# NCV7424 Quad LIN Transceiver Evaluation Board User's Manual

#### INTRODUCTION

This document describes the evaluation board for the ON Semiconductor four channel LIN transceiver NCV7424. The board provides basic connections for a device evaluation.

#### **EVALUATION BOARD FEATURES**

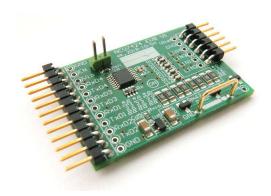
- Two one-row pin header providing access to all the device pins, enables easy insertion of the evaluation board into a more complex application setup.
- On-board 5 V LDO for RxD1-4 pull-up resistors and EN input
- Standard LIN master terminations
- Position for optional ESD protection



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## **EVAL BOARD USER'S MANUAL**



NCV7424V1GEVB Evaluation Board

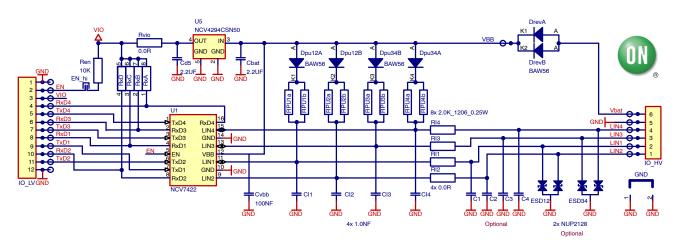


Figure 1. NCV7424 Evaluation Board Schematic

**Table 1. ABSOLUTE MAXIMUM RATINGS** 

Rating	Pins	Min	Max	Unit
Battery supply voltage	Vbat	-45	45	V
Digital inputs/outputs supply voltage	VIO (Rvio not used)	-0.3	7	V
Digital inputs/outputs voltage	TxD1-2, RxD1-2, EN	-0.3	7	V
LIN bus line voltage	LIN1-4	-45	45	V
NCV7424 junction temperature		-40	+150	°C
Board temperature		-40	+125	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

**Table 2. RECOMMENDED BOARD OPERATING CONDITIONS** 

Rating	Pins	Min	Max	Unit
Battery supply voltage	Vbat	5	18	V
Digital inputs/outputs supply voltage	VIO (Rvio not used)	2.8	5.5	V
Digital inputs/outputs voltage	TxD1-4, RxD1-4, EN	0	VIO	V
LIN bus line voltage	LIN1, LIN2	0	Vbat	V
NCV7424 junction temperature		-40	+150	°C
Board temperature		-40	+125	°C

Functional operation above the stresses listed in the Recommended Operating Ranges is not implied. Extended exposure to stresses beyond the Recommended Operating Ranges limits may affect device reliability.

#### **OPERATIONAL GUIDELINES**

NCV7424 evaluation board allows easy evaluation of NCV7424 four channel LIN transceiver. It provides connection to all the device's pins as well as positions for all the necessary master/slave LIN bus external components.

Configurations and assembly options are listed in Table 3. For more information please check NCV7424 transceiver datasheet at <a href="https://www.onsemi.com">www.onsemi.com</a>.

**Table 3. ASSEMBLY OPTIONS AND CONFIGURATIONS** 

Component	Master (Default)	Slave	Function		
Dpu12, Dpu34	BAW56	-	Master pull-up diodes		
Rpu1-4a/b	2.0k	-	Master pull-up resistors		
CI1-4	1nF	220pF	LIN bus capacitors		
C1-4	-	-	LIN bus capacitors		
RI1-4	0R		LIN bus serial impedance		
ESD1-4	optional		LIN bus ESD protections		
Rvio	0R				Connection on-board LDO to TxD1/2 and EN1/2 pull-up resistors. If removed, external supply can be used (connected to VIO).
EN_hi	Closed		EN1/2 pin connections: Open = EN weak internal pull-down = Sleep mode Closed = EN pulled up to VIO (5 V by default) = Normal mode		

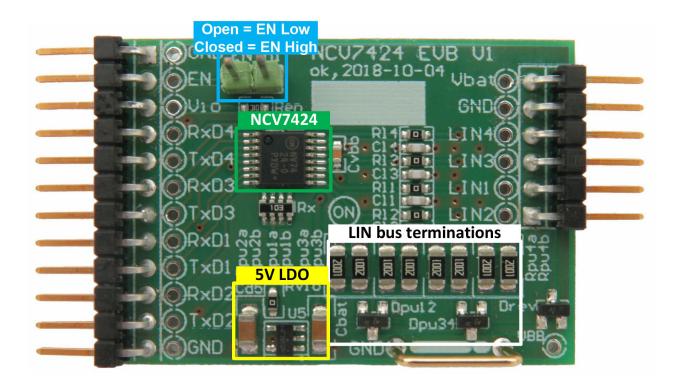


Figure 2. NCV7424 Evaluation Board Picture, Top Side

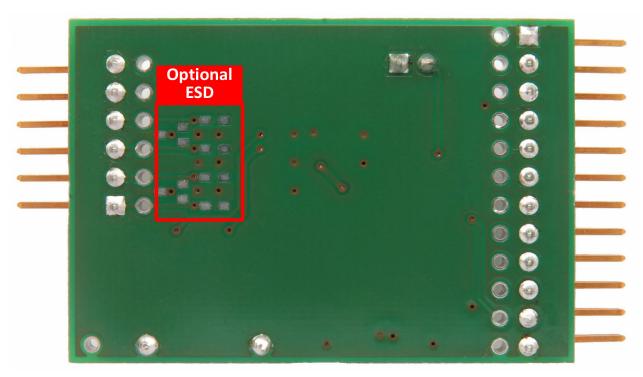
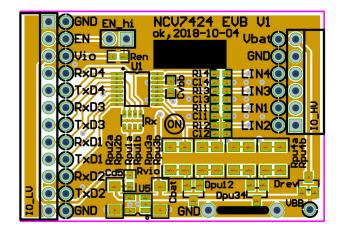


Figure 3. NCV74724 Evaluation Board Picture, Bottom Side

### **PCB DRAWINGS**

## **Composite Drawings**



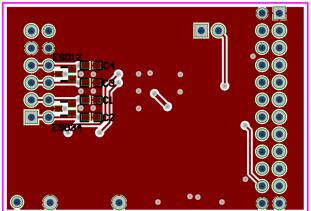


Figure 4. NCV7424 EVB PCB Top Drawing

Figure 5. NCV7424 EVB PCB Bottom Drawing (Bottom View)

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