NIS6432/52 Evaluation Board User's Manual

EVBUM2768/D

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EVAL BOARD USER'S MANUAL

Instructions

- Remove all jumpers from the headers if there are any present
- Connect voltage probes to Vin, Vout, and Enable/Fault
- There is a potentiometer to adjust the current limit set resistor from 5 kΩ to 55 kΩ. If testing outside this range is needed, remove and replace the R_{limMIN} resistor with one of a different value
- Connect 3.3 or 5 V to V_{CC}
- The output may be connected to a load
- Normally the board will have two green LEDs on. The one on the left is for the enable/fault pin and the one on the right is for the output voltage
- Grounding EN, connecting SAS to +3.3 or +5 V, or connecting a voltage to the external MOSFET M2 via the GATE test point will turn the eFuse off. When the eFuse is off both green lights will turn off and the yellow LED will turn on to indicate that the enable/fault pin is low
- Input and output capacitors and Zeners are provided for testing purposes but are generally not needed for proper function of the NIS6432 and NIS6452 devices

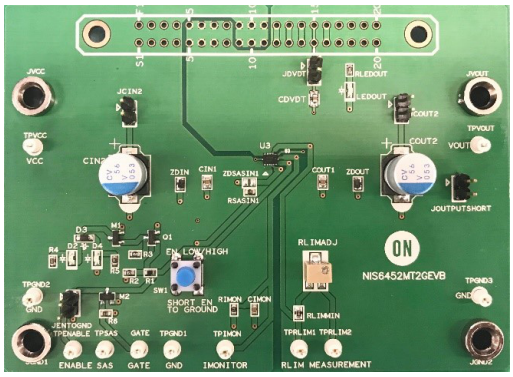

Figure 1. The Evaluation Board

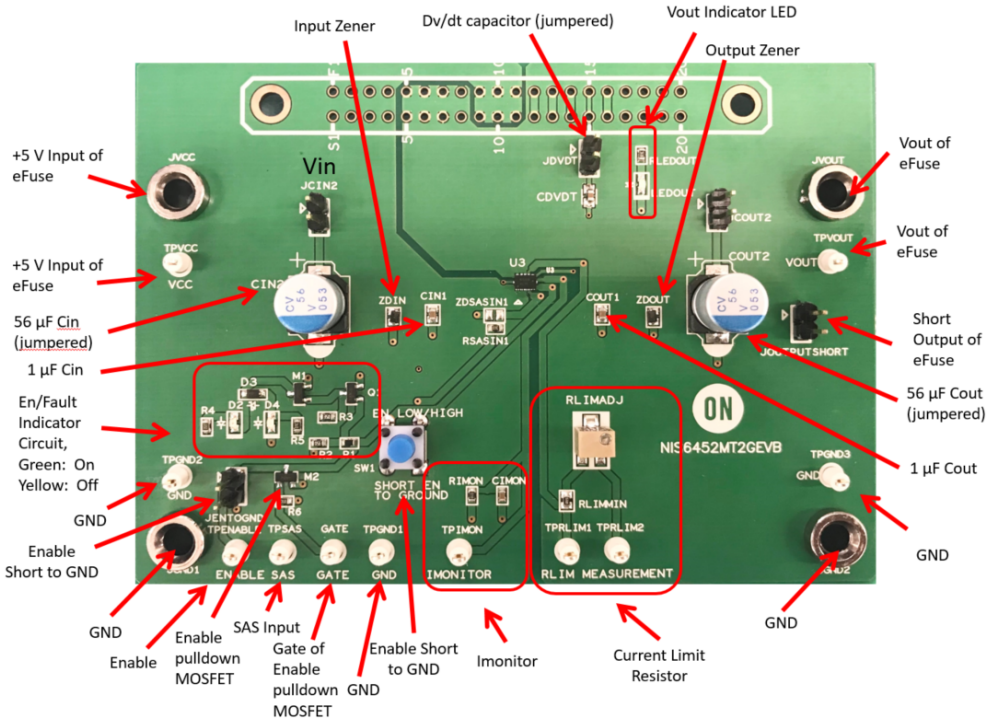

Figure 2. Features of the Evaluation Board

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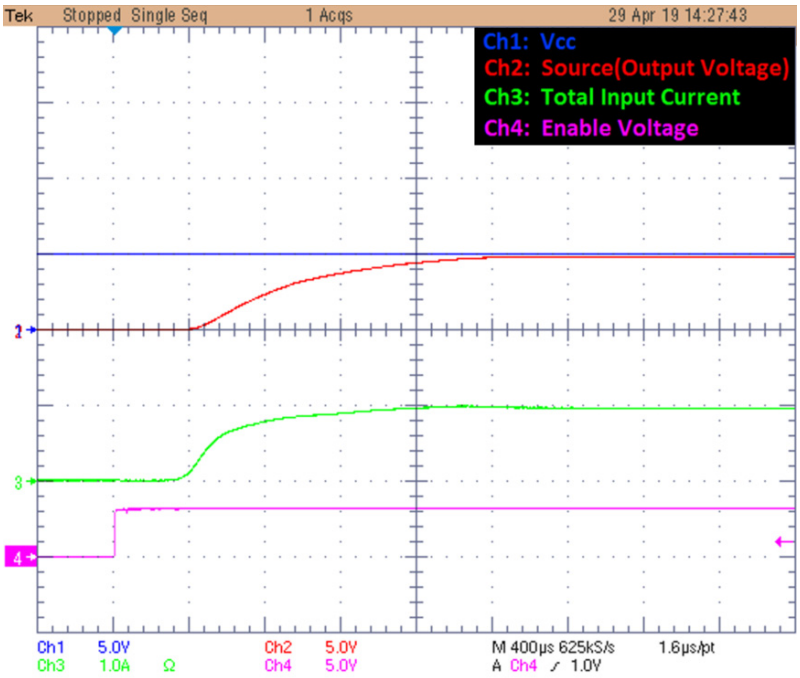

Figure 3. The eFuse Turning On with the EN Pin Initially Grounded and then Allowed to Float. Do Not Force a Voltage on the EN Pin on the NIS6432/52

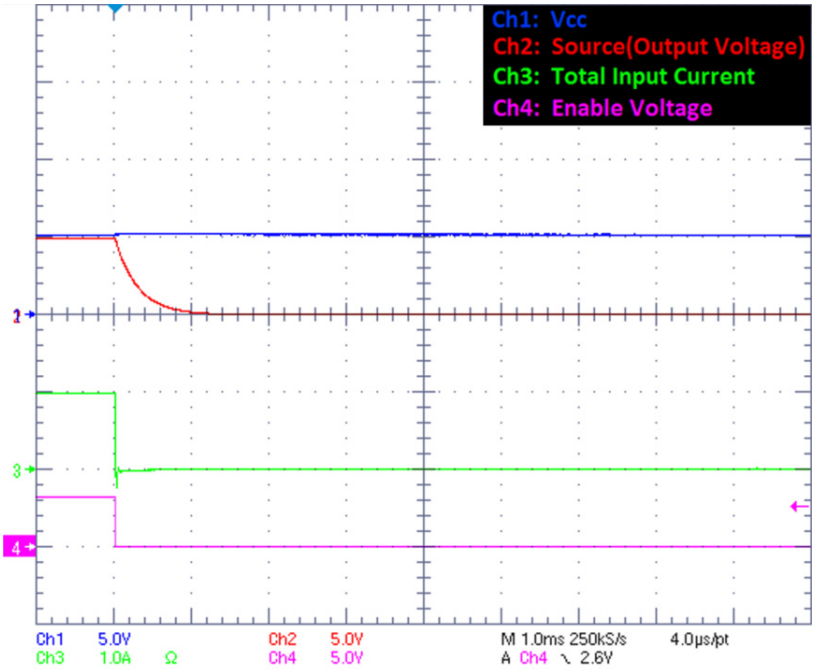

Figure 4. The eFuse Operating Normally and then Turning Off as the EN Pin is Pulled to Ground

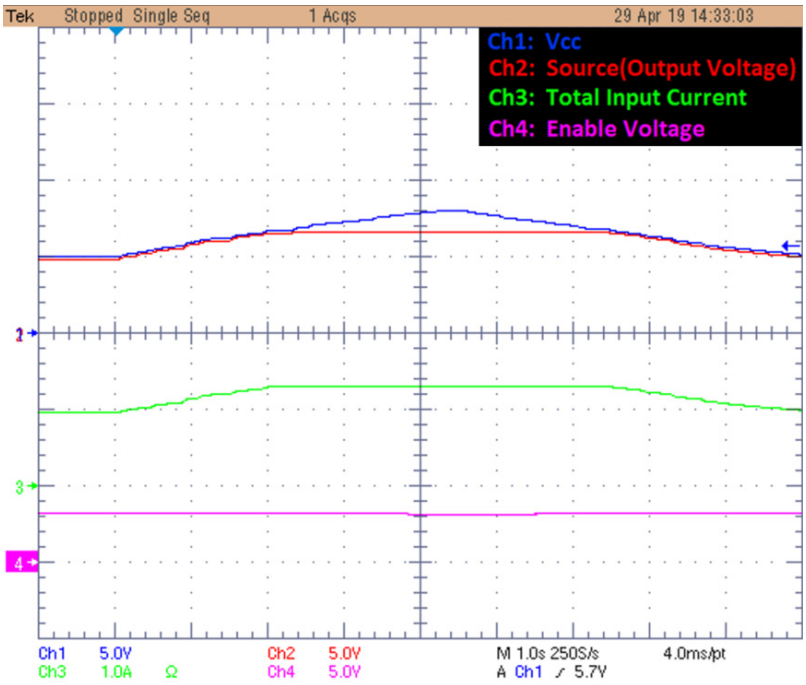

Figure 5. The Input Voltage is Ramped High and then Back Down again to Show the Overvoltage Clamping Feature

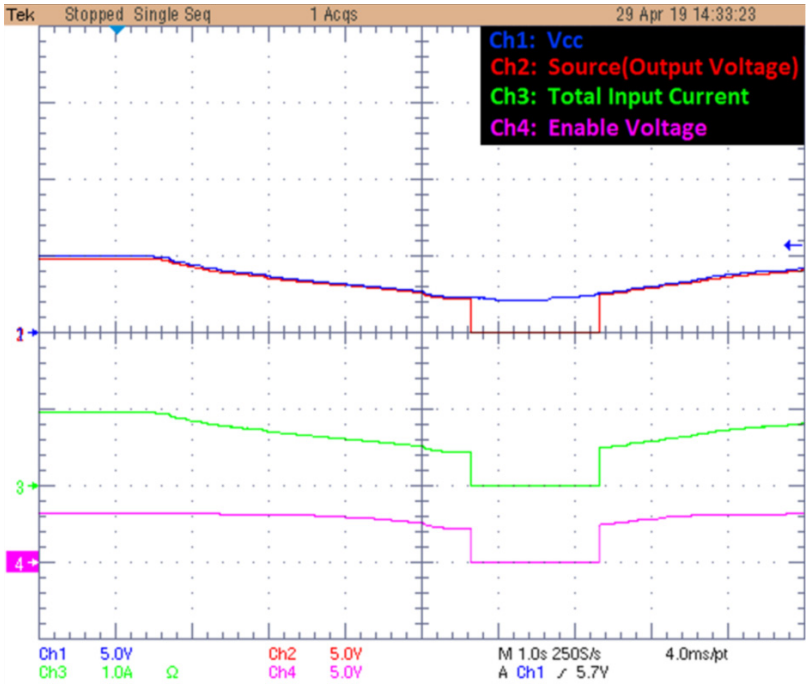

Figure 6. The Input Voltage is Brought Low and then Back High to Show the Undervoltage Lockout Feature

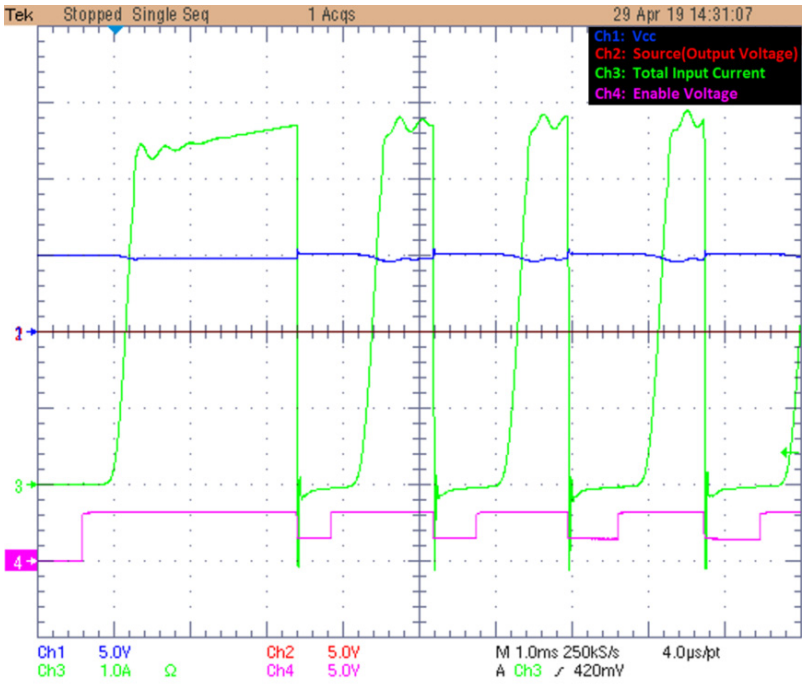

Figure 7. The eFuse with the Output Shorted to Ground Auto−retrying with a Low R_{lim}

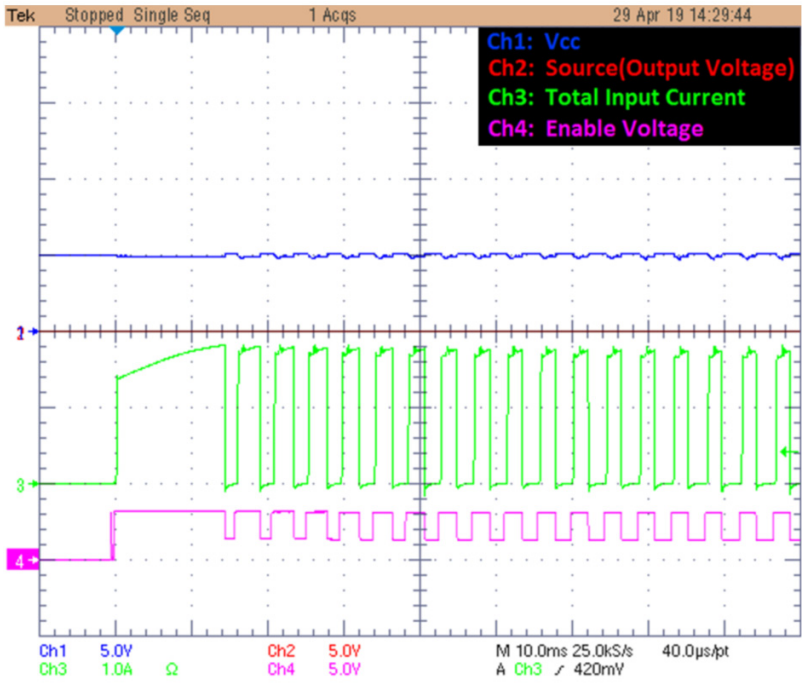

Figure 8. The eFuse with the Output Shorted to Ground Auto−retrying with a High R_{lim}

SCHEMATIC

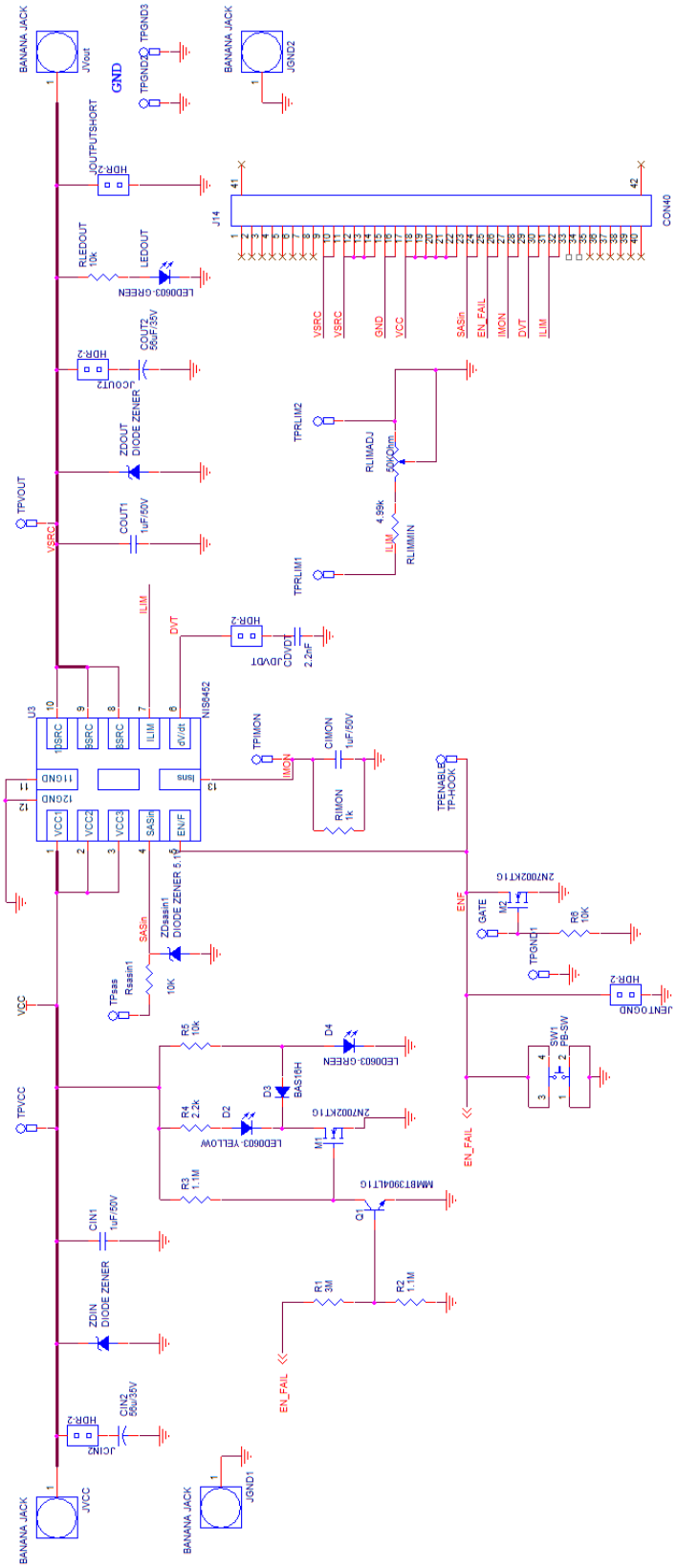

Figure 9. The NIS6432/52 Evaluation Board Schematic

BILL OF MATERIALS

Table 1. BILL OF MATERIALS

Item	Qty.	Reference	Part	Digikey PN	Manufacturer	Manufacturer Part Number	Notes
1	1	CDVDT	2.2 nF/50 V 0603	587−4469−1−ND	Taiyo Yuden	UMJ107AB7222KAHT	
2	3	CIMON, COUT1, CIN1	1 μF/50 V 0603	587−2400−1−ND	Taiyo Yuden	UMK107BJ105KA−T	
3	2	CIN2, COUT2	56 μF/35 V	493−4385−1−ND	Nichicon	PCV1V560MCL1GS	
4	1	D2	LED0603−YELLOW	160−1448−1−ND	Lite−On Inc	LTST−C191KSKT	
5	1	D3	BAS16H	BAS16HT1GOSCT−ND	ON Semiconductor	BAS16HT1G	
6	2	D4, LEDOUT	LED0603−GREEN	160−1888−1−ND	Lite−On Inc	LTST−C191TGKT	
7	11	All Test Points	TP−HOOK	36−5002−ND	Keystone Electronics	5002	
8	5	JCOUT2,J CIN2, JOUTPUTSHORT, JENTOGND, JDVDT	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	
11	1	Q1	MMBT3904LT1G	MMBT3904LT1GOSCT−ND	ON Semiconductor	MMBT3904LT1G	
12	1	RIMON	1 kΩ 0603	P1.00KHCT−ND	Panasonic	ERJ−3EKF1001V	
13	1	RLIMADJ	50 kΩ	3214X−1−503ECT−ND	Bourns Inc.	3214X−1−503ECT	
14	1	RLIMMIN	4.99 kΩ 0603	P4.99KHCT−ND	Panasonic	ERJ−3EKF4991V	
15	1	R1	3 MΩ 0603	P3.0MGDKR−ND	Panasonic	ERJ−3GEYJ305V	
16	2	R2, R3	1.1 MΩ 0603	P1.10MHCT−ND	Panasonic	ERJ−3EKF1104V	
17	1	R4	2.2 kΩ 0603	P2.2KBYCT−ND	Panasonic	ERJ−PA3F2201V	
18	4	R5, R6, RLEDOUT, RSASIN	10 kΩ 0603	P10.0KHCT−ND	Panasonic	ERJ−3EKF1002V	
19	1	SW1	PB−SW	EG4369−ND	E−Switch	TL1105FF160Q	
20	1	U3	NIS6432MT1/ NIS6432MT2/ NIS6452MT1/ NIS6452MT2	−	ON Semiconductor	−	
21	2	ZDIN, ZDOUT	16 Vz	MM3Z16VT1GOSCT−ND	ON Semiconductor	MM3Z16VT1G	Cathode toward top of PCB
22	1	ZDSASIN	−	ON Semiconductor Do not populate	−	−	
23	1	−	CON40	S3314−ND	Sullins	EBC20DRTH	Do not populate

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