NIV6150 and NIV6350
Evaluation Board Manual

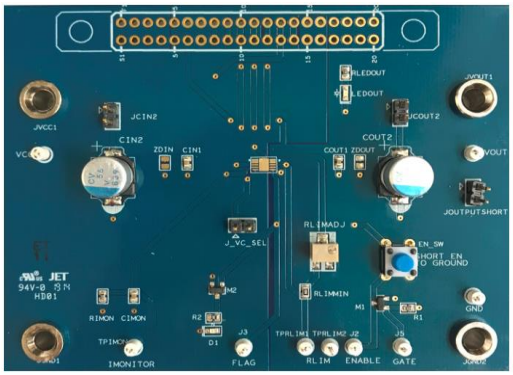

Figure 1: The evaluation board.

ON Semiconductor®

EVAL BOARD USER'S MANUAL

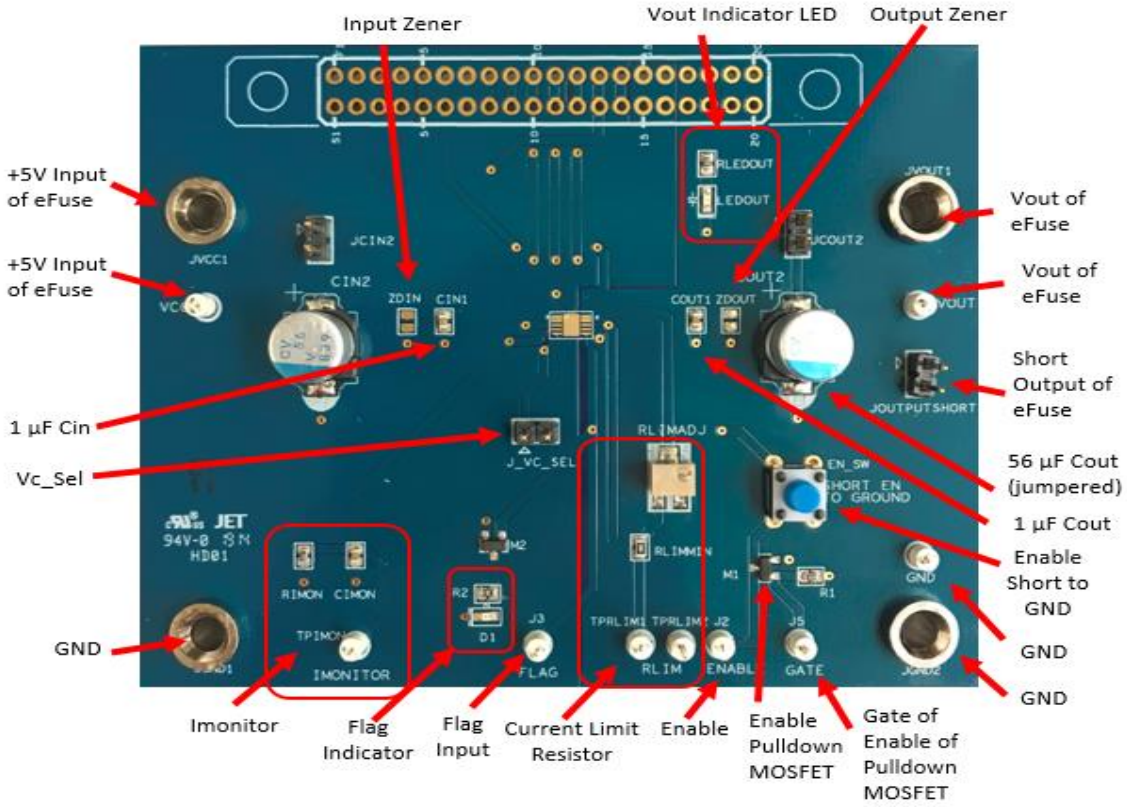

Figure 2: Features of the evaluation board.

Mar, 2020 Rev. 0

Item	Qty	Reference	Part	DigikeyPN	Manufacturer	Manufacturer Part #	DNP
2	3	CIMON,COUT1,CIN1	1uF/50V 0603	587-2400-1-ND	Taiyo Yuden	UMK107BJ105KA-T	
3	2	CIN2,COUT2	56uF/35V	493-4385-1-ND	Nichicon	PCV1V560MCL1GS	
4	1	D1	LED0603-YELLOW	160-1448-1-ND	Lite-On Inc	LTST-C191KSKT	
6	1	LEDOUT	LED0603-GREEN	160-1888-1-ND	Lite-On Inc	LTST-C191TGKT	
7	9	All Test Points	TP-HOOK	36-5002-ND	Keystone Electronics	5002	
8	4	JCOUT2,JCIN2,JOUTPUTSHORT,J_VC_SEL	HDR-2	3M9447-ND	3M	961102-6404-AR	
9	4	JGND1,JGND2,JVout,JVCC	BANANA JACK	36-575-8-ND	Keystone Electronics	575-8	
10	2	M1,M2	2N7002KT1G	2N7002KT1GOSCT-ND	ON Semiconductor	2N7002KT1G	
12	2	RIMON, R2	1k 0603	P1.00KHCT-ND	Panasonic	ERJ-3EKF1001V	
15	1	RLIMADJ	20 Ohm	3214X-1-200ECT-ND	Bourns Inc.	3214X-1-200E	
16	1	RLIMMIN	0 Ohm 0603	P0.0GCT-ND	Panasonic	ERJ-3GEY0R00V	
20	2	R1, RLEDOUT	10k 0603	P10.0KHCT-ND	Panasonic	ERJ-3EKF1002V	
21	1	EN_SW	PB-SW	EG4369-ND	E-Switch	TL1105FF160Q	
23	2	ZDOUT,ZDIN			ON Semiconductor		DNP
25	1	-	CON40	S3314-ND	Sullins	EBC20DRTH	DNP

Figure 3: Bill of Materials.

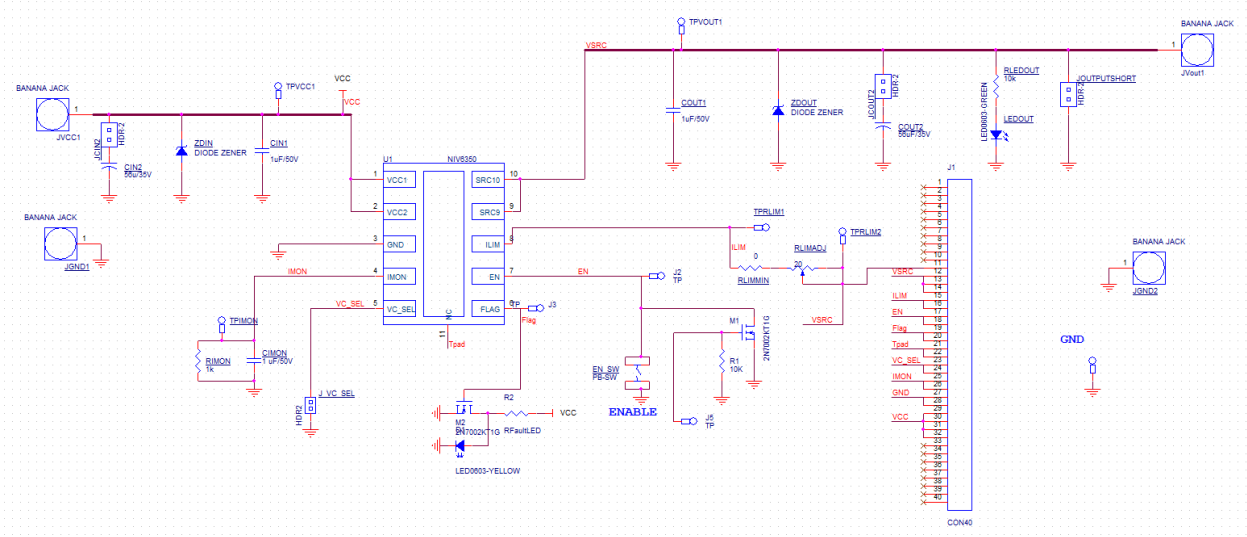

Figure 4: The NIS6150 Evaluation Board Schematic.

Instructions

During evaluation it is recommended to keep the 56 µF input capacitor in place (leave the Cin jumper connected). Connect a 5 Vdc supply to the input and ground. The output may be connected to a load. Once this is done one green light will be on. This one is for the output voltage. Press the blue pushbutton switch, and notice that the green light turns off and the yellow fault indicator LED turns on. This means that the eFuse is in the off state.

There is a potentiometer to adjust the current limit set resistor from 0 Ω to 20 Ω. The output can be shorted in several ways. A jumper may be used (just below the Vout banana connector), or a cable can be connected from Vout to GND. When the short occurs there will be a dynamic event so be sure that the oscilloscope is ready to trigger and that the current probe is set to a high value.

Figure 5: The eFuse turning on by ungrounding the enable pin. The controlled slew rate feature makes the output voltage to ramp up smoothly.

Figure 6: The eFuse turning off by grounding the EN pin.

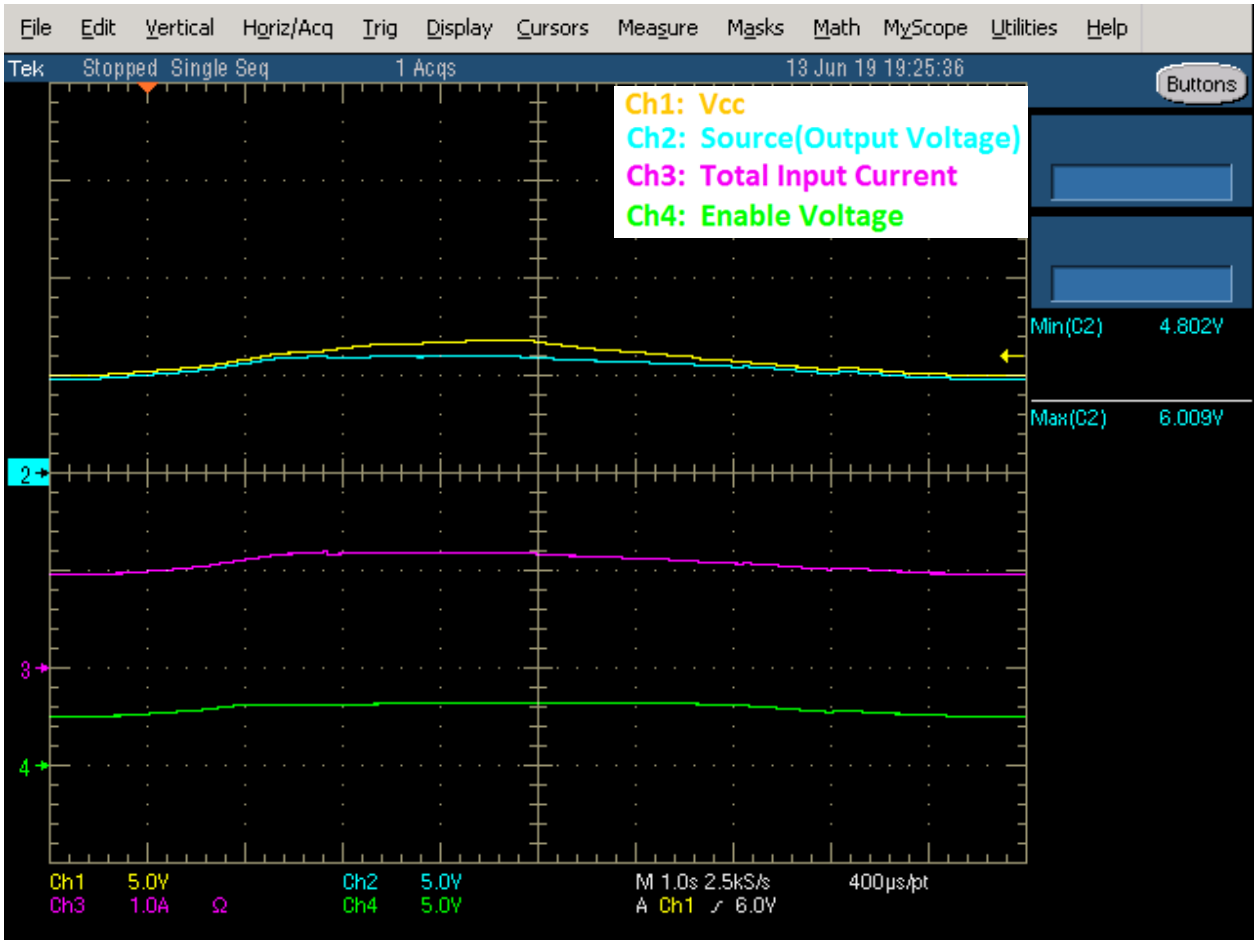

Figure 7: The input voltage brought high and then back down again to show the overvoltage clamping feature.

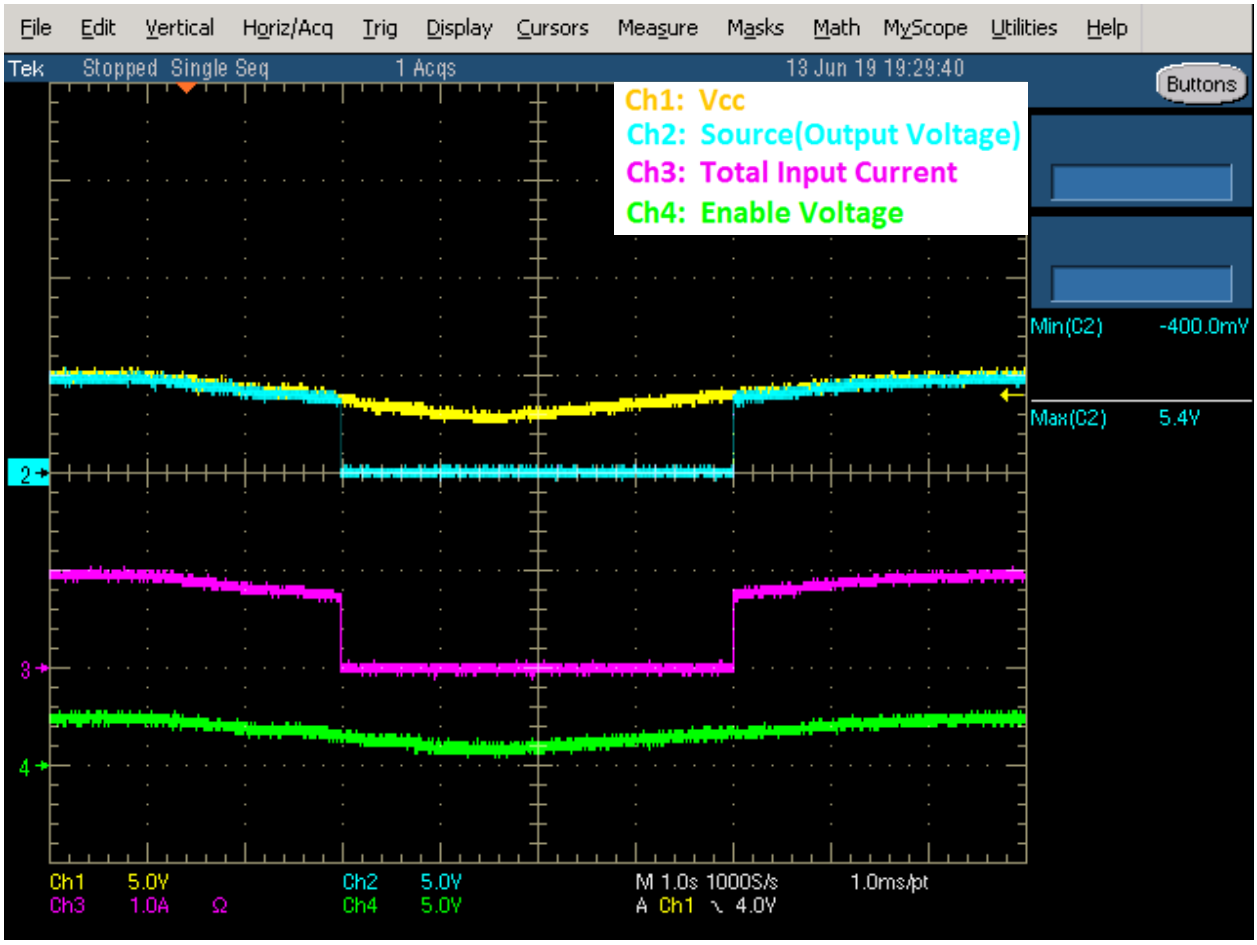

Figure 8: The input voltage brought low and then back high to show the undervoltage lockout feature.

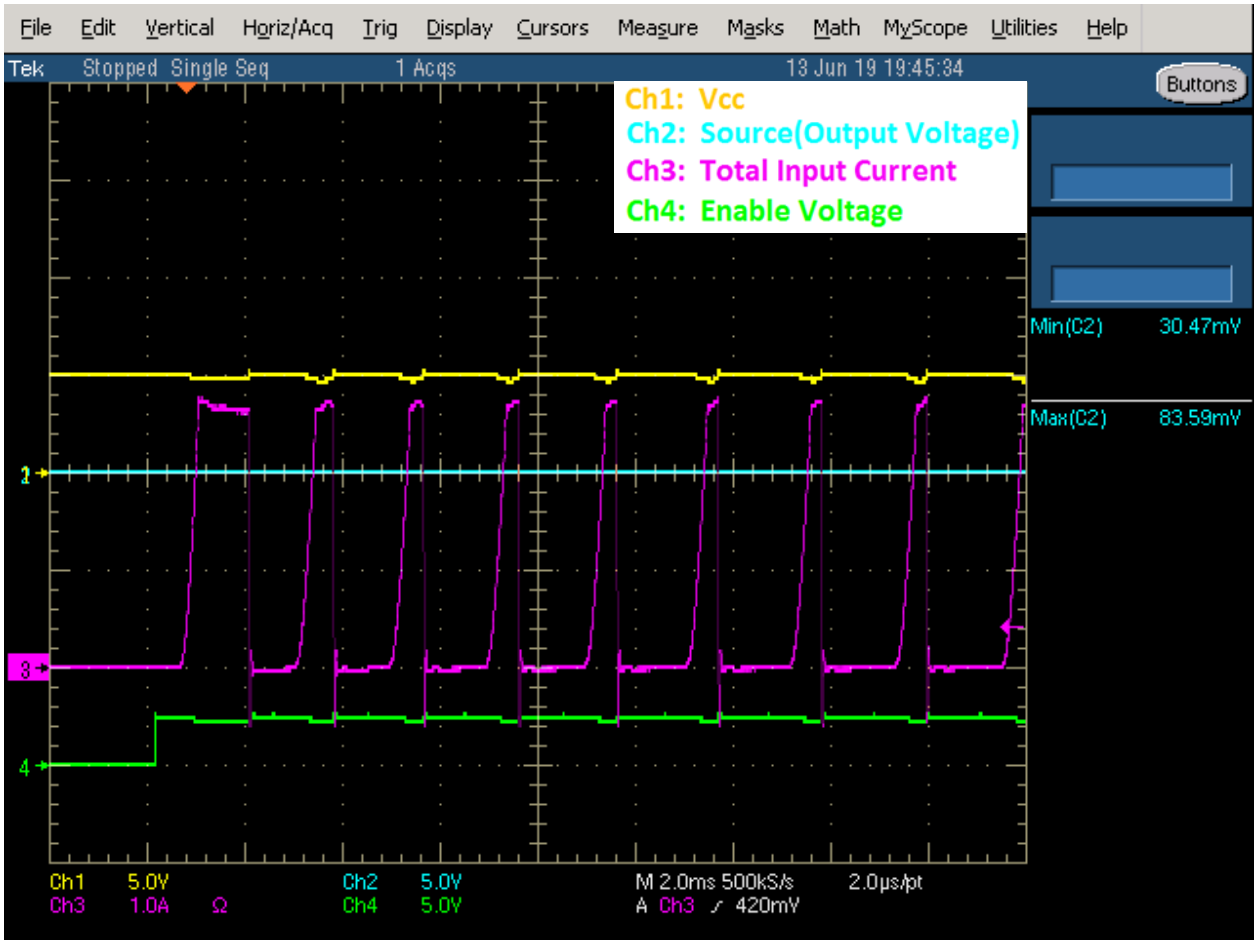

Figure 9: The eFuse auto-retrying with a low Rlim (MT2 version).

Figure 10: The eFuse auto-retrying with a high Rlim (MT2 version).

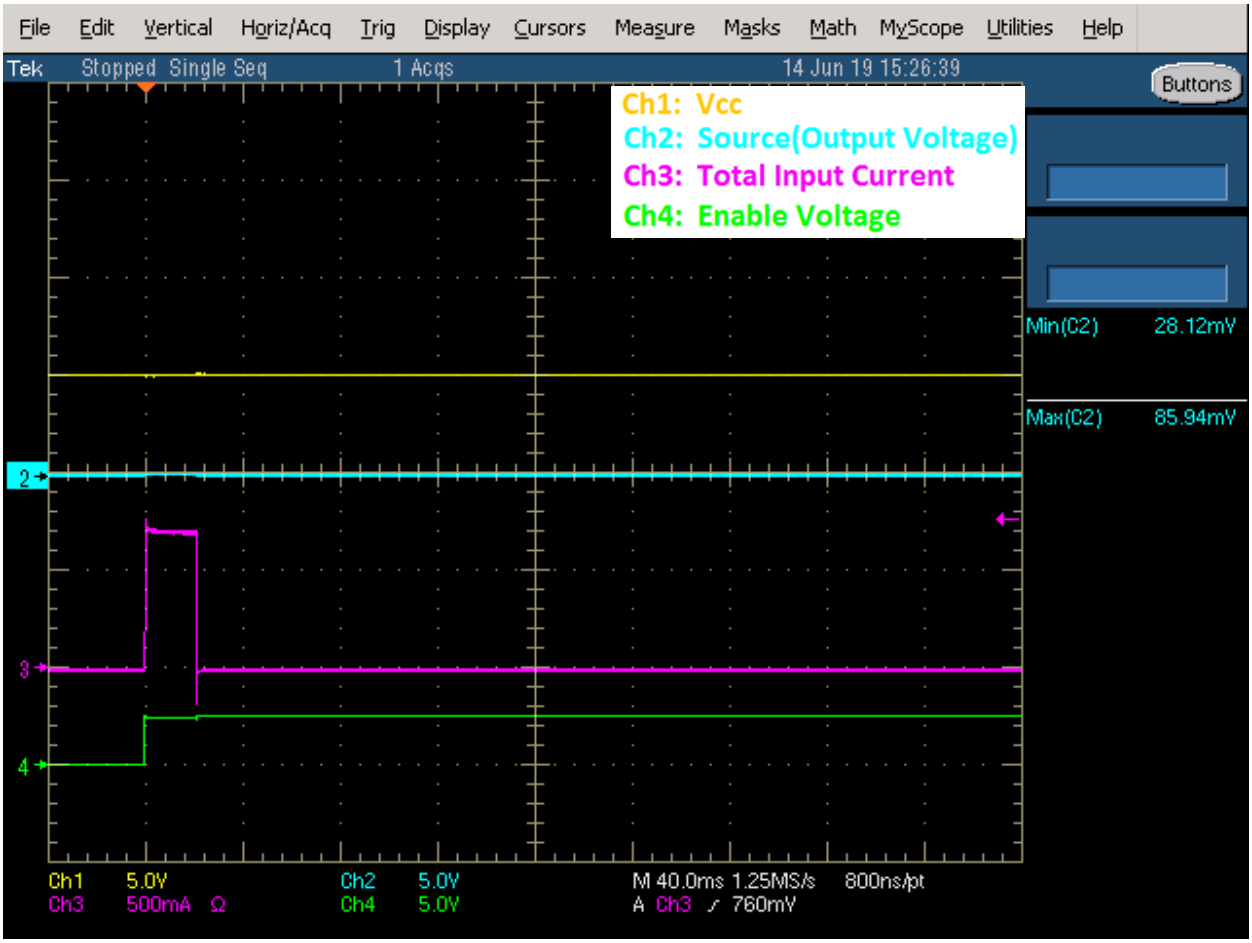

Figure 11: The eFuse latching after a thermal shutdown event (MT1 version).