Evaluation Board for the 24-Lead LFCSP Devices in the Switches and Multiplexers Portfolio

FEATURES

- 24-lead, 4 mm × 4 mm LFCSP evaluation board
- Easily changeable socket for the main device
- Gold pin connectors for the addition of passive components
- SMB connectors for the input and output of signals
- Additional space on board for prototyping

EVALUATION KIT CONTENTS

- EVAL-24LFCSPEBZ

DOCUMENTS NEEDED

- Data sheet for the device being evaluated

EQUIPMENT NEEDED

- Device being evaluated
- DC voltage source
- Analog signal source
- Method to measure voltage, such as a digital multimeter (DMM)

GENERAL DESCRIPTION

The EVAL-24LFCSPEBZ enables easy evaluation of the 24-lead lead frame chip scale package (LFCSP) devices in the Switches and Multiplexers Portfolio portfolio that are purchased separately. The EVAL-24LFCSPEBZ is supplied with a socket to secure a 24-lead LFCSP device to the evaluation board without the need for soldering. In addition, there are three sets of gold pin connectors in each trace, allowing board flexibility and reusability for multiple evaluations.

Figure 1 shows the EVAL-24LFCSPEBZ. A 24-lead LFCSP device can be inserted into the socket in the center of the evaluation board. Each device pin has a corresponding 3-pin header link, from K1 to K24, that can either be connected to an external signal source by removing the corresponding link or by using the link to choose between VDD or GND. A wire screw terminal, J1, supplies the VDD and GND. The Subminiature Version B (SMB) connectors on the EVAL-24LFCSPEBZ allow additional external signals to be supplied to the device. In addition, there is a perfboard space and two 24-lead LFCSP pads (4 mm × 4 mm) available on top of the EVAL-24LFCSPEBZ for prototyping.

The full specifications of the device under test (DUT) are available in the corresponding product data sheet, which must be consulted with the EVAL-24LFCSPEBZ user guide when using the EVAL-24LFCSPEBZ.

EVALUATION BOARD PHOTOGRAPH

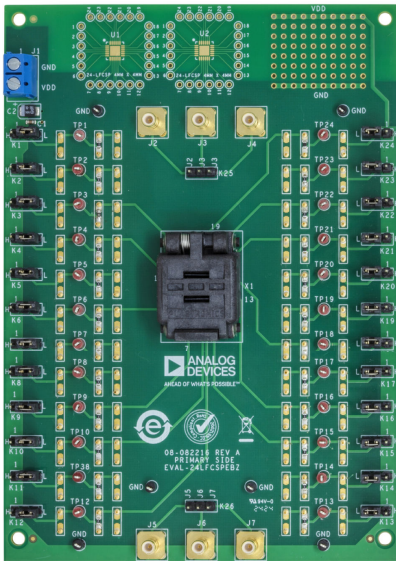

Figure 1. EVAL-24LFCSPEBZ Evaluation Board Photograph

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REVISION HISTORY

10/2024—Revision 0: Initial Version

EVALUATION BOARD HARDWARE

POWER SUPPLY

J1, a wire screw terminal, provides the VDD and GND supplies to the EVAL-24LFCSPEBZ. These supplies can be selected for each device pin by setting the link headers to either VDD or GND. When a VSS supply is needed, apply the voltage directly to the VSS or GND pin of the device by removing the corresponding link.

LINK HEADERS

The link headers supply the DUT with either VDD or GND. The headers are designated K1 to K24 with the number corresponding to the pin number of the device. Table 1 summarizes the link headers and how these headers function on the EVAL-24LFCSPEBZ.

Table 1. Link Header Descriptions

Label	Position	Description
K1 to K24	H (high)	VDD
	L (low)	GND

SMB CONNECTORS

There are six SMB connectors on the EVAL-24LFCSPEBZ, J2 to J7, with each having an adjacent gold pin connector in K25 to K26. When an SMB cable is connected to one of these SMB connectors, the input signal becomes available on the corresponding gold pin connector. Apply this input signal to the relevant device pin by forming a connection from the SMB gold pin connector to a gold pin connector found on the relevant trace.

INPUT SIGNAL TRACES

Each trace includes three sets of gold pin connectors with 0805- and 0603-compatible pads (two sets that can have a load placed on the signal path to ground, and another set that is in series with the signal path). A 0 Ω resistor was placed in series with the signal path and can be replaced with a user-defined value. These traces can create a simple RC filter.

EVALUATION BOARD SCHEMATIC AND ARTWORK

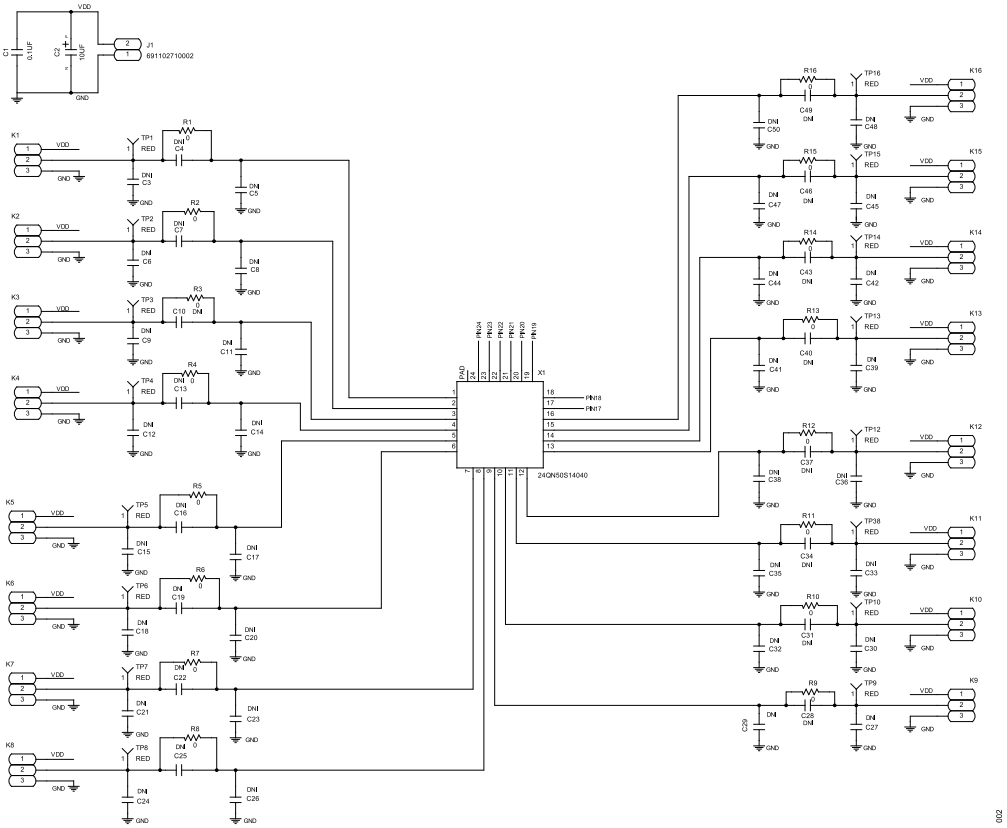

Figure 2. EVAL-24LFCSPEBZ Schematic, Page 1

EVALUATION BOARD SCHEMATIC AND ARTWORK

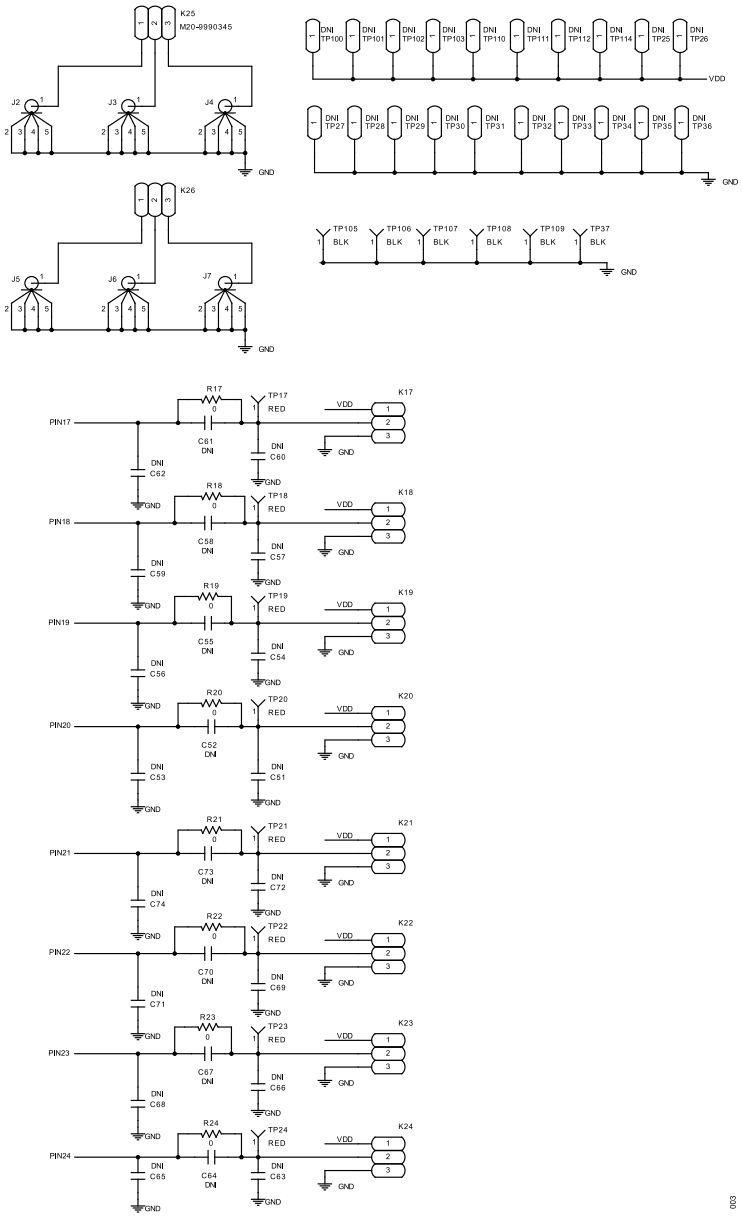

Figure 3. EVAL-24LFCSPEBZ Schematic, Page 2

EVALUATION BOARD SCHEMATIC AND ARTWORK

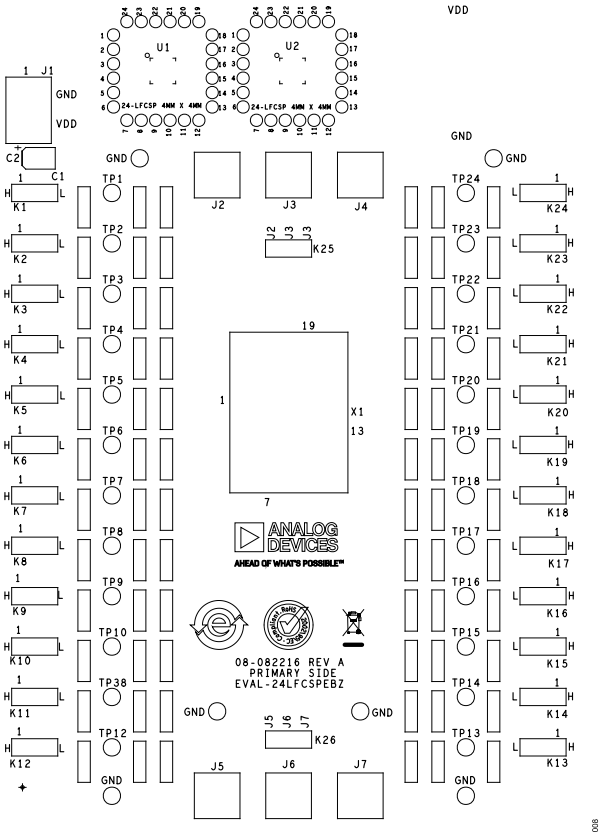

Figure 4. EVAL-24LFCSPEBZ Silkscreen

EVALUATION BOARD SCHEMATIC AND ARTWORK

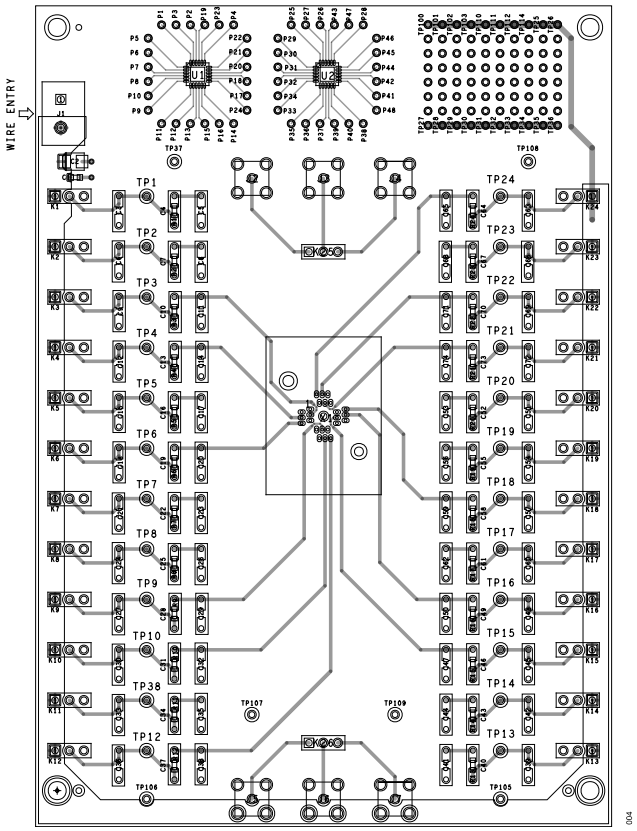

Figure 5. EVAL-24LFCSPEBZ Top Layer

EVALUATION BOARD SCHEMATIC AND ARTWORK

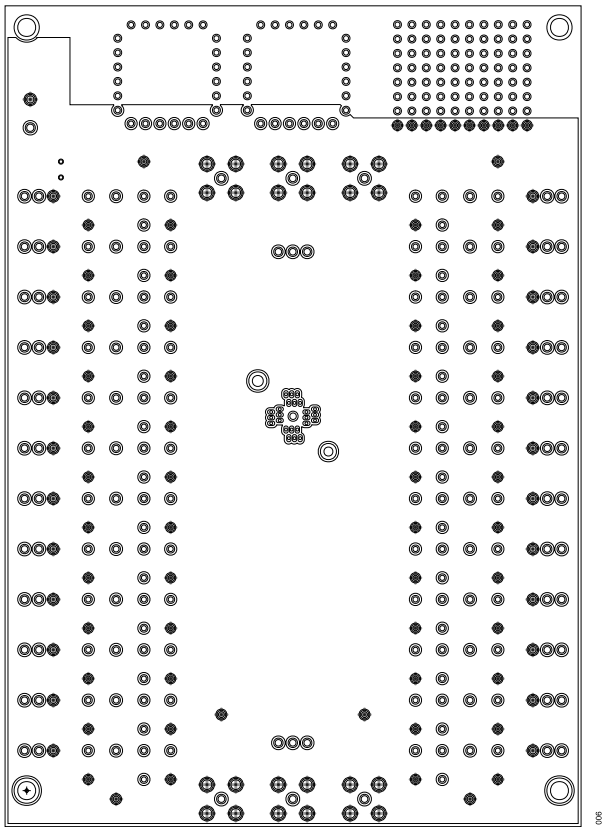

Figure 6. EVAL-24LFCSPEBZ Bottom Layer

ORDERING INFORMATION

BILL OF MATERIALS

Reference Designator	Description	Manufacturer	Part Number
C1	0.1 µF, 50 V, X7R, ceramic capacitor	TDK	CGA3E2X7R1H104K080AA
C2	10 µF, 16 V, tantalum capacitor	AVX	TAJB106K016RNJ
C3 to C74	Receptacles with a standard tail	Mill-Max	3114-2-00-15-00-00-08-0
J2 to J7	SMB sockets	Cinch Connectivity Solutions	131-3701-271
J1	2-pin terminal block (5 mm pitch)	Wurth Electronik	691102710002
K1 to K26	Jumper blocks using 3-pin single inline package (SIP) header	Harwin	M20-9990345
TP1 to TP24	Test points	Vero Technologies	20-313137
TP37 and TP105 to TP109	Test points	Components Corporation	TP-105-01-00
X1	24-pin QFN 4 × 4 socket	Plastronics	24QN50S14040

ESD Caution
ESD (electrostatic discharge) sensitive device. Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.