

## General Description

The MAX2612–MAX2616 evaluation kits (EV kits) simplify the evaluation of the MAX2612–MAX2616 high-performance broadband gain blocks. They enable testing of the device’s RF performance and require no additional supporting circuitry. The EV kits provide 50Ω SMA connectors for inputs and outputs.

## Features

- Easy Evaluation of MAX2612–MAX2616 IC
- 3.0V to 5.25V Single-Supply Operation
- RF Input and Output Matched to 50Ω
- Fully Assembled and Tested

## MAX2612-MAX2616 EV Kit Files

FILE	DESCRIPTION
MAX2612-MAX2616_sch.pdf	Schematic
PR_2612_revA.pdf	PCB – All layers
PR_2613_revA.pdf	PCB – All layers
PR_2614_revA.pdf	PCB – All layers
PR_2615_revA.pdf	PCB – All layers
PR_2616_revA.pdf	PCB – All layers
MAX2612_BOM_A.xls	BOM
MAX2613_BOM_A.xls	BOM
MAX2614_BOM_A.xls	BOM
MAX2615_BOM_A.xls	BOM
MAX2616_BOM_A.xls	BOM

**Ordering Information** appears at end of data sheet.

## Quick Start

The MAX2612–MAX2616 EV kits are fully assembled and factory tested. Follow the instructions in the [Connections and Setup](#) section to test the devices.

## Required Equipment

This section lists the recommended test equipment to verify the operation of the MAX2612–MAX2616. The equipment’s listed are intended as suggestions and substitutions are possible:

- MAX2612-MAX2616 EV kit
- One DC power supply capable of delivering +5.0V and 100mA of current
- One RF signal generator capable of delivering RF power as high as 0dBm at 1000MHz (E4433B or equivalent)
- One RF spectrum analyzer that covers the MAX2612-MAX2616 operating frequency range (FSEB20 or equivalent)
- One power meter capable of measuring up to 0dBm at 1000MHz (Agilent E4419B or equivalent)
- Two 50Ω SMA cables
- One ammeter (optional)
- One noise figure meter (optional)
- One network analyzer (optional)

## Connections and Setup

This section is a step-by-step guide to operating the EV kits and their function. **Caution: Do not turn on the DC power or RF signal generators until all connections are completed.**

## Checking Power Gain

- 1) With the DC supply output disabled, connect a +5.0V power supply to the VCC header and the power supply ground the GND header of the EV kit. (Route the positive terminal of the power supply through an ammeter, if desired)
- 2) Remove the jumper between on JU1 for normal operation.
- 3) With the RF signal generator output disabled, connect the generator output to the RFIN SMA connector on the EV kit through an SMA cable. Set the output of the RF signal generator frequency to 1000MHz and power level to -20dBm.

- 4) Connect a spectrum analyzer to the RFOUT SMA connector on the EV kit through an SMA cable. Set the spectrum analyzer center frequency to 1000MHz, reference level to 0dBm, and span to 1MHz.
- 5) Enable the DC supply output. The supply current should read approximately the current specified in the datasheet.
- 6) Enable the RF signal generator output. The spectrum analyzer should displays a tone at 1000MHz with power level at approximately -1.5dBm.

### Layout Issues

A good printed-circuit board (PCB) is an essential part of RF circuit design. The EV kit PCB can serve as a guide for laying out a board using the MAX2612–MAX2616. Use controlled impedance lines on all high-frequency inputs and outputs. Bypass  $V_{CC}$  with decoupling capacitors located close to the device. For long  $V_{CC}$  lines, it may be necessary to add decoupling capacitors farther away from the device package. This minimizes supply coupling. Proper grounding of the GND pins is essential. Connect the GND pins to the ground plane either directly, or through vias, or both.

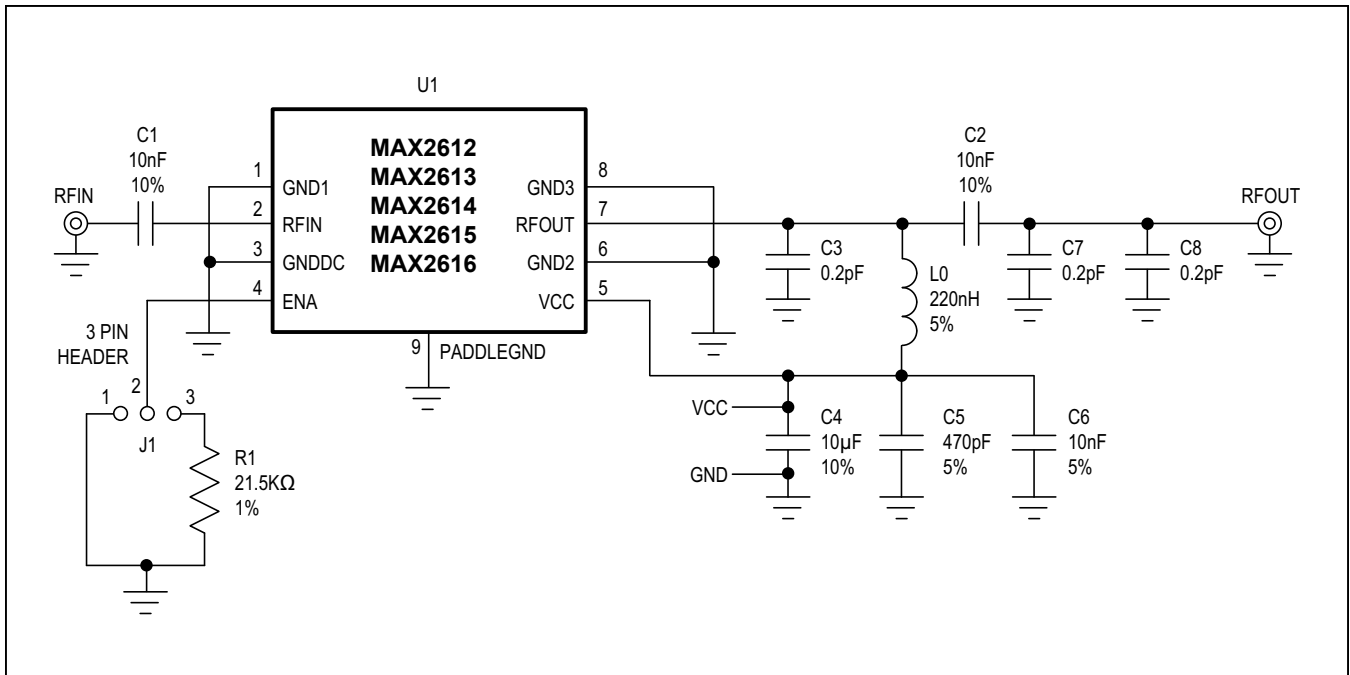


Figure 1: MAX2612–MAX2616 EV Kit Schematic

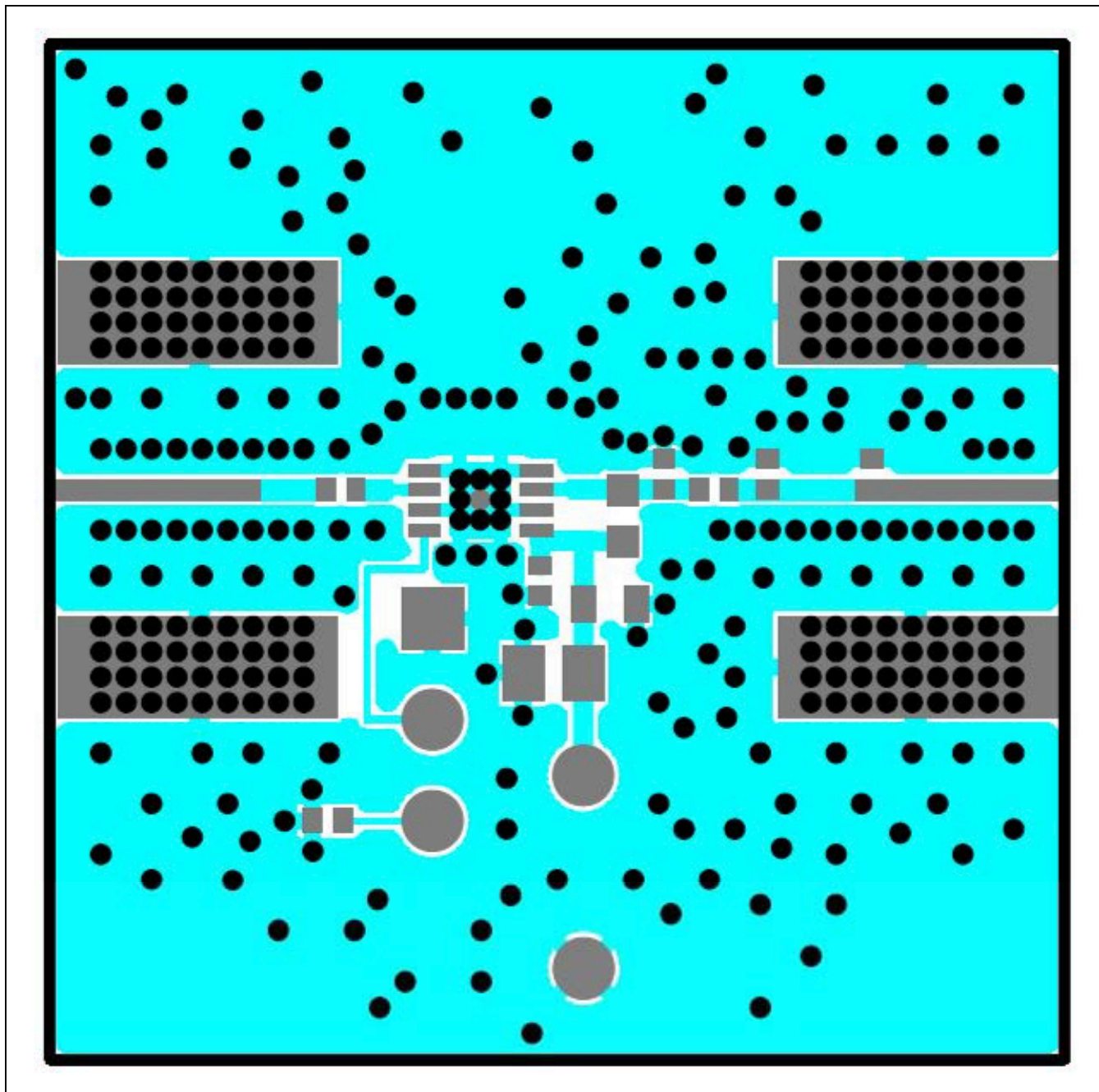


Figure 2. MAX2612–MAX2616 EV Kit Component Replacement Guide—Component Side

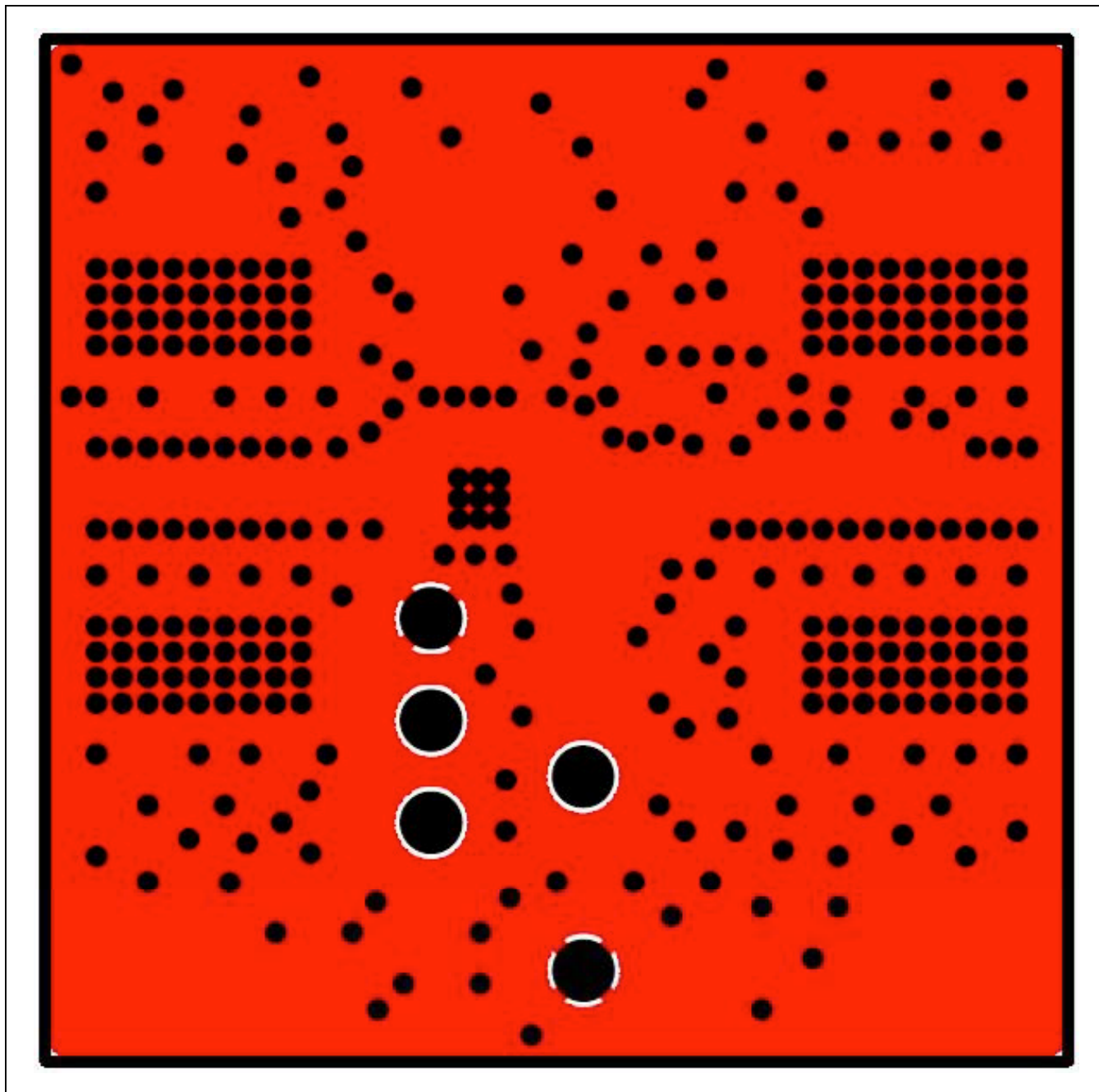


Figure 3. MAX2612–MAX2616 EV Kit PCB Layout—Layer 2

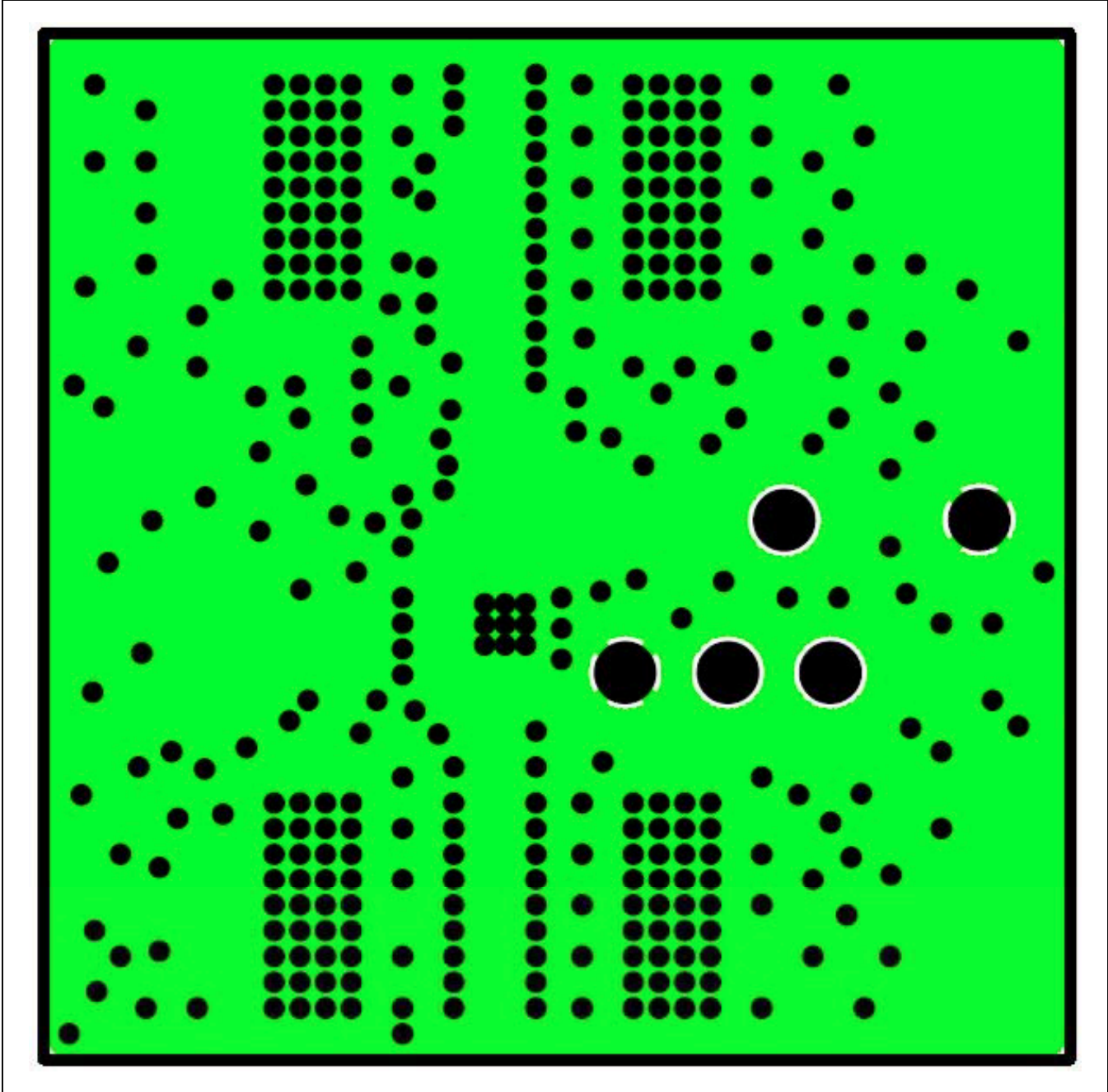


Figure 4. MAX2612–MAX2616 EV Kit PCB Layout—Layer 3

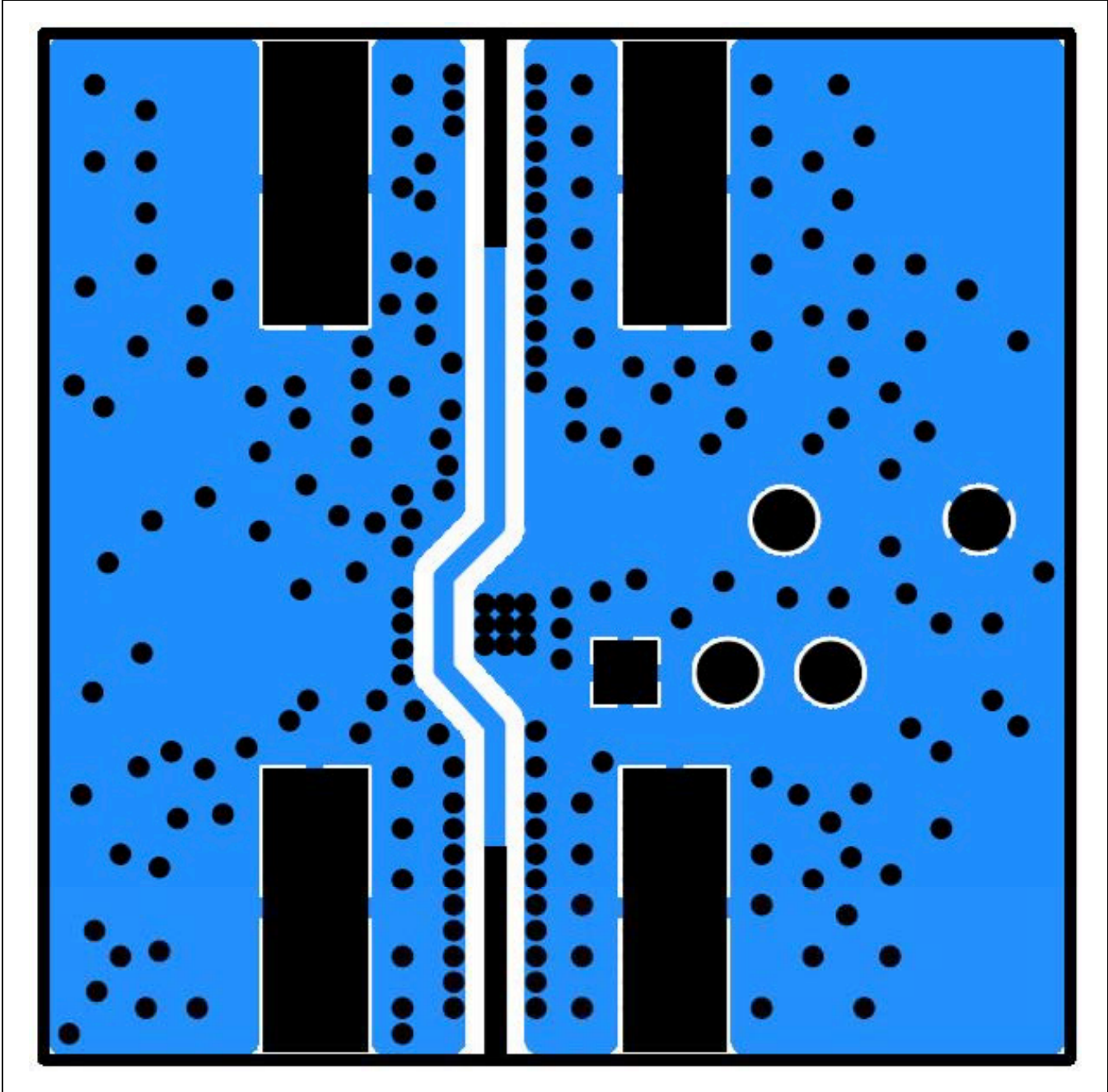


Figure 5. MAX2612–MAX2616 EV Kit PCB Layout—Secondary Side

## Component Suppliers

SUPPLIER	WEBSITE
AVX/Kyocera	<a href="http://www.avx.com">www.avx.com</a>
Maxim Integrated	<a href="http://www.maximintegrated.com">www.maximintegrated.com</a>
Johnson / Cinch Connectivity Solutions	<a href="http://www.johnsoncomponents.com">www.johnsoncomponents.com</a>
Keystone	<a href="http://www.keyelco.com">www.keyelco.com</a>
Sullins	<a href="http://www.sullinscorp.com">www.sullinscorp.com</a>

**Note:** Indicate that you are using the MAX2612-MAX2616 when contacting these component suppliers.

## Ordering Information

PART	TYPE
MAX2612EVKIT#	EV Kit
MAX2613EVKIT#	EV Kit
MAX2614EVKIT#	EV Kit
MAX2615EVKIT#	EV Kit
MAX2616EVKIT#	EV Kit

#Denotes RoHS compliant.

**MAX2612EV Bill of Materials**

ITEM	REFERENCE DESIGNATOR	QTY	VALUE	TOL	DESCRIPTION	MANUFACTURER	PART NUMBER	ASSEMBLY NOTES
1	C1 C2 C6	3	0.01uF	10%	0402 Capacitor	Murata	GRM155R71E103K	
2	C3 C7 C8	3	0.2pF	0.1pF	0402 Capacitor	Murata	GRM1555C1HR20B	
3	C4	1	10uF	10%	Tantalum Capacitor 'R' Case	AVX	TAJR106K006	
4	C5	1	470pF	5%	0603 Capacitor	Murata	GRM1885C1H471JA01	
5	R1	1	21.5K	1%	0402 Resistor		Use Lead-Free Only	
6	L0	1	220nH	5%	0603 Inductor	Coilcraft	0603HP-R22XJLU	
7	GND	1	Test Point		PC Mini Black	Keystone	5001	
8	VCC	1	Test Point		PC Mini Red	Keystone	5000	
9	U1	1	MAX2612		High Performance Wide Band Amplifier	Maxim	MAX2612ETA+	
10	RFIN RFOUT	2	Connector		SMA End Launch Jack Receptacle 0.062"	Johnson	142-0701-851	
11	CALIN CALOUT	0	Connector <b>Do Not Install</b>		SMA End Launch Jack Receptacle 0.062"	Johnson	142-0701-851	Leave Site Open
12	J1	1	1X3 Pin Header		3 pin header	Sullins	PEC36SAAN	
13	J1 Install on Pin 2 and 3	1	Shunt		Shorting Jumper	Sullins	STC02SYAN	
	<b>Pack Out</b>	1			Brown Box 9 3/16" x 7" x 7/8"			
		1			ESD Bag 4" x 6" w/ESD Logo			
		1			Pink Foam 12" x 12" x 5MM			
		1			Web Instructions			



**MAX2613EV Bill of Materials**

ITEM	REFERENCE DESIGNATOR	QTY	VALUE	TOL	DESCRIPTION	MANUFACTURER	PART NUMBER	ASSEMBLY NOTES
1	C1 C2 C6	3	0.01uF	10%	0402 Capacitor	Murata	GRM155R71E103K	
2	C3 C7 C8	3	0.2pF	0.1pF	0402 Capacitor	Murata	GRM1555C1HR20B	
3	C4	1	10uF	10%	Tantalum Capacitor 'R' Case	AVX	TAJR106K006	
4	C5	1	470pF	5%	0603 Capacitor	Murata	GRM1885C1H471JA01	
5	R1	1	21.5K	1%	0402 Resistor		Use Lead-Free Only	
6	L0	1	220mH	5%	0603 Inductor	Coilcraft	0603HP-R22XJLU	
7	GND	1	Test Point		PC Mini Black	Keystone	5001	
8	VCC	1	Test Point		PC Mini Red	Keystone	5000	
9	U1	1	MAX2613		High Performance Wide Band Amplifier	Maxim	MAX2613ETA+	
10	RFIN RFOUT	2	Connector		SMA End Launch Jack Receptacle 0.062"	Johnson	142-0701-851	
11	CALIN CALOUT	0	Connector <b>Do Not Install</b>		SMA End Launch Jack Receptacle 0.062"	Johnson	142-0701-851	Leave Site Open
12	J1	1	1X3 Pin Header		3 pin header	Sullins	PEC36SAAN	
13	J1 Install on Pin 2 and 3	1	Shunt		Shorting Jumper	Sullins	STC02SYAN	
	<b>Pack Out</b>	1			Brown Box 9 3/16" x 7" x 7/8"			
		1			ESD Bag 4" x 6" w/ESD Logo			
		1			Pink Foam 12" x 12" x 5MM			
		1			Web Instructions			

**MAX2614EV Bill of Materials**

ITEM	REFERENCE DESIGNATOR	QTY	VALUE	TOL	DESCRIPTION	MANUFACTURER	PART NUMBER	ASSEMBLY NOTES
1	C1 C2 C6	3	0.01uF	10%	0402 Capacitor	Murata	GRM155R71E103K	
2	C3 C7 C8	3	0.2pF	0.1pF	0402 Capacitor	Murata	GRM1555C1HR20B	
3	C4	1	10uF	10%	Tantalum Capacitor 'R' Case	AVX	TAJR106K006	
4	C5	1	470pF	5%	0603 Capacitor	Murata	GRM1885C1H471JA01	
5	R1	1	21.5K	1%	0402 Resistor		Use Lead-Free Only	
6	L0	1	220mH	5%	0603 Inductor	Coilcraft	0603HP-R22XJLU	
7	GND	1	Test Point		PC Mini Black	Keystone	5001	
8	VCC	1	Test Point		PC Mini Red	Keystone	5000	
9	U1	1	MAX2614		High Performance Wide Band Amplifier	Maxim	MAX2614ETA+	
10	RFIN RFOUT	2	Connector		SMA End Launch Jack Receptacle 0.062"	Johnson	142-0701-851	
11	CALIN CALOUT	0	Connector <b>Do Not Install</b>		SMA End Launch Jack Receptacle 0.062"	Johnson	142-0701-851	Leave Site Open
12	J1	1	1X3 Pin Header		3 pin header	Sullins	PEC36SAAN	
13	J1 Install on Pin 2 and 3	1	Shunt		Shorting Jumper	Sullins	STC02SYAN	
	<b>Pack Out</b>	1			Brown Box 9 3/16" x 7" x 7/8"			
		1			ESD Bag 4" x 6" w/ESD Logo			
		1			Pink Foam 12" x 12" x 5MM			
		1			Web Instructions			

**MAX2615EV Bill of Materials**

ITEM	REFERENCE DESIGNATOR	QTY	VALUE	TOL	DESCRIPTION	MANUFACTURER	PART NUMBER	ASSEMBLY NOTES
1	C1 C2 C6	3	0.01uF	10%	0402 Capacitor	Murata	GRM155R71E103K	
2	C3 C7 C8	3	0.2pF	0.1pF	0402 Capacitor	Murata	GRM1555C1HR20B	
3	C4	1	10uF	10%	Tantalum Capacitor 'R' Case	AVX	TAJR106K006	
4	C5	1	470pF	5%	0603 Capacitor	Murata	GRM1885C1H471JA01	
5	R1	1	21.5K	1%	0402 Resistor		Use Lead-Free Only	
6	L0	1	220mH	5%	0603 Inductor	Coilcraft	0603HP-R22XJLU	
7	GND	1	Test Point		PC Mini Black	Keystone	5001	
8	VCC	1	Test Point		PC Mini Red	Keystone	5000	
9	U1	1	MAX2615		High Performance Wide Band Amplifier	Maxim	MAX2615ETA+	
10	RFIN RFOUT	2	Connector		SMA End Launch Jack Receptacle 0.062"	Johnson	142-0701-851	
11	CALIN CALOUT	0	Connector <b>Do Not Install</b>		SMA End Launch Jack Receptacle 0.062"	Johnson	142-0701-851	Leave Site Open
12	J1	1	1X3 Pin Header		3 pin header	Sullins	PEC36SAAN	
13	J1 Install on Pin 2 and 3	1	Shunt		Shorting Jumper	Sullins	STC02SYAN	
	<b>Pack Out</b>	1			Brown Box 9 3/16" x 7" x 7/8"			
		1			ESD Bag 4" x 6" w/ESD Logo			
		1			Pink Foam 12" x 12" x 5MM			
		1			Web Instructions			

**MAX2616EV Bill of Materials**

ITEM	REFERENCE DESIGNATOR	QTY	VALUE	TOL	DESCRIPTION	MANUFACTURER	PART NUMBER	ASSEMBLY NOTES
1	C1 C2 C6	3	0.01uF	10%	0402 Capacitor	Murata	GRM155R71E103K	
2	C3 C7 C8	3	0.2pF	0.1pF	0402 Capacitor	Murata	GRM1555C1HR20B	
3	C4	1	10uF	10%	Tantalum Capacitor 'R' Case	AVX	TAJR106K006	
4	C5	1	470pF	5%	0603 Capacitor	Murata	GRM1885C1H471JA01	
5	R1	1	21.5K	1%	0402 Resistor		Use Lead-Free Only	
6	L0	1	220mH	5%	0603 Inductor	Coilcraft	0603HP-R22XJLU	
7	GND	1	Test Point		PC Mini Black	Keystone	5001	
8	VCC	1	Test Point		PC Mini Red	Keystone	5000	
9	U1	1	MAX2616		High Performance Wide Band Amplifier	Maxim	MAX2616ETA+	
10	RFIN RFOUT	2	Connector		SMA End Launch Jack Receptacle 0.062"	Johnson	142-0701-851	
11	CALIN CALOUT	0	Connector <b>Do Not Install</b>		SMA End Launch Jack Receptacle 0.062"	Johnson	142-0701-851	Leave Site Open
12	J1	1	1X3 Pin Header		3 pin header	Sullins	PEC36SAAN	
13	J1 Install on Pin 2 and 3	1	Shunt		Shorting Jumper	Sullins	STC02SYAN	
	<b>Pack Out</b>	1			Brown Box 9 3/16" x 7" x 7/8"			
		1			ESD Bag 4" x 6" w/ESD Logo			
		1			Pink Foam 12" x 12" x 5MM			
		1			Web Instructions			

## Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	9/16	Initial release	—
1	10/17	Updated <i>Ordering Information</i>	7

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