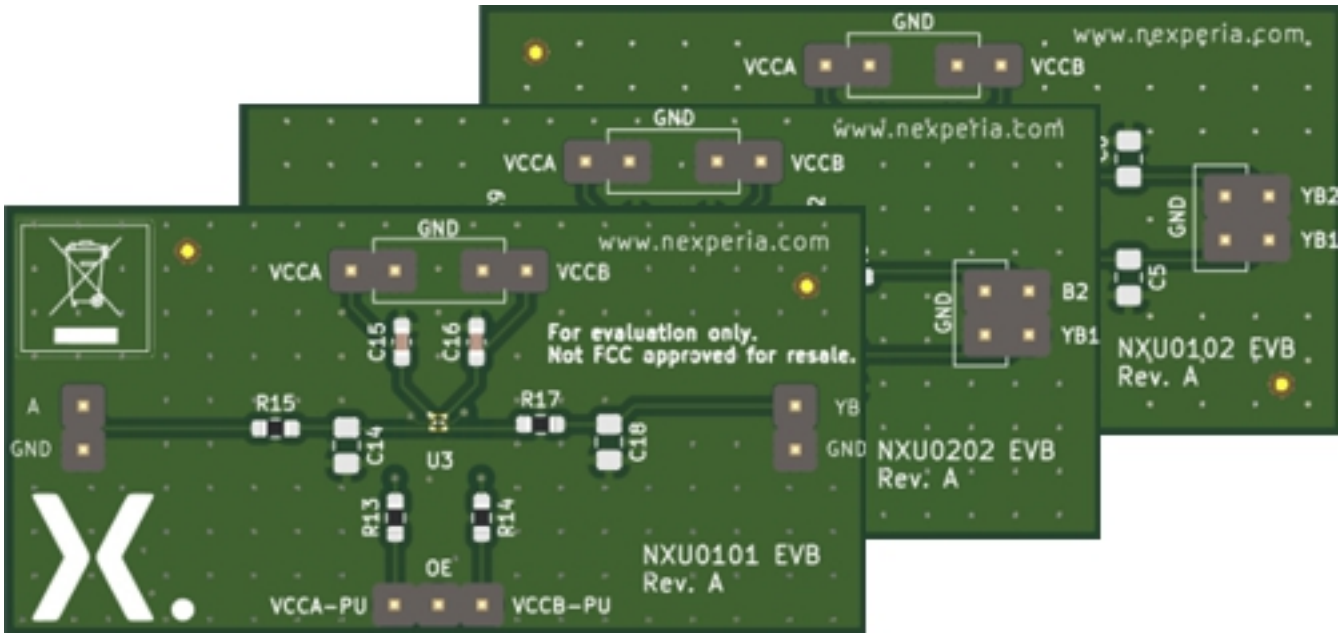
UM90048

Rev. 1 — 21 August 2026

user manual

NXU0101, NXU0102 and NXU0202 evaluation board



Abstract: The NXU0101, NXU0102, and NXU0202 evaluation board is a two-layer PCB containing the NXU family dual supply level shifting devices. The board simulates the device being used in a system by incorporating series resistors and parallel loads on each input/output line. Output Enable (OE) is selected with a jumper to pull up to either VCCA or VCCB supply rail. Each input has a Schmitt-trigger to accommodate slow or noisy input signals and a weak 6.5 Mohm pull-down accommodates floating input signals.

Keywords: Level shifter, Dual supply, Voltage translator, Evaluation board

1. Introduction

The NXU0101, NXU0102, and NXU0202 evaluation board (EVB) facilitates evaluation of NXU0101, NXU0102 and NXU0202 devices. There is an extra footprint that can be fitted with a VSSOP8 package of the same device on the 2 bit variants. Simply remove the existing X2SON variant and mount the VSSOP8. Fig. 1 show the EVB.

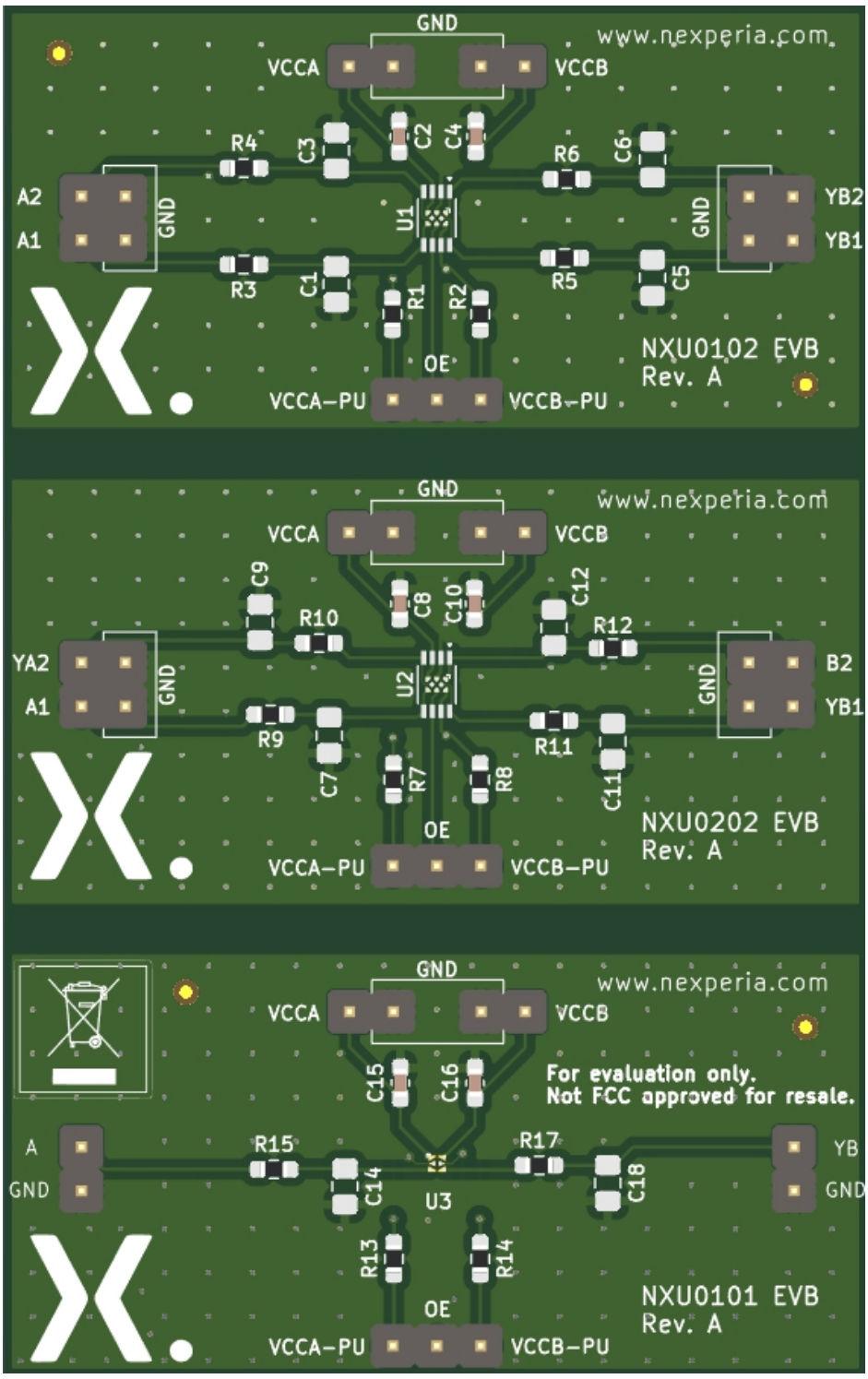


Fig. 1. NEVB-NXU0101-NXUUL: NXU0101, NXU0102 and NXU0202 evaluation board

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2. Key parameters

- Device = NXU0101, NXU0102, NXU0202
- Wide supply voltage range:
  - V_{CCA}: 0.9 V to 5.5 V
  - V_{CCB}: 0.9 V to 5.5 V
- Low power consumption for supply voltage range 1.1 V to 5.5 V
  - 3 µA (T_{amb} = 25 °C)
  - 5 µA(T_{amb} = -40 °C to +125 °C)
- Schmitt-trigger inputs with integrated static high ohmic pull-down resistor on the input
- Maximum data rates:
  - 250 Mbps (≥ 1.8 V to 5 V translation)
- Output enable (OE) allows connection to V_{CCA} or V_{CCB} domain
- Suspend mode when either one of the supply voltages is below 100 mV or disconnected (floating)
- Low noise overshoot and undershoot <10% of V_{CCO}
- I_{OFF} circuitry provides partial power-down mode operation

3. Schematic

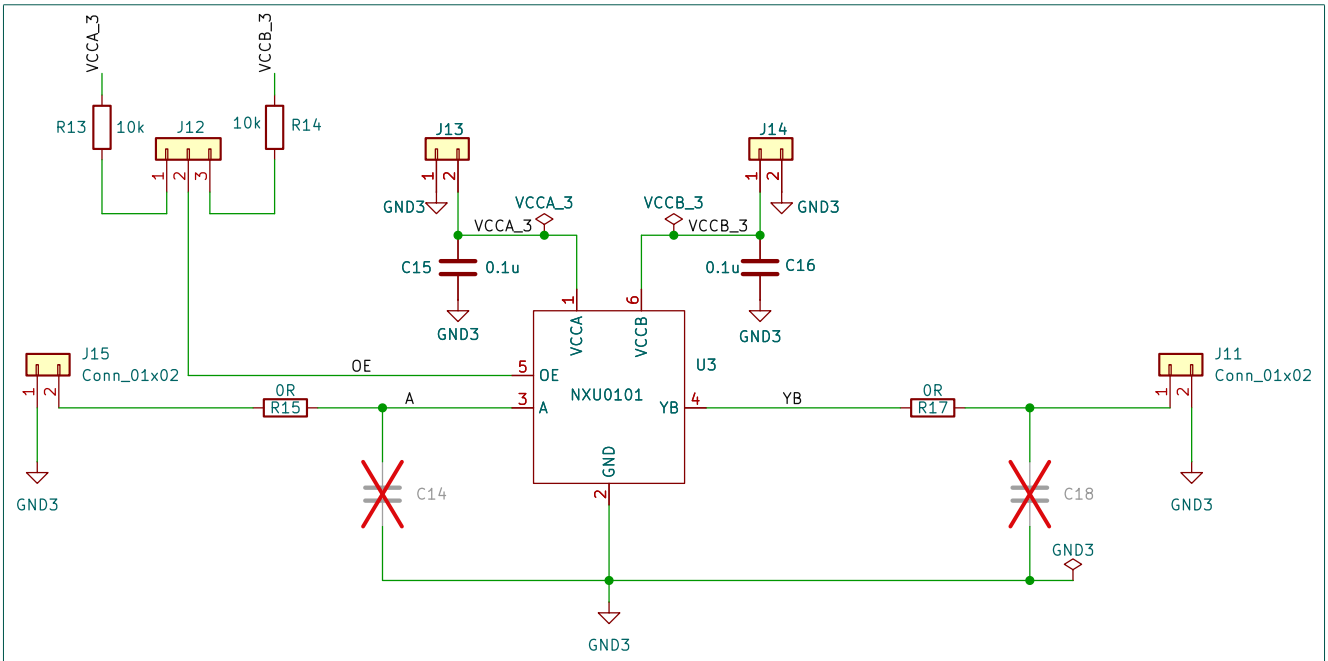

Fig. 2. NEVB-NXU0101-NXUUL evaluation board NXU0101 schematic

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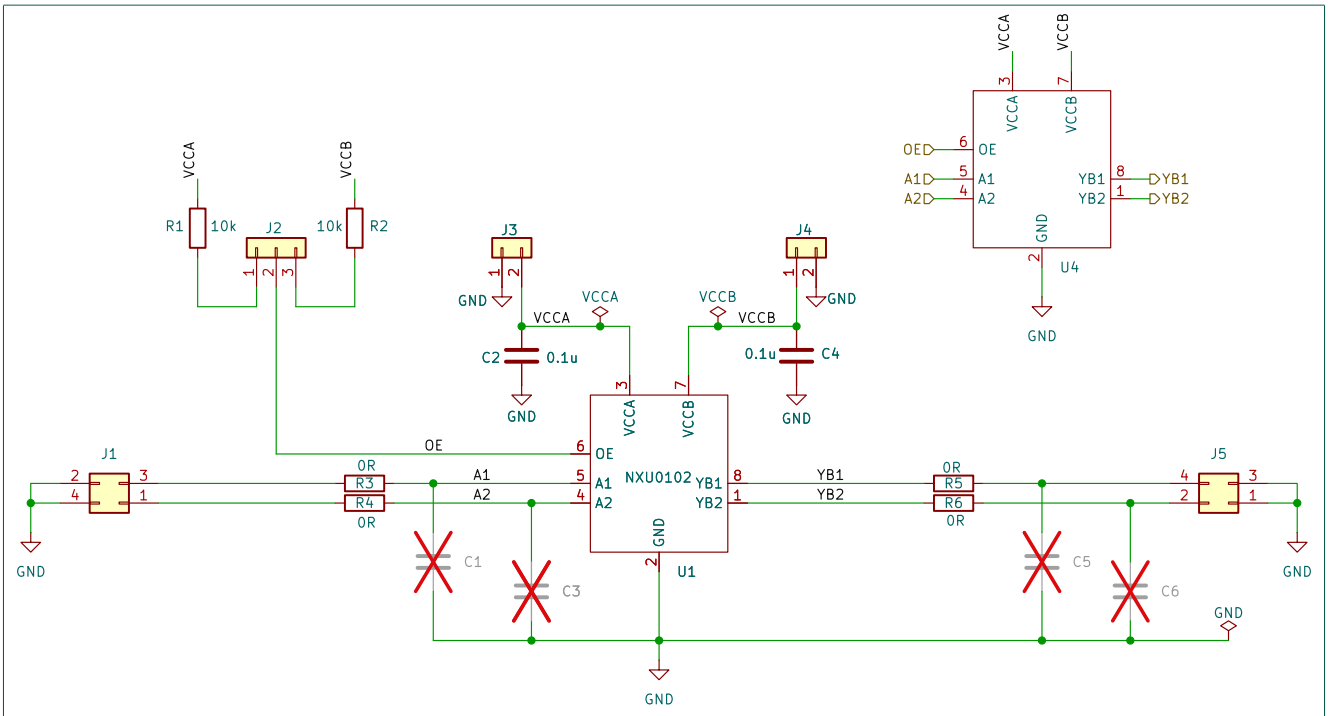

Fig. 3. NEVB-NXU0101-NXUUL evaluation board NXU0102 schematic

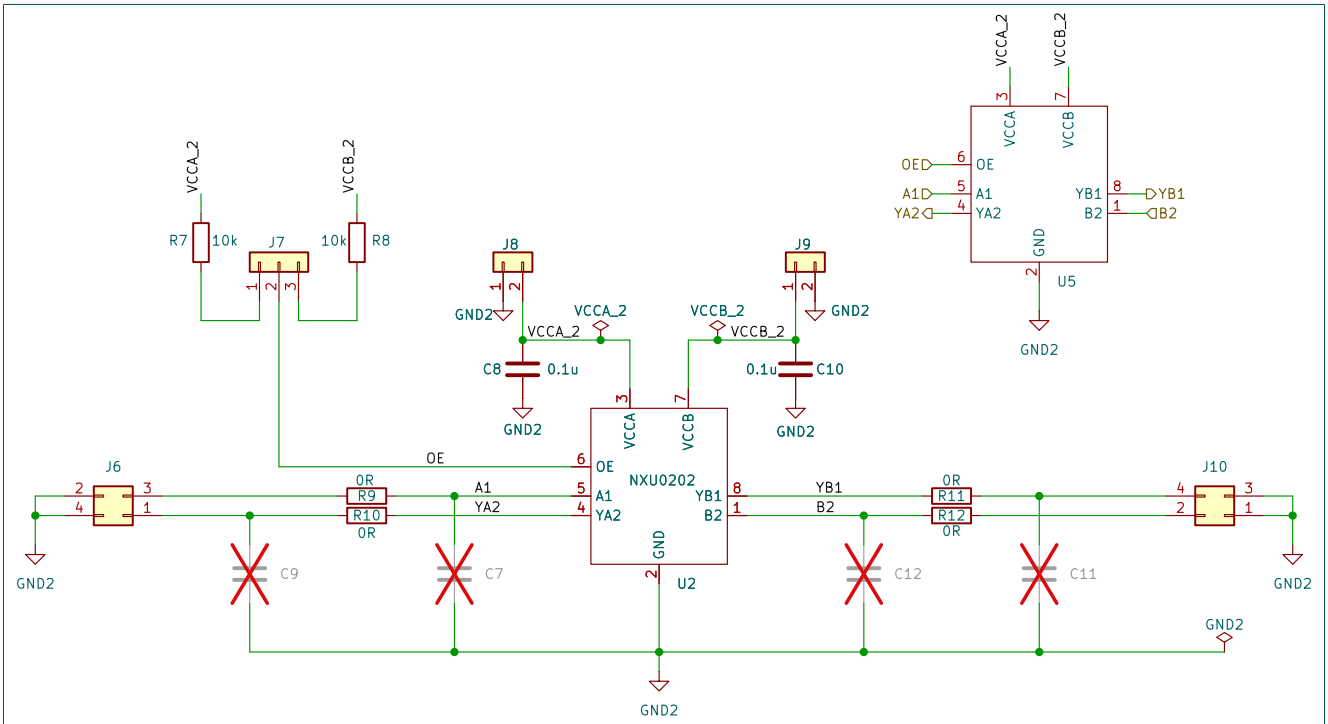

Fig. 4. NEVB-NXU0101-NXUUL evaluation board NXU0202 schematic

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4. PCB layout

Fig. 5 includes the layout of the front copper layer of each NXU-EVB variant. Fig. 6 includes the layout of the back copper layer of each NXU-EVB variant.

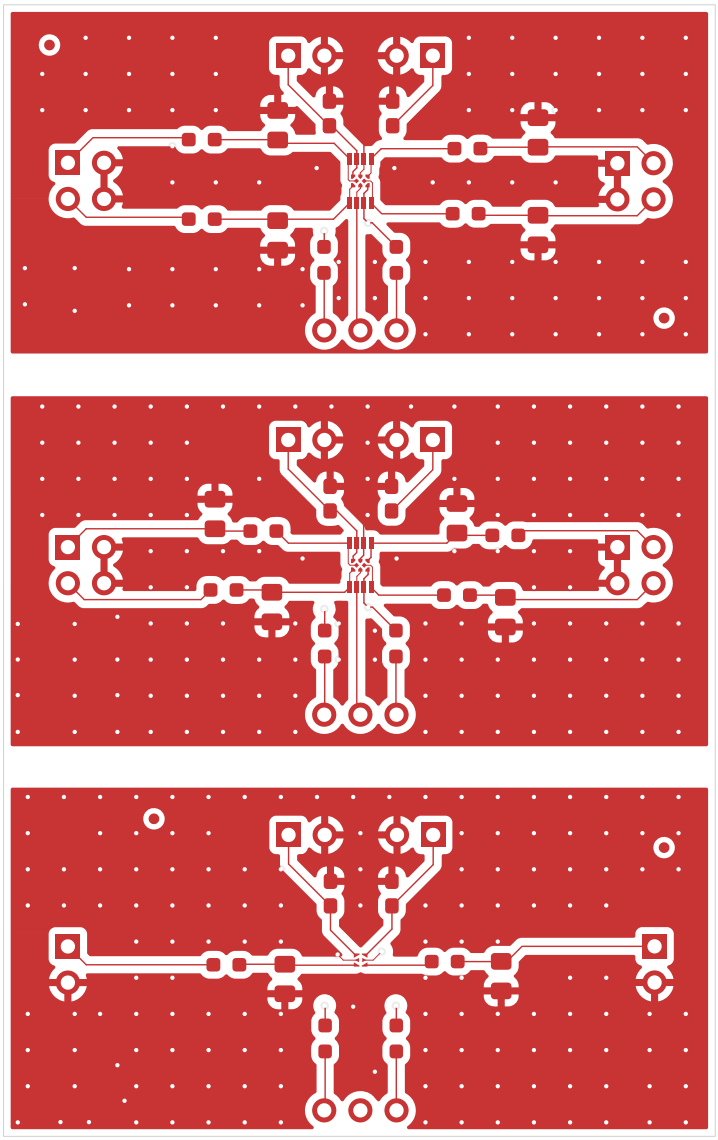

Fig. 5. NEVB-NXU0101-NXUUL EVB front copper layer

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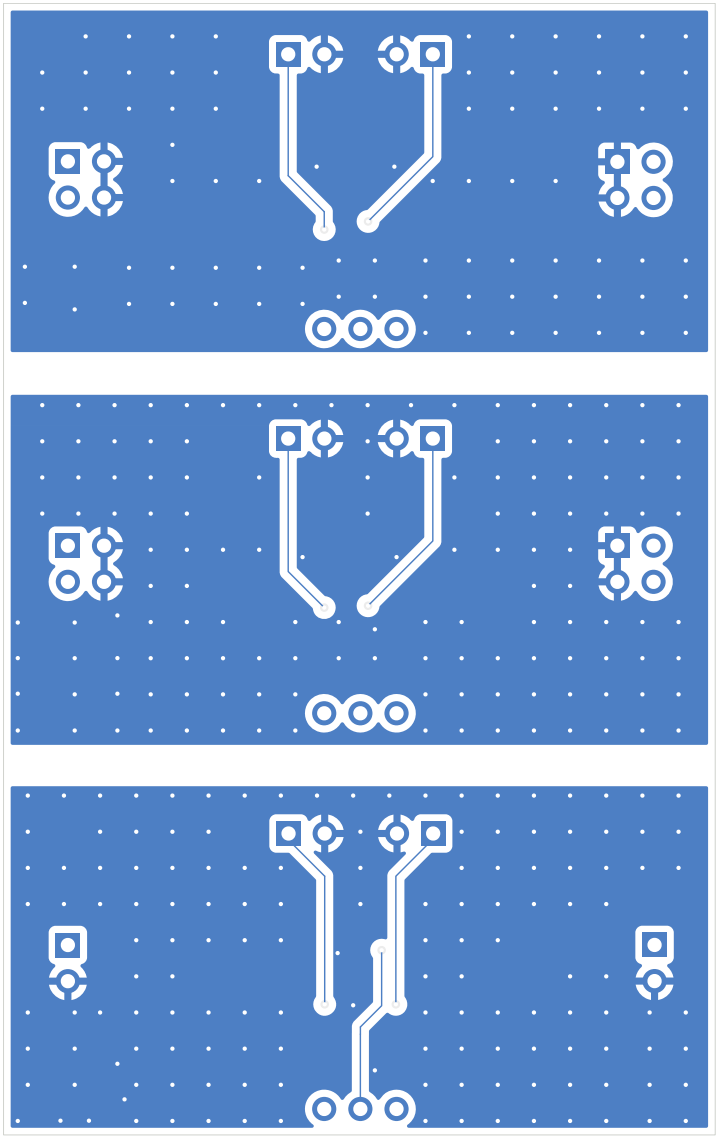

Fig. 6. NEVB-NXU0101-NXUUL EVB back copper

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5. Bill of material

Table 1. Bill of Material (BOM)

Reference	Quantity	Description	Manufacturer	Component
-	1	Printed Circuit Board	Nexperia	NEVB-NXU0101-NXUUL
R3, R4, R5, R6, R9, R10, R11,R12, R15, R17	10	RES 0 OHM 1/10 W 0603	Yageo	RC0603JR-070RL
R1, R2, R7, R8, R13, R14	6	RES 10K OHM 1% 1/10 W 0603	Yageo	RC0603FR-0710KL
C2, C4, C8, C10, C15, C16	6	0.1 µF ±10% 50 V Ceramic Capacitor X7R 0603 (1608 Metric)	Samsung	CL10B104KB8NNNC
J1, J5, J6, J10	4	CONN HEADER VERT 4POS 2.54 MM	TE Connectivity	5-146256-4
J3, J4, J8, J9, J13, J14	6	CONN HEADER VERT 2POS 2.54 MM	TE Connectivity	5-146280-2
J2, J7, J12	3	CONN HEADER VERT 3POS 2.54 MM	TE Connectivity	5-146280-3
U1	1	NXU0102 Voltage Translator	Nexperia	NXU0102
U2	1	NXU0202 Voltage Translator	Nexperia	NXU0202
U3	1	NXU0101 Voltage Translator	Nexperia	NXU0101

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6. Setup and operation

This chapter gives some instructions for proper use of NXU0101, NXU0102, and NXU0202 evaluation boards (EVB)

Power Supply

The evaluation boards have a 2-position header on each V_{CC} supply rail. Power should be applied to the outside pins of J3 & J4, J8 & J9, J13 & J14, while the inside pins are GND connections. The V_{CC} and GND connections are labeled with silkscreen to easily identify power inputs. The NXU0101, NXU0102, and NXU0202 is accommodating of input voltages of 0.9 V-5.5 V on either supply.

Input/Output Signals

The evaluation boards have 2x2, 4-position headers (J1 & J5, J6 & J10) for the 2-bit boards and 1x2, 2 position headers (J11 & J15) for the 1-bit board to access the A and B side data pins. The inputs and outputs are routed to the board edge to make for easy connection, and each input and output has a ground pin adjacent. The GND pins face the device and the data inputs/outputs are on the outer edge of the board. The pins with only an A or B in front of the pin number are inputs, while the pins marked YAx or YBx are outputs. Each input has a Schmitt-trigger to accommodate for slow or noisy signals. All data I/O's in each NXU device have 6.5 MΩ pull-downs integrated which allow for these headers to be left floating with a known state.

Output Enable Control

The output enable is available on a header located on the bottom of the board (J2, J7, J12). The OE pin is the middle pin while the outside pin serves as a pullup to either V_{CC} supply rail through a 10 kΩ resistor. This allows the user to drive the OE pin from either supply, while the $V_{CC(min)}$ circuit will ensure the OE pin on NXU device will follow the lowest supply voltage as reference. A pull-down resistor is also integrated on the OE pin allowing the signal to float without damaging it.

Loading

The inputs and outputs each have a series resistor and capacitor to ground placeholders to allow for different loads to be analyzed. The series resistance is populated with 0 Ω resistor by default. The loads can be configured to analyze different parameters such as rise/fall time, propagation delay, etc.

7. Revision history

Table 2. Revision history

Revision number	Date	Description
UM90048 v.1	20260821	Initial version

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