

MAXIM

MAX1626 Evaluation Kit

General Description

The MAX1626 evaluation kit (EV kit) provides a selectable 3.3V or 5V output voltage. The MAX1626 has a high-switch duty cycle of up to 100%, allowing the external P-channel transistor to turn on fully. The 100% duty cycle and a low 100mV current-sense level permit very low dropout voltages. The circuit is configured to deliver up to 2A of output current with greater than 90% conversion efficiency.

This EV kit is a fully assembled and tested surface-mount circuit board. It can also be used to evaluate the MAX1627, which has an adjustable output voltage. Additional pads on the bottom of the board accommodate the external feedback resistors for setting different output voltages.

Component List

DESIGNATION	QTY	DESCRIPTION
C1, C2	2	68µF, 20V tantalum capacitors AVX TPSE686M020R0150 or Sprague 593D686X0020E2W
C3	1	220µF, 10V tantalum capacitor AVX TPSE227M010R0100 or Sprague 593D227X0010E2W
C4	1	0.47µF ceramic capacitor
C5	1	0.1µF ceramic capacitor
C6, C7	0	Open
D1	1	Schottky diode Nihon NSQ03A03 or Motorola MBR340T3
L1	1	22µH inductor Sumida CDRH125-220 or Coilcraft DO3316P-223
P1	1	P-channel MOSFET International Rectifier IRF7416, Siliconix Si4431DY, or Motorola MMSF3P02HD
R1	1	0.040Ω, 1%, 1/2W resistor Dale WSL-2010-R040-F or IRC LR2010-01-R040-F
R2, R3	0	Open
U1	1	MAX1626ESA
JU1, JU2	2	Three-pin headers
None	2	Shunts
None	1	MAX1626 PC board
None	1	MAX1626 data sheet

Features

- ◆ Selectable 3.3V or 5V Output Voltage
- ◆ Low Dropout Voltage
- ◆ 100% Max Duty Cycle
- ◆ 2A Output Current
- ◆ 16.5V Max Input Voltage
- ◆ 1µA Max Shutdown Current
- ◆ 90µA Max IC Supply Current
- ◆ Up to 300kHz Switching Frequency
- ◆ 8-Pin SO, Surface-Mount Construction
- ◆ Fully Assembled and Tested

Ordering Information

PART	TEMP. RANGE	BOARD TYPE
MAX1626EVKIT-SO	0°C to +70°C	Surface Mount

Note: To evaluate the MAX1627, request a MAX1627ESA free sample with the MAX1626EVKIT-SO.

Component Suppliers

SUPPLIER	PHONE	FAX
AVX	(803) 946-0690 (800) 282-4975	(803) 626-3123
Coilcraft	(847) 639-6400	(847) 639-1469
Dale-Vishay	(402) 564-3131	(402) 563-6418
International Rectifier	(310) 322-3331	(310) 322-3332
IRC	(512) 992-7900	(512) 992-3377
Motorola	(602) 303-5454	(602) 994-6430
Nihon	(805) 867-2555	(805) 867-2698
Siliconix	(408) 988-8000 (800) 554-5565	(408) 970-3950
Sprague	(603) 224-1961	(603) 224-1430
Sumida	(847) 956-0666	(847) 956-0702

Evaluates: MAX1626/MAX1627



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Quick Start

The MAX1626 EV kit is a fully assembled and tested surface-mount printed circuit board. Follow these steps to verify board operation. **Do not turn on the power supply until all connections are completed.**

- 1) Connect a 5.5V supply to the VIN pad. The ground connects to the GND pad.
- 2) Connect a voltmeter and load, if any, to the VOUT pad.
- 3) For normal operation, place the shunts on JU1 across pins 1 and 2, and place the shunts on JU2 across pins 2 and 3.
- 4) Turn on the power and verify that the output voltage is 5V. For a 3.3V output, remove the shunt from JU2 pins 2 and 3, and place it across JU2 pins 1 and 2.
- 5) Refer to the *Evaluating Other Output Voltages* section to modify the board for different output voltages.

Detailed Description

Jumper Selection

The three-pin header JU1 selects shutdown mode. Table 1 lists the selectable jumper options.

The three-pin header JU2 selects the output voltage mode. Table 2 lists the selectable jumper options.

Table 1. Jumper JU1 Functions

SHUNT LOCATION	SHDN PIN	MAX1626 OUTPUT
2 & 3	Connected to VIN	Shutdown mode, $V_{OUT} = 0V$
1 & 2	Connected to GND	MAX1626 enabled, $V_{OUT} = 5.0V$

Table 2. Jumper JU2 Functions

SHUNT LOCATION	FB PIN	MAX1626 OUTPUT
2 & 3	Connected to VIN	$V_{OUT} = 5V$
1 & 2	Connected to GND	$V_{OUT} = 3.3V$

Inductor Selection

The 22 μ H Sumida CDRH125-220 inductor mounted on the EV kit board is a low-resistance, shielded, medium-current inductor. It provides excellent performance over the line and load ranges. Refer to the *Inductor Selection* section in the MAX1626/MAX1627 data sheet for instructions on selecting the inductor value.

Evaluating Other Output Voltages

To generate output voltages other than 3.3V or 5V, replace the MAX1626 with the MAX1627 (adjustable output), and select the external voltage divider resistors R2 and R3 (located on the bottom side of the board). The only other modifications required are cutting the trace across JU3 and removing the shunt from JU2. Refer to the *Setting the Output Voltage* section in the MAX1626/MAX1627 data sheet for instructions on calculating R2 and R3 values.

MAX1626 Evaluation Kit

Evaluates: MAX1626/MAX1627

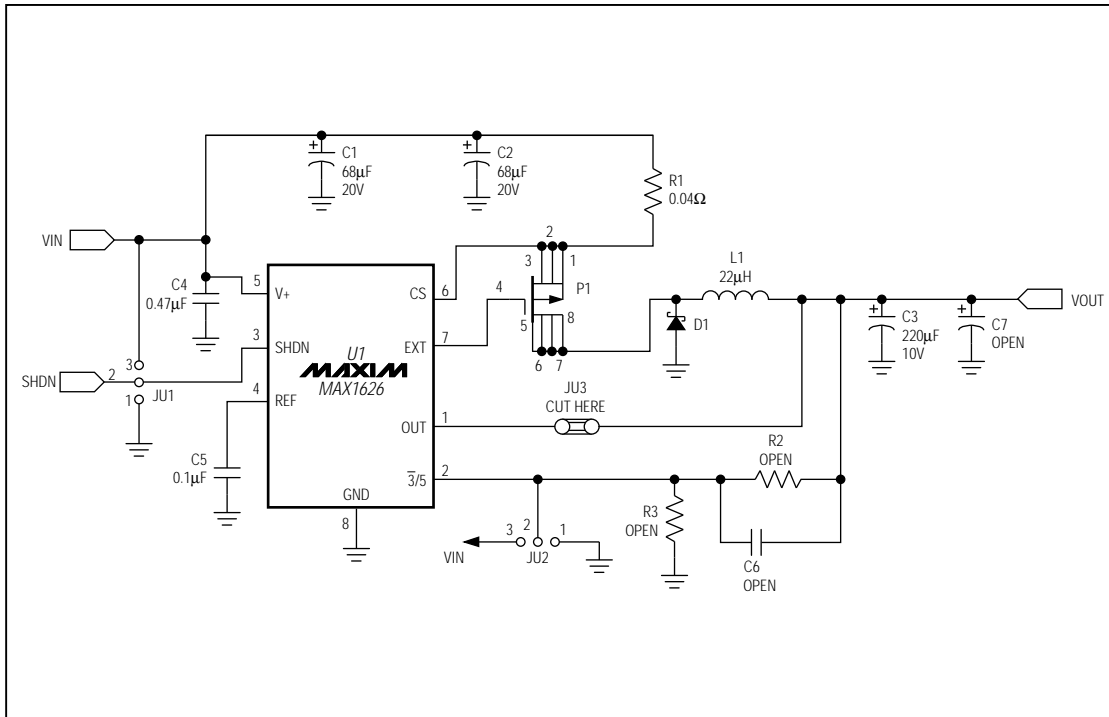


Figure 1. MAX1626 EV Kit Schematic

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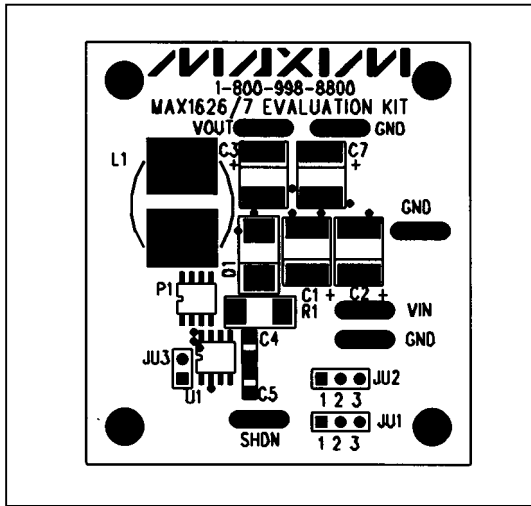


Figure 2. MAX1626 EV Kit Component Placement Guide—Component Side

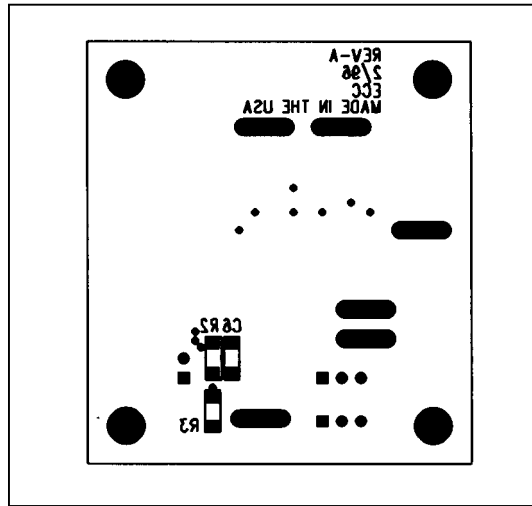


Figure 3. MAX1626 EV Kit Component Placement Guide—Solder Side

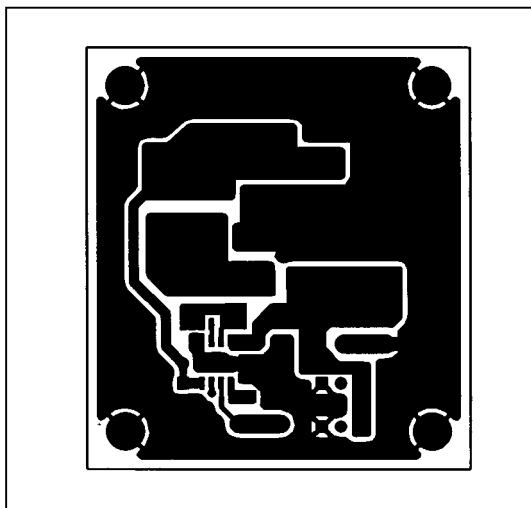


Figure 4. MAX1626 EV Kit PC Board Layout—Component Side

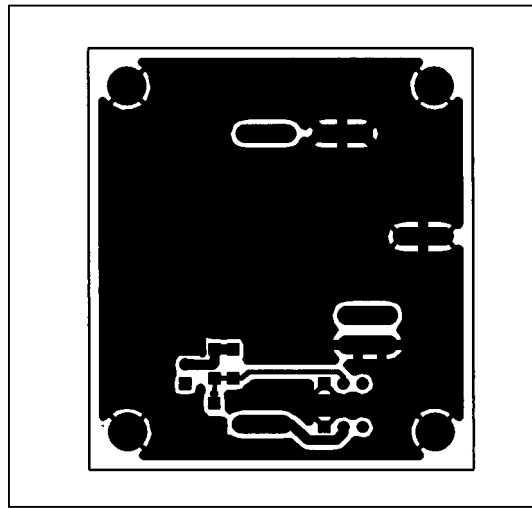


Figure 5. MAX1626 EV Kit PC Board Layout—Solder Side

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