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19-0779; Rev 0; 3/07

MAX2204 Evaluation Kit

Evaluates: MAX2204

General Description

The MAX2204 evaluation kit (EV kit) simplifies evaluation of the MAX2204 RF power detector. The EV kit enables testing of all functions with no additional support circuitry. The RF power-detector input uses a 50Ω SMA connector on the evaluation board for convenient connection to test equipment.

Features

- **+2.7V to +3.3V Single-Supply Operation**
- **50Ω SMA RF Input Port Connector**
- **Fully Assembled and Tested**

Ordering Information

PART	TEMP RANGE	IC PACKAGE
MAX2204EVKIT+	-40°C to +85°C	5 SC70

+Denotes a lead-free and RoHS-compliant EV kit.

Component List

DESIGNATION	QTY	DESCRIPTION
C1	1	220pF ±10% capacitor (0402) Murata GRM155R71H221K
C2	1	27pF ±5% capacitor (0402) Murata GRM155R71H270J
C3	1	22µF ±10% capacitor (1206) Murata GRM31CR60J226K
C4	1	2200pF ±10% capacitor (0402) Murata GRM155R71H222K
J1, J2	2	Inline headers Sullins PEC36SAAN
J4	1	SMA end-launch jack receptacle, 0.062in Johnson 142-0701-801
JP1	1	2-pin jumper block, single Digi-Key S1012-36-ND
JP3	1	Test point, PC mini, red Keystone 5000
R1	1	50Ω ±5% resistor (0402)
R2	1	0Ω ±5% resistor (0402)
U1	1	MAX2204EXK+ RF Power Detector
—	1	PCB: MAX2204 Evaluation Kit+

Quick Start

Test Equipment Required

This section lists the recommended test equipment to verify operation of the MAX2204. It is intended as a guide only, and some substitutions are possible:

- One RF signal generator capable of delivering at least +5dBm of output power at the operating frequency (HPE4433B or equivalent)
- One RF power sensor capable of handling at least +10dBm of output power at the operating frequency (HP 8482A or equivalent)
- One RF power meter capable of measuring up to +10dBm of output power at the operating frequency (HP 437B or equivalent)
- An RF spectrum analyzer that covers the MAX2204 operating frequency range (e.g., FSEB20)
- A power supply capable of up to 10mA at +2.7V to +3.3V
- A digital multimeter (DMM) for measuring output voltage, supply current, and output current
- 50Ω SMA cables
- A network analyzer (e.g., HP 8753D) to measure input impedance (optional)

Component Suppliers

SUPPLIER	PHONE	WEBSITE
Johnson Components	507-833-8822	www.johnsoncomponents.com
Murata Mfg. Co., Ltd.	770-436-1300	www.murata.com

Note: *Indicate that you are using the MAX2204 when contacting these component suppliers.*

MAX2204 Evaluation Kit

Connections and Setup

This section provides a step-by-step guide to operating the EV kit and testing the device's function. **Caution: Do not turn on the DC power or RF signal generators until all connections are made:**

1) Set the jumper (JP1) on the EV kit to ON. This enables the device.
2) Connect a DC supply set to +2.85V (through a DMM, if desired) to the VCC and GND terminals on the EV kit. If available, set the current limit to 10mA. Do not turn on the supply.
3) Connect the output (J3) to a DMM to measure output voltage.
4) Set the signal generator output to +5dBm, f = 836MHz. Using the power meter, determine the actual output power of the signal generator.
5) Connect the signal generator to the SMA connector. Do not turn on the signal generator.
6) Turn on the DC supply; the supply current should read approximately 1.3mA.
7) Activate the signal generator. The output voltage should read approximately 2V.

Layout Issues

The MAX2204 is not particularly sensitive to the layout, since it only needs 5dBm for maximum output voltage. However, there are two areas that need attention: the GND pin and the supply bypassing. Connect the GND pin to PCB ground with a GND via as close as possible, and place the supply bypassing capacitor close to the part.

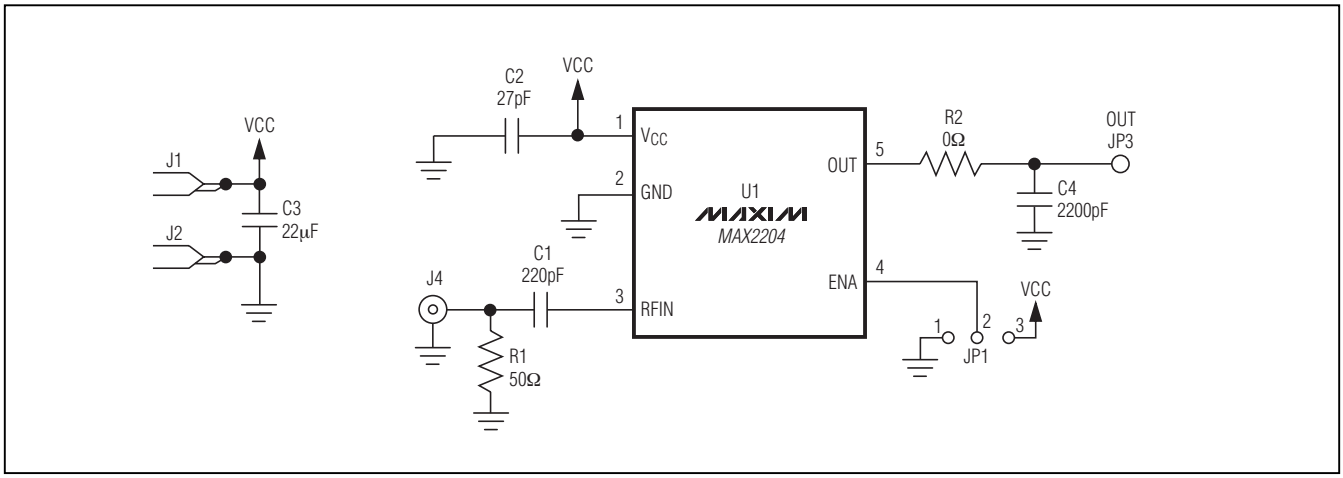

Figure 1. MAX2204 EV Kit Schematic

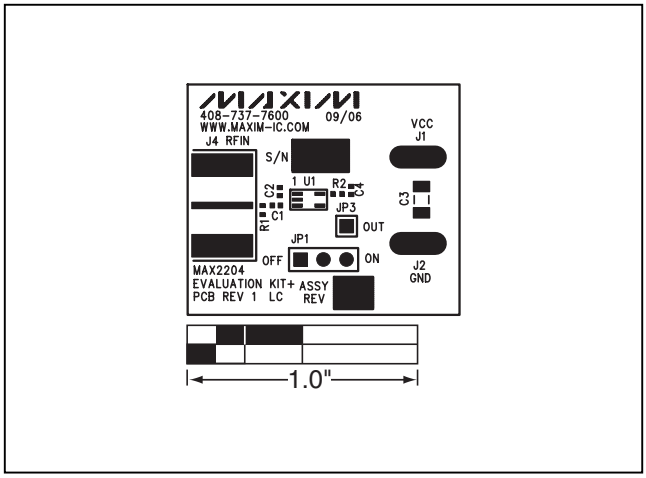

Figure 2. MAX2204 EV Kit Component Placement Guide—Top Silkscreen

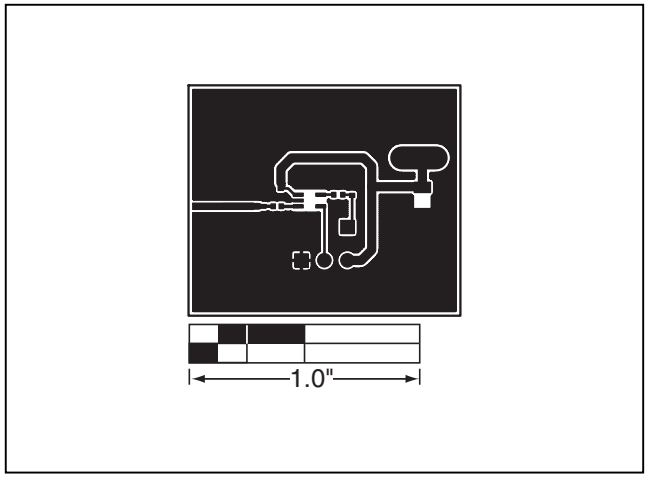

Figure 3. MAX2204 EV Kit Component Placement Guide—Component Side

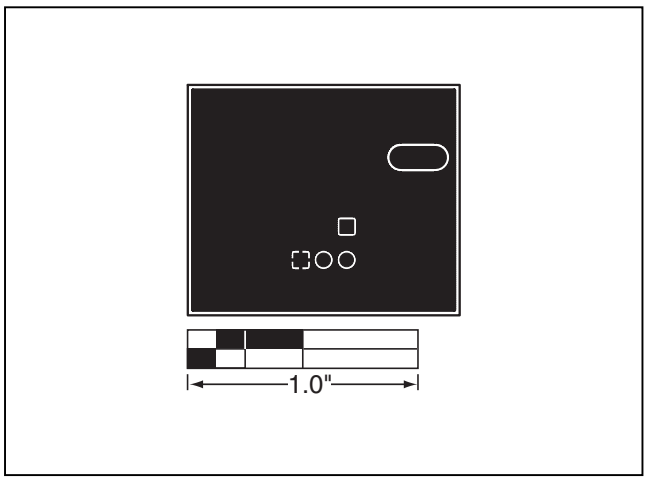

Figure 4. MAX2204 EV Kit Component Placement Guide—Secondary/Bottom Component Side