

1.5A/2A Low Quiescent Current High Efficiency Synchronous Buck Regulator-Small Form Factor

Description

The ISL8002DEMO1Z, ISL80019DEMO1Z and ISL8002ADEMO1Z, ISL80019ADEMO1Z kits are intended for use by individuals with requirements for Point-of-Load applications sourcing from 2.7V to 5.5V. The ISL8002DEMO1Z and ISL80019DEMO1Z boards are used to demonstrate the performance of the ISL8002 and ISL80019 low quiescent current mode converters.

The ISL8002 and ISL8019 are offered in a 8 pin 2mmx2mm TDFN package with 1mm maximum height. The complete converter occupies less than 0.10in² area.

Key Features

- High efficiency synchronous buck regulator with up to 95% efficiency
- 0.8% reference accuracy over temperature/load/line
- Start-up with pre-biased output
- Internal soft-start - 1ms
- Soft-stop output discharge during disable
- 1MHz, 2MHz default frequency
- Negative OC protection

Recommended Equipment

The following materials are recommended to perform testing:

- 0V to 10V power supply with at least 5A source current capability or 5V battery
- Electronic loads capable of sinking current up to 7A
- Digital Multimeters (DMMs)
- 100MHz quad-trace oscilloscope
- Signal generator

Quick Setup Guide

1. Ensure that the circuit is correctly connected to the supply and loads prior to applying any power.
2. Connect the bias supply to V_{IN}. Plus terminal to V_{IN} (TP1) and negative return to PGND (TP2).
3. Connect the output load to V_O (TP3), and the negative return to PGND (TP4).
4. Turn on the power supply.
5. Verify the output voltage is 1.8V for V_{OUT}.

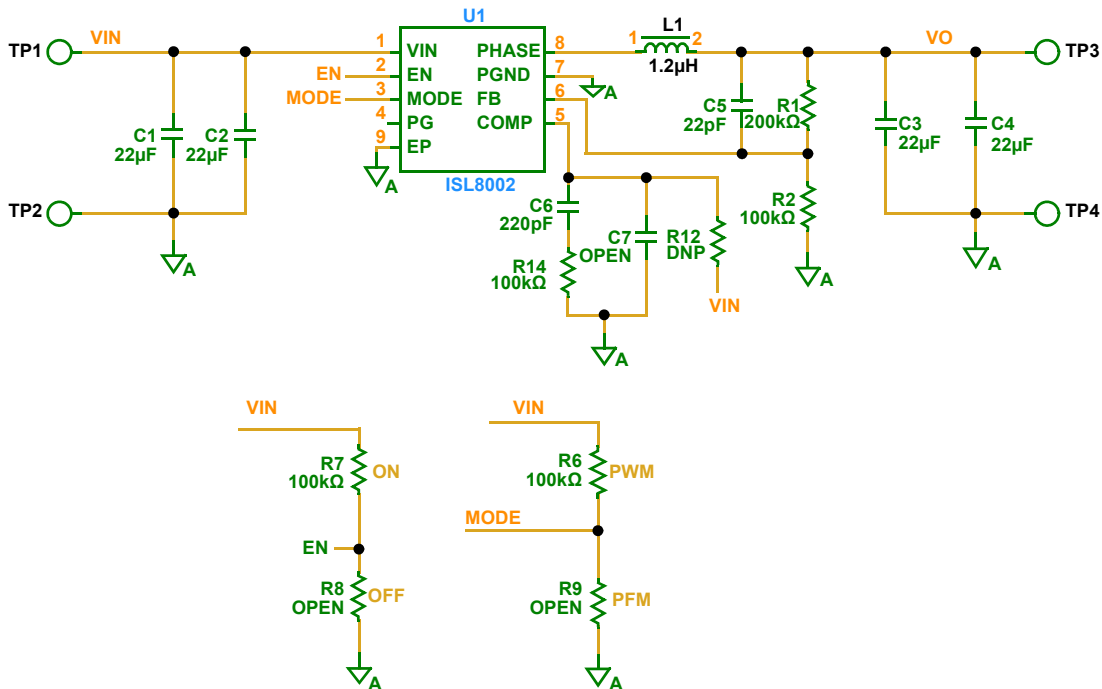


FIGURE 1. ISL8002DEMO1Z SCHEMATIC

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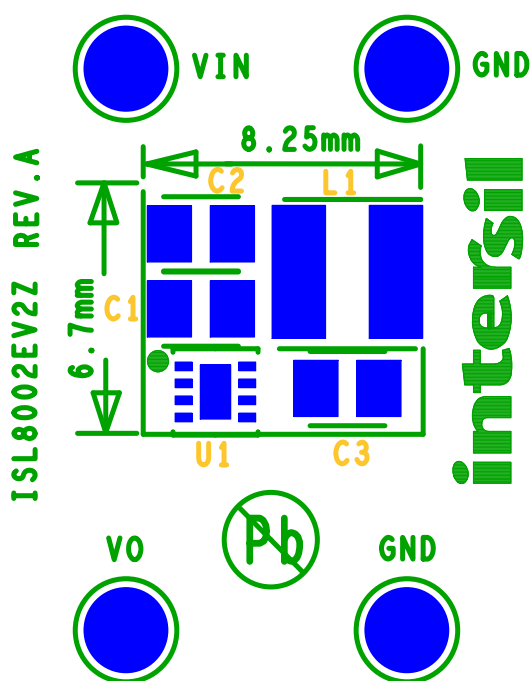


FIGURE 2. SILK SCREEN TOP

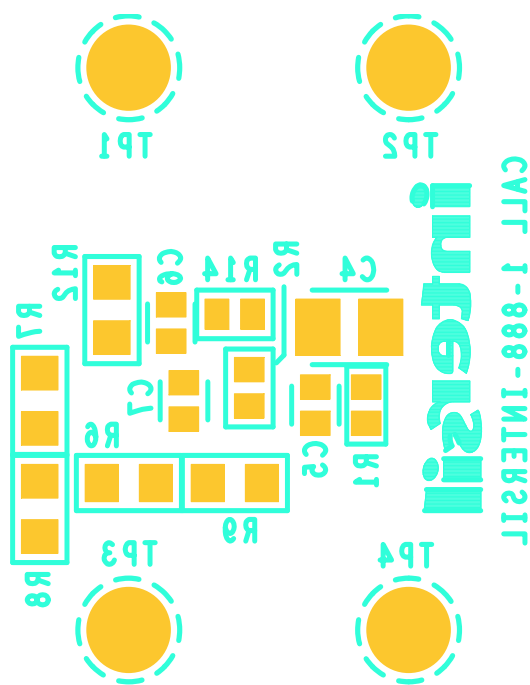


FIGURE 3. SILK SCREEN BOTTOM

TABLE 1. BILL OF MATERIALS

PART NUMBER	QTY	UNITS	REFERENCE DESIGNATOR	COMMENT	DESCRIPTION	MANUFACTURER	MANUFACTURER PART
H1044-00220-50V5-T	1	ea	C5		CAP, SMD, 0402, 22pF, 50V, 5%, NPO	MURATA PANASONIC	GRM36COG220J050AQ ECU-E1H220JCQ
H1044-00221-50V5-T	1	ea	C6		CAP, SMD, 0402, 220pF, 50V, 5%, COG	PANASONIC, TDK	ECU-E1H221JCQ C1005COG1H221J
H1044-DNP	0	ea	C7		CAP, SMD, 0402, DNP-PLACE HOLDER		
H1046-00226-6R3V10-T	4	ea	C1, C2, C3, C4		CAP, SMD, 0805, 22μF, 6.3V, 10%, X5R, ROHS	JOHANSON DIELECTRICS INC	6R3R15X226KV4E JMK212BJ226KG-T
VLCF-4028T-1R2N2R7-2	1	ea	L1 for ISL8002A, ISL80019A, 2MHz	COIL-PWR INDUCTOR, WW, SMD, 4mm, 1.2μH, 30%, 2.7A, ROHS	TDK	VLCF4028T-1R2N2R7-2	VLCF4028T-1R2N2R7-2
74437324022	1	ea	L1 for ISL8002, ISL80019, 1MHz	COIL-PWR INDUCTOR, SMD, 4.45x4.6, 2.2μH, 20%, 3.25A, ROHS	Würth Electronics	74437324022	
ISL8002IRZ	1	ea	U1		IC-2A BUCK REGULATOR, 8P, μTDFN, 2X2, ROHS	INTERSIL	ISL8002IRZ
H2510-01003-1/16W1-T	2	ea	R2, R14		RES, SMD, 0402, 100kΩ, 1/16W, 1%	PANASONIC	ERJ2RKF1003
H2510-02003-1/16W1-T	1	ea	R1		RES, SMD, 0402, 200kΩ, 1/16W, 1%	VISHAY/DALE, VENKEL	CRCW0402200KFKED CR0402-16W-2003FT
H2510-DNP	0	ea	R12		RES, SMD, 0402, DNP		
H2511-01003-1/10W1-T	2	ea	R6, R7		RES, SMD, 0603, 100kΩ, 1/10W, 1%	PANASONIC ROHM	ERJ-3EKF1003V MCR03EZPFX1003
H2511-DNP	0	ea	R8, R9		RES, SMD, 060 3, DNP-PLACE HOLDER		

Intersil Corporation reserves the right to make changes in circuit design, software and/or specifications at any time without notice. Accordingly, the reader is cautioned to verify that the Application Note or Technical Brief is current before proceeding.

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