

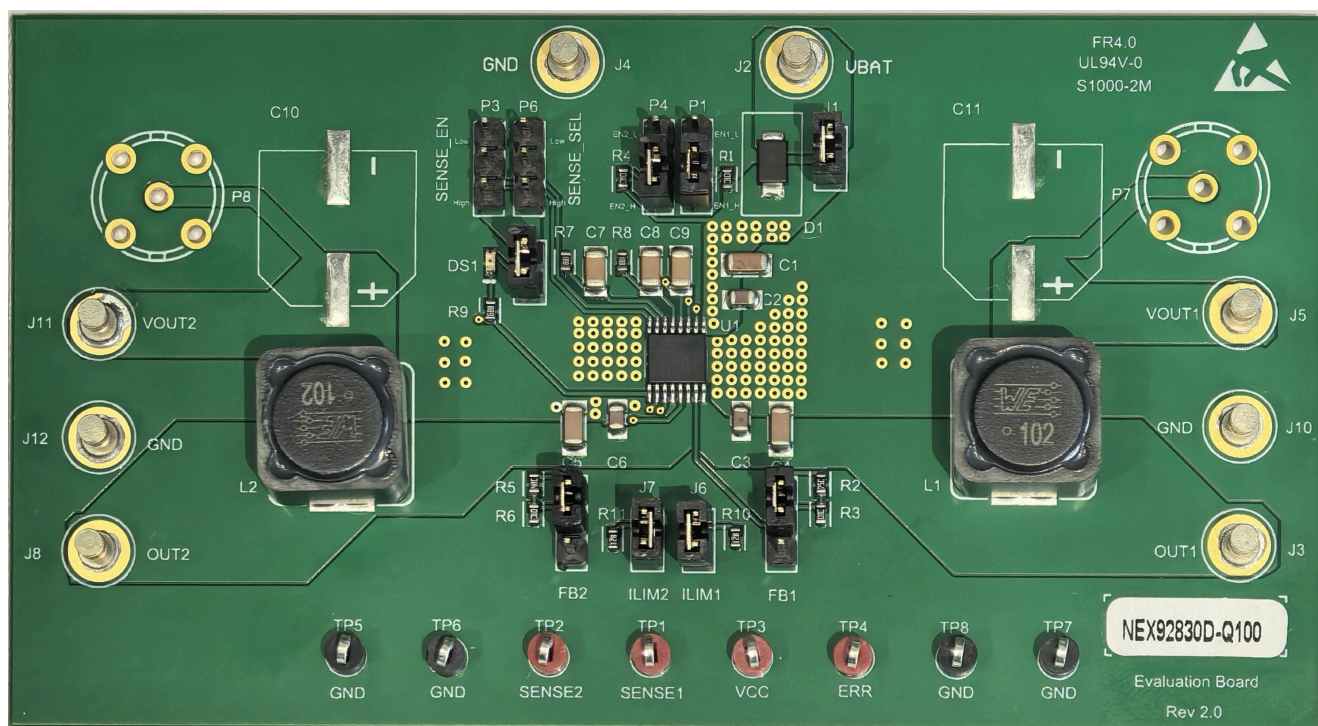


# UM90069

Rev. 1 — 1 August 2025

user manual

## NEX92830DPCD-Q100 300 mA, dual-channel antenna LDO with current sensing evaluation board



**Abstract:** This user manual describes the NEVB-NEX92830DPC. The NEX92830DPCD-Q100 is a dual-channel, high-voltage low-dropout regulator (LDO) with current sensing, designed to operate with a wide range of voltage from 4 V to 40 V (45 V load dump protection). This device provides power supply for low-noise amplifiers of active antennas through a coax cable with 300 mA per channel and an adjustable output voltage from 1.5 V to 20 V for each channel. This document contains the EVB schematic and configuration, bill of materials (BOM) and board layouts.

**Keywords:** NEX92830DPCD-Q100, LDO voltage tracking regulator, evaluation board

## 1. Introduction

This evaluation board (EVB) is designed for NEX92830DPCD-Q100. It helps engineers to evaluate the operation and performance of NEX92830DPCD-Q100. The device is a dual-channel antenna LDO designed for up to 40 V input voltage with maximum 300 mA output current.

### 1.1. Features

The following features are available on this EVB:

- Input voltage range: 4 V to 40 V
- Output voltage and current:
  - 1.5 V to 20 V adjustable; 300 mA per channel
- Uses ERR to indicate general faults
- Uses jumpers to enable or disable device output
- Supports auto-retry

### 1.2. Applications

NEX92830DPCD-Q100 is used in the following applications:

- Infotainment active-antenna power supplies
- Automotive MIC power supplies
- Camera power supplies
- High-side power switches for small current applications

## 2. Schematic

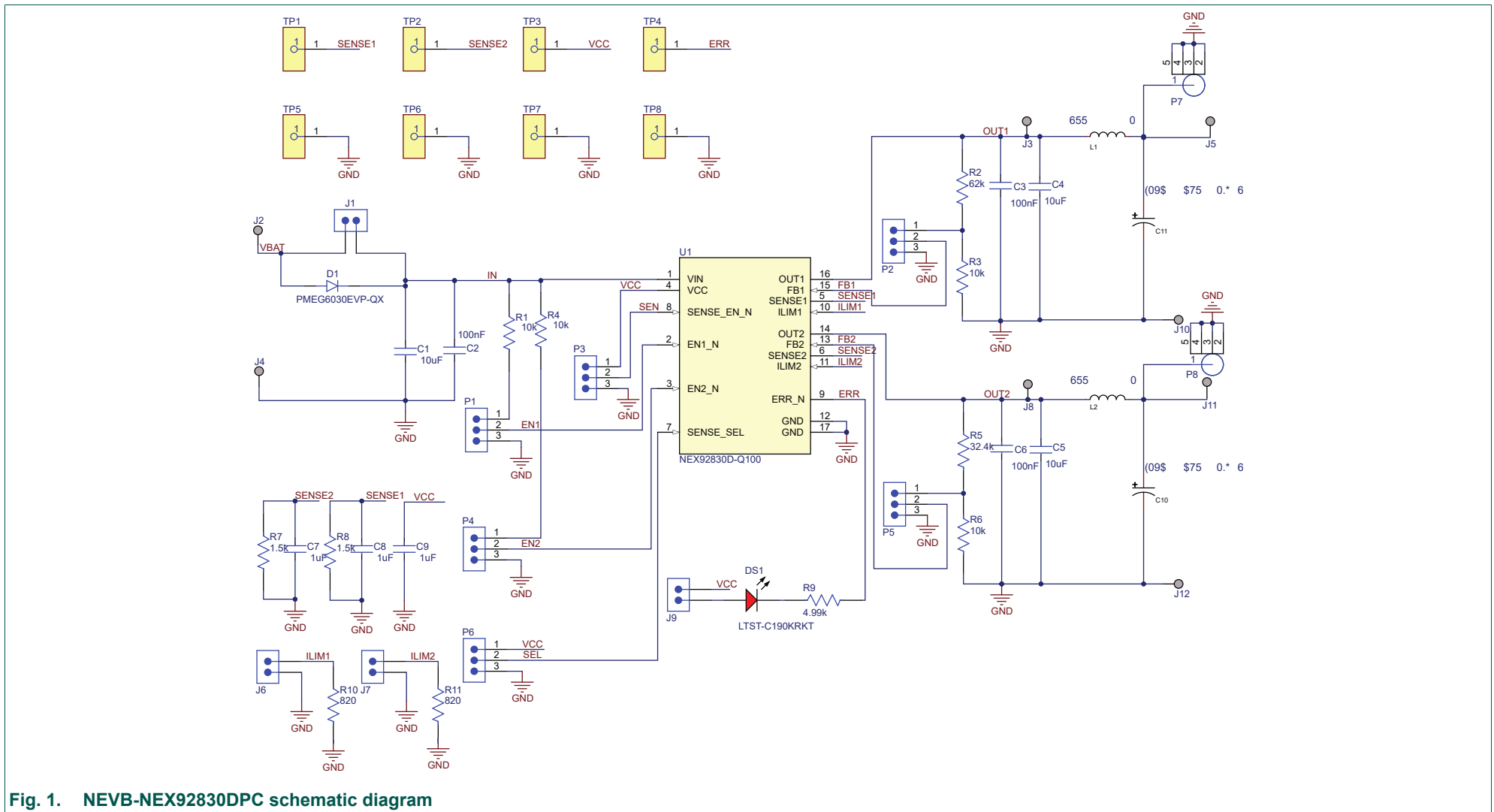


Fig. 1. NEVB-NEX92830DPC schematic diagram

3. General configuration and description

This section describes the connectors and test points on the EVB and how to properly connect, set up and use the NEVB-NEX92830DPC.

3.1. Physical access

Table 1 lists the NEVB-NEX92830DPC connectors and test point functionality.

Table 1. Connectors and test points

Connector	Label	Descriptions
J1	N/A	The bypass of reverse diode D1.
J2	VBAT	The input of the EVB.
J3/J8	OUT1/2	This test point is the power output of channel 1/2 of the regulator, which allows direct attachment of a load and measurement of the channel 1/2 output voltage of the regulator.
J4, J10, J12	GND	The ground connector of the EVB.
J5/J11	VOOUT1/2	This test point is the output voltage of channel 1/2 of the regulator with an inductor inserted between the OUT1/2 pin and the load.
J6/J7	ILIM1/2	This connector is used to set the output current limit of channel 1/2. Leave this connector open to set the output current limit to 300 mA (default setup); short this connector to set the output current limit to the internal current limit level.
J9	N/A	This connector is used to connect the Error LED indicator DS1 to VCC.
P1/P4	EN1/2	This connector is used to set the enable voltage of channel 1/2. Short pin 1 and pin 2 to set EN1/2 voltage to GND, short pin 2 and pin 3 to set EN1/2 voltage to VIN.
P2/P5	FB1/2	This connector is used to set the channel 1/2 output voltage of the regulator. Connect pin 1 and pin 2 to set FB1/2 voltage to be 0 V, channel 1/2 will work as a switch in on-state; connect pin 2 and pin 3 to set channel 1/2 output voltage to 8.5 V/5 V (default setup).
P3	SENSE_EN	This connector is used to set the SENSE_EN pin voltage for the regulator.
P6	SENSE_SEL	This connector is used to set the SENSE_SEL pin voltage for the regulator. By default settings of P3 and P6, the current of SENSE1 and SENSE2 will reflect the channel 1 and channel 2 output current of the regulator correspondingly.
TP1/TP2	SENSE1/2	This test point allows measurement of the sense voltage of channel 1/2.
TP3	VCC	This test point allows measurement of the VCC pin output of the regulator.
TP4	ERR	This test point allows measurement of the ERR pin voltage of the regulator.
TP5, TP6, TP7, TP8	GND	Ground test points.



### 3.2. Test setup

The input voltage range for the antenna LDO NEX92830DPCD-Q100 is 4 V to 40 V. The EVB can support up to 300 mA of load current for each channel. Use the following steps to set up the EVB:

1. Set the power supply for the input, VBAT, to 12 V and set current limit to 1.2 A.
2. Connect pin 2 and pin 3 of both P1 and P4 to set up EN; connect pin 1 and pin 2 of both P3 and P6 to set up sense function; connect pin 2 and pin 3 of both FB1/P2 and FB2/P5 to set up VOUT.
3. Connect the input power supply positive lead to VBAT/J1 and the negative lead to GND/J4.
4. Apply the load between OUT1/J3 or VOUT1/J5 and GND/J10 for channel 1.
5. Apply the load between OUT2/J8 or VOUT2/J11 and GND/J12 for channel 2.

## 4. PCB layout

Figure 2 and Figure 3 show the PCB layouts for the NEVB-NEX92830DPC.

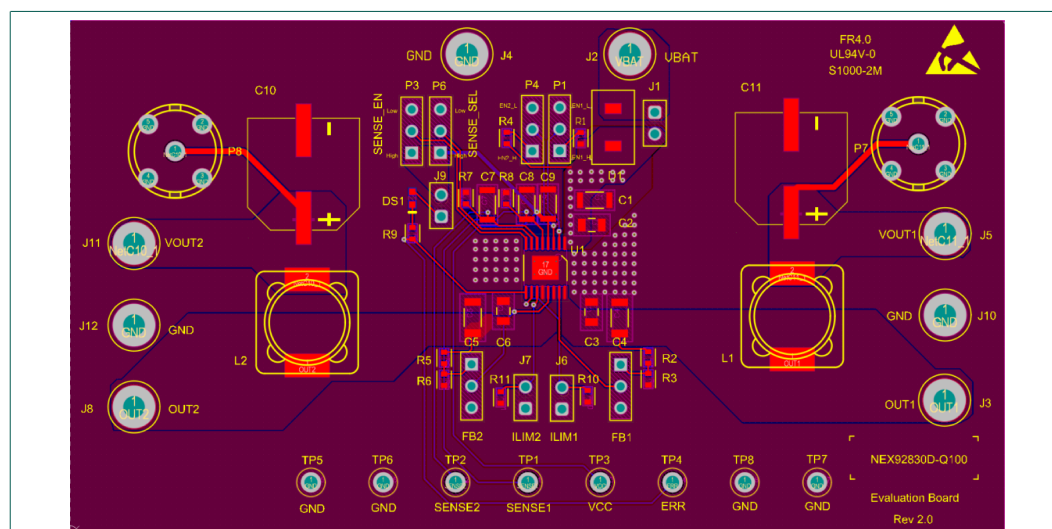


Fig. 2. NEVB-NEX92830DPC top layer routing

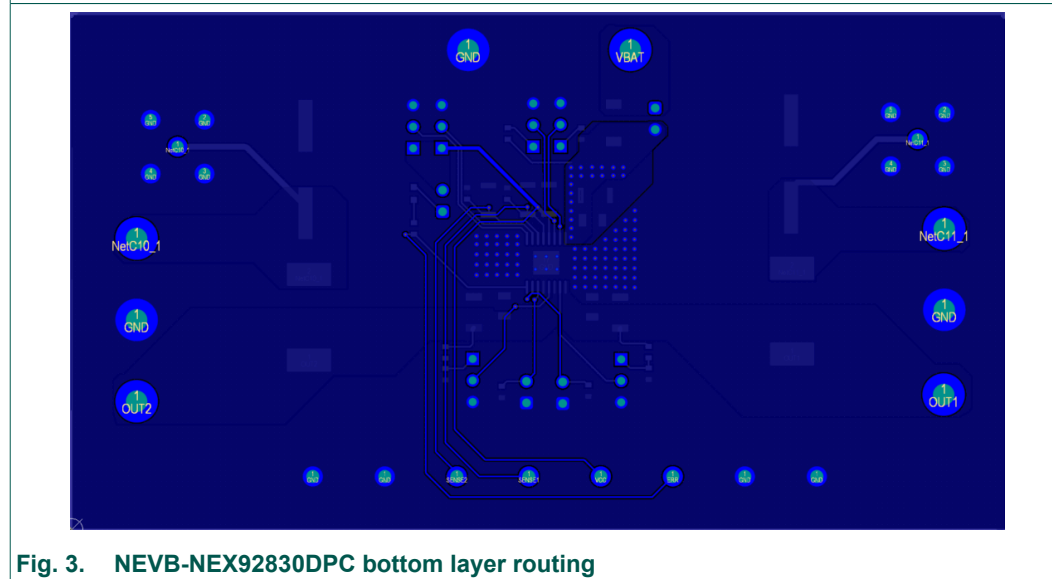


Fig. 3. NEVB-NEX92830DPC bottom layer routing

## 5. Bill of materials

[Table 2](#) details the bill of materials of NEVB-NEX92830DPC.

**Table 2. Bill of materials (BOM)**

References	Value	Description	Quantity	Part number	Manufacturer
C1, C4, C5	10 $\mu$ F	CAP, CERM, 10 $\mu$ F, 50 V, +/- 10%, X5R, 1206_190	3	885012108022	We-online
C2, C3, C6	0.1 $\mu$ F	Cap Ceramic 100nF 100V X7R 10% Pad SMD 0805 125 °C, Automotive T/R	3	CGA4J2X7R2A104K125AA	TDK
C7, C8, C9	1 $\mu$ F	Cap Ceramic 1uF 50V X7R 10% Pad SMD 1206 125 °C Automotive T/R	3	CGA5L3X7R1H105K160AB	TDK
C10, C11	470 $\mu$ F	CAP, AL, 470 $\mu$ F, 50 V, +/- 20%, ohm, SMD	0	EMVA500ATR471MKG5S	Nippon Chemi-Con
L1, L2	1 mH	Inductor, FIXED IND, 1 MHz, 900 mA, 1.2 $\Omega$ , SMD	2	7447709102	We-online
D1	60 V	PMEG6030EVP-Q - High-temperature 60 V, 3 A Schottky barrier rectifier	1	PMEG6030EVP-QX	Nexperia
DS1	Red	LED Uni-Color Red, 62.5 mW, 25 mA, -30 °C to 85 °C, 2-Pin SMD, RoHS, Tape and Reel	1	LTST-C190KRKT	Vishay-Dale
R1, R3, R4, R6	10.0 k $\Omega$	RES, 10.0 k $\Omega$ , 1%, 0.1 W, 0603	4	CRCW060310K0FKEA	Vishay-Dale
R2	62 k $\Omega$	RES, 62 k $\Omega$ , 1%, 0.1 W, 0603	1	CRCW060362K0FKEA	Vishay-Dale
R10, R11	820 $\Omega$	RES, 820 $\Omega$ , 5%, 0.1 W, 0603	2	CRCW0603820RJNEA	Vishay-Dale
R7, R8	1.5 k $\Omega$	RES, 1.5 k $\Omega$ , 5%, 0.1 W, 0603	2	CRCW06031K50JNEA	Vishay-Dale
R5	32.4 k $\Omega$	RES, 32.4 k $\Omega$ , 1%, 0.1 W, 0603	1	CRCW060332K4FKEA	Vishay-Dale
R9	4.99 k $\Omega$	RES, 4.99 k $\Omega$ , 1%, 0.1 W, 0603	1	CRCW06034K99FKEA	Vishay-Dale
J1, J6, J7, J9	TH	CONN HEADER VERT 2POS 2.54 mm	4	61300211121	We-online
J2, J3, J4, J5, J8, J10, J11, J12	TH	Terminal DBL Turret, Through Hole, RoHS	8	1502-2	Keystone Electronics
P1, P2, P3, P4, P5, P6	TH	0.025" SQ Post Header, Through-hole, Vertical, -55 °C to 125 °C, 2.54 mm Pitch, 3-Pin, Male, RoHS	6	TSW-103-07-G-S	Samtec
TP1, TP2, TP3, TP4	TH	PC test point compact red	4	5005	Keystone Electronics
TP5, TP6, TP7, TP8	TH	PC test point compact black	4	5006	Keystone Electronics
P7, P8	-	Connector, TH, BNC	0	112404	Amphenol Connex
U1	-	Automotive dual-channel antenna LDO with current sensing	1	NEX92830DPCD-Q100	Nexperia

## 6. Revision history

Table 3. Revision history

Revision number	Date	Description
UM90069 v. 1	20250801	Initial version

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