

6A Low Quiescent High Efficiency Synchronous Buck Regulator - Small Form Factor

Description

The ISL8016EVAL2Z kit is intended for use by individuals with requirements for Point-of-Load applications sourcing from 2.7V to 5.8V. The ISL8016EVAL2Z simple smallest factor evaluation board is used for a quick and easy demonstration of the performance of the ISL8016 low quiescent high efficiency synchronous buck regulator.

The ISL8016 is offered in a 3mmx4mm 20 Ld QFN package with 1mm maximum height. The complete converter occupies 0.15in² area.

Key Features

- High Efficiency Synchronous Buck Regulator with up to 97% Efficiency
- 0.8% Reference Accuracy Over-Temperature/Load/Line
- Fixed Output Voltage Option
- $\pm 10\%$ Output Voltage Margining
- Adjustable Current Limit
- Current Sharing Capable
- Start-up with Pre-Biased Output
- Internal Soft-Start - 1ms or Adjustable
- Soft-Stop Output Discharge During Disabled
- Adjustable Frequency from 500kHz to 4MHz - Default at 1MHz
- External Synchronization up to 4MHz - Master to Slave Phase Shifting Capability

Recommended Equipment

The following materials are recommended to perform testing:

- 0V to 10V Power Supply with at least 10A 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 VIN, the plus terminal to VIN and the negative return to PGND.
3. Connect the output load to VOUT, the plus terminal to VO and the negative return to PGND.
4. Verify the output voltage is 1.8V for VO.

TABLE 1. BILL OF MATERIALS

REFERENCE DESIGNATOR	DESCRIPTION	MFR	MFR PART
	ISL8016EVAL2ZREVAPCB	TBD	ISL8016EVAL2ZREVAPCB
C7	CAP, SMD, 0402, 47pF, 50V, 5%, NPO, ROHS	MURATA	GRM36COG470J050AQ
C1-C6	CAP, SMD, 1206, 22uF, 6.3V, 20%, X5R, ROHS	MURATA	
L1	COIL-PWR INDUCTOR, SMD, 6.9X6.5, 0.68uH, 20%, 5.5A, 5mΩ, ROHS		IHLP2525CZERR68M01
VO, VIN	CONN-MINI TEST PT, VERTICAL, RED, ROHS	KEYSTONE	5000
P1, P2	CONN-MINI TEST PT, VERTICAL, BLK, ROHS	KEYSTONE	5001
U3	IC-ADJ. 6A BUCK REGULATOR, 20P, QFN, 3X4, ROHS	INTERSIL	ISL8016IRAJZ
R3	RES, SMD, 0402, 0Ω, 1/16W, 5%, TF, ROHS	VENKEL	H2510-00R00-1/16W-T
R2	RES, SMD, 0402, 100k, 1/16W, 1%, TF, ROHS	PANASONIC	ERJ2RKF1003
R1	RES, SMD, 0402, 200k, 1/16W, 1%, TF, ROHS	ROHM	MCR01MZPF2003
R4	RES, SMD, 0402, DNP, DNP, DNP, TF, ROHS		

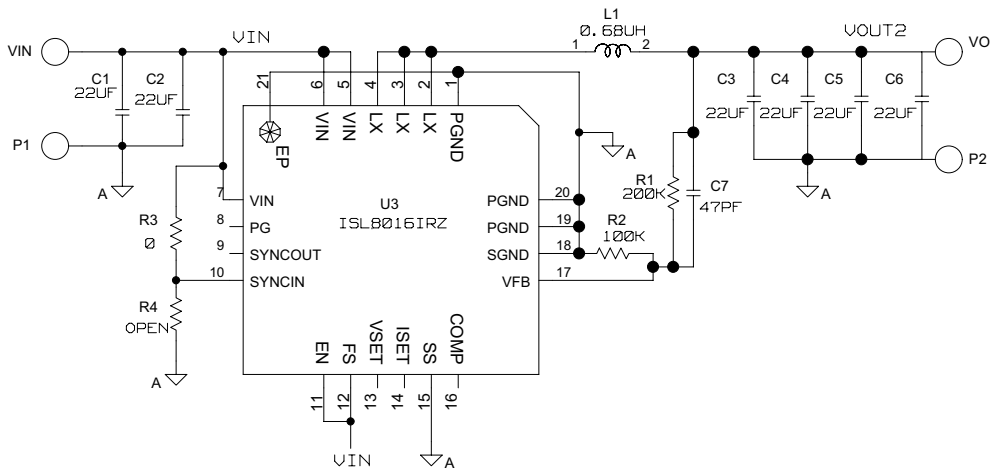


FIGURE 1. ISL8016EVAL2Z SCHEMATIC

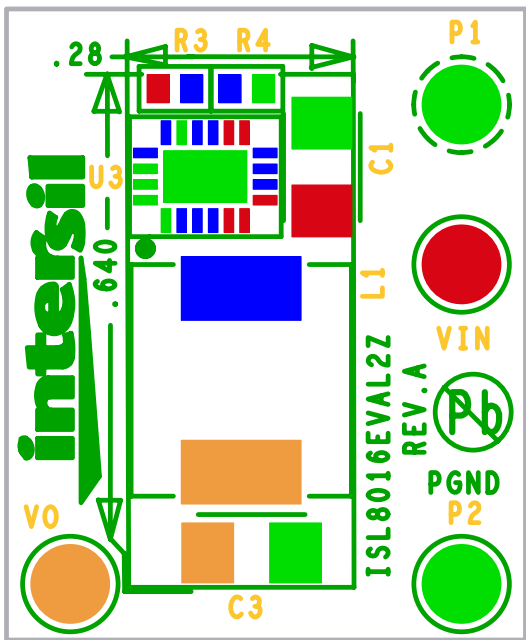


FIGURE 2. TOP COMPONENTS

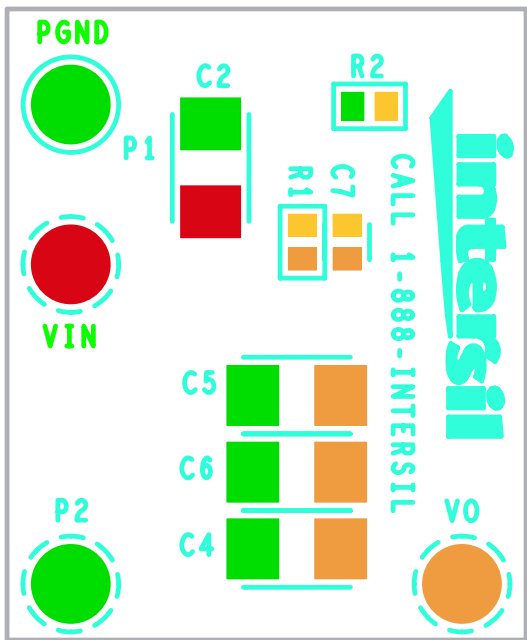


FIGURE 3. BOTTOM SILK SCREEN