MAX742 Evaluation Kit

Evaluates: MAX742

General Description

The MAX742 evaluation kit (EV kit) is a built and tested surface-mount printed circuit assembly intended for quick prototyping and testing purposes. This kit generates a dual regulated ±12V or ±15V output from a 5V regulated input supply. Power conversion efficiency ranges up to 90%, depending on output loading. Applications include low-noise power supplies for precision analog subsystems and distributed power.

Component List

DESIGNATION	QTY	DESCRIPTION
C1, C2	2	220µF, 10V low-ESR tantalum capacitors AVX TPSE227M010R0100
C11–C16	6	120µF, 20V low-ESR tantalum capacitors Sprague 595D127X0020R2B
C6, C7	2	0.01µF ceramic capacitors
C3, C8	2	0.1µF ceramic capacitors
C4, C5	2	1µF, 20V tantalum capacitors Sprague 595D105X0020T2B or Matsuo 267M 1602 105
C10	1	22µF, 25V tantalum capacitor Sprague 595D225X0025B2B or Matsuo 267E 2502 225
C9	1	10µF, 10V tantalum capacitor Sprague 595D106X0010A2B
D1, D2	2	3A, 30V 1N5821 equivalent (SMT) Schottky diodes, Nihon NSQ03A03 or Motorola MBRS340T3
D3	1	Dual Schottky diode (SOT-23) Central Semiconductor CMPSH-3S
L1, L2	2	47µH inductors, Coiltronics CTX03-12384-1 (500mA output) or CoilCraft D03316-473 (alternate for ±250mA output)
R1	1	100Ω, 5% resistor
R2, R3	2	0.082Ω, 1% resistors, Dale WSL-2512-R082F or IRC LR2512-01-R082-F
N1	1	Dual N-channel MOSFET (both sections in parallel), Motorola MMDF3N02HD or Siliconix Si9936HD
P1	1	Dual P-channel MOSFET (both sections in parallel), Motorola MMDF2P03HD
U1	1	Maxim MAX742CWP
JU1, JU2	2	3-pin headers
None	2	Shunts
None	1	MAX742 PC board
None	1	MAX742 data sheet

Features

- ♦ **±12V or ±15V Dual Tracking Outputs**
- ♦ **15W Output Power: ±12V at 625mA**
  ±15V at 500mA
- ♦ **13mA Quiescent Supply Current**
- ♦ **100kHz or 200kHz Fixed-Frequency PWM Operation**
- ♦ **All Surface-Mount Construction**

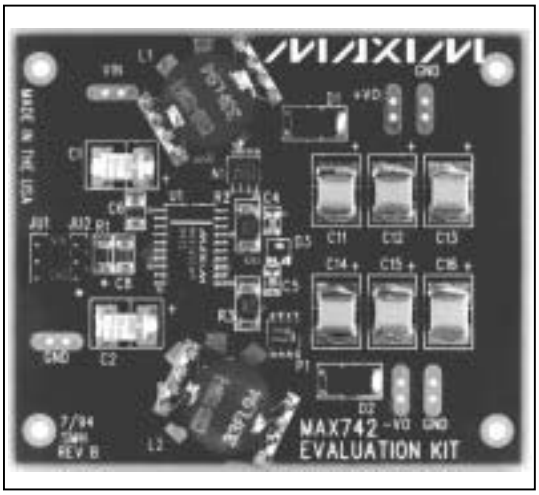
Ordering Information

PART	TEMP. RANGE	BOARD TYPE
MAX742EVKIT-SO	0°C to +70°C	Surface Mount

Component Suppliers

SUPPLIER	PHONE	FAX
AVX	(207) 282-5111	(207) 283-1941
CoilCraft	(708) 639-6400	(708) 639-1469
Coiltronics	(407) 241-7876	(407) 241-9339
Dale	(402) 563-6582	(402) 563-6418
IRC	(704) 264-8861	(704) 264-8866
Matsuo	(714) 969-2491	(714) 960-6492
Motorola	(602) 244-3576	(602) 244-4015
Murata-Erie	(404) 436-1300	(404) 684-1591
Siliconix	(408) 988-8000	(408) 970-3950
Sprague	(603) 224-1961	(603) 224-1430

EV Kit



Quick Start

The MAX742 EV kit is a fully assembled and tested surface-mount board. Follow these steps to verify board operation. **Do not turn on the power supply until all connections are completed.**

1) Connect a 4.5V to 6.0V supply to the pad marked VIN. The ground connects to the GND pad.
2) Connect a voltmeter and load (if any) to the VOUT pad.
3) Place the shunt on JU1 across pins 1 & 2 for 200kHz operation and on JU2 across pins 1 & 2 for ±15V outputs.
4) Turn on the power and verify that the output voltage is ±15V.
5) For ±12V outputs, remove the shunt from JU2 pins 1 & 2 and place it across pins 2 & 3.

Detailed Description

Jumper Selection

The 3-pin header JU1 selects the frequency of operation. Table 1 lists the jumper-selectable options.

The 3-pin header JU2 selects the output voltages. Table 2 lists the jumper-selectable options.

Table 1. Jumper JU1 Functions

SHUNT LOCATION	100/$\overline{200}$ PIN	FREQUENCY
2 & 3	Connected to VIN	100kHz
1 & 2	Connected to GND	200kHz

Table 2. Jumper JU2 Functions

SHUNT LOCATION	12/$\overline{15}$ PIN	OUTPUT VOLTAGE
2 & 3	Connected to VIN	±12V
1 & 2	Connected to GND	±15V

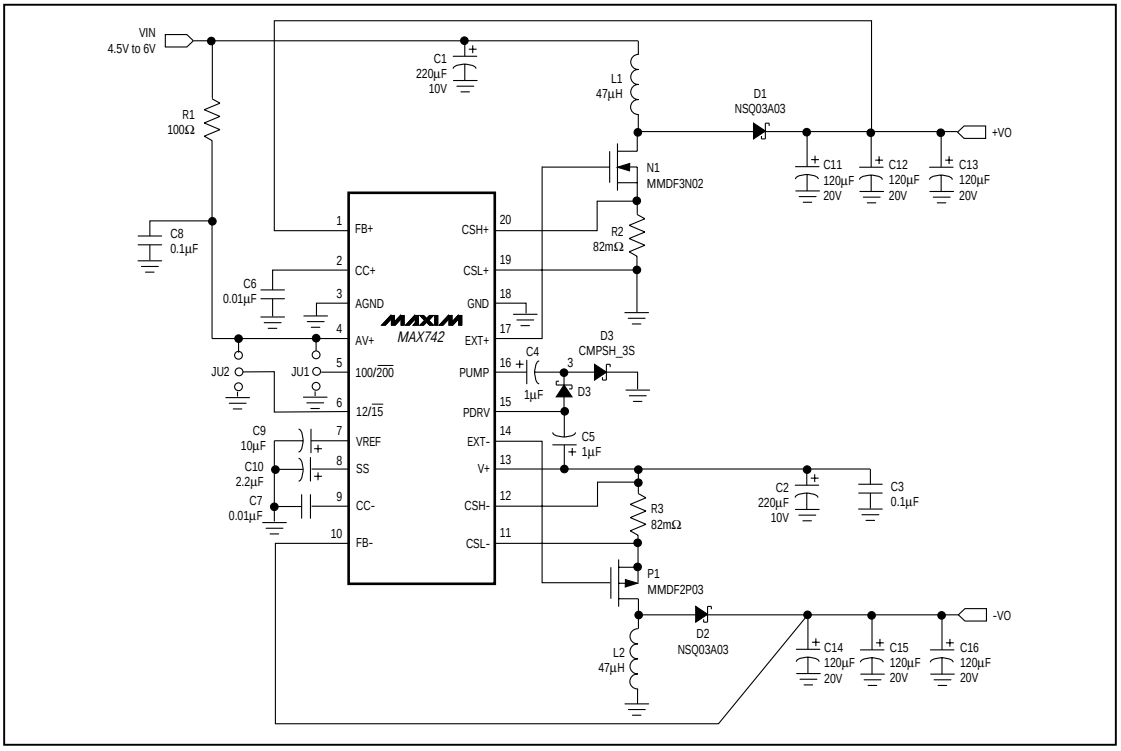


Figure 1. MAX742 EV Kit Schematic

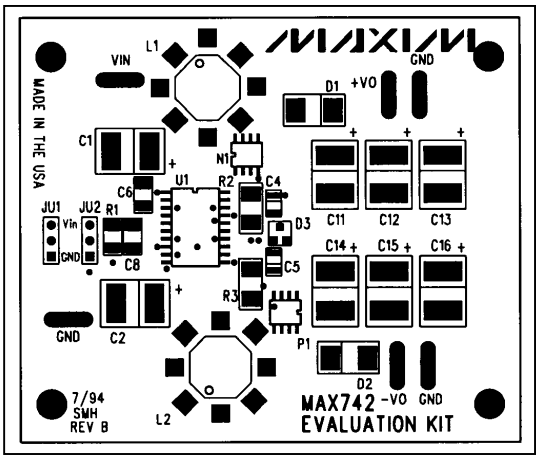


Figure 2. MAX742 EV Kit Component Placement Guide—Component Side

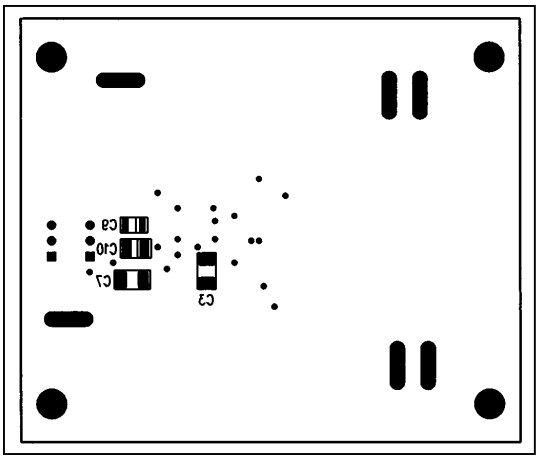


Figure 3. MAX742 EV Kit Component Placement Guide—Solder Side

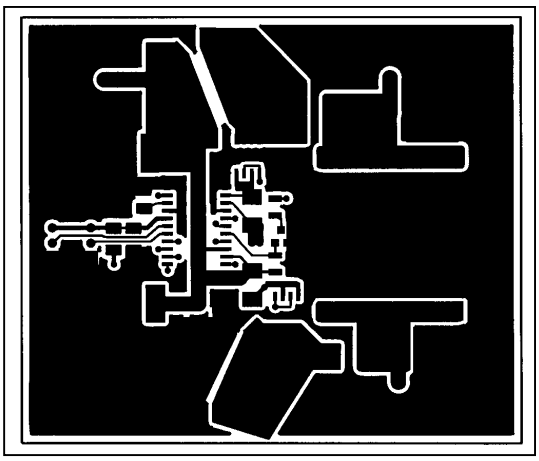


Figure 4. MAX742 EV Kit PC Board Layout—Component Side

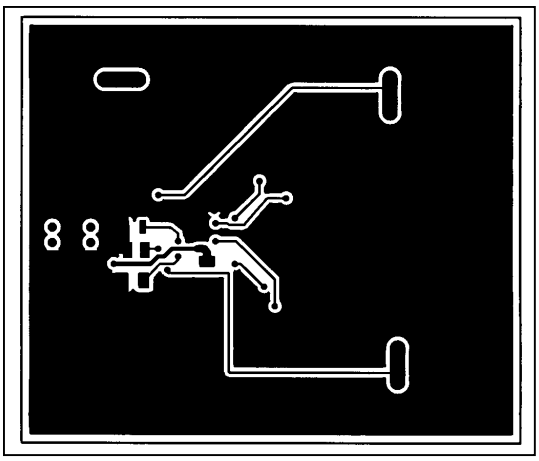


Figure 5. MAX742 EV Kit PC Board Layout—Solder Side

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My application is: __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __|

My end product is: __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __| __|

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MAX742 EV DS REV 1