



Test Procedure for the NCP6361BGEVB Evaluation Board

Table 1. RECOMMENDED EXAMPLE OF EQUIPMENT

Description	Main Features	Example of Equipment (Note 1)	Qty.
Regulated Power Supply	1.5 A DC Current capability	Tektronix PS2520G GW INSTEK PPT3615	1
Multimeter		Keitley 2000 or 2001	2
Sourcemeter	3 A DC Current capability	Keitley 2420	2
Oscilloscope	500 MHz Bandwidth, four channel scope, min 1 Mbit memory per channel (Note 2)	Tecktronix TDS744, 754 or 784 / TDS5054 series or Lecroy WR5060 TDS5104B, 1 GHz, 5 GS/s	1
Voltage probe	3 probes 500 MHz Bandwidth	Tektronix P6139A / P5050	3
Current probe	1 probe	Tektronix TCP 202	
Waveform generator	Arbitrary/Fonction generator	Tektronix AFG 3102 Dual channel, 100 MHz	1
SMB Cable		VCON	1

1. Equipment used in the context of this Evaluation Board User's Manual

2. Greater Scope memory per channel offers better resolution

Initial Setup:

The initial setup given here is recommended before starting measurements on the evaluation board.

- Jumper Configuration: initial / default setup
 - LTR1 not connected
 - LTR2 connected – Can be used for visualizing the current in the inductor (ILX) using an oscilloscope current probe
 - LTR3 connected – Connect FB pin to Vout
 - S1: Enable pin; default with jumper connected to VBAT (Logic Level High), device is activated by default
 - S2: ByPass Enable option, default with jumper connected to GND (Logic Level Low), By Pass not activated
 - S3: Frequency Selection pin, default with jumper connected to GND (Logic level Low), FSEL = 0 → Frequency = 6 MHz selected

Table 2. SWITCHING FREQUENCY SELECTION

FSEL	Buck Converter Switching Frequency (F_{SW})	Inductor (LX)
0	6 MHz (24 MHz / 4)	0.47 μ H
1	3.429 MHz (24 MHz / 7)	1 μ H

- Connect Vin (VBAT) with VBAT tuned at 3.7 V for example
- Connect VCON with VCON tuned at 0.8 V for example: $V_{out} = 0.8V \times 2.5 = 2V$
- Connect load (8 Ω or 10 Ω respectively 250 mA or 200 mA considering $V_{out} = 2V$) or connect a current source tuned with 100 mA (as initial load value)
- Connect voltage probe or multi-meter on Vout test point

- Other test points can be eventually checked: VCON (TP9), FB, VBAT, EN, FSEL and BPEN
- SW test point is available as well
- Apply VBAT = 3.7 V first then VCON = 0.8 V and finally IOUT (100 mA) if current source connected
- Check Vout = 2 V
- VBAT can vary from 2.5 V to 5.5 V according to datasheet
- VCON can vary from 0.16 V to 1.4 V with a corresponding respective Vout of 0.4 V typical and 3.5 V typical
- Output current can vary from 0 to 800 mA in PWM mode and up to 1.2 A in By Pass mode

Operating Modes:

- 4 operating modes are available: they can be checked by sweeping VCON according to datasheet specification and below rough guide lines:
- Sleep Mode with VCON below about 0.125 V
- PFM Mode with VCON above 0.125 V
- PWM Mode when Iout above about 200 mA
- By Pass Mode when Vout close to Vin such as $V_{in} - V_{out}$ below about 200 mV or by forcing bypass mode with pin BPEN