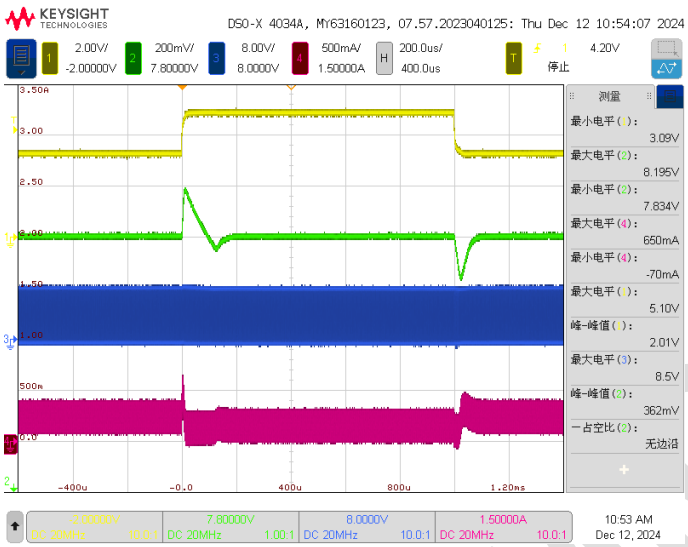
CH1-I_{OUT}, CH2-V_{OUT}, CH3-V_{SW}, CH4-I_L

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2.7 Line Transient

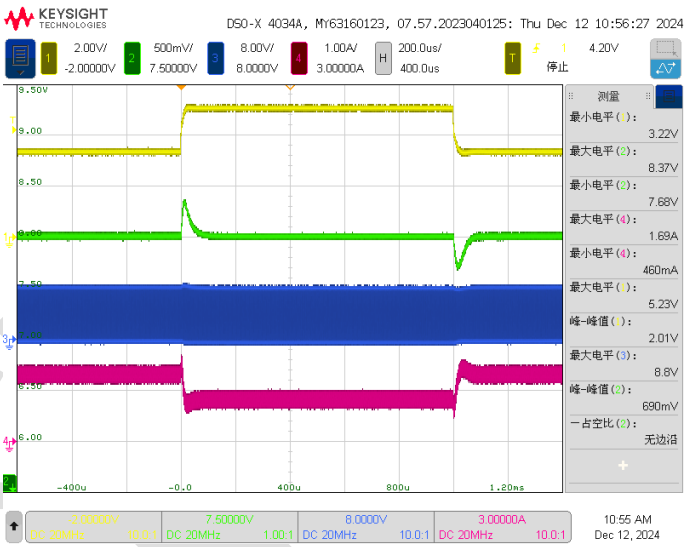
Test conditions: V_{OUT}=8V, change V_{IN} and measure the line transient.

V_{IN}=3.3V-5V-3.3V, I_{OUT}=0.1A



CH1-V_{IN}, CH2-V_{OUT}, CH3-V_{SW}, CH4-I_L

V_{IN}=3.3V-5V-3.3V, I_{OUT}=0.5A

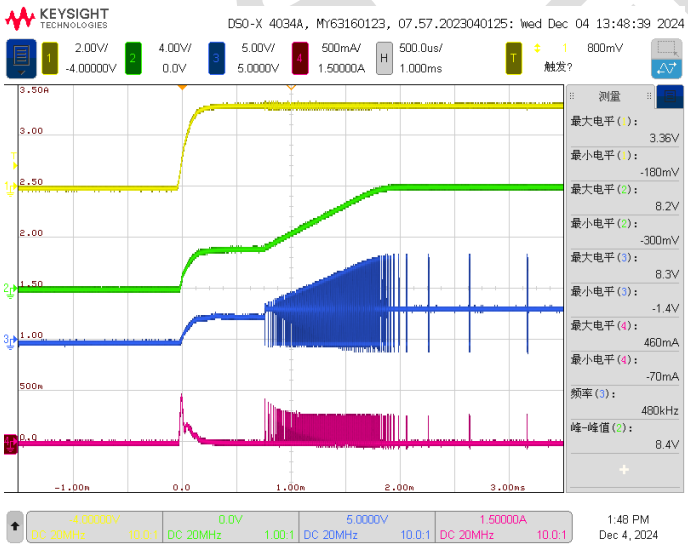


CH1-V_{IN}, CH2-V_{OUT}, CH3-V_{SW}, CH4-I_L

2.8 Input Power On/Off

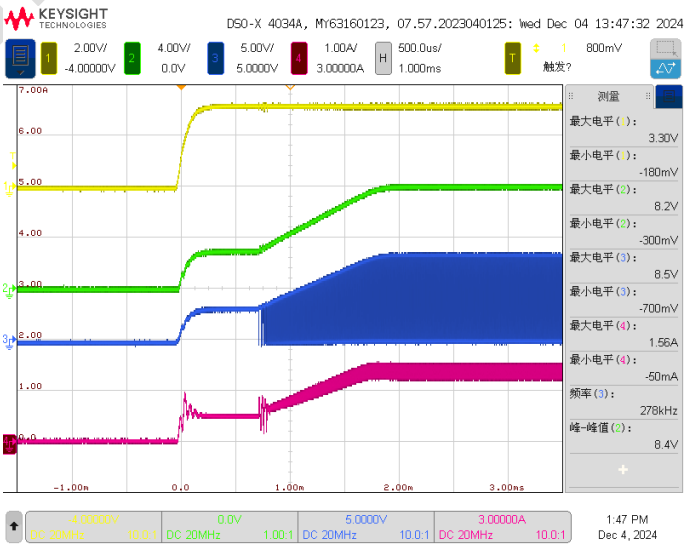
Test conditions: V_{IN}=3.3V, V_{OUT}=8V, V_{IN} power on.

I_{OUT}=0A



CH1-V_{IN}, CH2-V_{OUT}, CH3-V_{SW}, CH4-I_L

I_{OUT}=0.5A

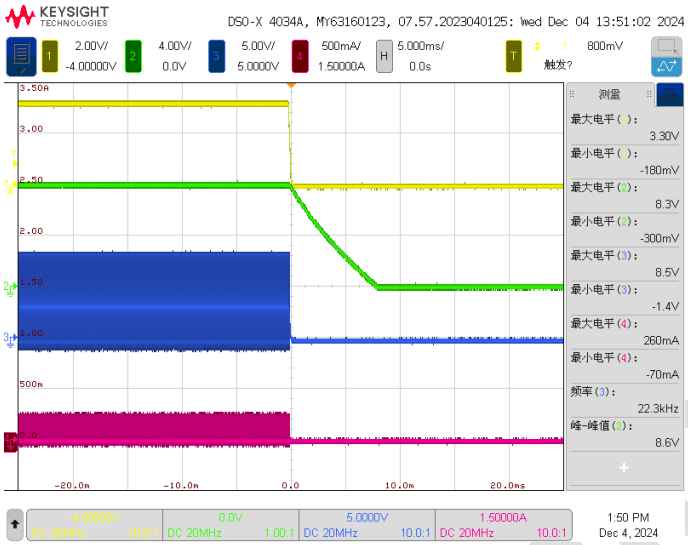


CH1-V_{IN}, CH2-V_{OUT}, CH3-V_{SW}, CH4-I_L

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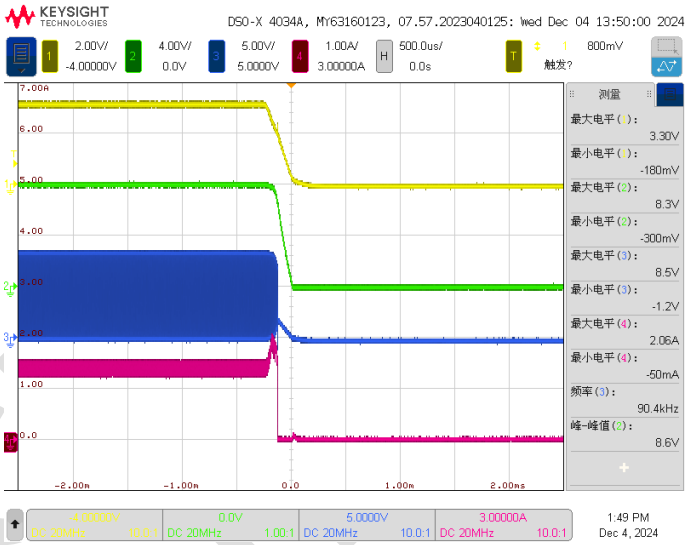
Test conditions: V_{IN}=3.3V, V_{OUT}=8V, V_{IN} power off.

I_{OUT}=0.01A



CH1-V_{IN}, CH2-V_{OUT}, CH3-V_{SW}, CH4-I_L

I_{OUT}=0.5A

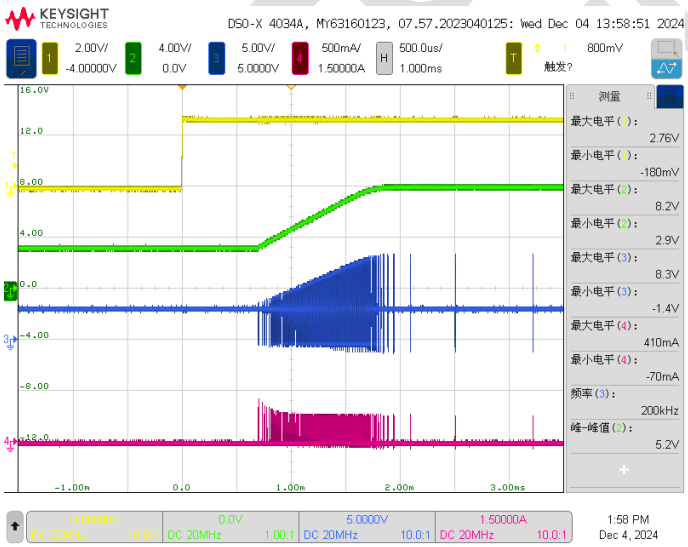


CH1-V_{IN}, CH2-V_{OUT}, CH3-V_{SW}, CH4-I_L

2.9 EN Startup and Shutdown

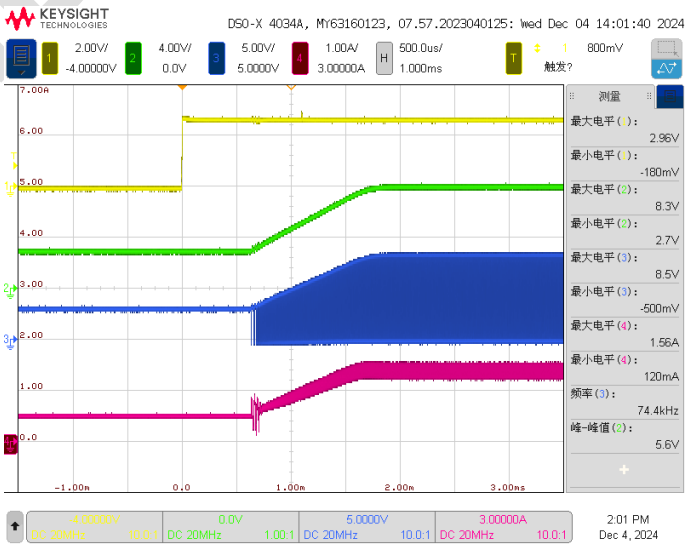
Test conditions: V_{IN}=3.3V, V_{OUT}=8V, EN startup.

I_{OUT}=0A



CH1-V_{EN}, CH2-V_{OUT}, CH3-V_{SW}, CH4-I_L

I_{OUT}=0.5A

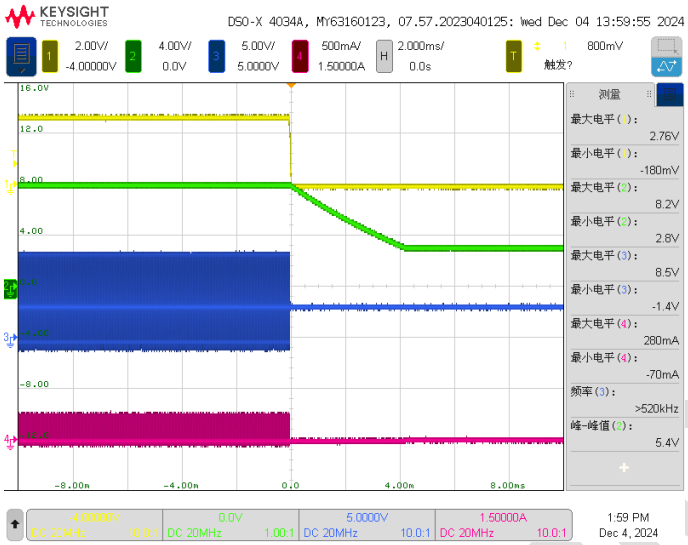


CH1-V_{EN}, CH2-V_{OUT}, CH3-V_{SW}, CH4-I_L

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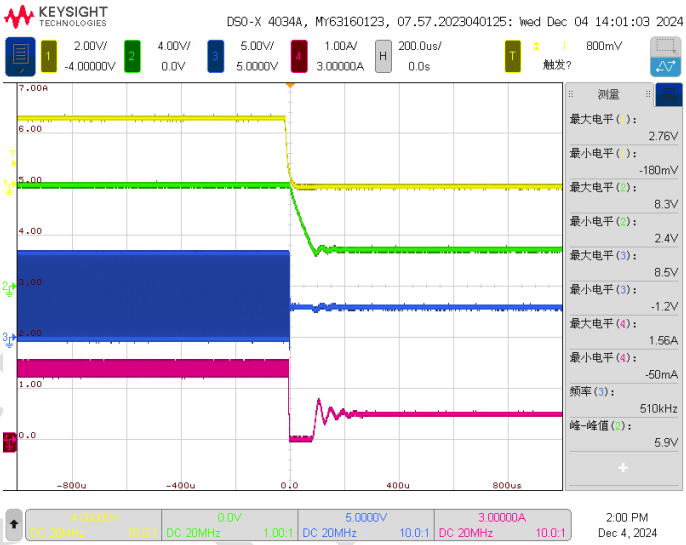
Test conditions: V_{IN}=3.3V, V_{OUT}=8V, EN shutdown.

I_{OUT}=0.01A



CH1-V_{EN}, CH2-V_{OUT}, CH3-V_{SW}, CH4-I_L

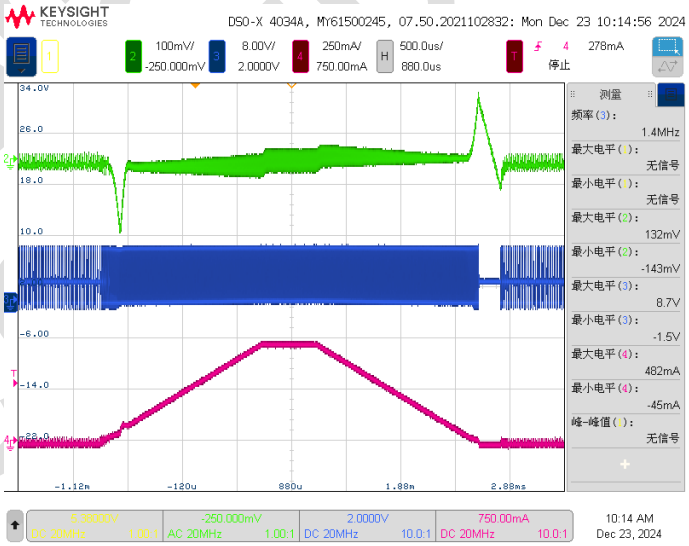
I_{OUT}=0.5A



CH1-V_{EN}, CH2-V_{OUT}, CH3-V_{SW}, CH4-I_L

2.10 Load Sweep

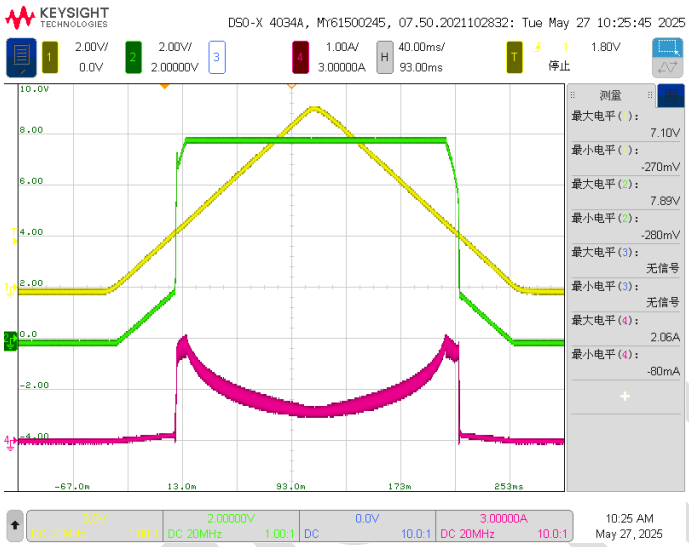
Test conditions: V_{IN}=3.3V, V_{OUT}=8V, I_{OUT}=10mA to 500mA, measure the load sweep.



CH2-V_{OUT}/AC, CH3-V_{SW}, CH4-I_{OUT}

2.11 Line Sweep

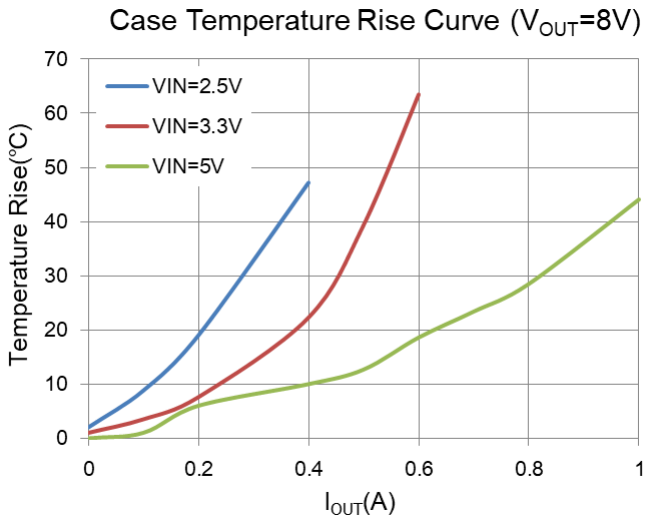
Test conditions: V_{IN}=0V to 7.5V with slower slew rate, V_{OUT}=8V, R_{OUT}=16Ω, measure the line sweep.



CH1-V_{IN}, CH2-V_{OUT}, CH4-I_L

2.12 Temperature Rise

Test conditions: V_{IN}=2.5V/3.3V/5V, V_{OUT}=8V, measure IC case temperature (T_C) rise with different load current.



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