

## Evaluates: MAX17227J

## MAX17227J WLP Evaluation Kit

### General Description

The MAX17227J WLP evaluation kit (EV kit) evaluates the MAX17227J IC in a WLP package. The MAX17227J is a nanoPower Boost converter with a 500mA peak inductor current limit and offers automatic pass-through operation when the input voltage is higher than the set output voltage. The EV kit operates over an input range of 400mV to 5.5V depending on load with a 0.88V typical startup with 3kΩ load. The EV kit provides resistor configurable output voltages from 2.3V to 5.4V. Refer to the MAX17227J IC data sheet for output voltage settings. The EV kit comes with the MAX17227JANT+ installed.

### MAX17227J WLP EV Kit Files

| FILE                        | DESCRIPTION             |
|-----------------------------|-------------------------|
| MAX17227J WLP EV BOM        | EV Kit Bill of Material |
| MAX17227J WLP EV PCB Layout | EV Kit Layout           |
| MAX17227J WLP EV Schematic  | EV Kit Schematic        |

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

### Benefits and Features

- Evaluates the MAX17227J in a 6-pin WLP
- 400mV to 5.5V Input Range
- 880mV Minimum Startup Voltage
- 2.3V to 5.4V Configurable Output Voltage
- Up to 300mA Output Current at 5.0V ( $V_{IN} > 3.6V$ )
- Proven 2-Layer 1oz Copper PCB Layout
- Demonstrates Compact Solution Size
- Fully Assembled and Tested

### MAX17227J EV Kit Photo



**Quick Start**

**Required Equipment**

- MAX17227J WLP EV kit
- 400mV to 5.5V, 3A DC power supply
- Electronic load capable of 300mA
- Digital voltmeter (DVM)

**Procedure**

The EV kit is fully assembled and tested. Follow the steps below to verify board operation.

**Caution: Do not turn on power supply until all connections are completed.**

- 1) Verify that a shunt is installed on pins 1 and 2 of jumpers JU1 (EV kit enabled)
- 2) Verify that a shunt is installed on pins 1 and 5 of jumpers JU2 (OUT = 5V).
- 3) Connect the power supply between the IN and nearest GND terminal posts.
- 4) Connect the electronic load between the OUT and nearest GND terminal posts.
- 5) Connect the DVM between the OUT and nearest GND terminal posts.
- 6) Set the input power supply to 4V and turn on the power supply.
- 7) Set the electronic load to 300mA and turn on the electronic load.
- 8) Verify that the voltage at the OUT terminal post is approximately 5V.

**Detailed Description of Hardware**

The MAX17227J WLP EV kit evaluates the MAX17227J in a WLP package. The MAX17227J is a nanoPower boost converter with a 500mA peak inductor current limit and has an Automatic Pass-Through mode when the input voltage is higher than the set output voltage. The EV kit operates over an input range of 400mV to 5.5V, depending on load, with 0.88V typical startup with a 3kΩ load. The EV kit provides resistor-configurable output voltages from 2.3V to 5.4V. The EV kit comes with the MAX17227JANT+ installed.

**EN**

The MAX17227J WLP EV kit provides a jumper JU1 to enable or disable the MAX17227J. See [Table 1](#) for jumper JU1 settings. Note that for the MAX17227J IC version, the input will automatically pass through to the output when the input voltage is higher than the set output voltage.

**Output Voltage Selection**

The MAX17227J WLP EV kit provides a jumper JU2 to select the output voltage of the MAX17227J. See [Table 2](#) for jumper JU2 settings.

**Table 1. EN (JU1)**

| JU1 SHUNT POSITION | DESCRIPTION   |
|--------------------|---|
| 1-2*               | EN = IN. (EV kit enabled)   |
| 2-3                | EN = GND. (EV kit disabled)   |
| Not Installed      | EN is driven by an external TTL voltage source connected between the EN and GND test point <ul style="list-style-type: none"> <li>• EN = High. (EV kit enabled)</li> <li>• EN = Low. (EV kit disabled)</li> </ul> |

\*Default position.

**Table 2. Output Voltage Selection (JU2)**

| JU2 SHUNT POSITION | DESCRIPTION   |
|--------------------|---|
| 1-2                | OUT = 2.5V  |
| 1-3                | OUT = 3.0V  |
| 1-4                | OUT = 4.0V  |
| 1-5*               | OUT = 5.0V  |
| Not Installed      | Output voltage is configured by resistor R1. Refer to the MAX17227J IC Data Sheet <i>RSEL Selection Table</i> to select the resistor value for the desired output voltage |

\*Default position.

Component Supplier

| SUPPLIER    | WEBSITE        |
|-------------|----------------|
| Murata/TOKO | www.murata.com |

**Note:** Indicate that you are using the MAX17227J when contacting this component supplier.

Ordering Information

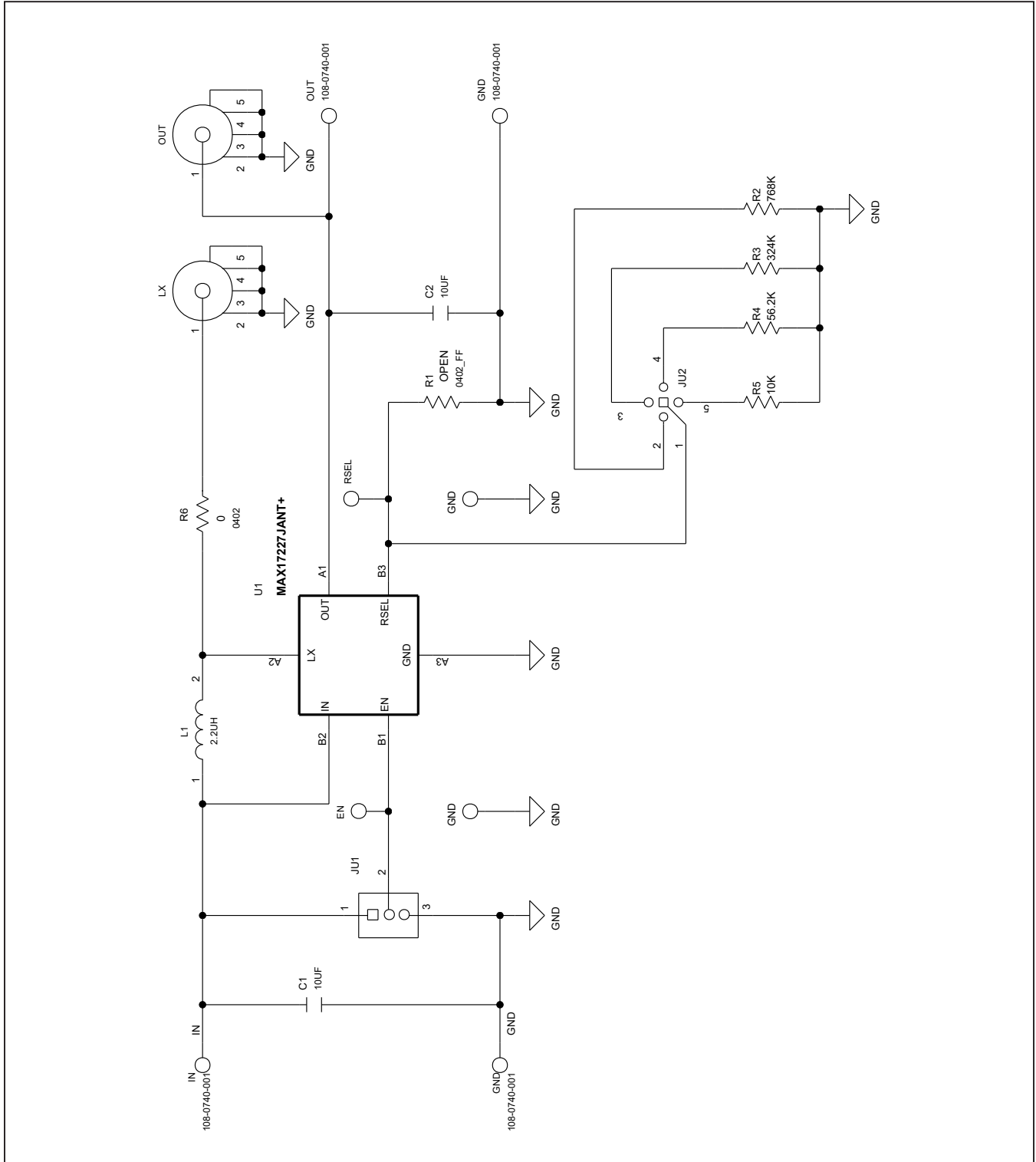
| PART             | TYPE   |
|------------------|--------|
| MAX17227JEVK#WLP | EV Kit |

#Denotes RoHS compliant

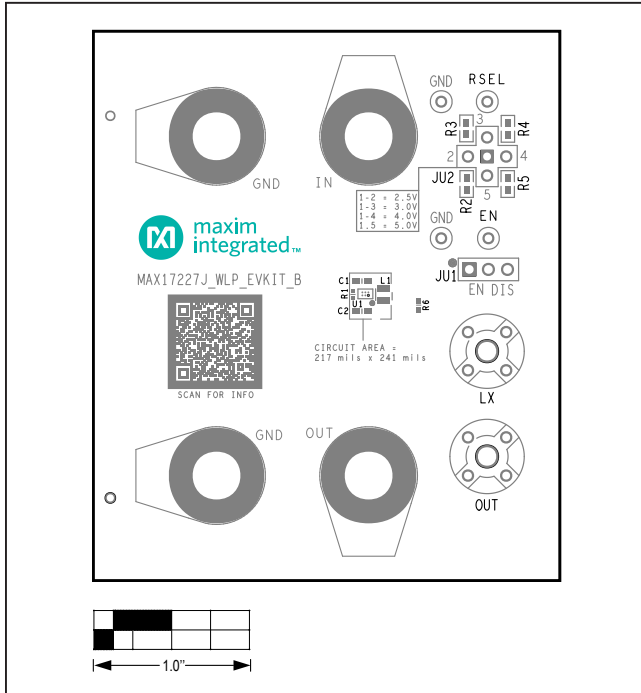
MAX17227J WLP EV Kit Bill of Materials

| ITEM         | REF_DES             | DNI/DNP | QTY       | MFG PART #   | MANUFACTURER                            | VALUE         | DESCRIPTION   |
|--------------|---------------------|---------|-----------|--|---|---------------|---|
| 1            | C1, C2              | —       | 2         | GRM188Z71A106KA73  | MURATA                                  | 10UF          | CAP; SMT (0603); 10UF; 10%; 10V; X7R; CERAMIC ;   |
| 2            | EN, RSEL            | —       | 2         | 5002   | KEYSTONE                                | N/A           | TEST POINT; PIN DIA=0.1IN; TOTAL LENGTH=0.3IN; BOARD HOLE=0.04IN; WHITE; PHOSPHOR BRONZE WIRE SILVER;   |
| 3            | GND, GND2, IN, OUT1 | —       | 4         | 108-0740-001   | EMERSON NETWORK POWER                   | 108-0740-001  | CONNECTOR; MALE; PANELMOUNT; BANANA JACK; STRAIGHT; 1PIN  |
| 4            | GND3, GND4          | —       | 2         | 5001   | KEYSTONE                                | N/A           | TEST POINT; PIN DIA=0.1IN; TOTAL LENGTH=0.3IN; BOARD HOLE=0.04IN; BLACK; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;  |
| 5            | JU1                 | —       | 1         | PEC03SAAN  | SULLINS                                 | PEC03SAAN     | CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 3PINS   |
| 6            | JU2                 | —       | 1         | PBC05SAAN  | SULLINS ELECTRONICS CORP.               | PBC05SAAN     | CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 5PINS; -65 DEGC TO +125 DEGC  |
| 7            | L1                  | —       | 1         | 74479276222  | WURTH ELECTRONICS INC.                  | 2.2UH         | INDUCTOR; SMT (0806); MOLDED CHIP; 2.2UH; 30%; 1.40A  |
| 8            | LX, OUT             | —       | 2         | 131-4353-00  | TEKTRONICS                              | 131-4353-00   | CONNECTOR; WIREMOUNT; CIRCUIT BOARD TEST POINT MINIATURE PROBE; STRAIGHT; 4PINS;  |
| 9            | R2                  | —       | 1         | CRCW0603768KFK   | VISHAY DALE                             | 768K          | RES; SMT (0603); 768K; 1%; +/-100PPM/DEGC; 0.1000W  |
| 10           | R3                  | —       | 1         | CRCW0603324KFK   | VISHAY DALE                             | 324K          | RES; SMT (0603); 324K; 1%; +/-100PPM/DEGC; 0.1000W  |
| 11           | R4                  | —       | 1         | CRCW060356K2FK; ERJ-3EKF5622                                 | VISHAY; PANASONIC                       | 56.2K         | RES; SMT (0603); 56.2K; 1%; +/-100PPM/DEGC; 0.1000W   |
| 12           | R5                  | —       | 1         | CRCW060310K0FK; ERJ-3EKF1002; AC0603FR-0710KL; RMC0603FT10K0 | VISHAY DALE; PANASONIC; YAGEO           | 10K           | RES; SMT (0603); 10K; 1%; +/-100PPM/DEGC; 0.1000W   |
| 13           | R6                  | —       | 1         | ERJ-2GE0R00  | PANASONIC                               | 0             | RES; SMT (0402); 0; JUMPER; JUMPER; 0.1000W   |
| 14           | SU1, SU2            | —       | 2         | S1100-B; SX1100-B; STC02SYAN                                 | KYCON; KYCON; SULLINS ELECTRONICS CORP. | SX1100-B      | TEST POINT; JUMPER; STR; TOTAL LENGTH=0.24IN; BLACK; INSULATION=PBT; PHOSPHOR BRONZE CONTACT=GOLD PLATED  |
| 15           | U1                  | —       | 1         | MAX17227JANT+  | MAXIM                                   | MAX17227JANT+ | EVKIT PART - IC; MAX17227JANT+; 0.4V TO 5.5V INPUT; 0.5A NANOPOWER BOOST CONVERTER WITH SHORT-CIRCUIT PROTECTION AND AUTOMATIC PASS THROUGH MODE; PACKAGE OUTLINE DRAWING: 21-100390; PACKAGE CODE: N6001+1 |
| 16           | PCB                 | —       | 1         | MAX17227JWLP   | MAXIM                                   | PCB           | PCB:MAX17227JWLP  |
| 17           | R1                  | DNP     | 0         | N/A  | N/A                                     | OPEN          | RESISTOR; 0402; OPEN; FORMFACTOR  |
| <b>TOTAL</b> |                     |         | <b>24</b> |  |   |               |   |

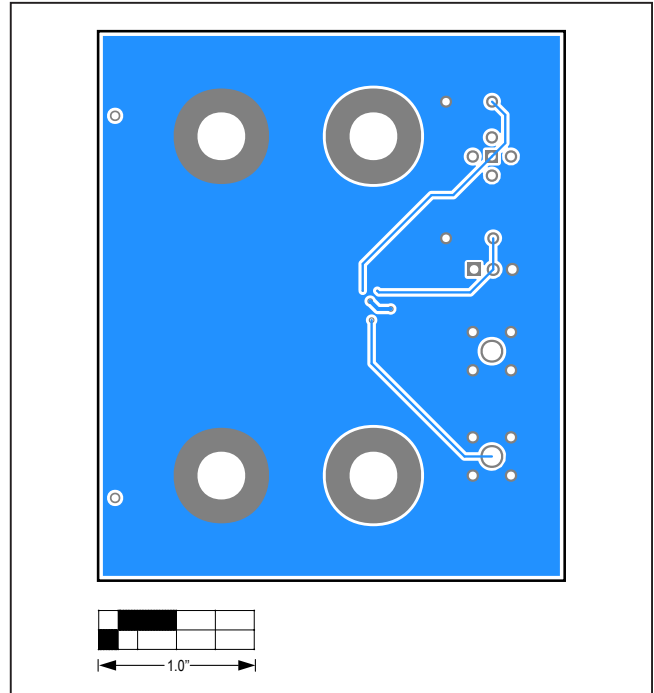
MAX17227J WLP EV Kit Schematic Diagram



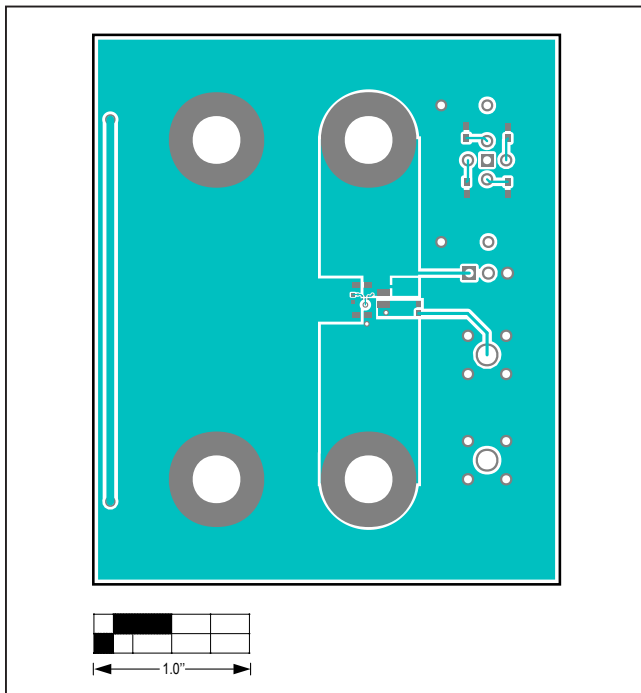
MAX17227J WLP EV Kit PCB Layout Diagrams



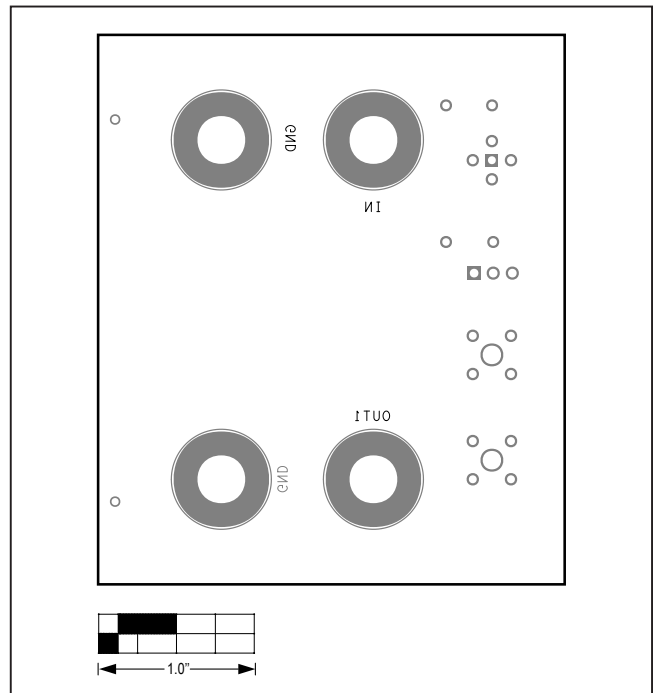
MAX17227J WLP EV Component Placement Guide—Top Silkscreen



MAX17227J WLP EV PCB Layout Diagram—Bottom View



MAX17227J WLP EV PCB Layout Diagram—Top View



MAX17227J WLP EV PCB Layout Diagram—Bottom Silkscreen

Revision History

| REVISION NUMBER | REVISION DATE | DESCRIPTION                                    | PAGES CHANGED |
|-----------------|---------------|--|---------------|
| 0               | 6/21          | Initial Release                                | —             |
| 1               | 11/21         | Updated <i>Quick Start</i> section and Table 1 | 3             |



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