



**THE DATASHEET OF  
NCV74250V1GEVB**



# Test Procedure for the NCV7425GEVB



**ON Semiconductor®**

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## Required Equipment

- Oscilloscope
- Bench Power Supply
- Voltmeter
- Signal Generator

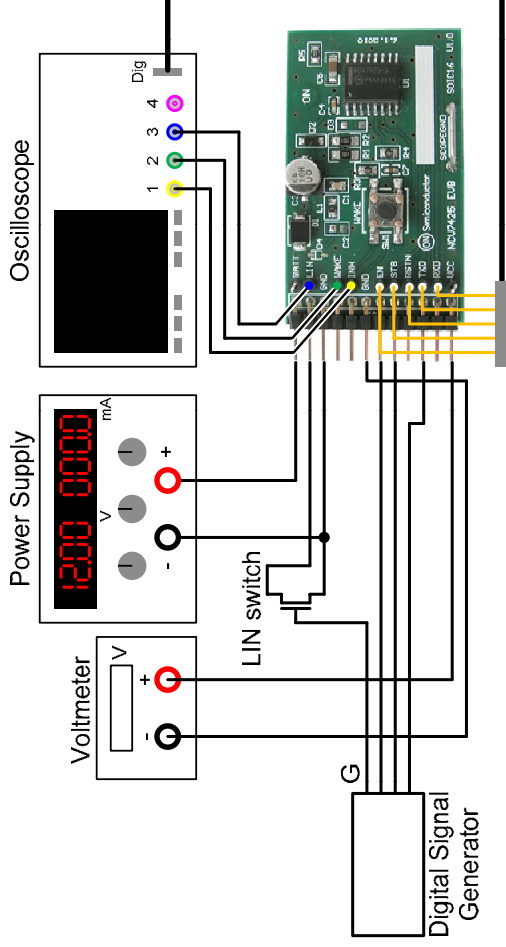


Figure 1: Test Setup Configuration

### Test procedure Step 1 (Power-up sequence, Standby mode):

1. Connect the setup as shown above.
2. Set STB, EN and TxD and G (LIN Switch Gate) to LOW.
3. Apply an input voltage,  $V_{BAT} = 12\text{ V}$
4. Set STB and TxD to HIGH
5. Check  $V_{CC}$ , LIN, INH, RxD and RSTN State
6. Check  $I_{BAT}$ . Caution should be taken with oscilloscope digital probes resistance which could have influence on overall  $I_{BAT}$  current.

**Table 1: Desired Results**

$I_{BAT} = \text{Typ. } 40\ \mu\text{A, Max. } 60\ \mu\text{A}$ (Measured with disconnected digital probes, no $V_{CC}$ Load)
$V_{CC} = \text{ON}$
LIN = RECESSIVE
INH = FLOATING
RxD = HIGH
RSTN = HIGH

### Test procedure Step 2 (Transition to Normal mode):

1. Set EN HIGH
2. Check  $V_{CC}$ , LIN, INH, RxD and RSTN State
3. Check  $I_{BAT}$ . Caution should be taken with oscilloscope digital probes resistance which could have influence on overall  $I_{BAT}$  current.

**Table 2: Desired Results**

$I_{BAT} = \text{Typ. } 0.64\ \text{mA, Max. } 1\ \text{mA}$ (Measured with disconnected digital probes, no $V_{CC}$ Load)
$V_{CC} = \text{ON}$
LIN = RECESSIVE
INH = ON
RxD = HIGH
RSTN = HIGH

### Test procedure Step 3 (Transmit in Normal mode):

1. Set TxD to LOW, wait <6ms, set TxD HIGH (Generate LIN Dominant state)
2. Observe LIN and RxD. Start observation with TxD falling edge.

**Table 3: Desired Results**

LIN = Contain one Dominant pattern
RxD = Contain one Dominant pattern

### Test procedure Step 4 (Transition to Sleep mode):

1. Set STB to LOW
2. Set EN LOW
3. Set TxD LOW (to simulate a microcontroller without power supply being connected to TxD)
4. Check  $I_{BAT}$ ,  $V_{CC}$ , INH, RxD and RSTN State

**Table 4: Desired Results**

$I_{BAT}$ = Typ. 11 $\mu$ A, Max 20 $\mu$ A
$V_{CC}$ = OFF
INH = FLOATING
RxD = LOW
RSTN = LOW

### Test procedure Step 5 (Local Wakeup):

1. In Sleep, press Local Wakeup switch
2. Set STB and TxD to HIGH
3. Check  $V_{CC}$ , INH, RxD and RSTN State
4. Check  $I_{BAT}$ . Caution should be taken with oscilloscope digital probes resistance which could have influence on overall  $I_{BAT}$  current.

**Table 5: Desired Results**

$I_{BAT}$ = Typ. 40 $\mu$ A, Max. 60 $\mu$ A (Measured with disconnected digital probes, no $V_{CC}$ Load)
$V_{CC}$ = ON
INH = FLOATING
RxD = HIGH – Signaling Wakeup source – Local Wakeup
RSTN = HIGH

### Test procedure Step 6 (Remote Wakeup):

1. In Sleep, generate Remote Wakeup pattern: Set G HIGH, wait >150 us, set G LOW
2. Set STB and TxD to HIGH
3. Check  $V_{CC}$ , INH, RxD and RSTN State
4. Check  $I_{BAT}$ . Caution should be taken with oscilloscope digital probes resistance which could have influence on overall  $I_{BAT}$  current.

**Table 6: Desired Results**

$I_{BAT}$ = Typ. 0.37 mA – 3.3V version
$I_{BAT}$ = Typ. 0.56 mA – 5V version (RxD 10 k $\Omega$ pull-up to $V_{CC}$ + 40 $\mu$ A Standby current consumption) (Measured with disconnected digital probes, no $V_{CC}$ Load)
$V_{CC}$ = ON
INH = FLOATING
RxD = LOW – Signaling Wakeup source – Remote Wakeup
RSTN = HIGH

**DC Characteristics**

	<b>MIN</b>	<b>TYP</b>	<b>MAX</b>
<b>LIN DOMINANT</b>			2 V
<b>LIN RECESSIVE</b>	$V_{BAT} - 1 V$		
<b>INH HIGH</b>	$V_{BAT} - 0.75 V$		
<b>VCC ON (3.3 V version)</b>	3.19 V	3.3 V	3.41 V
<b>VCC ON (5 V version)</b>	4.83 V	5.0 V	5.17 V
<b>RxD LOW</b>			0.65 V
<b>RxD HIGH</b>	$V_{CC} - 0.65 V$		

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