

19-0176: Rev. 0: 7/94

**MAXIM**

## MAX764 Evaluation Kit

### General Description

The MAX764 evaluation kit (EV kit) is a fully assembled and tested surface-mount printed circuit board that provides a regulated -5.0V output voltage from a 3V to 16V input voltage source. It drives loads up to 250mA with conversion efficiency greater than 82%.

The MAX764 EV kit can also be used to evaluate the MAX765CSA (-12V output) or MAX766 (-15V output). Additional pads are provided on the board's solder side to accommodate external feedback resistors for setting different output voltages.

### Component List

DESIGNATION	QTY	DESCRIPTION
C1	1	120µF, 20V, low-ESR tantalum capacitor Sprague 595D127X0020R7
C2	1	330µF, 10V, low-ESR tantalum capacitor Sprague 595D337X0010R7*
C3, C4	2	0.1µF, 50V ceramic capacitors
R1, R2	0	Open
L1	1	47µH, 0.72A power inductor Sumida CD54-470 or Coilcraft D03316-473
D1	1	1A, 30V Schottky diode (1N5818) Nihon EC10QS03 or Motorola MBRS130T3
U1	1	MAX764CSA (8-pin SO)
J1	1	3-pin header
None	1	Shunt
None	1	PC board
None	1	MAX764 data sheet

\* Replace C2 with a higher voltage rating to evaluate the MAX765 or MAX766.

### Component Suppliers

SUPPLIER	PHONE	FAX
IRC	(704) 264-8861	(704) 264-8866
Coilcraft	(708) 639-6400	(708) 639-1469
Coiltronics	(407) 241-7876	(407) 241-9339
Motorola	(800) 521-6274	(602) 244-4015
Nihon	(805) 867-2555	(805) 867-2556
Sprague	(603) 224-1961	(603) 224-1430
Sumida	(708) 956-0666	(708) 956-0702

### Features

- ♦ -5V or Adjustable Output Voltage
- ♦ Up to 250mA Output Current
- ♦ 120µA Max Supply Current
- ♦ 5µA Max Shutdown Current
- ♦ 300kHz Switching Frequency
- ♦ Internal Power MOSFET
- ♦ 8-Pin SO Package
- ♦ Surface-Mount Construction
- ♦ Fully-Assembled and Tested

### Ordering Information

PART	TEMP. RANGE	BOARD TYPE
MAX764EVKIT-SO	0°C to +70°C	Surface Mount

### EV Kit



**Evaluates: MAX764/MAX765/MAX766**

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Call toll free 1-800-998-8800 for free samples or literature.

## MAX764 Evaluation Kit

### Quick Start

The MAX764 EV kit is a fully assembled and tested surface-mount board. **Do not turn on the power supply until all connections are completed.**

- 1) Connect a 5.0V supply to the pad marked VIN. Ground connects to the GND pad.
- 2) Connect a voltmeter and load (if any) to the VOUT pad.
- 3) Place the shunt on J1 across pins 1 and 2 for normal operation.
- 4) Turn on the power and verify that the output voltage is -5.0V.
- 5) Refer to the sections *Evaluating the MAX765/MAX766* and *Other Output Voltages* to modify the board for different output voltages.

### Detailed Description

#### Jumper Selection

The 3-pin header J1 selects shutdown mode. Table 1 lists the selectable jumper options.

**Table 1. Jumper J1 Functions**

SHUNT LOCATION	SHDN PIN	MAX764 OUTPUT
1 & 2	Connected to GND	MAX764 enabled, VOUT = -5.0V
2 & 3	Connected to VIN	Shutdown mode, VOUT = 0V

### Inductor Selection Notes

The 47 $\mu$ H Sumida CD54-470 inductor that comes mounted on the EV kit is a low-resistance, medium-current inductor. It provides excellent performance over the line and load ranges of the MAX764/MAX765/MAX766. See the *Inductor Selection* section in the MAX764/MAX765/MAX766 data sheet for more information.

### Evaluating the MAX765/MAX766

The MAX764 can be replaced by either the MAX765 to generate a -12V output with load currents up to 125mA, or by the MAX766 to generate a -15V output with load currents up to 100mA. Note that the input voltage range is reduced due to the maximum  $V_{IN}$ - $V_{OUT}$  differential of 21V. The only other modification required is to use a low-ESR output capacitor (C2) with a voltage rating of 20V or greater. Refer to the *Capacitor Selection* section in the MAX764/MAX765/MAX766 data sheet for more information.

### Other Output Voltages

The MAX764/MAX765/MAX766 are preset for -5V, -12V, and -15V output voltages, respectively. However, they may be adjusted to other values through an external voltage divider formed by R1 and R2 (located on the board's solder side). For output voltages greater than 10V, capacitor C2 must be replaced by a capacitor with a higher working voltage. The only other modification required is to cut the trace across R1. The *Setting the Output Voltage* section in the MAX764/MAX765/MAX766 data sheet gives instructions for calculating R1 and R2 values.

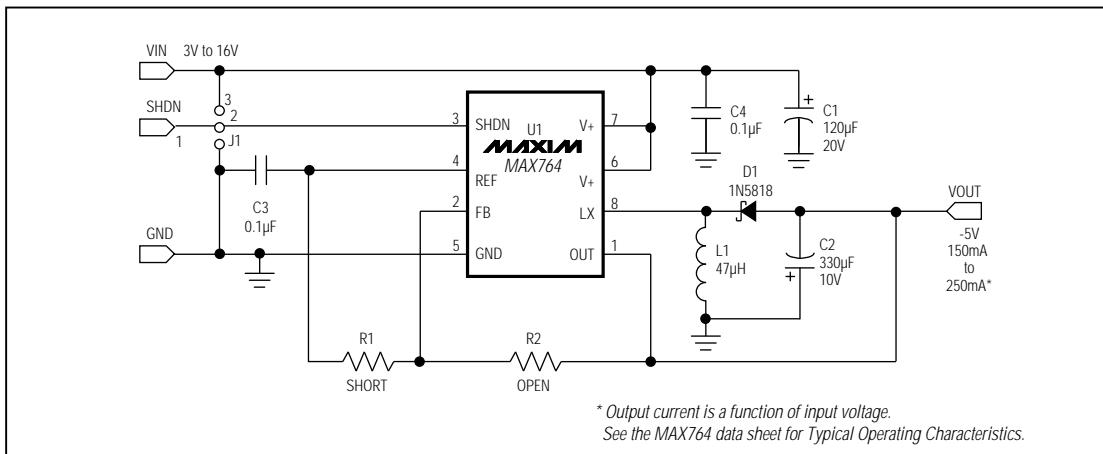


Figure 1. MAX764 EV Kit Schematic

*Evaluates: MAX764/MAX765/MAX766*

## *MAX764 Evaluation Kit*

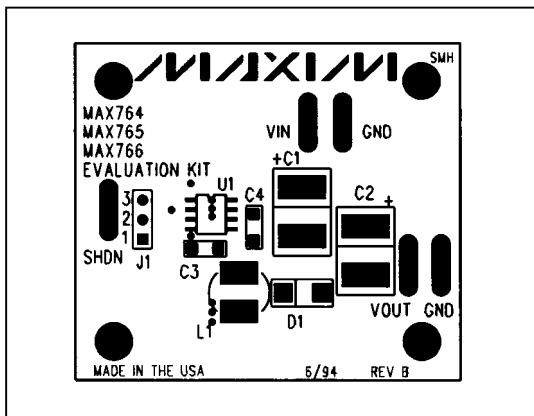


Figure 2. MAX764 EV Kit Component Placement Guide—  
Component Side

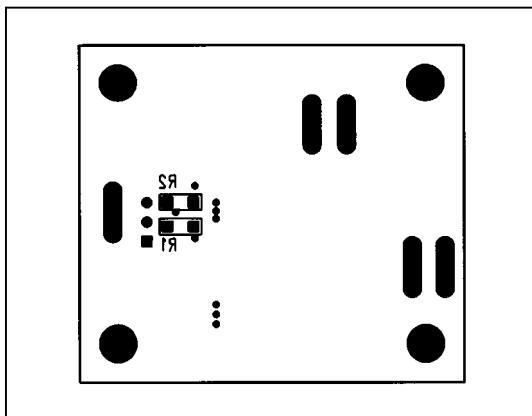


Figure 3. MAX764 EV Kit Component Placement Guide—  
Solder Side

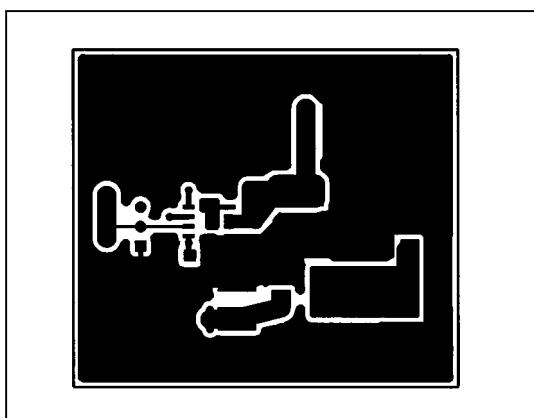


Figure 4. MAX764 EV Kit PC Board Layout—Component Side

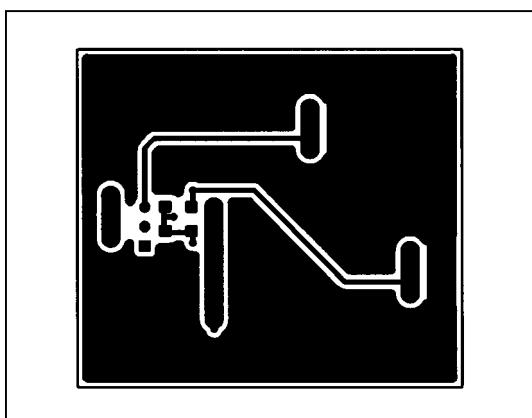


Figure 5. MAX764 EV Kit PC Board Layout—Solder Side

## MAX764 Evaluation Kit

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MAX764 EV DS REV 0

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