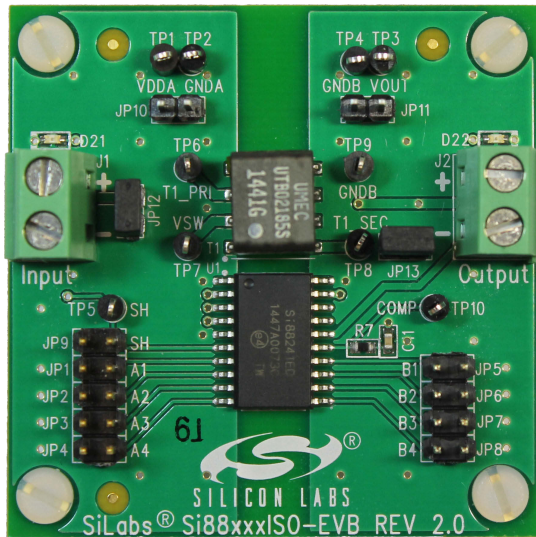


UG232: Si88xxxISO-EVB User's Guide

This document describes the operation of the Si88xxxISO-EVB.



Si88xxxISO-EVB Overview

KIT CONTENTS

- Discusses the hardware overview and setup
- Shows the Si88xxxISO-EVB schematics and layout
- Lists the bill of materials for the Si88xxxISO-EVB
- Includes the ordering guide for the evaluation board kit.

KIT CONTENTS

- Si88xxxISO-EVB
- Si88241ED-IS installed on the evaluation board.

1. Hardware Overview and Setup

Power the EVB by applying a 3.0 to 5.5 V dc supply to terminal block J1. The isolated output is available at terminal block J2. Test points for these are available at the upper edge of the EVB.

The default EVB configuration has the header JP13 shorted, so the dc-dc output powers the VDDDB supply (U1 pin 19) of the Si88241ED-IS. The acceptable input voltage to the VDDDB supply pin is 3.0 to 5.5 V. If the user chooses to generate an output voltage outside this voltage range, the jumper at JP13 must be removed and a separate supply source connected to VDDDB through JP13.

To measure input supply current, clip a differential probe across JP12 to access each side of sense resistor R20.

The SH input (U1 pin 7) disables the dc-dc converter function. Install a jumper across JP9 to pull the SH input high and disable the dc-dc converter. If interfacing to an external controller board through the JP9 header, the controller must drive SH low for normal operation and high to disable the dc-dc.

The EVB has a series of headers for connecting to each digital channel. The inside conductor of each 2x1 header is connected to the device pin and the outer conductor is tied to ground through a protection resistor. Connect to each side of the Si88xxxISO-EVB to external controllers through a two-row ribbon cables with one row grounded.

2. Si88xxxISO-EVB Schematics

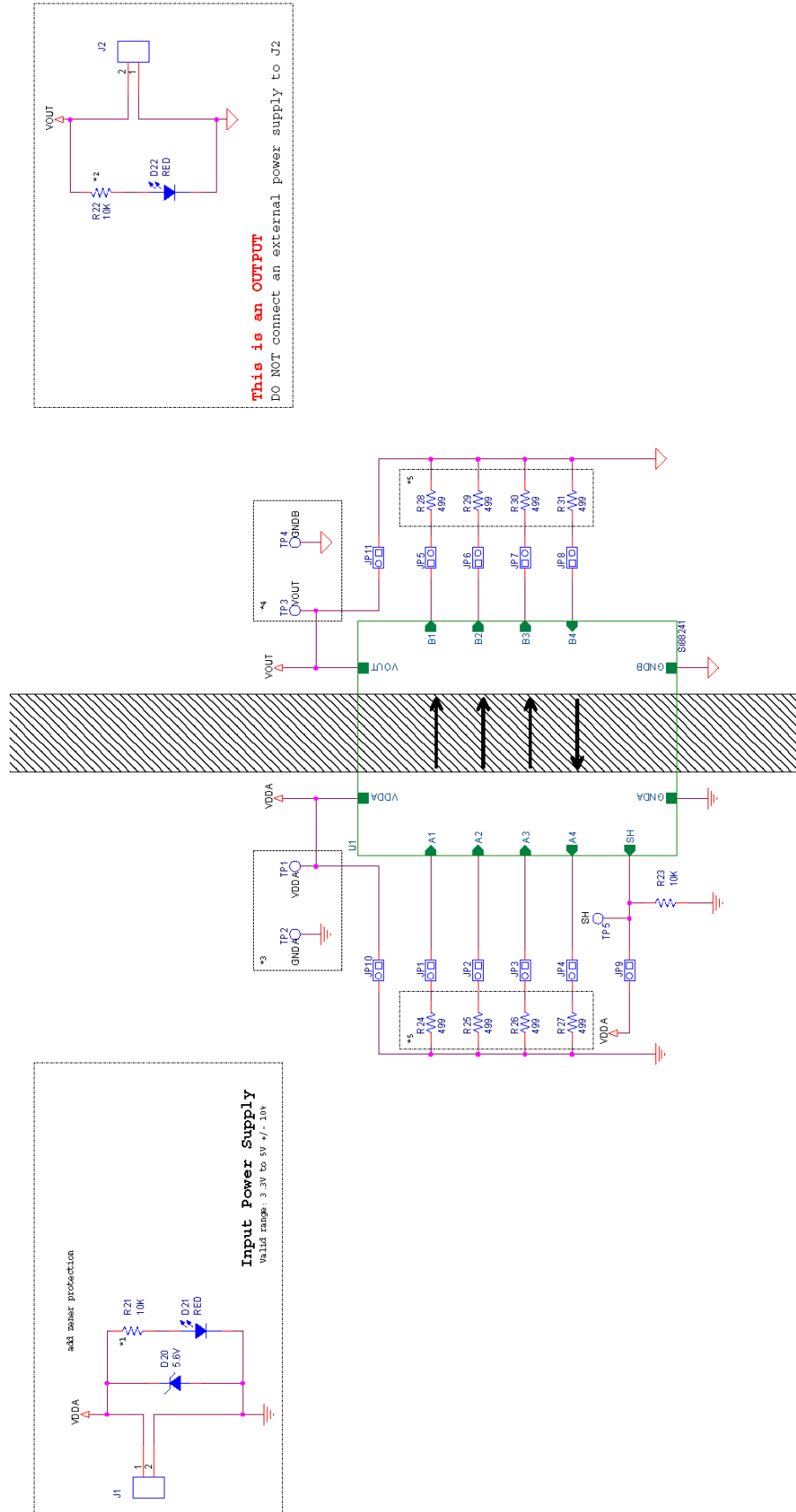


Figure 2.1. Si88xxxISO-EVB Schematic (1 of 2)

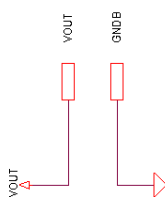


Figure 2.2. Si88xxISO-EVB Schematic (2 of 2)

3. Si88xxxISO-EVB Layout

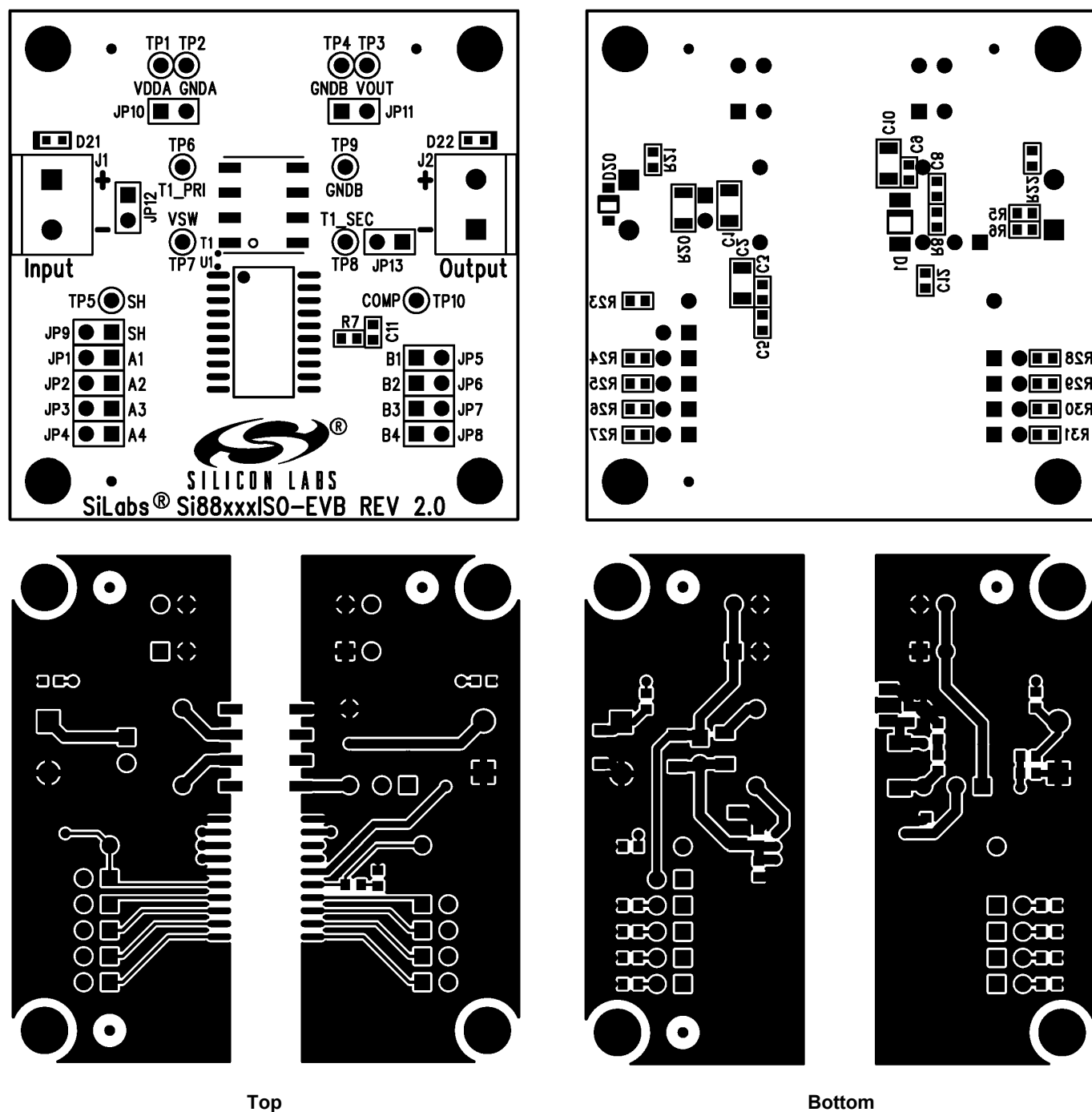


Figure 3.1. Si88xxxISO-EVB Layout

4. Bill of Materials

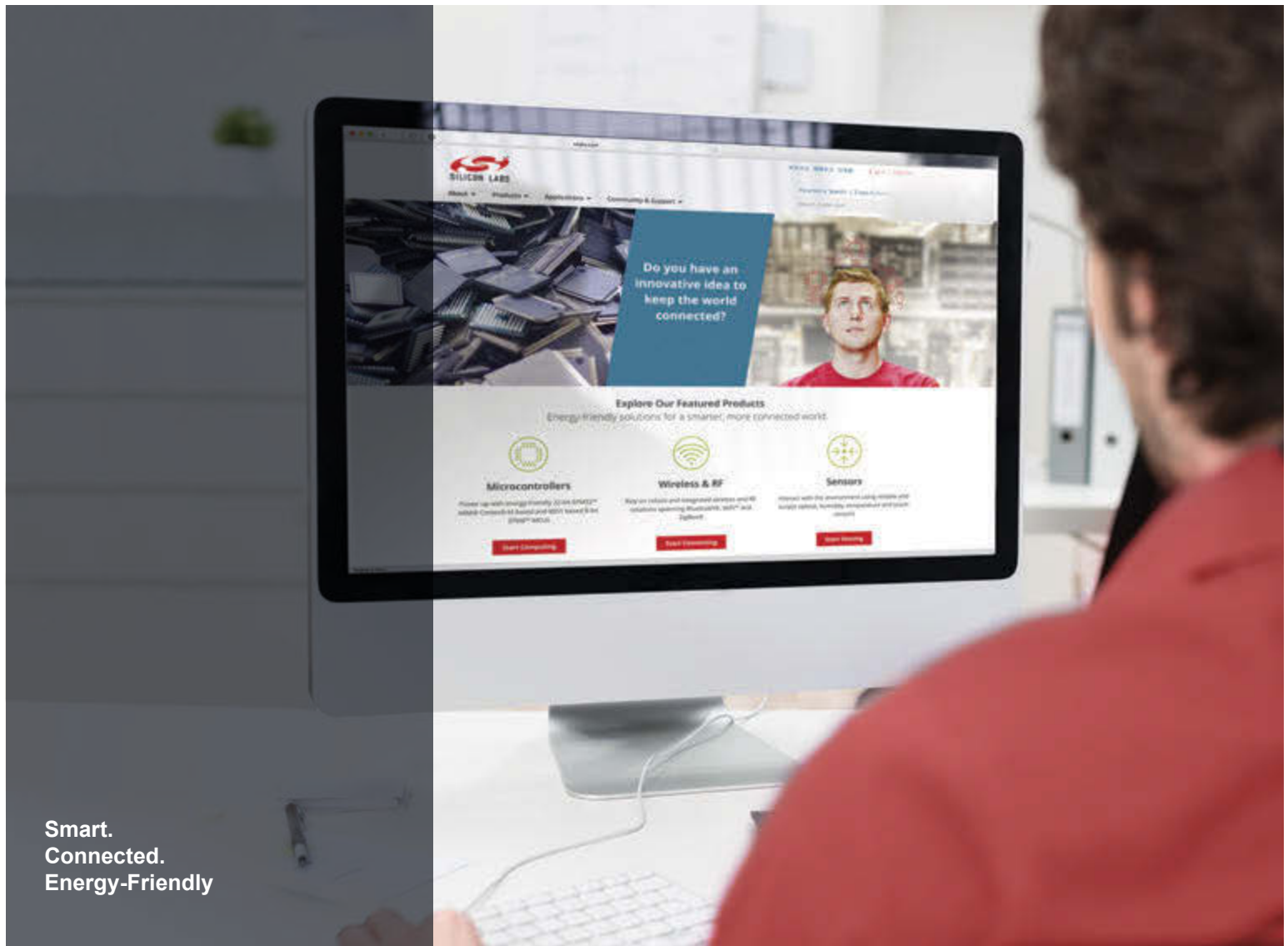
Table 4.1. Si88xxxISO-EVB Bill of Materials

Part Reference	Description	Mfr	Mfr Part Number
C1 C2 C10	CAP, 10 μ F, 10 V, $\pm$ 10%, X7R, 1206	Venkel	C1206X7R100-106K
C3 C5 C9 C12	CAP, 0.1 μ F, 10 V, $\pm$ 10%, X7R, 0603	Venkel	C0603X7R100-104K
C8	CAP, 100 pF, 50 V, $\pm$ 10%, X7R, 0603	Venkel	C0603X7R500-101K
C11	CAP, 1.5 nF, 16 V, $\pm$ 10%, X7R, 0603	Venkel	C0603X7R160-152K
D1	DIO, FAST, 40 V, 1.0A, SOD-128	Panasonic	DB2440100L
D20	DIO, ZENER, 5.6 V, 500 mW, SOD123	On Semi	MMSZ5232BT1
D21 D22	LED, RED, 631 nM, 20 mA, 2 V, 54mcd, 0603	Lite-On	LTST-C190KRKT
J1 J2	CONN, TERM BLOCK 2POS, 5MM PCB	Phoenix Contact	1729018
JP1 JP2 JP3 JP4 JP5 JP6 JP7 JP8 JP9 JP10 JP11 JP12 JP13	Header, 2x1, 0.1in pitch, Tin Plated	Samtec	TSW-102-07-T-S
JS1 JS2	Shunt, 1x2, 0.1in pitch, Tin plating	Samtec	SNT-100-BK-T
MH1 MH2 MH3 MH4	HDW, Screw, 4-40 x 1/4" Pan Head, Slotted, Nylon	Richco Plastic Co	NSS-4-4-01
R5 R7	RES, 49.9K, 1/10W, $\pm$ 1%, ThickFilm, 0603	Venkel	CR0603-10W-4992F
R6	RES, 13.3K, 1/16W, $\pm$ 1%, ThickFilm, 0603	Venkel	CR0603-16W-1332F
R8	RES, 100 Ω , 1/16W, $\pm$ 1%, ThickFilm, 0603	Venkel	CR0603-16W-1000F
R20	RES, 0.25 Ω , 1/2W, $\pm$ 1%, ThickFilm, 1206	Venkel	LCR1206-R250J
R21 R22 R23	RES, 10K, 1/10W, $\pm$ 5%, ThickFilm, 0603	Venkel	CR0603-10W-103J
R24 R25 R26 R27 R28 R29 R30 R31	RES, 499 Ω , 1/10W, $\pm$ 1%, ThickFilm, 0603	Venkel	CR0603-10W-4990F
SO1 SO2 SO3 SO4	HDW, STANDOFF, 1/4" HEX, 4-40x3/4", NYLON	Keystone	1902D
T1	TRANSFORMER, POWER, FLYBACK, 2.0 μ H PRIMARY, 100 nH LEAKAGE, 1:4, 1 TAP, SMT	UMEC	UTB02185S
TP1 TP2 TP3 TP4 TP5 TP6 TP7 TP8 TP9 TP10	TESTPOINT, BLACK, PTH	Kobiconn	151-203-RC
U1	IC, ISOLATOR, DC DC Internal Switch, SH, 4 Digital Ch, SO20 WB	Silicon Labs	Si88241ED-IS

5. Ordering Guide

Table 5.1. Si88xxxISO-EVB Ordering Guide

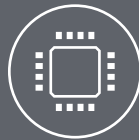
Ordering Part Number (OPN)	Description
Si88xxxISO-KIT	Si88xxx dc-dc digital isolator evaluation board kit



Smart.
Connected.
Energy-Friendly



Products
www.silabs.com/products



Quality
www.silabs.com/quality



Support and Community
community.silabs.com

Disclaimer

Silicon Labs intends to provide customers with the latest, accurate, and in-depth documentation of all peripherals and modules available for system and software implementers using or intending to use the Silicon Labs products. Characterization data, available modules and peripherals, memory sizes and memory addresses refer to each specific device, and "Typical" parameters provided can and do vary in different applications. Application examples described herein are for illustrative purposes only. Silicon Labs reserves the right to make changes without further notice and limitation to product information, specifications, and descriptions herein, and does not give warranties as to the accuracy or completeness of the included information. Silicon Labs shall have no liability for the consequences of use of the information supplied herein. This document does not imply or express copyright licenses granted hereunder to design or fabricate any integrated circuits. The products are not designed or authorized to be used within any Life Support System without the specific written consent of Silicon Labs. A "Life Support System" is any product or system intended to support or sustain life and/or health, which, if it fails, can be reasonably expected to result in significant personal injury or death. Silicon Labs products are not designed or authorized for military applications. Silicon Labs products shall under no circumstances be used in weapons of mass destruction including (but not limited to) nuclear, biological or chemical weapons, or missiles capable of delivering such weapons.

Trademark Information

Silicon Laboratories Inc.®, Silicon Laboratories®, Silicon Labs®, SiLabs® and the Silicon Labs logo®, Bluegiga®, Bluegiga Logo®, Clockbuilder®, CMEMS®, DSPLL®, EFM®, EFM32®, EFR, Ember®, Energy Micro, Energy Micro logo and combinations thereof, "the world's most energy friendly microcontrollers", Ember®, EZLink®, EZRadio®, EZRadioPRO®, Gecko®, ISOModem®, Precision32®, ProSLIC®, Simplicity Studio®, SiPHY®, Telegesis, the Telegesis Logo®, USBXpress® and others are trademarks or registered trademarks of Silicon Labs. ARM, CORTEX, Cortex-M3 and THUMB are trademarks or registered trademarks of ARM Holdings. Keil is a registered trademark of ARM Limited. All other products or brand names mentioned herein are trademarks of their respective holders.



Silicon Laboratories Inc.
400 West Cesar Chavez
Austin, TX 78701
USA

<http://www.silabs.com>