19-2361; Rev 0; 03/02

MAX1921 Evaluation Kit

Evaluates: MAX1920/MAX1921

General Description

The MAX1921 evaluation kit (EV kit) provides a fixed 1.8V output voltage from a 2V to 5.5V input source and delivers up to 400mA output current. The MAX1921 is a step-down switching regulator with an internal power switch and synchronous rectifier in a tiny SOT23 package.

The MAX1921 EV kit is a fully assembled and tested surface-mount circuit board. The MAX1921 EV kit can also be used to evaluate other fixed-output voltage versions of the MAX1921 or the MAX1920, which is a step-down switching regulator with an adjustable output voltage. Additional pads on the board are provided for external feedback resistors to set different output voltages, 1.25V to VIN.

Features

- **2V to 5.5V Input Voltage Range**
- **Output Voltage**
  - **1.8V Fixed Output Voltage (MAX1921EUT18-T)**
  - **Adjustable Output Voltage (MAX1920EUT-T)**
  - **Other Fixed-Output Voltages (MAX1921EUT_ _-T)**
- **Output Current**
  - **Guaranteed 400mA at ≥2.5V Input Voltage**
- **IC Shutdown Current**
  - **0.1µA (typ)**
- **Surface-Mount Components**
- **Fully Assembled and Tested**

Component List

DESIGNATION	QTY	DESCRIPTION
C1	1	2.2µF ±20%, 10V X5R ceramic capacitor (0805) Taiyo Yuden LMK212BJ225MG or TDK C2012X5R1A225M
C2	1	4.7µF ±20%, 6.3V X5R ceramic capacitor (0805) Taiyo Yuden JMK212BJ475MG or TDK C2012X5R0J475K
C3	1	5.6nF ±20%, 50V X7R ceramic capacitor (0603) Murata GRM39X7R562M050AD or equivalent
JU1	1	3-pin header
L1	1	4.7µH ±20% 1A inductor Toko A914BYW-4R7M or Sumida CDRH3D16-4R7
R1	1	4.75kΩ ±1% resistor (0603)
R2	0	Not installed, resistor (0603)
U1	1	MAX1921EUT18-T (6-pin SOT23), top mark ABCM
None	1	Shunt
None	1	MAX1921 PC board
None	1	MAX1921 EV kit data sheet
None	1	MAX1920/MAX1921 data sheet

Ordering Information

PART	TEMP RANGE	IC PACKAGE
MAX1921EVKIT	0°C to +70°C	6 SOT23-6

Note: *To evaluate other versions of the MAX1921 or the MAX1920, request a free sample with the MAX1921EVKIT. See Table 2.*

Quick Start

The MAX1921 EV kit is a fully assembled and tested surface-mount board. Follow the steps below to verify board operation. **Do not turn on the power supply until all connections are completed:**

1) Verify that there is a shunt across pins 1 and 2 of JU1 ($\overline{SHDN}$).
2) Connect a voltmeter and load (if any) to the VOUT pad. Connect the ground to the GND closest to VOUT.
3) Connect a 2V to 5.5V power supply to the VIN pad. Connect power supply ground to the GND pad closest to VIN.
4) Turn on the power supply and verify that the output voltage is 1.8V.

To evaluate other voltages, see the *Evaluating Other Output Voltages* section.

For pricing, delivery, and ordering information, please contact Maxim/Dallas Direct! at 1-888-629-4642, or visit Maxim's website at www.maxim-ic.com.

Component Suppliers

SUPPLIER	PHONE	FAX	WEBSITE
Sumida	847-545-6700	847-545-6720	www.sumida.com
Taiyo Yuden	800-348-2496	847-925-0899	www.t-yuden.com
TDK	847-803-6100	847-390-4405	www.tdk.com
Toko	847-297-0070	847-699-1194	www.tokoam.com

Note: *Please indicate that you are using the MAX1920/MAX1921 when contacting these component suppliers.*

Detailed Description

Shutdown Mode

The MAX1921 EV kit features a shutdown mode that reduces the MAX1921 quiescent current to 0.1µA, preserving battery life. The setting of jumper JU1 selects the circuit operating modes. Table 1 shows the functions of JU1.

Evaluating Other Output Voltages

The MAX1921 EV kit can be used to evaluate the MAX1921EUT15-T/25-T/30-T/33-T and the MAX1920EUT-T. Replace MAX1921EUT18-T with a MAX1921EUT15-T/25-T/30-T/33-T or MAX1920EUT-T. Table 2 lists the corresponding output voltages. To evaluate different output voltages, select L1, C2, C3, R1, and R2 for optimum performance according to the *Design Procedure* section of the MAX1920/MAX1921 data sheet.

Table 1. JU1 Functions

SHUNT LOCATION	$\overline{\text{SHDN}}$ PIN	MAX1921 OUTPUT
1 and 2	Connected to VIN	MAX1921 enabled, VOUT = 1.8V
2 and 3	Connected to GND	MAX1921 disabled, VOUT = 0V
Open	Connected to $\overline{\text{SHDN}}$ pad	External signal enables or disables the MAX1921 output

Table 2. MAX1921 EV Kit Corresponding Output Voltage

PART NUMBER	MAX1921 EV KIT OUTPUT VOLTAGE (V)
MAX1920EUT-T	Adjustable
MAX1921EUT15-T	1.5
MAX1921EUT18-T	1.8
MAX1921EUT25-T	2.5
MAX1921EUT30-T	3.0
MAX1921EUT33-T	3.3

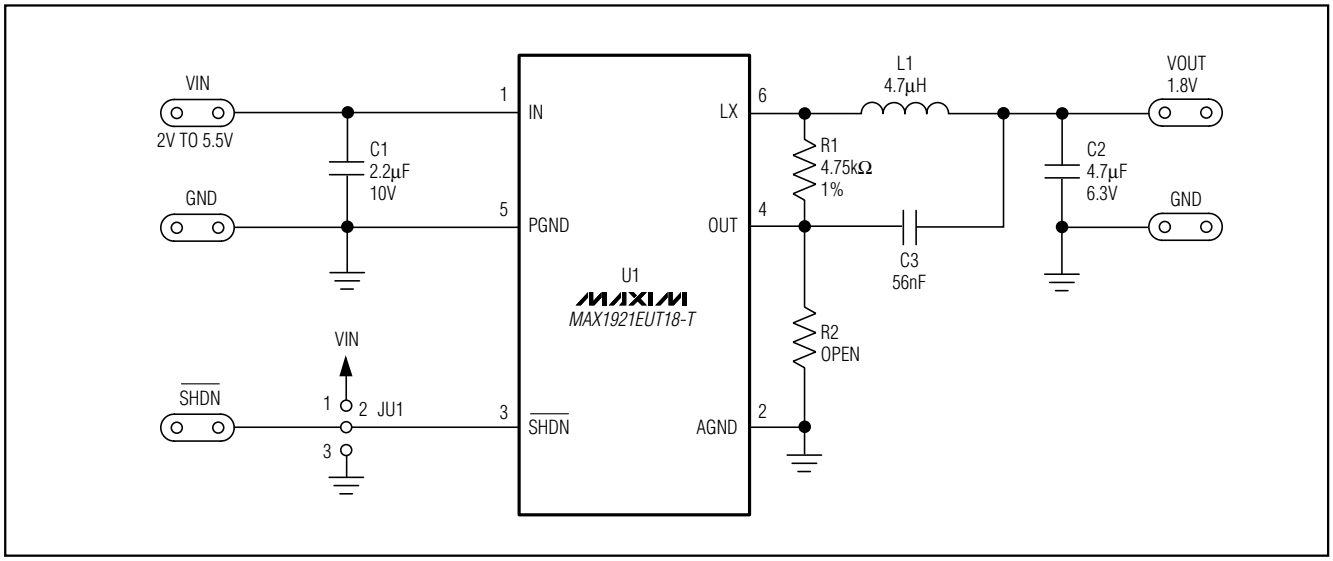


Figure 1. MAX1921 EV Kit Schematic

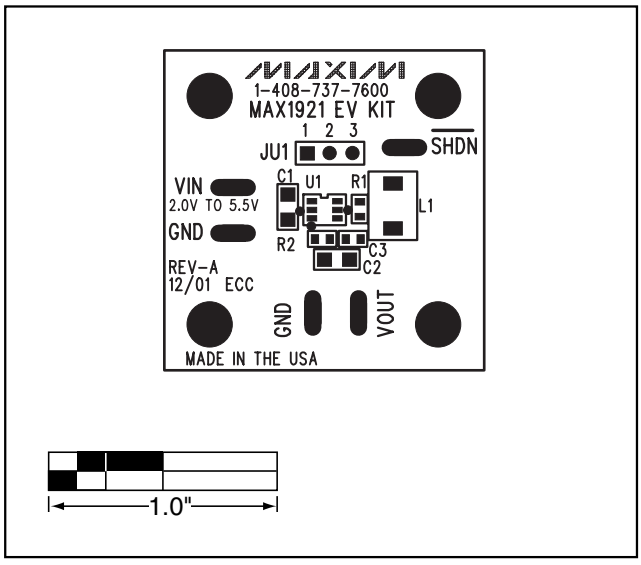


Figure 2. MAX1921 EV Kit Component Placement Guide—Component Side

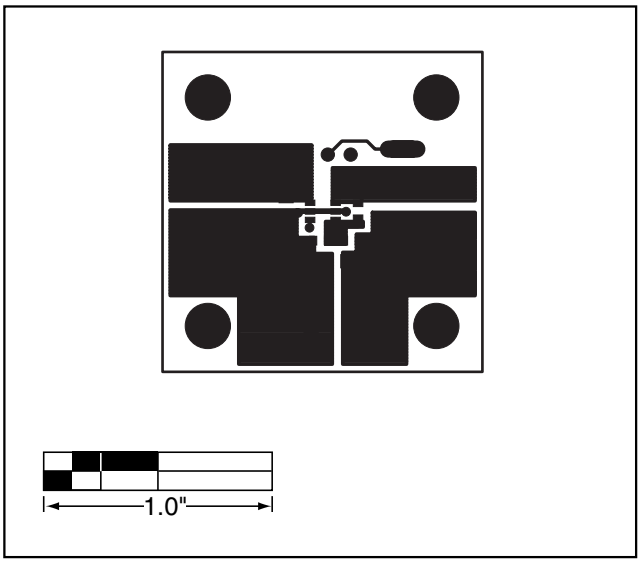


Figure 3. MAX1921 EV Kit PC Board Layout—Component Side

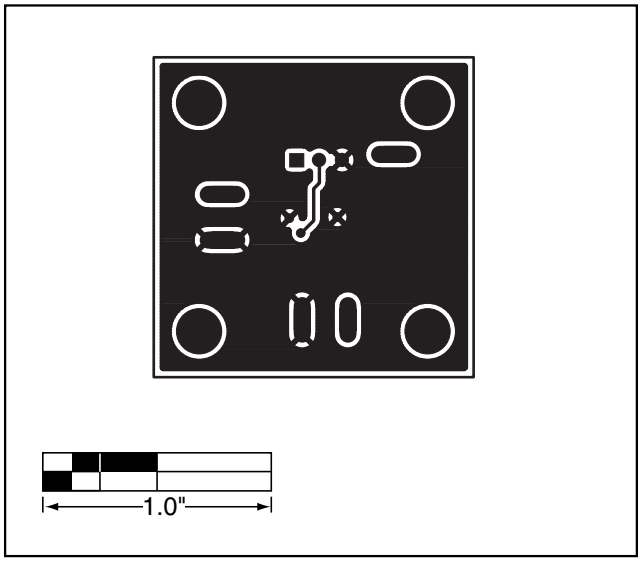


Figure 4. MAX1921 EV Kit PC Board Layout—Solder Side

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