

MAXIM

MAX618 Evaluation Kit

Evaluates: MAX618

General Description

The MAX618 evaluation kit (EV kit) is a constant-frequency, PWM, step-up switching regulator with an internal 2A, 28V n-channel MOSFET. The EV kit accepts a +3V to V_{OUT} input and converts it to a 12V output for currents up to 500mA. Conversion efficiency is greater than 90%. The EV kit operates at 250kHz, allowing the use of small external components.

The MAX618 EV kit is a fully assembled and tested surface-mount circuit board.

Component List

DESIGNATION	QTY	DESCRIPTION
C1, C2	2	68μF, 20V low-ESR tantalum caps AVX TPSE686M020R0150 or Sprague 593D686X0020E2W
C3	1	0.1μF ceramic capacitor
C4	1	4.7μF, 10V X5R ceramic capacitor Taiyo Yuden LMK316BJ475ML
C5	1	0.047μF ceramic capacitor
C6, C7	2	1μF, 25V X5R ceramic capacitors Taiyo Yuden TMK316BJ105KL
C8	1	68pF ceramic capacitor
D1	1	2A Schottky diode SGS-Thomson STPS2L25U, Nihon EC21QS03L, or Central Semiconductor CSMH2-40M
L1	1	15μH power inductor Sumida CDRH6D38-150 (shielded), Sumida CR75-150 (unshielded), or Sumida CDH74-150 (unshielded)
R1	1	715kΩ ±1% resistor
R2	1	100kΩ ±1% resistor
U1	1	MAX618EEE
JU1	1	3-pin header
None	1	Shunt
None	1	MAX618 PC board
None	1	MAX618 data sheet

Features

- ◆ +3V to V_{OUT} Input Voltage Range
- ◆ 12V or Adjustable Output Voltage
- ◆ Up to 500mA Output Current
- ◆ Internal 2A, 28V MOSFET Switch
- ◆ 3μA Shutdown Current
- ◆ 250kHz Switching Frequency
- ◆ Surface-Mount Components
- ◆ Fully Assembled and Tested

Ordering Information

PART	TEMP. RANGE	IC PACKAGE
MAX618EVKIT	0°C to +70°C	16 QSOP

Quick Start

The MAX618 EV kit is fully assembled and tested. Follow these steps to verify board operation. **Do not turn on the power supply until all connections are completed.**

- 1) Connect a +5V supply to the VIN pad. Connect ground to the GND pad.
- 2) Connect a voltmeter and load, if any, to the VOUT pad.
- 3) Place the shunt across JU1 pins 2 and 3.
- 4) Turn on the power supply to the board and verify that the output voltage is 12V.
- 5) For other output voltages, refer to the *Output Voltage Selection* section in the MAX618 data sheet for instructions on selecting feedback resistors R1 and R2, inductor L1, output capacitor C2, and compensation capacitors C5 and C8. **Note:** Input (C1) and output (C2) capacitors are rated at 20V.

Jumper Selection

The 3-pin header JU1 selects shutdown mode. Table 1 lists the selectable jumper options in shutdown mode.

Table 1. Jumper JU1 Shutdown Function

SHUNT LOCATION	$\overline{\text{SHDN}}$ PIN	MAX618 OUTPUT
1 & 2	Connected to GND	Shutdown mode, V _{OUT} = V _{IN} - V _{DIODE}
2 & 3	Connected to VL	MAX618 enabled, V _{OUT} = 12V

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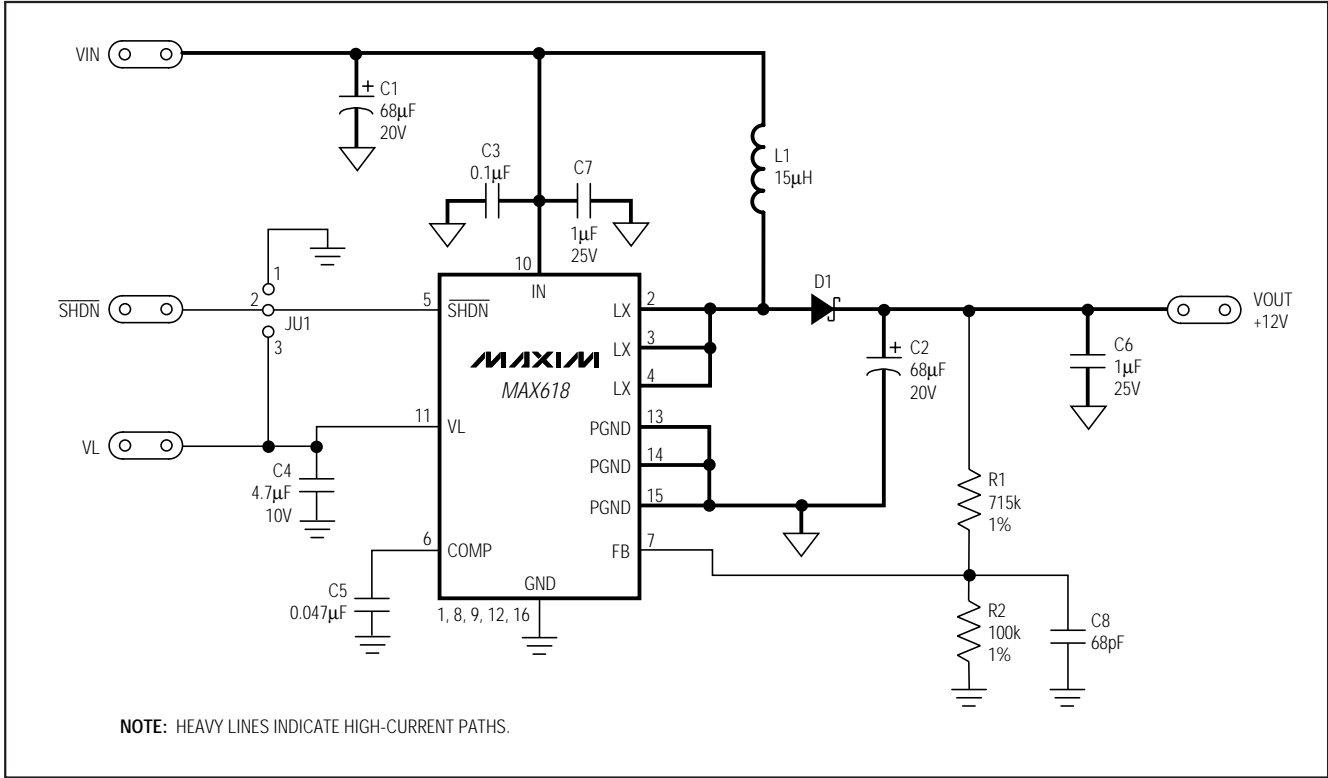


Figure 1. MAX618 EV Kit Schematic

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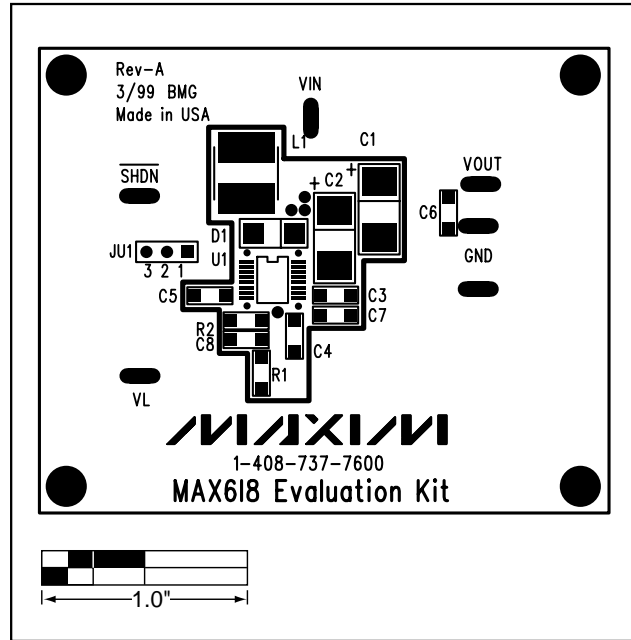


Figure 2. MAX618 EV Kit—Component Placement Guide

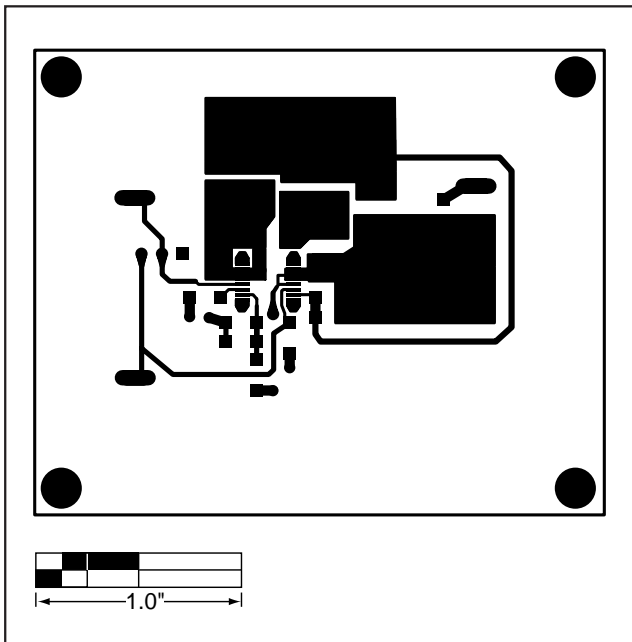


Figure 3. MAX618 EV Kit PC Board Layout—Component Side

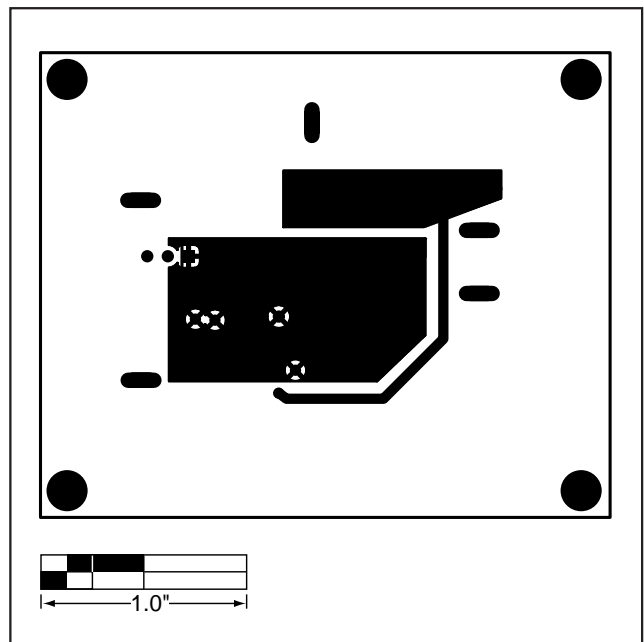


Figure 4. MAX618 EV Kit PC Board Layout—Solder Side

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NOTES

Maxim cannot assume responsibility for use of any circuitry other than circuitry entirely embodied in a Maxim product. No circuit patent licenses are implied. Maxim reserves the right to change the circuitry and specifications without notice at any time.

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