

General Description

The MAX14750 evaluation kit (EV kit) is a fully assembled and tested circuit for evaluating the MAX14720/MAX14750 power-management solutions with I²C capability for space-constrained, battery-powered applications. Both the MAX14720 and MAX14750 integrate a synchronous buck converter, a buck-boost converter, a linear regulator, and a power switch. The MAX14750 provides individual pin enables for each function, while the MAX14720 includes a push-button monitor and sequencing controller. Refer to the MAX14720/MAX14750 IC data sheet for detailed information regarding the operation and features of the devices.

The EV kit comes standard with the MAX14750A installed, but can also be used to evaluate the MAX14720 by replacing the MAX14750A (U1) with the MAX14720. Request a free sample of the MAX14720 when ordering the EV kit.

Features

- RoHS Compliant
- Proven PCB Layout
- Full Assembled and Tested
- I²C Serial Interface

Detailed Description of Hardware

The MAX14750 evaluation kit (EV Kit) evaluates the MAX14720/MAX14750 compact power management solutions.

See [Table 1](#) through [Table 3](#) for pin descriptions of the three connectors J1–J3.

Hardware Modification

Resistors R1 and R4–R9 are uninstalled by default. V_{CC} can be used to power the inputs of the four major blocks (LIN, BIN, HVIN, and SWIN) by populating R1, R5, R7, and R9 accordingly. The blocks can also be cascaded in any order by selectively populating R4, R6, R7, and R9.

The EV kit hardware is configured by default for the evaluation of the MAX14750. To evaluate the MAX14720, remove R2 and install a short at R3.

[Ordering Information](#) appears at end of data sheet.

Table 1. Connector J1

PIN	MAX14720	MAX14750	DESCRIPTION
1	GND	GND	Ground
2	MON	MON	Monitor Multiplexer Output
3	N.C.	N.C.	Not Connected
4	N.C.	N.C.	Not Connected
5	$\overline{\text{RST}}$	N.C.	(MAX14720) Reset Output. (MAX14750) Not Connected
6	SDA	SDA	I ² C Serial Data Input/Output
7	SCL	SCL	I ² C Serial Clock Input
8	N.C.	LEN	(MAX14720) Not Connected (MAX14750) Linear Regulator Enable Input
9	MPC	BEN	(MAX14720) Multipurpose Control Input (MAX14750) Buck Regulator Enable
10	$\overline{\text{KOUT}}$	HVEN	(MAX14720) KEY Output (MAX14750) Buck-Boost Regulator Enable Input
11	$\overline{\text{KIN}}$	SWEN	(MAX14720) KEY Input (MAX14750) Power Switch Enable Input
12	GND	GND	Ground

Table 2. Connector J2

PIN	SIGNAL	DESCRIPTION
1	LIN	LDO Input
2	BIN	Buck Regulator Input
3	HVIN	Buck-Boost Regulator Input (Must be connected to HVIN)
4	SWIN	Power Switch Input
5	LOUT	LDO Output
6	BOUT	Buck Regulator Output
7	HVOUT	Buck-Boost Regulator Output
8	SWOUT	Power Switch Output

Table 3. Connector J3

PIN	SIGNAL	DESCRIPTION
1	GND	Ground
2	N.C.	Not Connected
3	N.C.	Not Connected
4	VCC	Chip Power Input
5	N.C.	Not Connected
6	CAP	Internal Power Decoupling
7	N.C.	Not Connected
8	N.C.	Not Connected
9	N.C.	Not Connected
10	N.C.	Not Connected
11	N.C.	Not Connected
12	GND	Ground

Component Suppliers

SUPPLIER	WEBSITE
Murata Americas	www.murata.com
TDK Corp	www.component.tdk.com
Bourns	www.bourns.com

Note: Indicate that you are using the MAX14750 when contacting these component suppliers.

Ordering Information

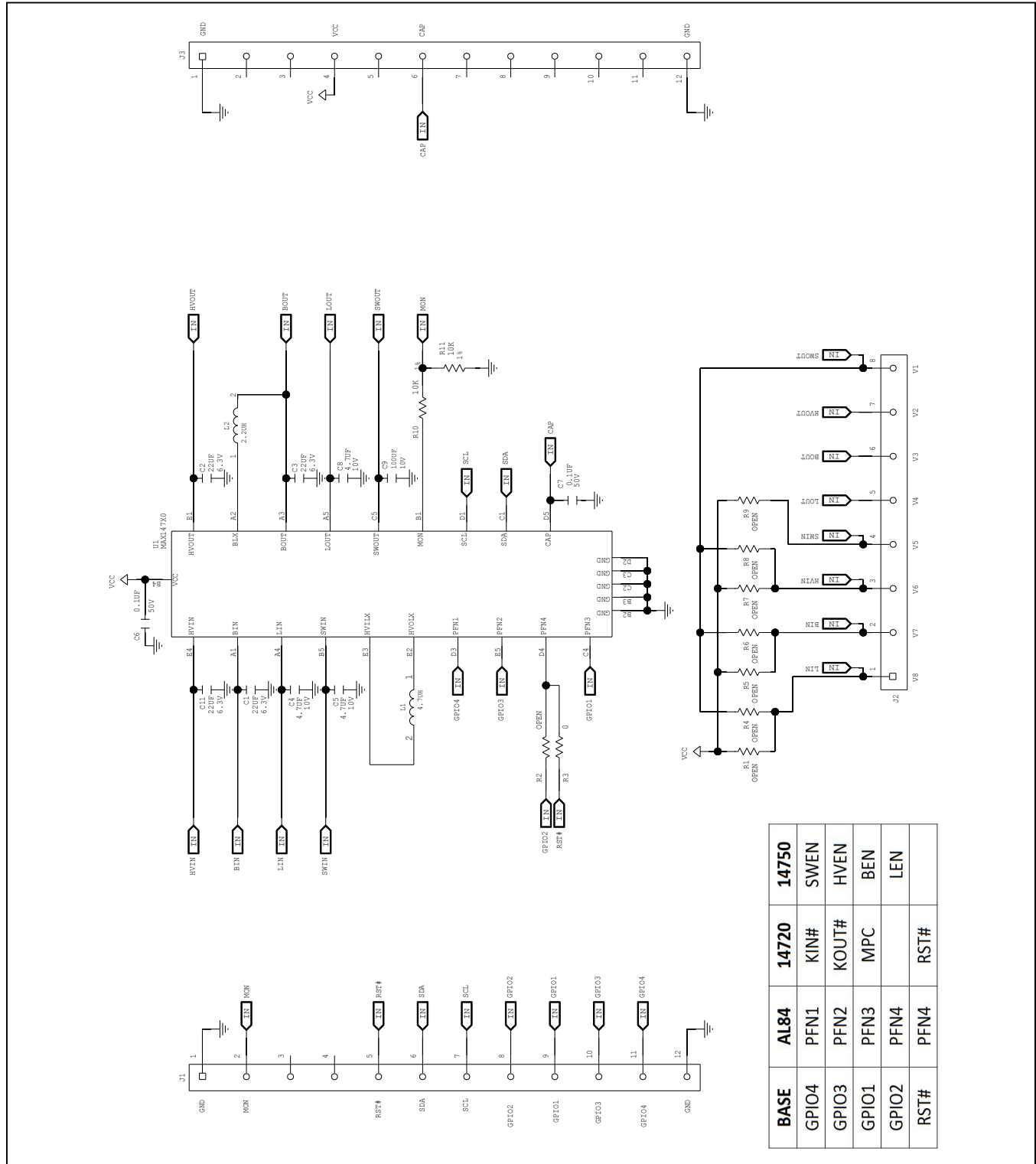
PART	TYPE
MAX14750EVKIT#	EV Kit

#Denotes RoHS compliant.

MAX14750 EV System Bill of Materials

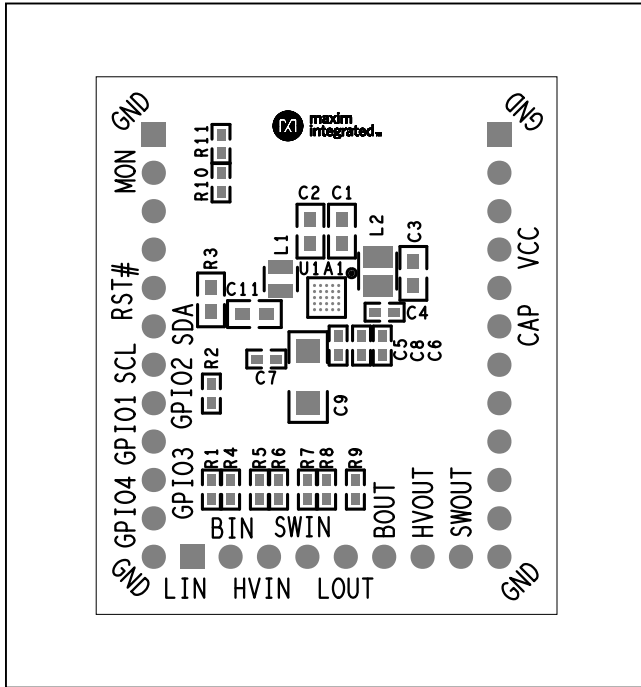
ITEM	REF_DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION	COMMENTS
1	C1-C3, C11	-	4	C1608X5R0J226M080AC	TDK	22 μ F	CAPACITOR; SMT (0603); CERAMIC CHIP; 22 μ F; 6.3V; TOL=20%; MODEL=C SERIES; TG=-55°C TO +85°C; TC=X5R	
2	C4, C5, C8	-	3	C1005X5R1A475M050BC	TDK	4.7 μ F	CAPACITOR; SMT (0402); CERAMIC CHIP; 4.7 μ F; 10V; TOL=20%; MODEL=C SERIES; TG=-55°C TO +85°C; TC=X5R	
3	C6, C7	-	2	C1005X5R1H104K050	TDK	0.1 μ F	CAPACITOR; SMT (0402); CERAMIC CHIP; 0.1 μ F; 50V; TOL=10%; MODEL=C SERIES; TG=-55°C TO +85°C; TC=X5R;	
4	C9	-	1	C3216X5R1A107M	TDK	100 μ F	CAPACITOR; SMT (1206); CERAMIC CHIP; 100 μ F; 10V; TOL=20%; MODEL=C SERIES; TG=-55°C TO +85°C; TC=X5R	
5	J1, J3	-	2	90120-0772	MOLEX	90120-0772	CONNECTOR; THROUGH HOLE; C-GRID III SINGLE ROW STRAIGHT PIN HEADER; GOLD PLATED CONTACT; STRAIGHT THROUGH; 12PINS	
6	J2	-	1	90120-0768	MOLEX	90120-0768	CONNECTOR; THROUGH HOLE; C-GRID III SINGLE ROW STRAIGHT PIN HEADER; GOLD PLATED CONTACT; STRAIGHT THROUGH; 8PINS	
7	L1	-	1	VLS201610ET-4R7M	TDK	4.7 μ H	INDUCTOR; SMT; WIREWOUND CHIP; 4.7 μ H; TOL= \pm 20%; 0.72A	
8	L2	-	1	SRP2010-2R2M	BOURNS	2.2 μ H	INDUCTOR; SMT; POWDERED IRON CORE; 2.2 μ H; TOL= \pm 20%; 1.7A	
9	R10, R11	-	2	CRCW040210K0FK; RC0402FR-0710K	VISHAY DALE; YAGEO PHICOMP	10K	RESISTOR; 0402; 10K; 1%; 100PPM; 0.0625W; THICK FILM	
10	R1, R3, R4-R9	DNP	0	N/A	N/A	OPEN	PACKAGE OUTLINE 0402 RESISTOR	
11	R2	-	0	RC1608J000CS; CR0603-J/-000ELF; RC0603JR-070RL	SAMSUNG ELECTRONICS/ BOURNS/YAGEO PH	0	RESISTOR; 0603; 0 OHM; 5%; JUMPER; 0.10W; THICK FILM	
12	U1	-	1	MAX14750AEWA+	MAXIM	MAX14750AEWA+	IC; MAX14750A; 25 WLP; PACKAGE CODE W252M2+1; 21-0788	
13	PCB	-	1	MAX14720	MAXIM	PCB	PCB Board:MAX14720 EVALUATION KIT	

MAX14750 EV System Schematic

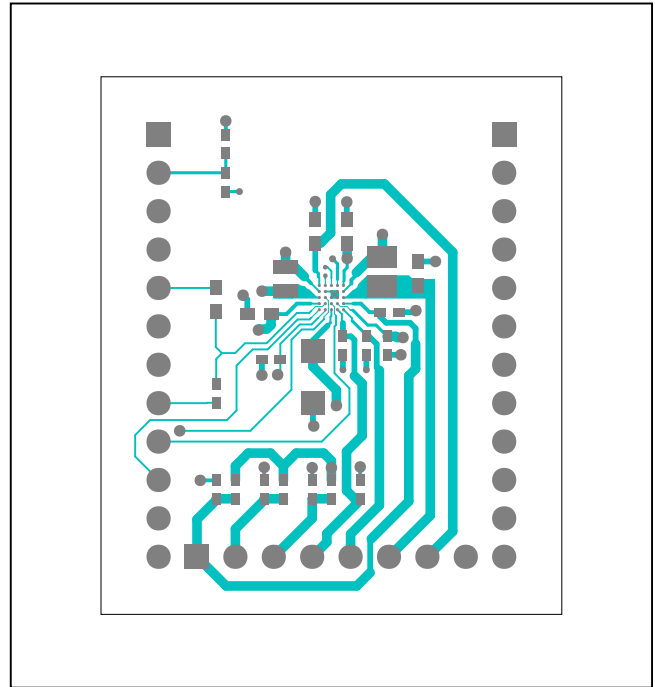


BASE	AL84	14720	14750
GPIO4	PFN1	KIN#	SWEN
GPIO3	PFN2	KOUT#	HVEN
GPIO1	PFN3	MPC	BEN
GPIO2	PFN4		LEN
RST#	PFN4	RST#	

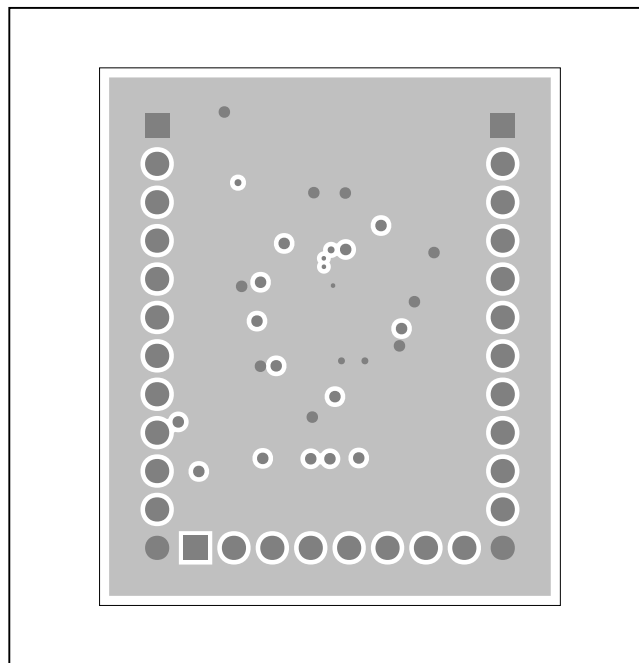
MAX14750 EV System PCB Layout



MAX14720/MAX14750 EV—Top Silkscreen

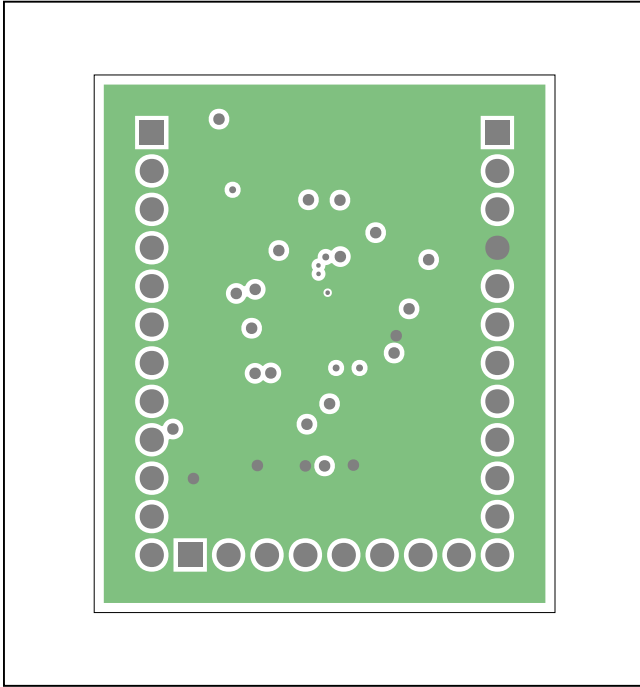


MAX14720/MAX14750 EV—Top

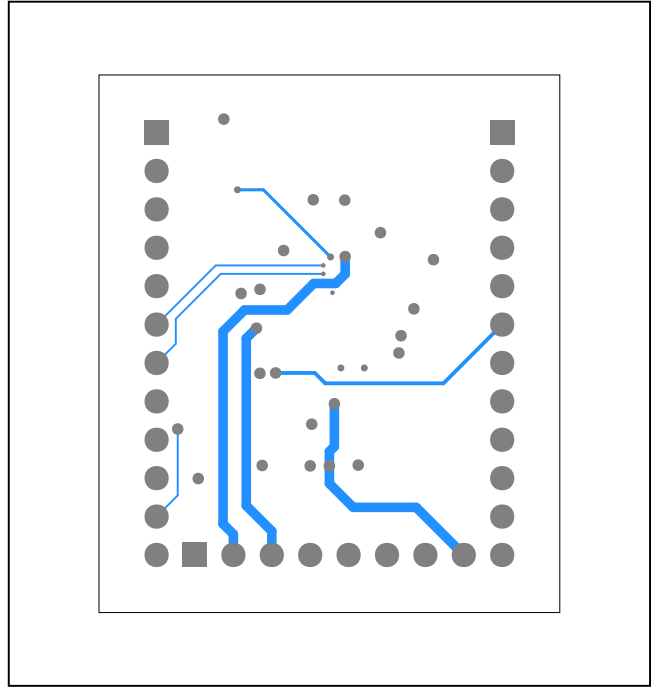


MAX14720/MAX14750 EV—Internal 2

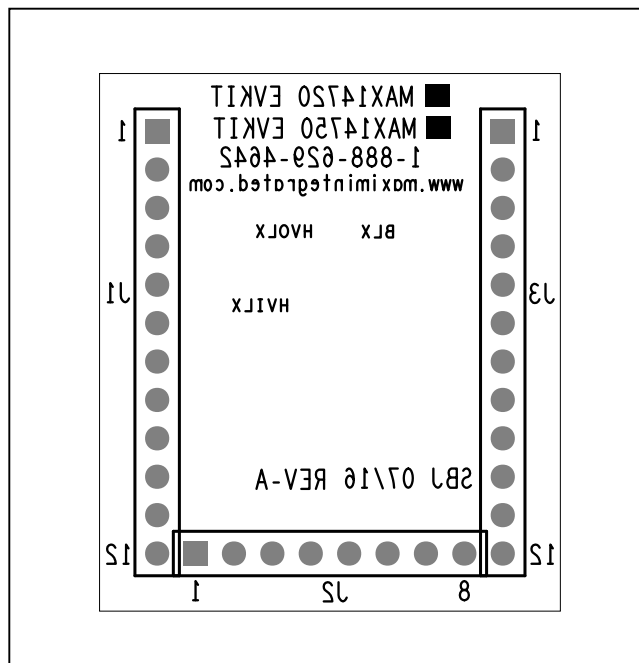
MAX14750 EV System PCB Layout (continued)



MAX14720/MAX14750 EV—Internal 3



MAX14720/MAX14750 EV—Bottom



MAX14720/MAX14750 EV—Bottom Silkscreen

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	10/16	Initial release	—

For pricing, delivery, and ordering information, please contact Maxim Direct at 1-888-629-4642, or visit Maxim Integrated's website at www.maximintegrated.com.

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