NIS6420 Evaluation Board User's Manual

EVBUM2796/D

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EVAL BOARD USER'S MANUAL

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 10 kΩ with a small Screwdriver
- Connect a DC Supply from Vin to GND and apply 12 V
- Check that Vout = 12 V, Ven ~ 3.2 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

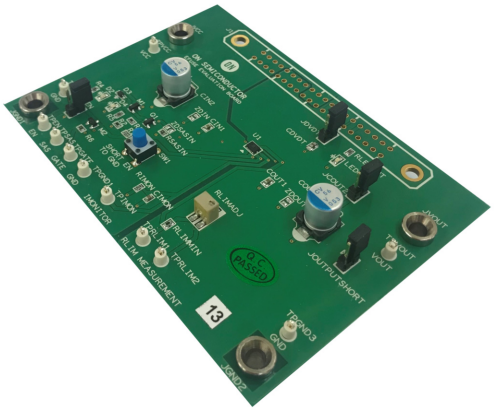

Figure 1. Board Photo

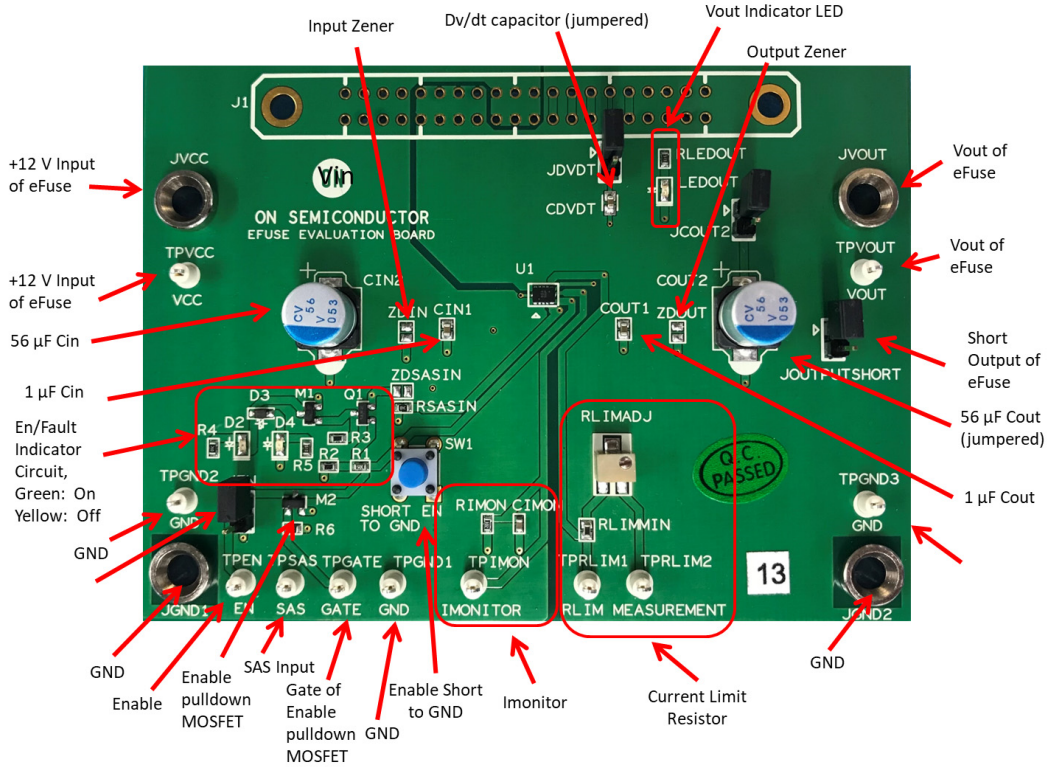

Figure 2. Features of the Evaluation Board

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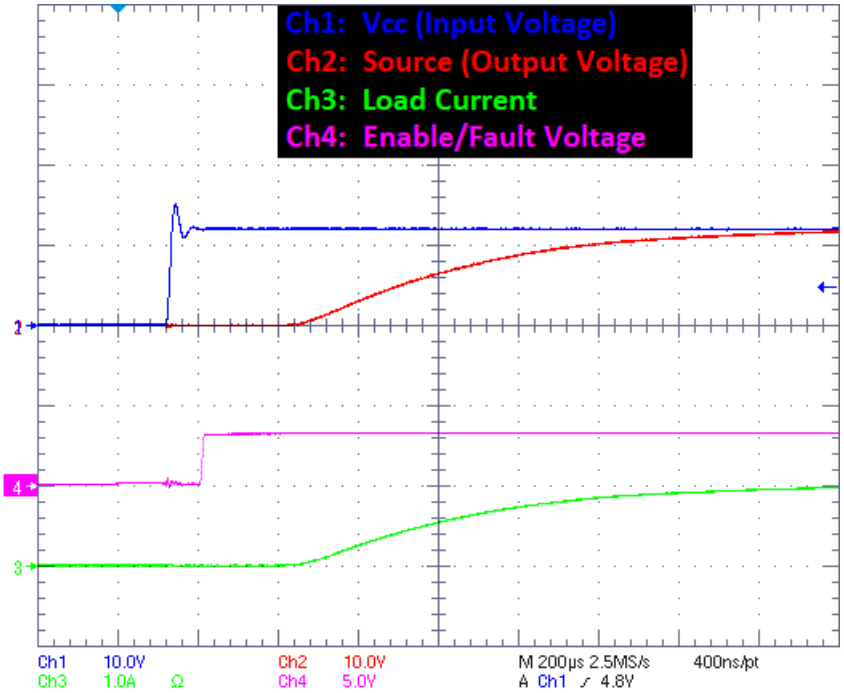

Figure 3. Hot Plug into 12 Ω Load with dvdt Pin Floating to show Controlled Output Voltage Ramp

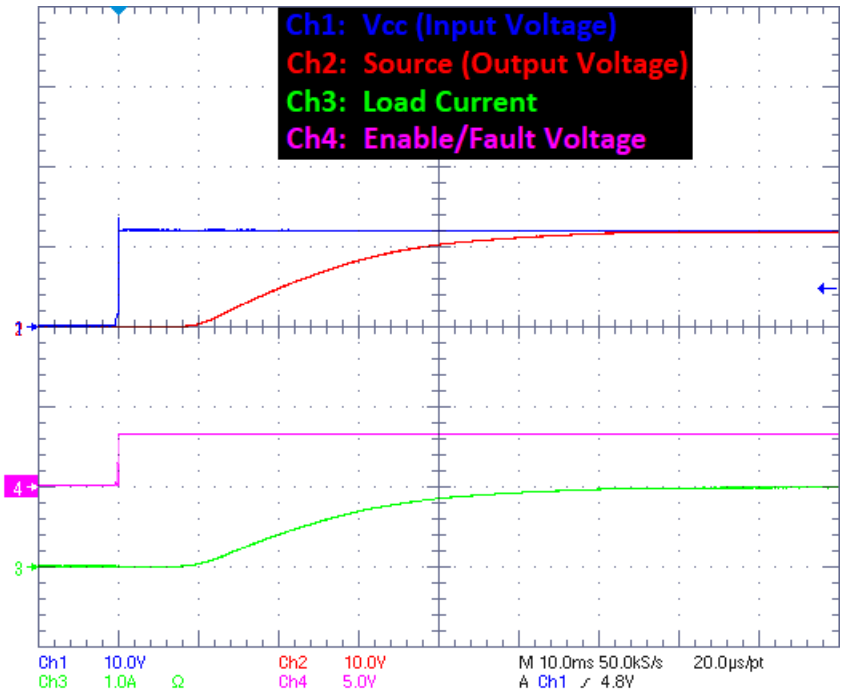

Figure 4. Hot Plug into 12 Ω Load with Cdvdt of 2.2 nF engaged to show Slower Controlled Output Voltage Ramp

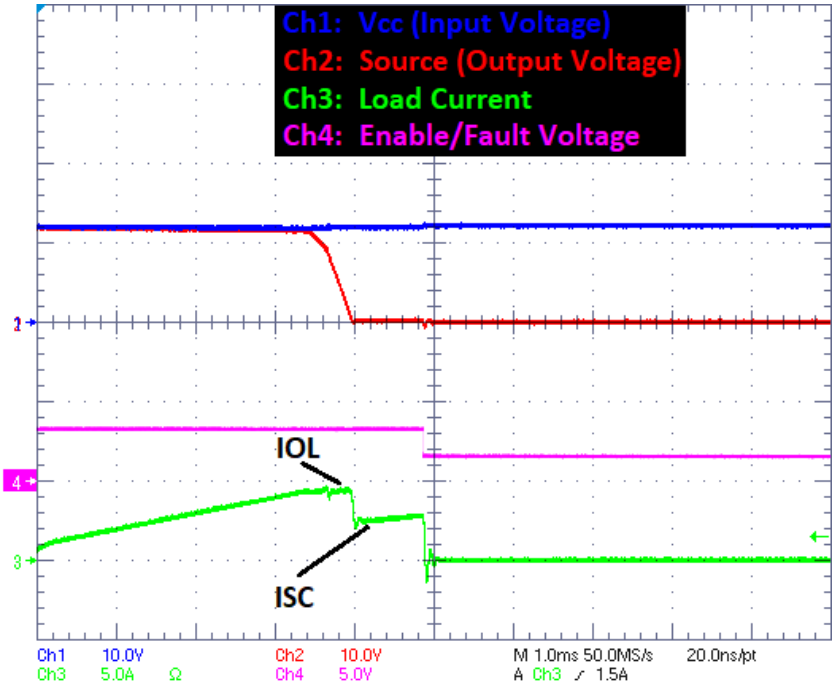

Figure 5. Drawing Current with an Electronic Load to observe Overload Current Limit (IOL) and Short Circuit Current Limit (ISC)

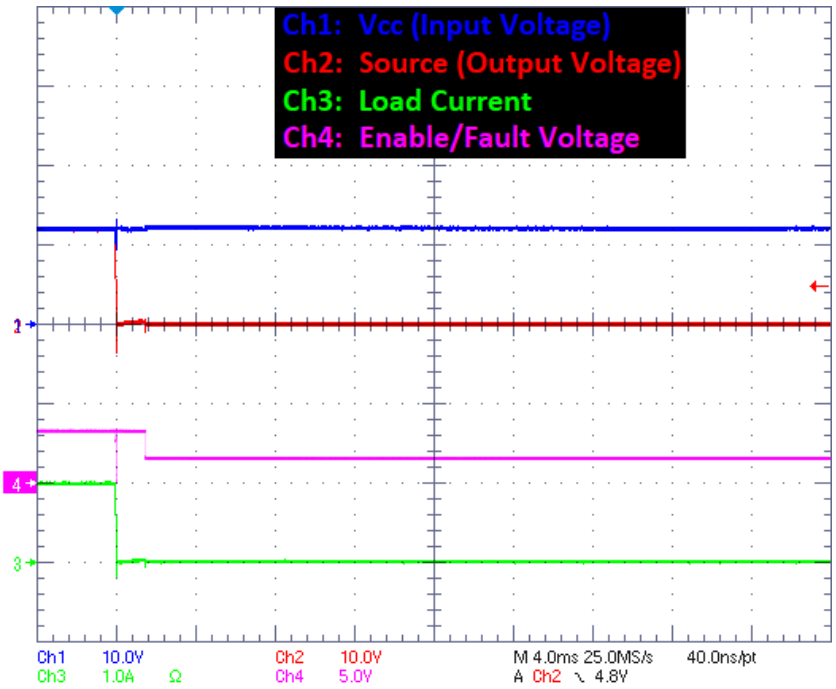

Figure 6. Sudden Short from Output to GND with a Latching Part (NIS6420MT1)

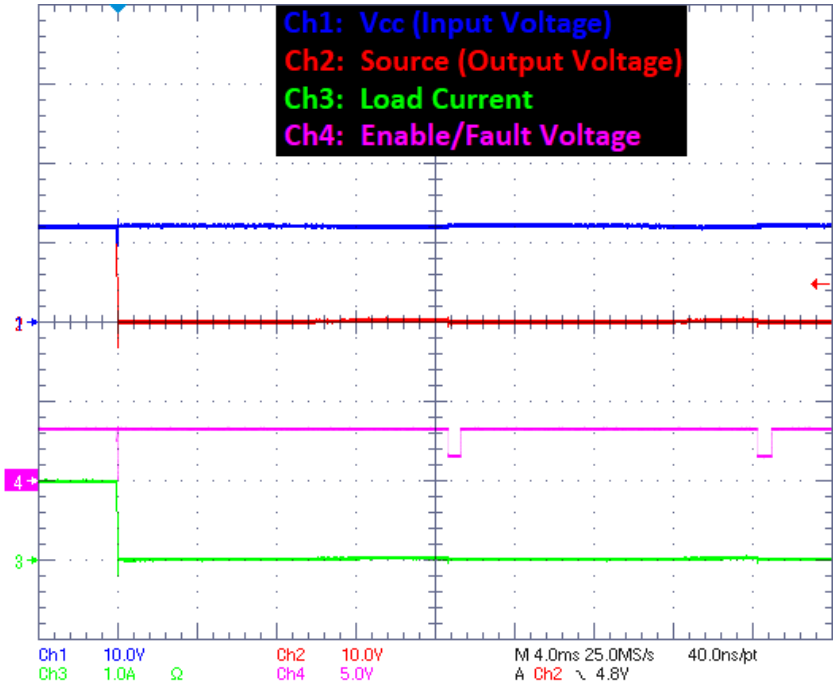

Figure 7. Sudden Short from Output to GND with an Auto−Retry Part (NIS6420MT2)

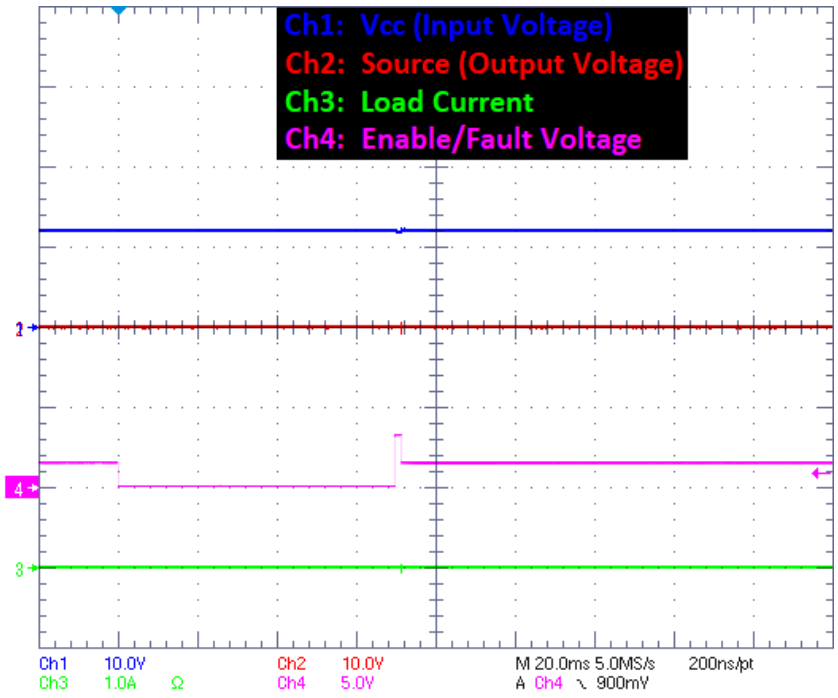

Figure 8. Bringing EN from Mid Level to GND with Vout still shorted to GND with a Latching Part (NIS6420MT1)

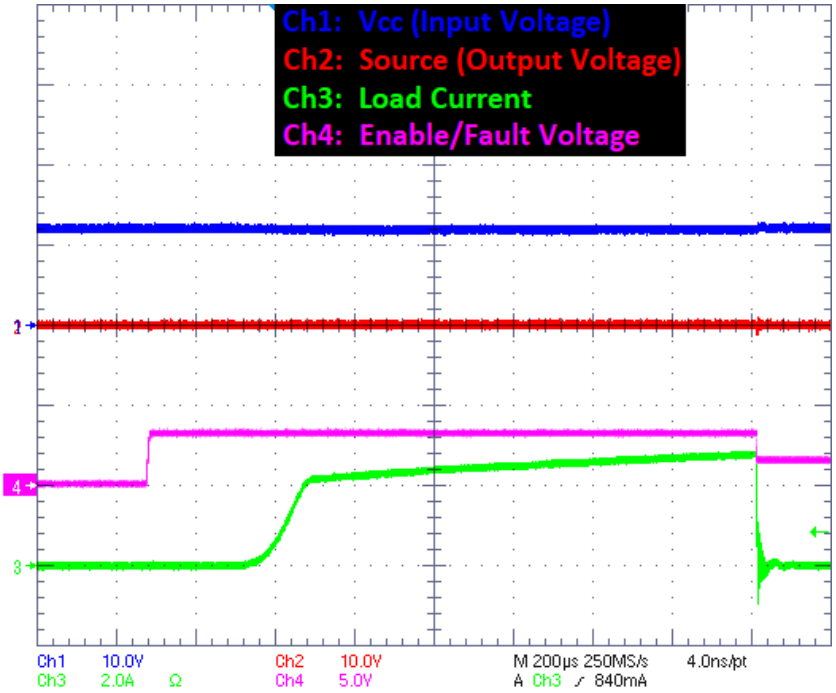

Figure 9. Zoomed In Version of previous Waveform, showing Current while Attempting to Turn On into a Short using the EN Pin

SCHEMATIC

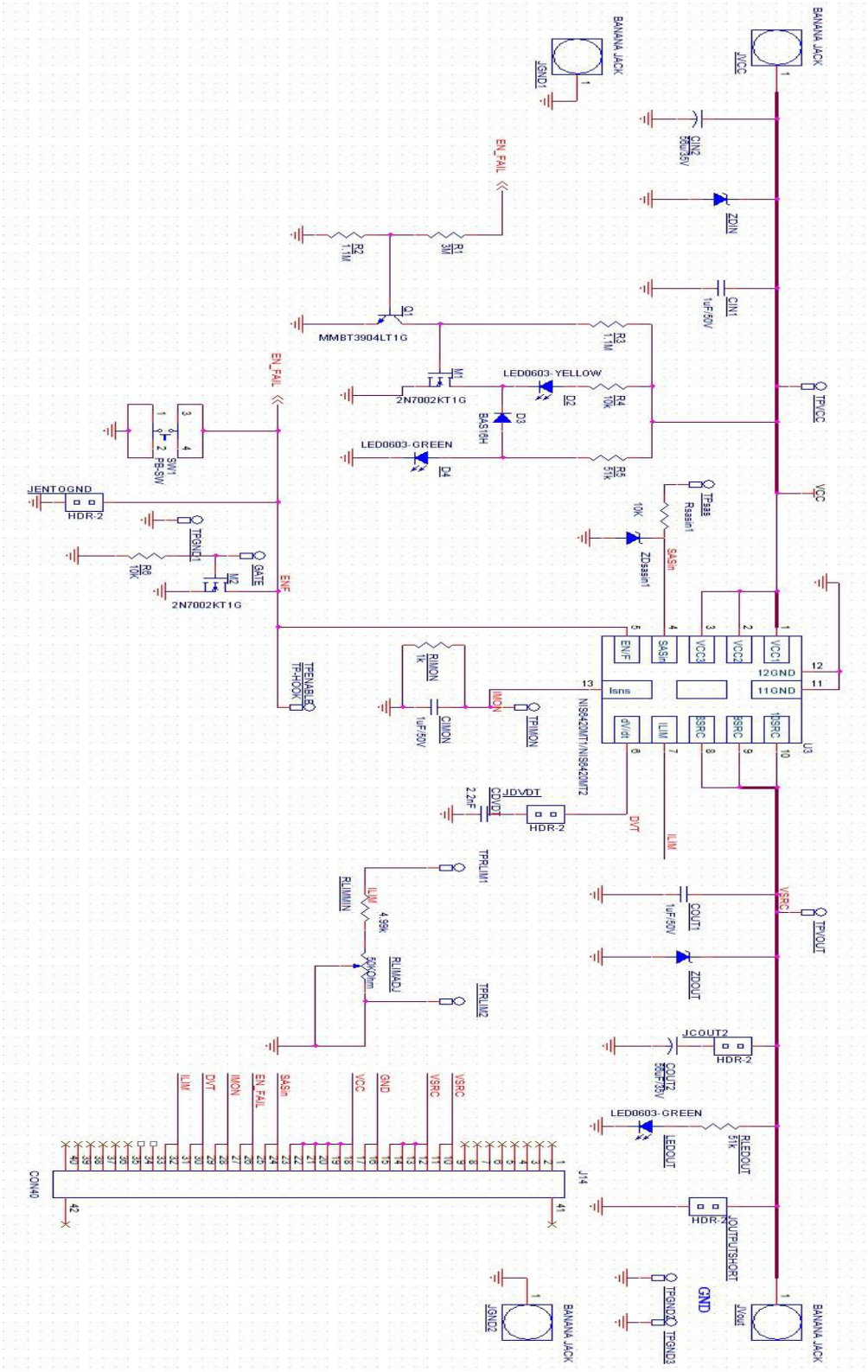

Figure 10. Evaluation Board Schematic

BILL OF MATERIAL

Item	Qty	Reference	Part	DigikeyPN	Manufacturer	Manufacturer Part #	Notes
1	1	CDVDT	2.2nF / 50V 0603	587−4469−1−ND	Taiyo Yuden	UMJ107AB7222K AHT	
2	3	CIMON, COUT1, CIN1	1 μF / 50V 0603	587−2400−1−ND	Taiyo Yuden	UMK107BJ105KA −T	
3	2	CIN2, COUT2	56 μF / 35V	493−4385−1−ND	Nichicon	PCV1V560MCL1 GS	
4	1	D2	LED0603− YELLOW	160−1448−1−ND	Lite−On Inc	LTST−C191KSKT	
5	1	D3	BAS16H	BAS16HT1GOS CT−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	
9	4	JCOUT2, 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	2N7002KT 1G	2N7002KT1GOS CT−ND	ON Semiconductor	2N7002KT1G	
12	1	Q1	MMBT3904 LT1G	MMBT3904LT1G OSCT−ND	ON Semiconductor	MMBT3904LT1G	
13	1	RIMON	1k 0603	P1.00KHCT−ND	Panasonic	ERJ−3EKF1001V	
14	1	RLIMADJ	50 kΩ	3214X−1−503EC T−ND	Bourns Inc.	3214X−1−503ECT	
15	1	RLIMMIN	4.99k 0603	P4.99KHCT−ND	Panasonic	ERJ−3EKF4991V	
16	1	R1	3M 0603	P3.0MGDKR−ND	Panasonic	ERJ−3GEYJ305V	
17	2	R2,R3	1.1M 0603	P1.10MHCT−ND	Panasonic	ERJ−3EKF1104V	
18	2	R5, RLEDOUT	51k 0603	P51KGCT−ND	Panasonic Electronic Components	ERJ−3GEYJ513V	
19	3	R4, R6, RSASIN	10k 0603	P10.0KHCT−ND	Panasonic	ERJ−3EKF1002V	
20	1	SW1	PB−SW	EG4369−ND	E−Switch	TL1105FF160Q	
21	1	U1	NIS6420M T2	NIS6420MT1/ NIS6420MT2	ON Semiconductor		
22	2	ZDIN, ZDOUT	16 Vz	MM3Z16VT1GO SCT−ND	ON Semiconductor	MM3Z16VT1G	Do not populate
23	1	ZDSASIN	4.3 Volt Zener		ON Semiconductor	MM3Z4V3T1G	Do not populate
24	1	−	CON40	S3314−ND	Sullins	EBC20DRTH	Do not populate

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