# NCV7424V1GEVB

# NCV7424 Quad LIN Transceiver Evaluation Board User's Manual

ON Semiconductor®

www.onsemi.com

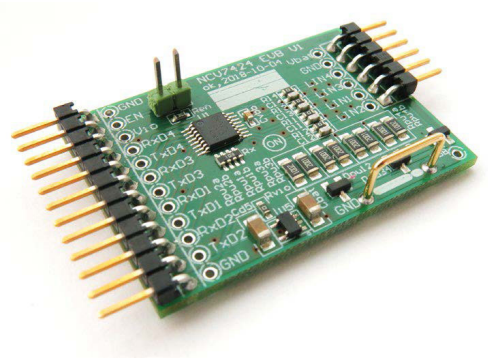
EVAL BOARD USER'S MANUAL

## 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



**NCV7424V1GEVB**
**Evaluation Board**

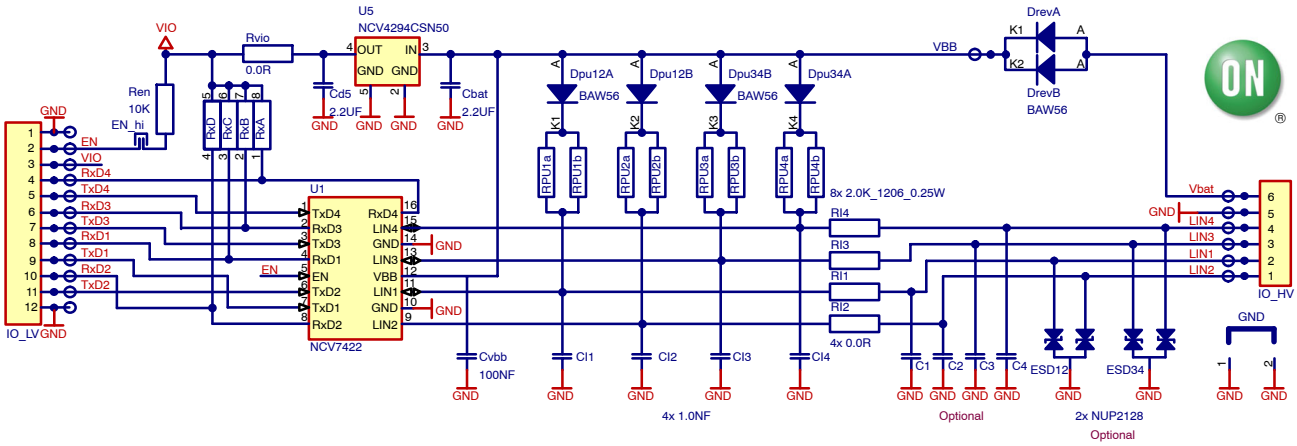



**Figure 1. NCV7424 Evaluation Board Schematic**

**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 www.onsemi.com.

**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 |
| Cl1−4 | 1nF | 220pF | LIN bus capacitors |
| C1−4 | – | – | LIN bus capacitors |
| Rl1−4 | 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.<br>If removed, external supply can be used (connected to VIO). |
| EN_hi | Closed | | EN1/2 pin connections:<br>Open = EN weak internal pull−down = Sleep mode<br>Closed = EN pulled up to VIO (5 V by default) = Normal mode |

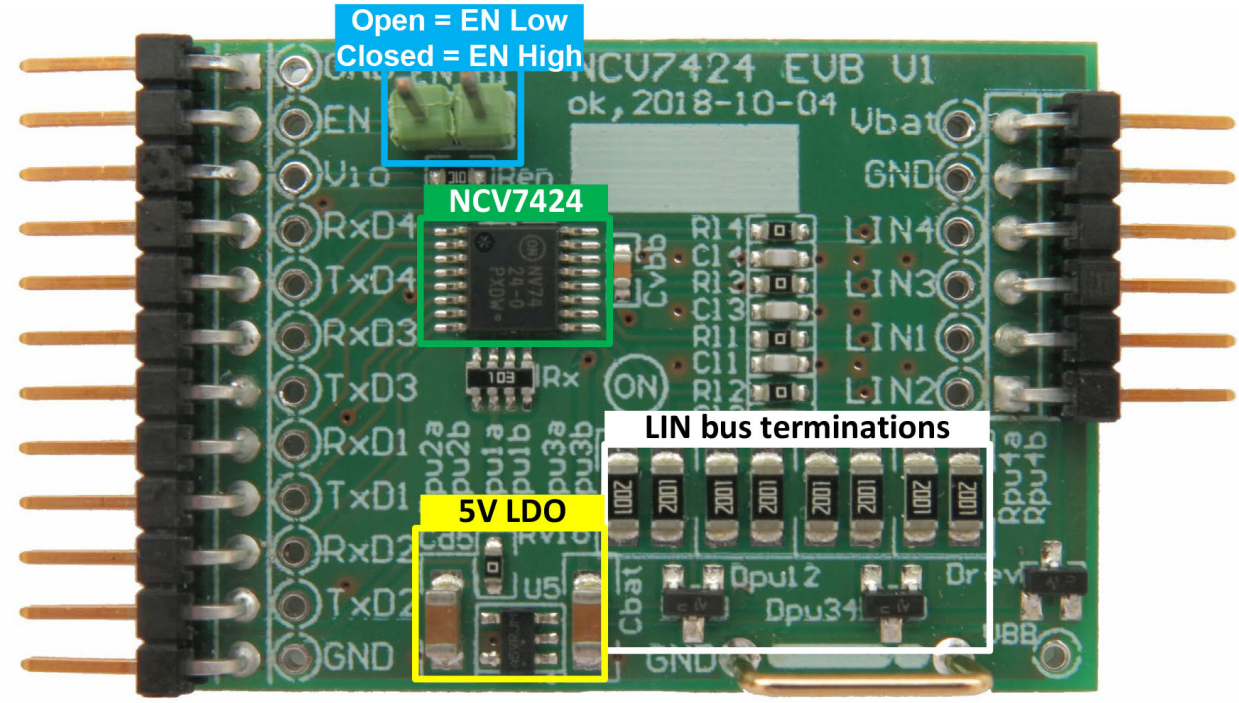



Figure 2. NCV7424 Evaluation Board Picture, Top Side

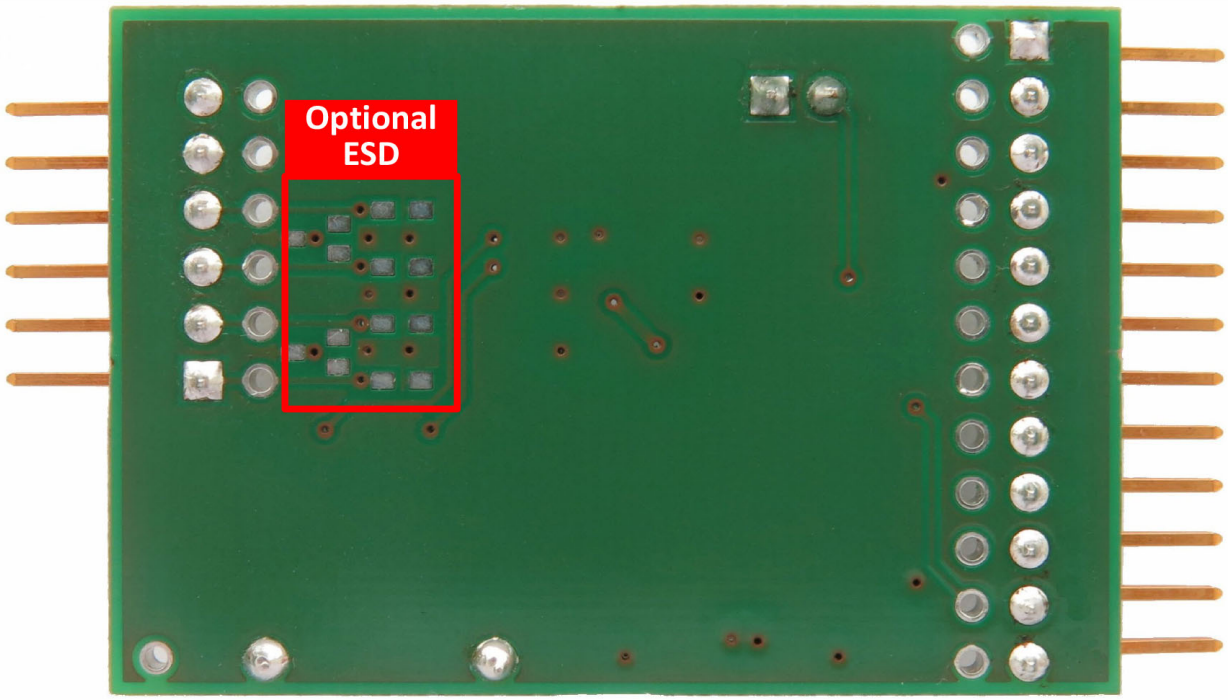



Figure 3. NCV74724 Evaluation Board Picture, Bottom Side

## PCB DRAWINGS

### Composite Drawings

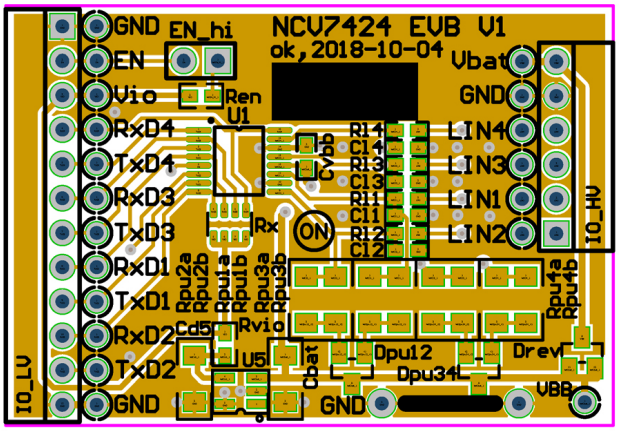



Figure 4. NCV7424 EVB PCB Top Drawing

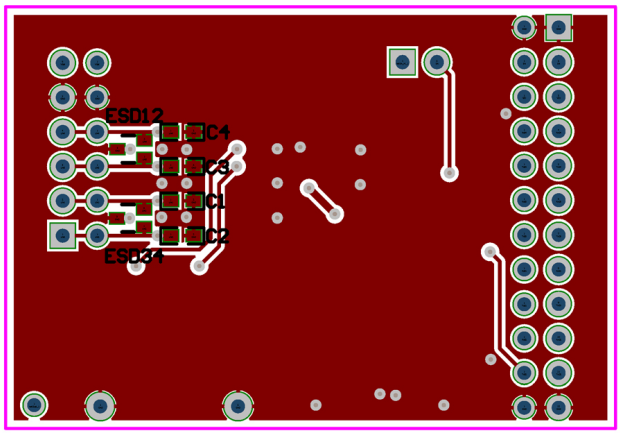



Figure 5. NCV7424 EVB PCB Bottom Drawing (Bottom View)

## ADDITIONAL INFORMATION

**TECHNICAL PUBLICATIONS**:
**Technical Library:** www.onsemi.com/design/resources/technical−documentation
**onsemi Website:** www.onsemi.com

**ONLINE SUPPORT**: www.onsemi.com/support
**For additional information, please contact your local Sales Representative at** www.onsemi.com/support/sales