

ADC121C021EVM Booster Pack User's Guide

User's Guide



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The ADC121C021EVM User's Guide provides instructions for connecting the ADC121C021EVM BoosterPack into the MSP430 LaunchPad. ADC121C021EVM GUI, Firmware, and USB Driver are available upon request.

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1 ADC121C021EVM BoosterPack Components

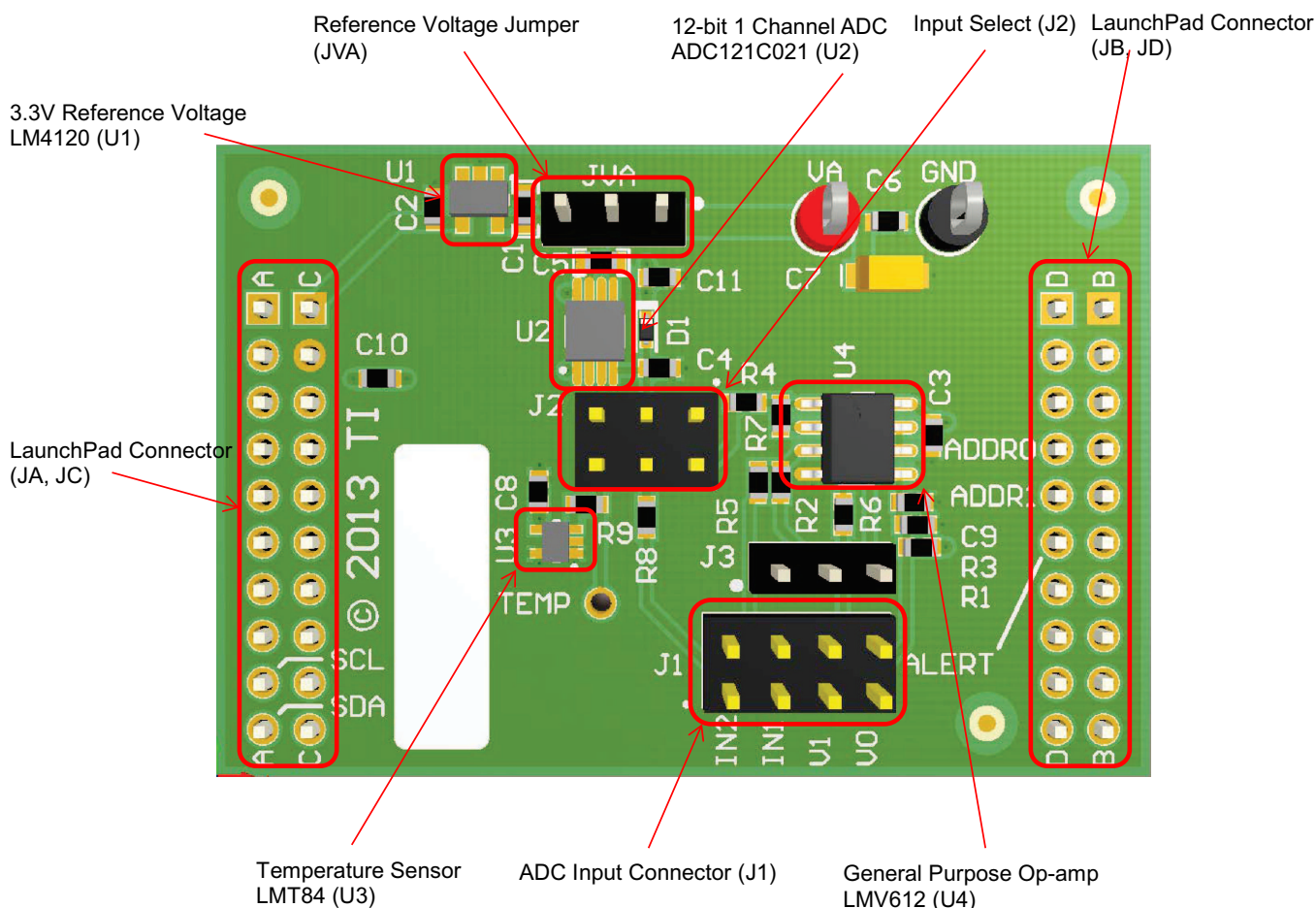


Figure 1. ADC121C021EVM Evaluation Board

Table 1. Device and Package Configurations

DEVICE	IC	PACKAGE
U1	LM4120IM5-3.3	SOT-23
U2	ADC121C021CIMM	VSSOP-8
U3	LMT84DCK	SC70
U4	LMV612MA	SOIC-8

2 Software Installation

2.1 Graphical User Interface (GUI)

ADC121C021EVM GUI available upon request.

2.2 Launchpad Firmware Upgrade

ADC121C021EVM Firmware available upon request.

2.3 Update USB Driver

ADC121C021EVM USB Driver available upon request.

3 ADC121C021 BoosterPack Setup and Operation

3.1 Connections

1. Attach the ADC121C021EVM BoosterPack onto the MSP430 LaunchPad using connectors JA, JB, JC, JD. The proper orientation of the Launchpad and ADC121C021EVM is when the text "LaunchPad" and "2013 TI" are perpendicular.
2. Connect the USB cable from the LaunchPad to the PC.

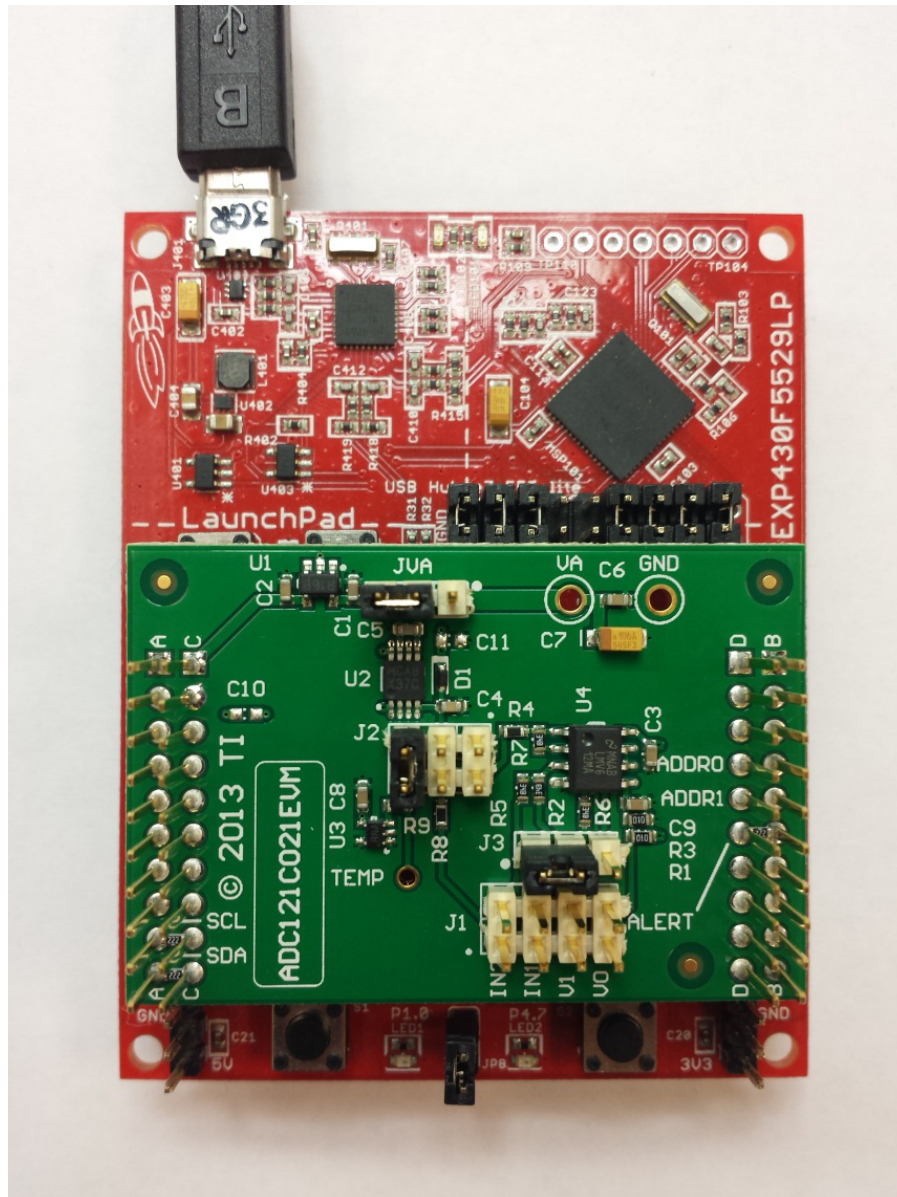


Figure 2. ADC121C021EVM Attached to MSP430

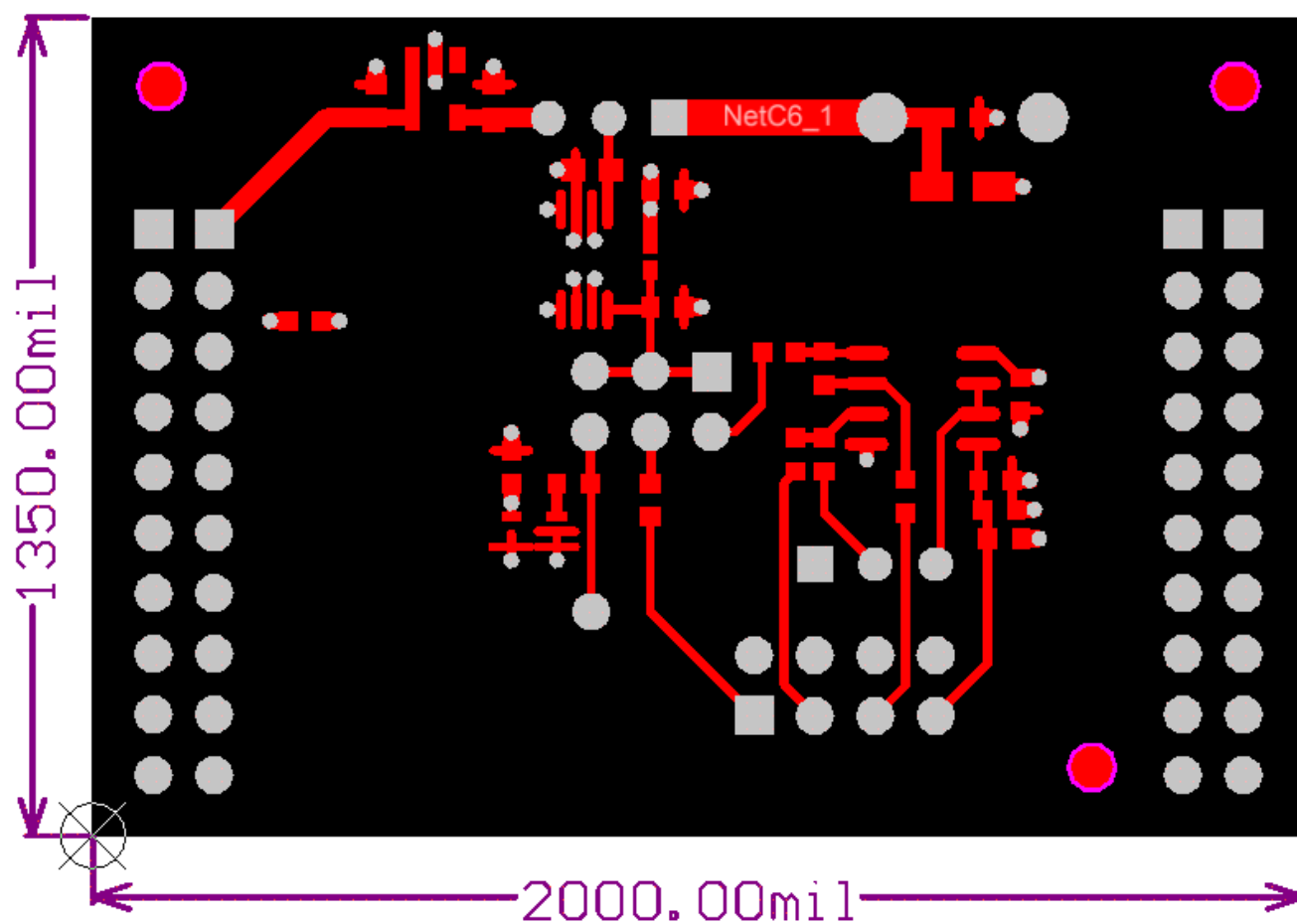


Figure 4. Top Layer Routing

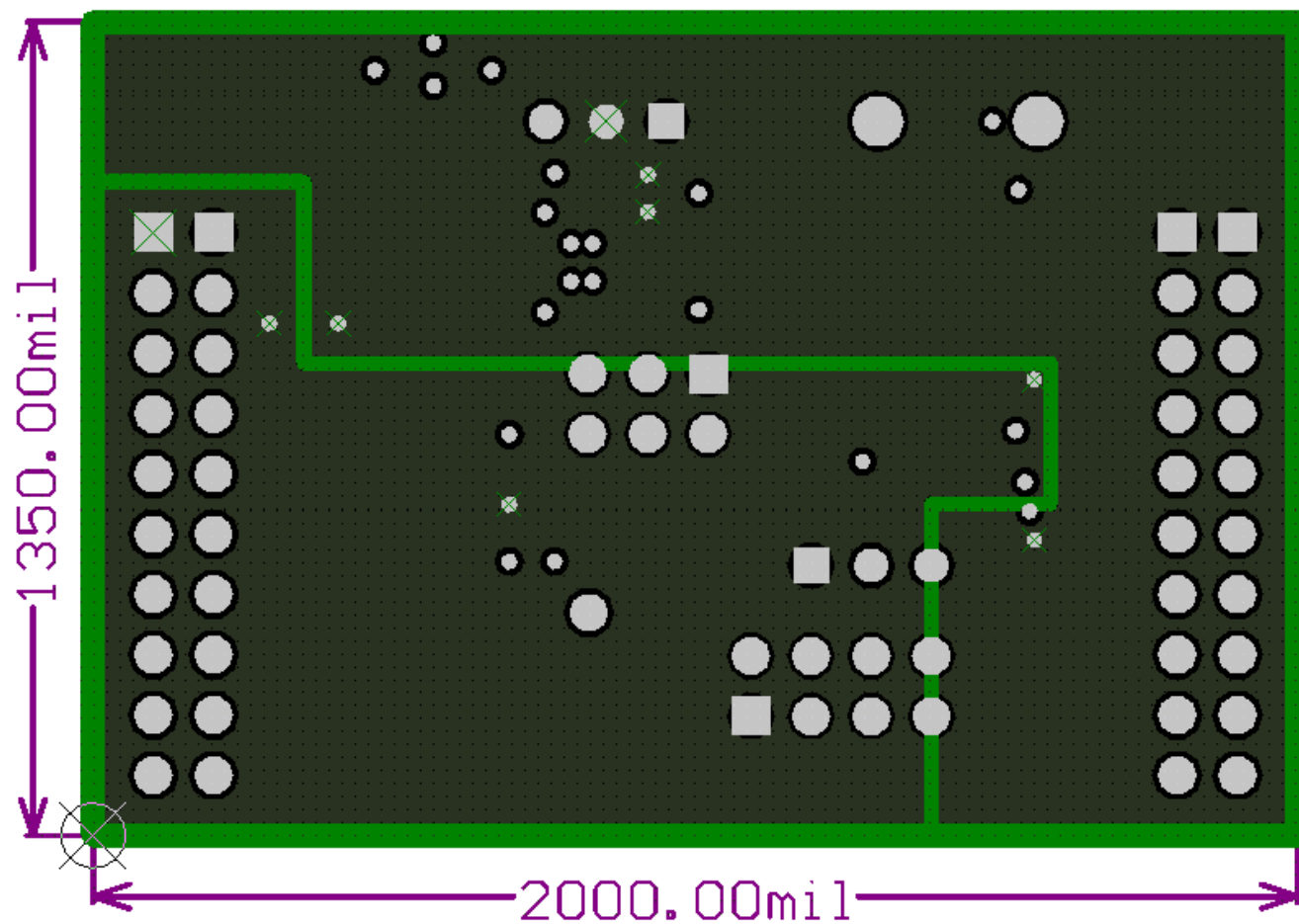


Figure 5. Power Layer Routing

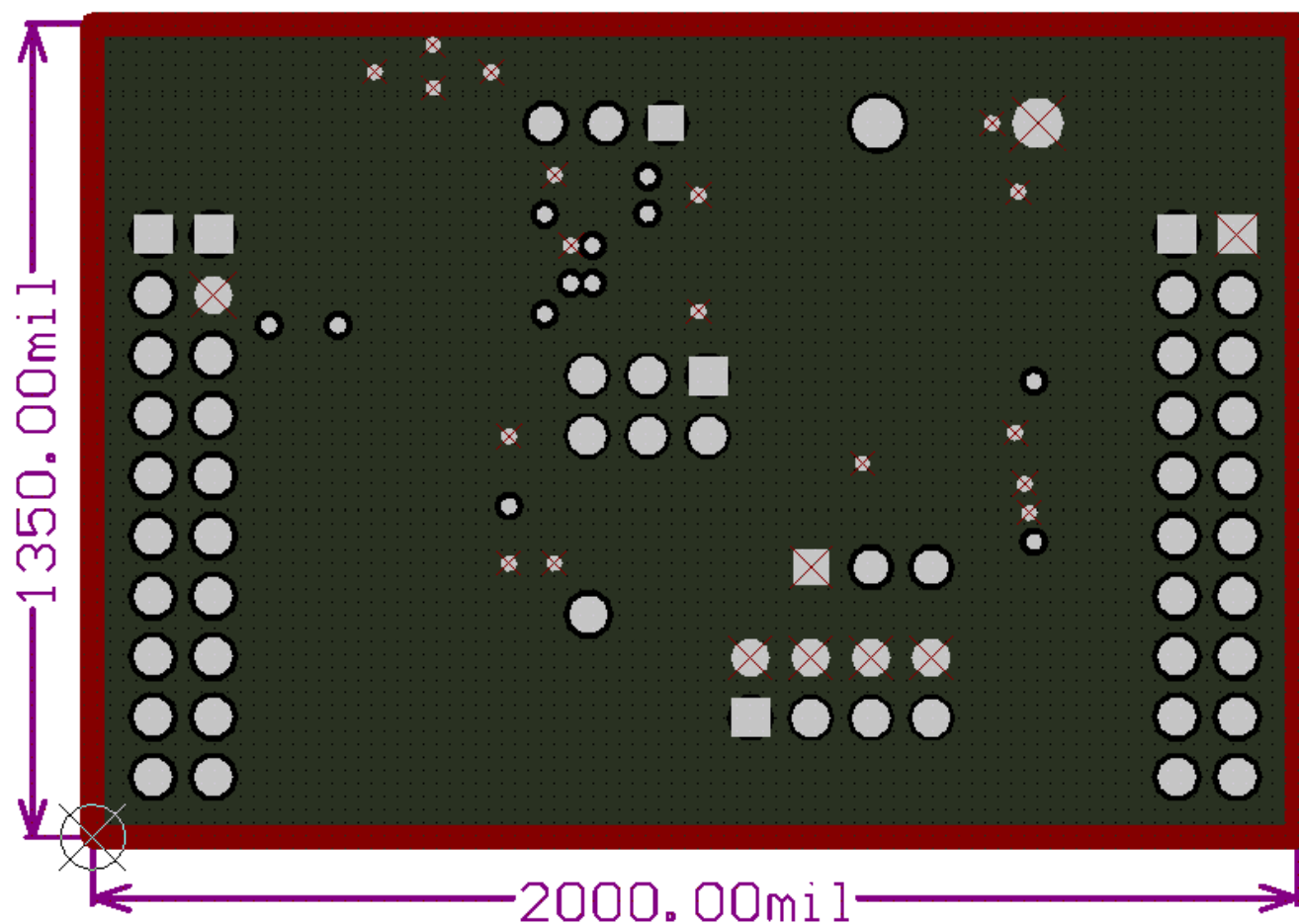


Figure 6. Ground Layer Routing

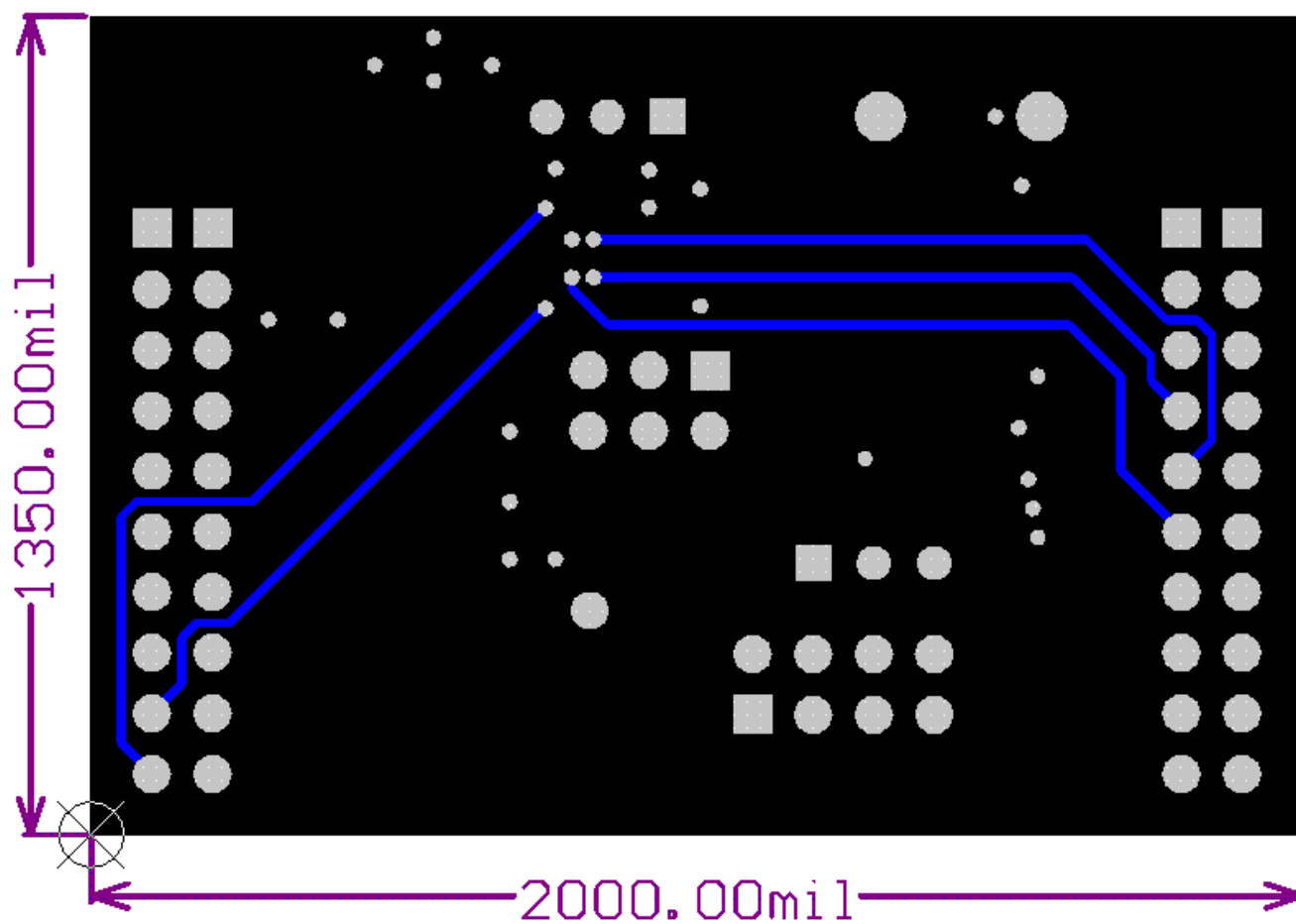


Figure 7. Bottom Layer Routing

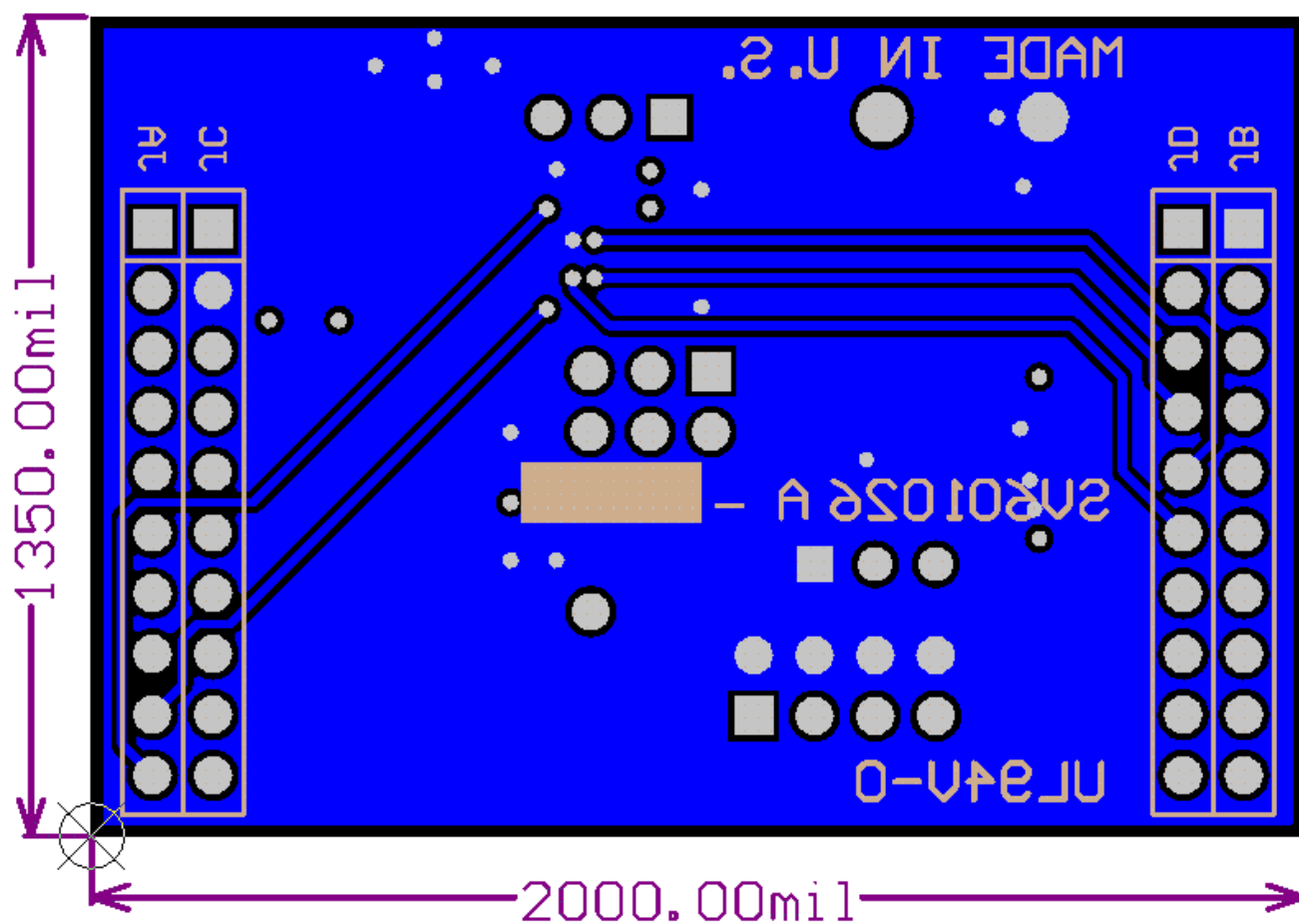


Figure 8. Bottom Assembly Layer

5 Schematic

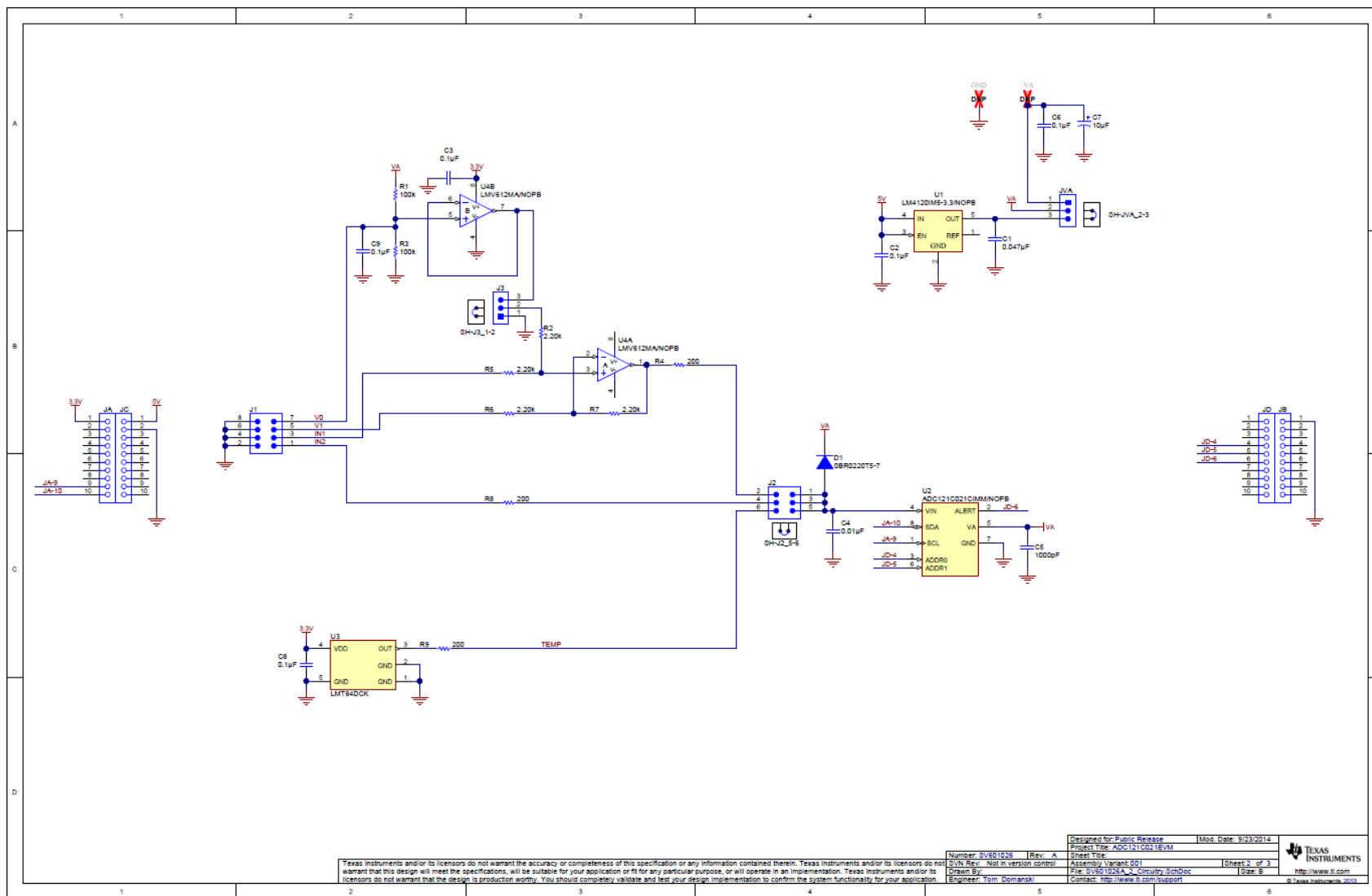


Figure 9. ADC121C021 Schematic

6 Bill of Materials

Table 2. ADC121C021EVM Bill of Materials

DESIGNATOR	QTY.	VALUE	DESCRIPTION	PART NUMBER	MANUFACTURER
!PCB	1		Printed Circuit Board	SV601026	Any
C1	1	0.047uF	CAP, CERM, 0.047 μ F, 25 V, +/- 5%, X7R, 0603	06033C473JAT2A	AVX
C2, C3, C6, C8, C9	5	0.1uF	CAP, CERM, 0.1uF, 10V, +/-10%, X7R, 0603	C0603C104K8RACTU	Kemet
C4	1	0.01uF	CAP, CERM, 0.01uF, 25V, +/-10%, X7R, 0603	GRM188R71E103KA01D	MuRata
C5	1	1000pF	CAP, CERM, 1000 pF, 100 V, +/- 10%, X7R, 0603	06031C102KAT2A	AVX
C7	1	10uF	CAP, TA, 10uF, 10V, +/-10%, 0.9 Ω , SMD	TPSA106K010R0900	AVX
D1	1	20V	Diode, Super Barrier Rectifier, 20 V, 0.2 A, SOD-523	SBR0220T5-7	Diodes Inc.
FID1, FID2, FID3	3		Fiducial mark. There is nothing to buy or mount.	N/A	N/A
J1	1		Header, TH, 100 mil, 4x2, Gold plated, 230 mil above insulator	TSW-104-07-G-D	Samtec
J2	1		Header, TH, 100 mil, 3x2, Gold plated, 230 mil above insulator	TSW-103-07-G-D	Samtec
J3, JVA	2		Header, 100 mil, 3x1, Tin plated, TH	PEC03SAAN	Sullins Connector Solutions
JA, JB, JC, JD	4		Connector, Receptacle, 100mil, 10x1, Gold plated, TH	SSW-110-23-F-S	Samtec
LBL1	1		Thermal Transfer Printable Labels, 0.650" W x 0.200" H - 10,000 per roll	THT-14-423-10	Brady
R1, R3	2	100k	RES, 100 k Ω , 1%, 0.1W, 0603	RC0603FR-07100KL	Yageo America
R2, R5, R6, R7	4	2.20k	RES, 2.20 k Ω , 1%, 0.1W, 0603	RC0603FR-072K2L	Yageo America
R4, R8, R9	3	200	RES, 200 Ω , 1%, 0.1W, 0603	CRCW0603200RFKEA	Vishay-Dale
SH-J2_5-6, SH-J3_1-2, SH-JVA_2-3	3	1x2	Shunt, 100mil, Gold plated, Black	382811-6	AMP
U1	1		Precision Micropower Low Dropout Voltage Reference, 5-pin SOT-23, Pb-Free	LM4120IM5-3.3/NOPB	Texas Instruments
U2	1		I2C-Compatible, 12-Bit Analog-to-Digital Converter with Alert Pin, 8-pin Mini SOIC, Pb-Free	ADC121C021CIMM/NOPB	Texas Instruments
U3	1		Analog Temperature Sensors with Class-AB Output, DCK0005A	LMT84DCK	Texas Instruments
U4	1		Dual 1.4 MHz, Low Power General Purpose, 1.8V, D0008A	LMV612MA/NOPB	Texas Instruments
C10, C11	0		CAP, CERM, xxxF, xxV, [TempCo], xx%, [PackageReference]	Used in BOM report	Used in BOM report
GND	0	Black	Test Point, TH, Multipurpose, Black	5011	Keystone Electronics
VA	0	Red	Test Point, TH, Multipurpose, Red	5010	Keystone Electronics

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3.1.2 *For EVMs annotated as FCC – FEDERAL COMMUNICATIONS COMMISSION Part 15 Compliant:*

CAUTION

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Interference Statement for Class B EVM devices

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- *Reorient or relocate the receiving antenna.*
- *Increase the separation between the equipment and receiver.*
- *Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.*
- *Consult the dealer or an experienced radio/TV technician for help.*

3.2 Canada

3.2.1 For EVMs issued with an Industry Canada Certificate of Conformance to RSS-210

Concerning EVMs Including Radio Transmitters:

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Concernant les EVMs avec appareils radio:

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Concerning EVMs Including Detachable Antennas:

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication. This radio transmitter has been approved by Industry Canada to operate with the antenna types listed in the user guide with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Concernant les EVMs avec antennes détachables

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http://www.tij.co.jp/lstds/ti_ja/general/eStore/notice_01.page

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If User uses EVMs in Japan, not certified to Technical Regulations of Radio Law of Japan, User is required by Radio Law of Japan to follow the instructions below with respect to EVMs:

1. Use EVMs in a shielded room or any other test facility as defined in the notification #173 issued by Ministry of Internal Affairs and Communications on March 28, 2006, based on Sub-section 1.1 of Article 6 of the Ministry's Rule for Enforcement of Radio Law of Japan,
2. Use EVMs only after User obtains the license of Test Radio Station as provided in Radio Law of Japan with respect to EVMs, or
3. Use of EVMs only after User obtains the Technical Regulations Conformity Certification as provided in Radio Law of Japan with respect to EVMs. Also, do not transfer EVMs, unless User gives the same notice above to the transferee. Please note that if User does not follow the instructions above, User will be subject to penalties of Radio Law of Japan.

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