NIS4461 Evaluation Board User's Manual

EVBUM2799/D

Instructions

- Remove all jumpers from the headers if there are any in place
- Connect an ohmmeter across the Rlim measurement test points and set it to 20 Ω with a small screwdriver
- Connect a DC supply from Vin to GND and apply 24 V
- Check that Vout = 24 V, Ven ~ 4.6 V and the green LEDs are on
- Connect oscilloscope voltage probes to Vin (Ch1), Vout (Ch2), and EN (Ch4). For Ch3 connect a current probe in the main current path

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EVAL BOARD USER'S MANUAL

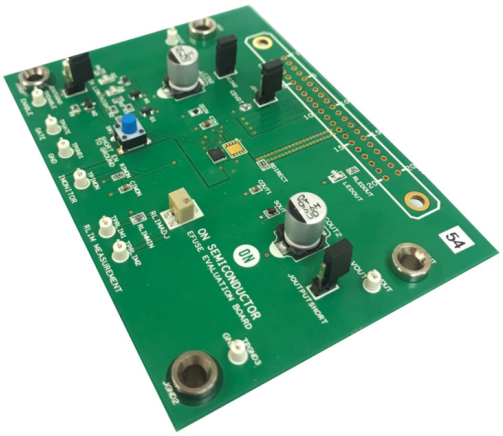

Figure 1. The Evaluation Board Photo

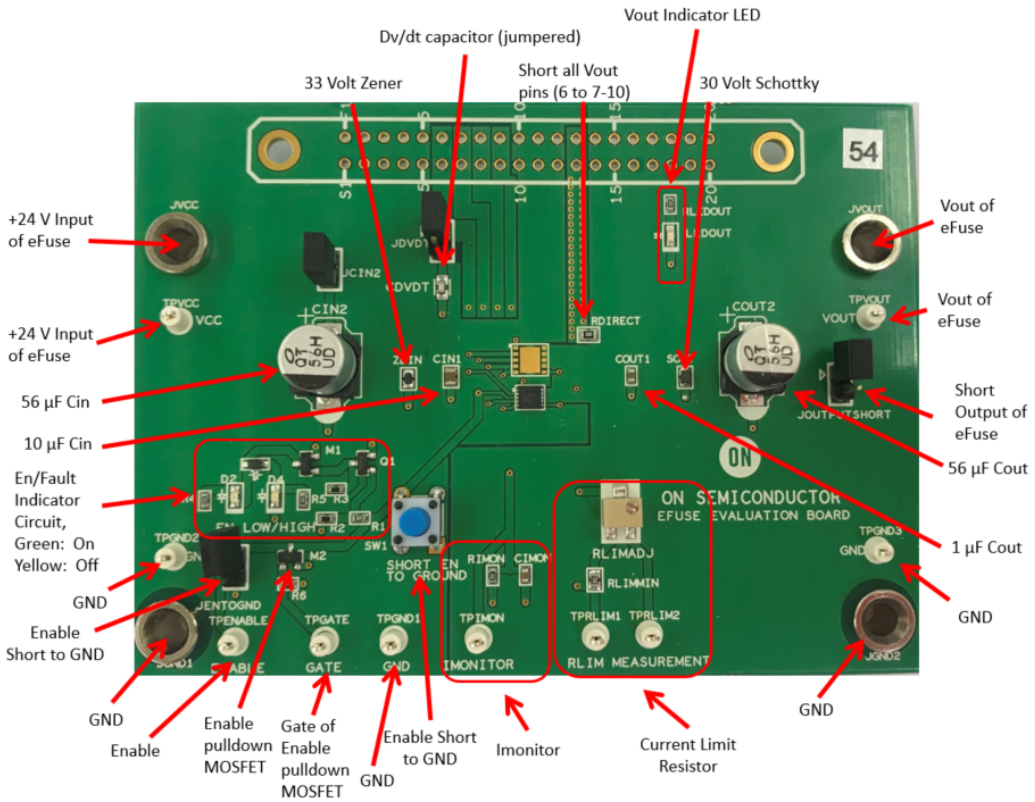

Figure 2. Features of the Evaluation Board

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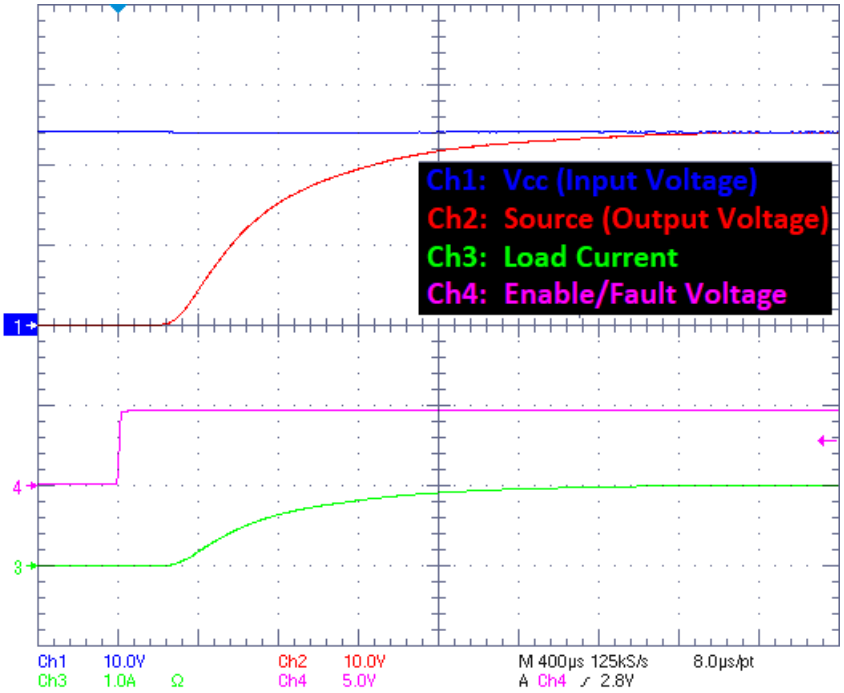

Figure 3. Hot Plug with dvdt Open into 24 Ω Load (400 µs/Division Timescale)

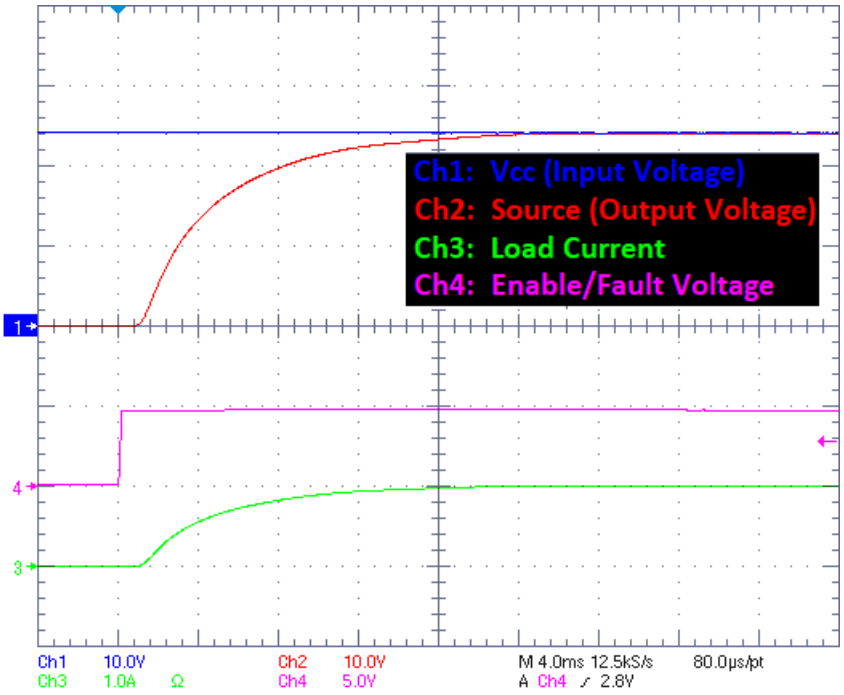

Figure 4. Hot Plug with 180 pF dvdt Capacitor Selected with Jumper Jdvdt into 24 Ω Load (4 ms/Division Timescale)

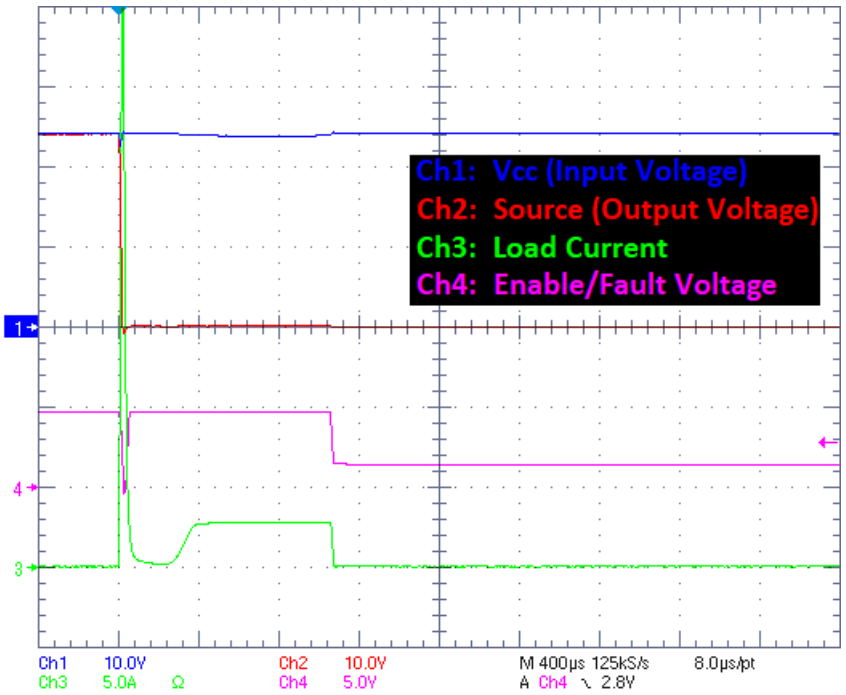

Figure 5. Sudden Short Circuit from Output to GND Showing ILIM_SC and Thermal Shutdown (NIS4461MT1, Latching)

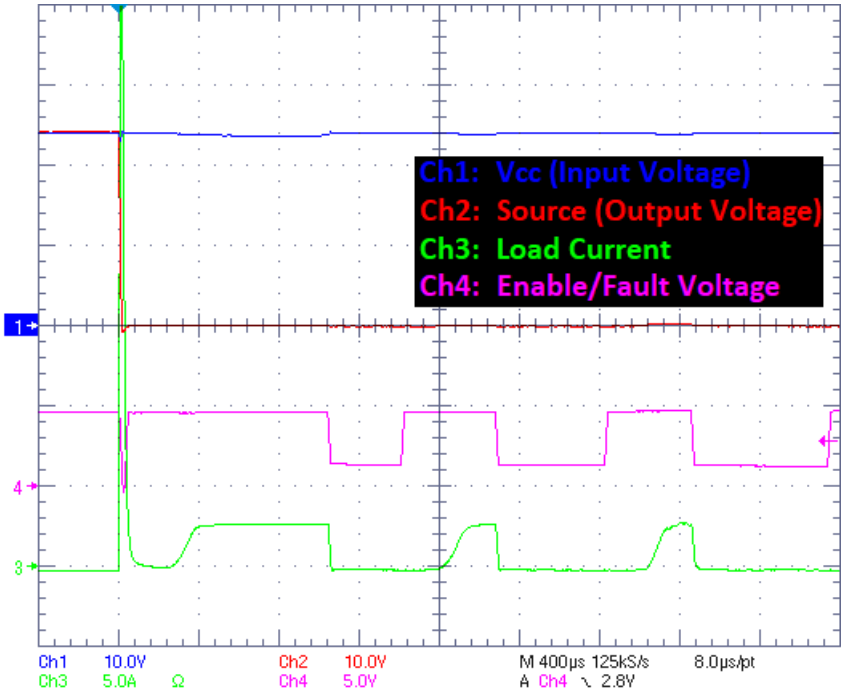

Figure 6. Sudden Short Circuit from Output to GND Showing ILIM_SC and Thermal Shutdown (NIS4461MT3, Auto−Retry)

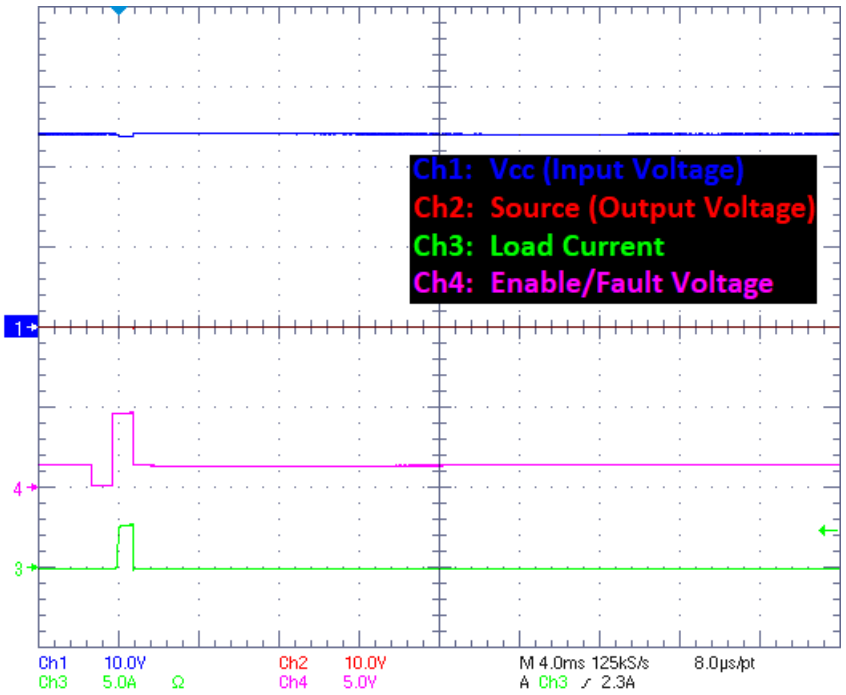

Figure 7. Toggling the EN/Fault Pin with a Pulse Generator to Reset from Thermal Shutdown with Vout Still Shorted to GND.

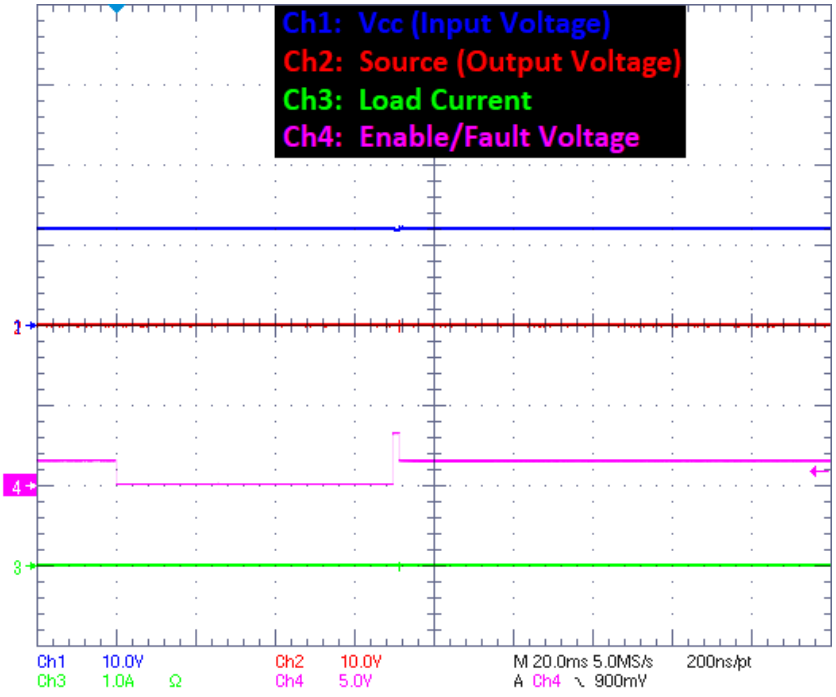

Figure 8. Drawing Current with an Electronic Load, Showing the Overload (I_{OL}) and Short Circuit (I_{SC}) Current Limits

EVALUATION BOARD SCHEMATIC

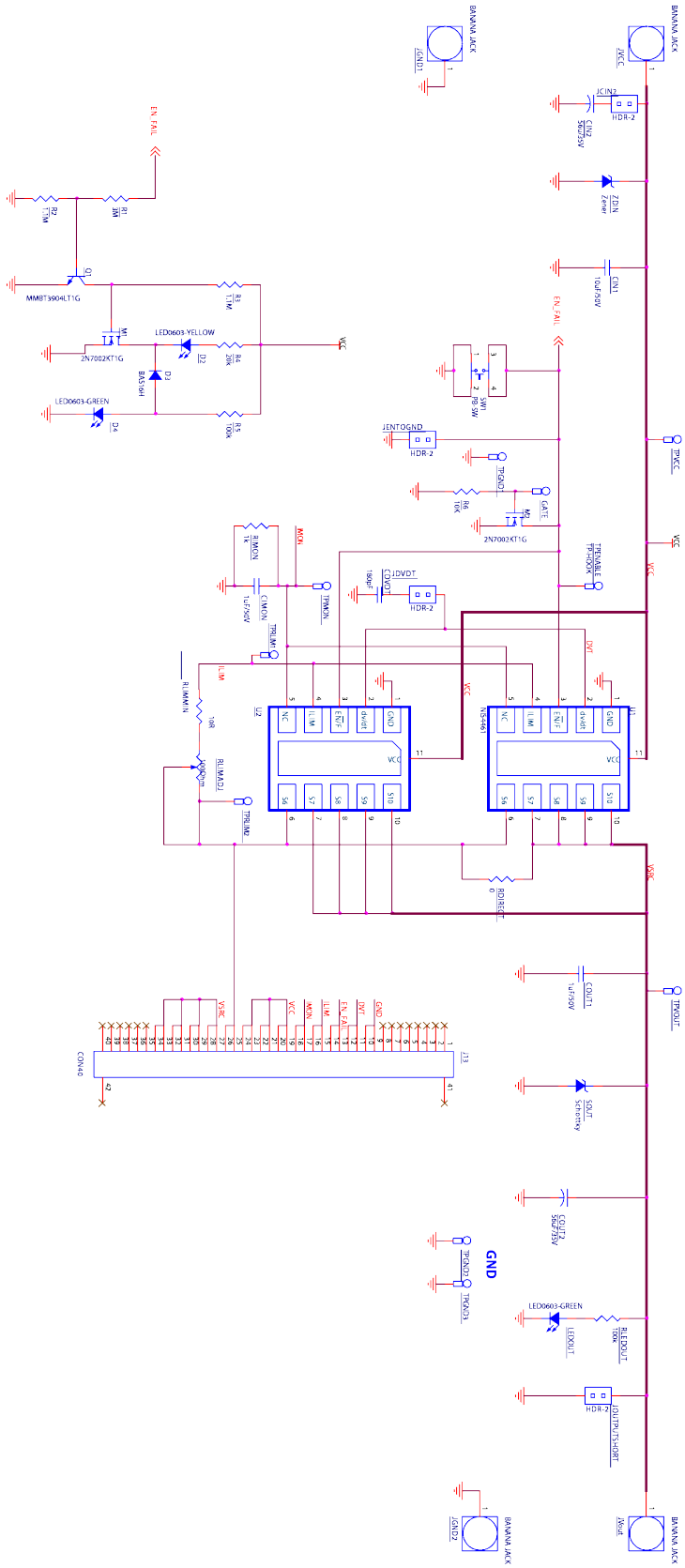

Figure 9. The NIS4461 Evaluation Board Schematic

BILL OF MATERIALS

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Item	Qty	Reference	Part	Digikey Part Number	Manufacturer	Manufacturer Part Number	DNP
1	1	CDVDT	180 pF	311−3890−1−ND	Yageo	CC0603FRNPO9BN181	
2	2	CIMON, COUT1	1 μF/50V	587−2400−1−ND	Taiyo Yuden	UMK107BJ105KA−T	
3	1	CIN1	10 μF/50V	490−18664−2−ND	Murata Electronics	GRM21BR61H106ME43L	
4	2	COUT2, CIN2	56 μF/35V	493−2304−2−ND	Nichicon	UUD1H560MNL1GS	
5	1	D2	LED0603−YELLOW	160−1448−1−ND	Lite−On Inc	LTST−C191KSKT	
6	1	D3	BAS16H	BAS16HT1GOSCT−ND	ON Semiconductor	BAS16HT1G	
7	2	D4, LEDOUT	LED0603−GREEN	160−1888−1−ND	Lite−On Inc	LTST−C191TGKT	
8	0	J13	CON40	S3314−ND	Sullins Connector Solutions	EBC20DRTH	DNP
9	5	JCOUT2, JCIN2, JOUTPUTSHORT, JENTOGND, JDVDT	HDR−2	3M9447−ND	3M	961102−6404−AR	
10	4	JGND1, JGND2, JVout, JVCC	BANANA JACK	36−575−8−ND	Keystone Electronics	575−8	
11	2	M1, M2	2N7002KT1G	2N7002KT1GOSCT−ND	ON Semiconductor	2N7002KT1G	
12	1	Q1	MMBT3904LT1G	MMBT3904LT1GOSCT−ND	ON Semiconductor	MMBT3904LT1G	
13	1	R1	3 MΩ	P3.0MGCT−ND	Panasonic Electronic Components	ERJ−3GEYJ305V	
14	2	R2, R3	1.1 MΩ	P1.1MGCT−ND	Panasonic Electronic Components	ERJ−3GEYJ115V	
15	1	R4	20 kΩ	P20KGTR−ND	Panasonic Electronic Components	ERJ−3GEYJ203V	
16	1	R6	10 kΩ	P10KGCT−ND	Panasonic Electronic Components	ERJ−3GEYJ103V	
17	2	R5, RLEDOUT	100 kΩ	P100KGTR−ND	Panasonic Electronic Components	ERJ−3GEYJ104V	
18	1	RDIRECT	0 Ω	P0.0ACT−ND	Panasonic Electronic Components	ERJ−6GEY0R00V	
19	1	RIMON	1 kΩ	P1.0KDBTR−ND	Panasonic Electronic Components	ERA−3AEB102V	
20	1	RLIMADJ	100 Ω	3214X−1−101ECT−ND	Bourns Inc.	3214X−1−101E	
21	1	RLIMMIN	10 Ω	311−10.0HRCT−ND	Yageo	RC0603FR−0710RL	
22	1	SW1	PB−SW	EG4369−ND	E−Switch	TL1105FF160Q	
23	10	TPRLIM1, TPGND1, TPRLIM2, TPGND2, TPGND3, TPVOUT, TPVCC, TPIMON, TPENABLE, GATE	TP−HOOK	36−5002−ND	Keystone Electronics	5002	
24	1	U1	NIS4461MT1/ NIS4461MT3		ON Semiconductor		
25	0	U2					DNP
26	1	ZDIN	33 Vz	MM5Z33VT1GOSTR−ND	ON Semiconductor	MM5Z33VT1G	
27	1	SOUT	30 V Schottky	NSR0530HT1GOSCT−ND	ON Semiconductor	NSR0530HT1G	

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