

Evaluation Boards for the **HMC6832** 3.5 GHz, Low Noise, 2:8 Differential Fanout Buffer

FEATURES

- On-board LDO voltage regulator for 2.5 V/3.3 V device under test (DUT) supply**
- LDO can be bypassed to allow for an external supply**
- AC-coupled differential SMA connectors**
- SMA connectors for**
 - 2 differential input clocks**
 - 8 analog differential outputs**
- Jumpers to enable/disable the LDO voltage regulator**
- Clip on access points for power/ground**
- Jumper for input clock selection**
- Matched RF differential traces**

GENERAL DESCRIPTION

This user guide describes the two evaluation boards for evaluating the [HMC6832](#) fully differential output buffer. Both evaluation boards, EV1HMC6832ALP5L and EV2HMC6832ALP5L, allow access to all [HMC6832](#) input/outputs via SMAs.

The EV1HMC6832ALP5L is configured for the LVPECL version of the product whereas the EV2HMC6832ALP5L is configured for LVDS. Each board has an on-board low dropout (LDO) regulator for 2.5 V/3.3 V operation that can be disabled to use an external supply. Each board has matched RF differential traces for testing output to output channel skew.

For full specifications on the [HMC6832](#), see the product data sheet, which should be consulted in conjunction with this user guide when working with the evaluation board. The evaluation board schematics and the [HMC6832](#) data sheet are available on the [HMC6832](#) product page.

PHOTOGRAPH OF EV1HMC6832ALP5L

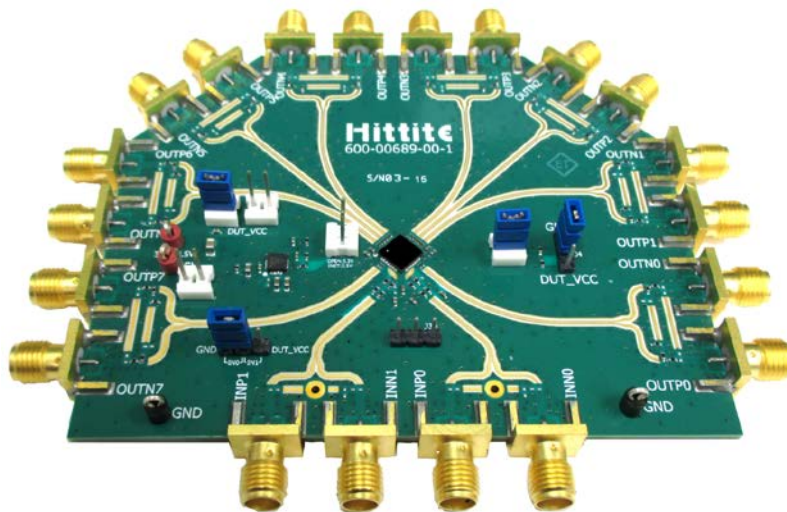


Figure 1. EV1HMC6832ALP5L Evaluation Board

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REVISION HISTORY

3/16—Revision 0: Initial Version

GETTING STARTED

For convenience, many of the jumpers are preinstalled on the evaluation boards as listed in Table 1. The jumper installation is dependent on the version of the evaluation board, EV1HMC6832ALP5L or EV2HMC6832ALP5L. Prior to powering on the evaluation board, it is important to verify the jumper configuration against Table 1 and Figure 3 for the physical locations of the jumpers and test points.

POWERING THE EVALUATION BOARD

It is important to decide whether to use the on-board voltage regulator or an external power supply because the jumper configurations vary accordingly. Refer to Table 1 for the required jumper configurations.

If using the on-board regulator, apply 5 V to TP3 and ground either TP1 or TP4. Figure 4 provides an example of this scheme. In this scenario, install J8 but do not install J7. J6 determines the output voltage of the regulator and installing J9 allows observation of the regulator output voltage at TP2. Refer to Table 1 for additional information about J6 and J9.

SETTING UP SIGNAL CONNECTIONS

There are two ac-coupled inputs to choose from, Input 0 or Input 1, via the IN_SEL pin of the HMC6832. The input is determined by J3 on the evaluation board. A signal generator can be connected to either or both of these inputs and the user can select between them as follows:

- To select Input 0, tie J3 to ground.
- To select Input 1, tie J3 to V_{DD}.

Connect the output(s) of interest to either an oscilloscope or a spectrum analyzer for observation and evaluation (see Figure 4).

BYPASSING THE 5 V LDO VOLTAGE REGULATOR

To use an external power supply, such as for current measurements, bypass the on-board voltage regulator. To bypass the regulator, reconfigure the jumpers by installing J7 and not installing J8. An external supply of either 2.5 V (LVDS or LVPECL) or 3.3 V (LVPECL only) can then be supplied to TP2 (see Table 2).

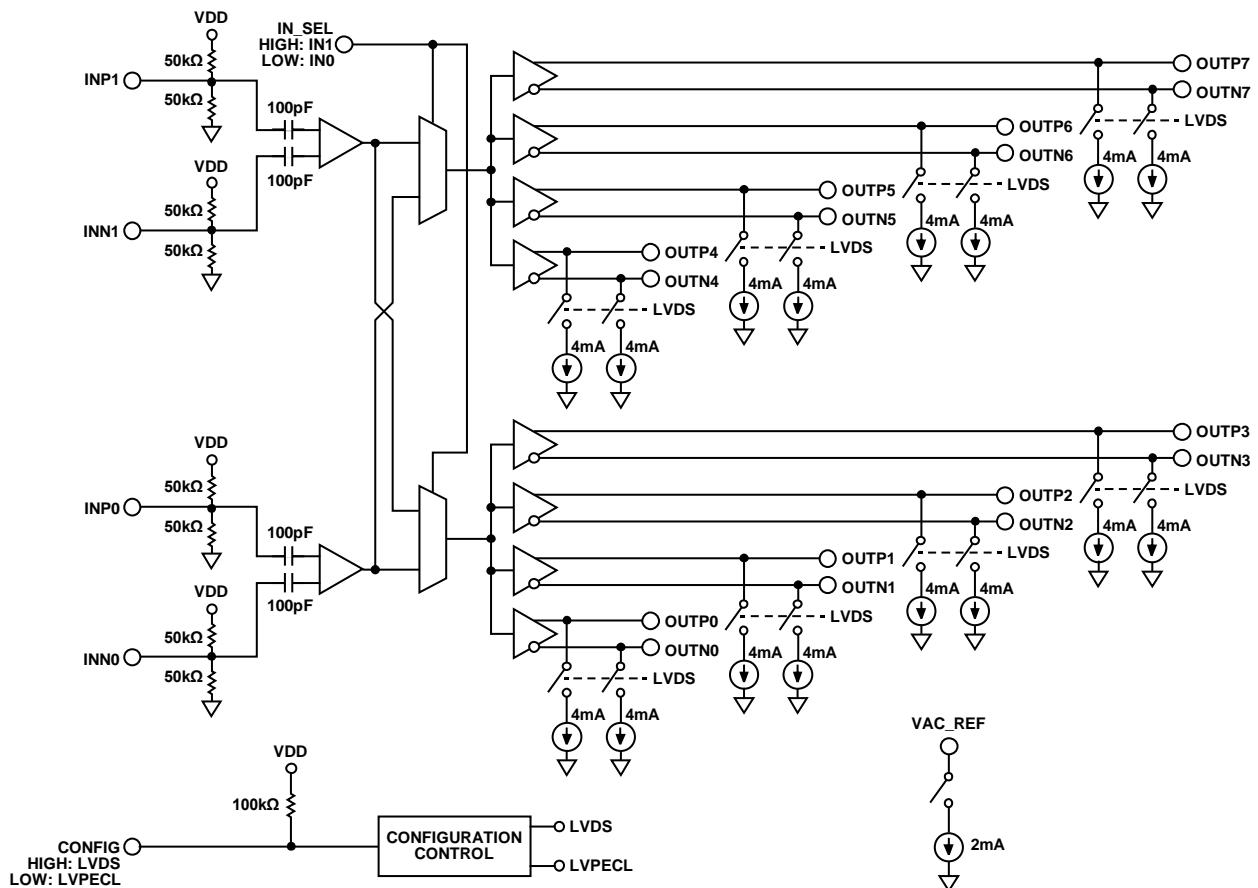


Figure 2. Functional Block Diagram

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JUMPER CONFIGURATIONS

Refer to Figure 3 for jumper and test point locations on the board.

Table 1. Jumper Settings

Jumper Number	Function	Installed	Uninstalled	Preinstalled on Evaluation Board
J3	Input level for IN_SEL pin. GND selects Input0 and DUT_VCC selects Input1.	As needed, depending on input desired.	If not installed, default is Input0 as IN_SEL has an internal pull-down	No
J5	Determines LVPECL/LVDS mode.	Sets CONFIG pin to proper configuration mode (LVPECL/LVDS).	Sets HMC6832 to LVDS mode due to internal pull-up on the device.	Yes
J6	Determines the regulator supply.	Regulator supplies 2.5 V, assuming it is enabled (J7 not installed) and 5 V is supplied to TP3.	Regulator supplies 3.3 V, assuming it is enabled (J7 not installed) and 5 V is supplied to TP3.	Yes
J7	Enables or disables the regulator output.	Disables regulator output.	Enables regulator output.	No
J8	Connects or disconnects the regulator output to the HMC6832 device.	Connects the regulator output to the device.	Disconnects the regulator output and the device.	Yes
J9	Determines the function of TP2 to observe the regulator output or to apply power to the HMC6832 device, depending on the installation status of J8.	When J8 is installed, the regulator output can be observed at TP2. When J8 is not installed, power can be applied (2.5 V or 3.3 V) via TP2.	Power cannot be applied or observed at TP2.	Yes
J30	Analog Devices, Inc., use only.	Do not install.	Analog Devices use only.	No

Table 2. Test Points

Test Point Number	Function
TP1	Ground connection.
TP2	When J8 and J9 are installed, TP2 observes the regulator output. When J9 is installed and J8 is not installed, TP2 supplies power (2.5 V or 3.3 V) to the HMC6832 .
TP3	5 V supply for the on-board regulator.
TP4	Ground connection.

TEST EQUIPMENT CONFIGURATIONS

The test equipment requirements and setup configurations are shown in Figure 3 and Figure 4.

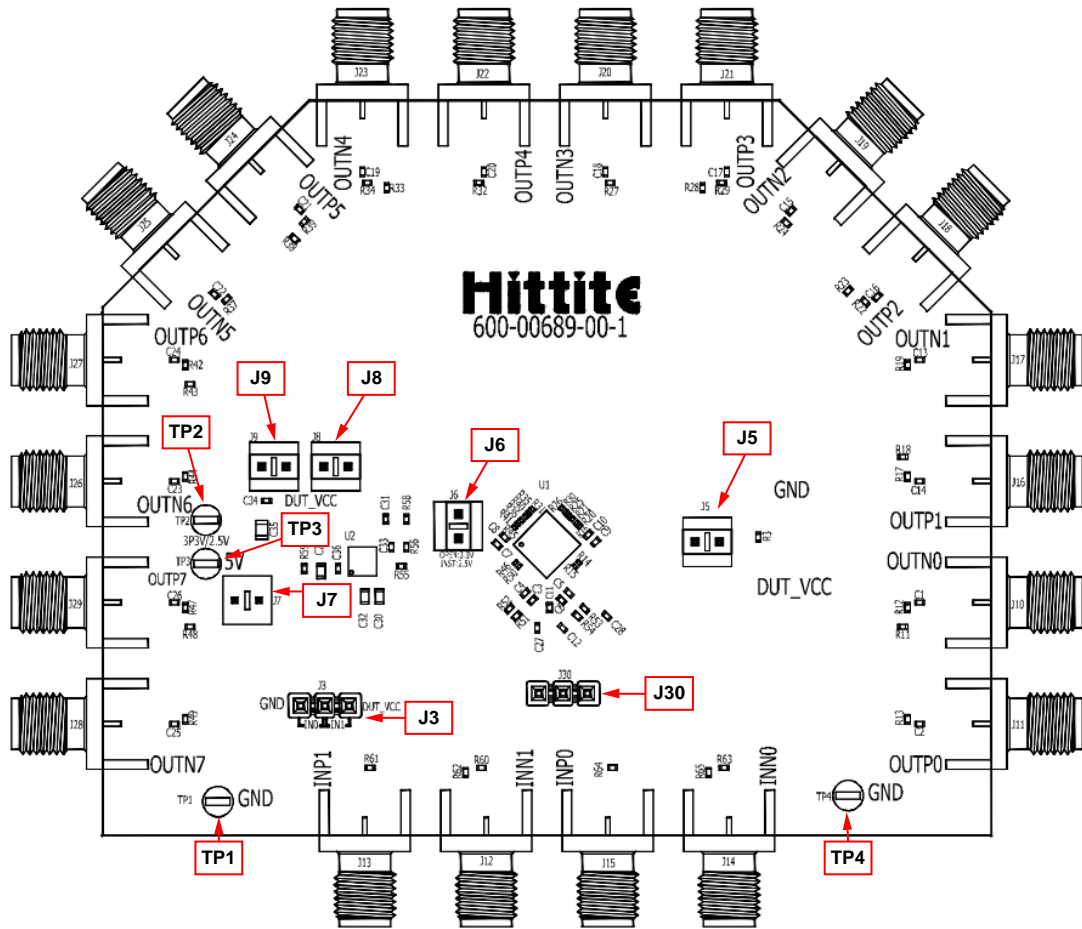


Figure 3. Test Point and Jumper Labels on EV1HMC6832ALP5L/EV2HMC6832ALP5L

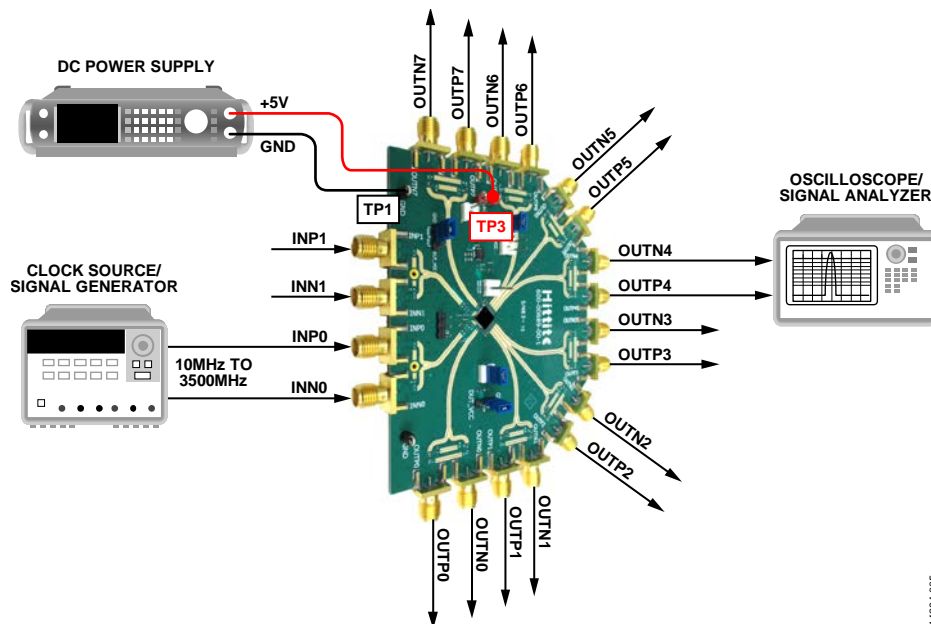


Figure 4. Block Diagram of the EV1HMC6832ALP5L/EV2HMC6832ALP5L Test Equipment Setup

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NOTES

**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.

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