



Title of Change:	Datasheet update for the NB3H5150/NB3H5150-01 Series. CLK4 100MHz, 125MHz and 156.25MHz frequency selections have potential issue of starting up at incorrect frequency.
Effective date:	12 December 2018
Contact information:	Contact your local ON Semiconductor Sales Office or <e.rupnow@onsemi.com>
Type of notification:	This Product Bulletin is for notification purposes only. ON Semiconductor will proceed with implementation of this change upon publication of this Product Bulletin.
Change Category:	<input type="checkbox"/> Wafer Fab <input type="checkbox"/> Assembly Change <input type="checkbox"/> Test Change <input checked="" type="checkbox"/> Other <u>Datasheet</u>

Change Sub-Category(s):

- ☐ Manufacturing Site Addition
 ☐ Material Change
 ☒ Datasheet/Product Doc change
☐ Manufacturing Site Transfer
 ☐ Product specific change
 ☐ Shipping/Packaging/Marking
☐ Manufacturing Process Change
 ☐ Other: _____

Sites Affected:ON Semiconductor Sites:
NoneExternal Foundry/Subcon Sites:
None**Description and Purpose:**

The purpose of this notification is to inform customers about a product / data sheet update. A design issue was discovered on these products, where at power up the CLK4 frequencies of 100MHz, 125MHz and 156.26MHz could potentially have an incorrect frequency.

- CLK4 100 MHz frequency has the potential to start up at 250MHz.
- CLK4 125 MHz frequency has the potential to start up at 312.5MHz.
- CLK4 156.25 MHz frequency has the potential to start up at 312.5MHz.

The CLK1, 2 or 3 frequencies are not impacted by this issue nor are other frequencies that can be generated on CLK4.

Power cycling the part will correct the CLK4 output if an incorrect frequency is observed at power up, multiple power cycles could be required. Once the part is powered up with correct frequency, the frequency will remain stable and will not change.

This issue can only occur at power up of the part and does not affect the reliability of the product.

Current NB3H5150-01 Datasheet

**Table 4. NB3H5150-01MNTXG – CLK4A & CLK4B OUTPUT FREQUENCY
SELECT TRUTH TABLE (MHz) WITH 25 MHz CRYSTAL***

FS4A	FS4B	CLK4 (MHz)	Divider Type
Low	Low	33.33 (LVCMOS)	Integer
Low	Mid / Float	66.66 (LVCMOS)	Fractional
Low	High	133.33 (LVCMOS)	Fractional
Mid / Float	Low	133.33 (LVPECL)	Fractional
Mid / Float*	Mid / Float*	156.25 (LVPECL)	Integer
Mid / Float	High	125.00 (LVPECL)	Integer
High	Low	25.00 (LVPECL)	Integer
High	Mid / Float	100.00 (LVPECL)	Integer
High	High	161.1328 (LVPECL)	Fractional

*(Default)

New NB3H5150-01 Datasheet

**Table 4. NB3H5150-01MNTXG – CLK4A & CLK4B OUTPUT FREQUENCY
SELECT TRUTH TABLE (MHz) WITH 25 MHz CRYSTAL***

FS4A	FS4B	CLK4 (MHz)	Divider Type
Low	Low	33.33 (LVCMOS)	Integer
Low	Mid / Float	66.66 (LVCMOS)	Fractional
Low	High	133.33 (LVCMOS)	Fractional
Mid / Float	Low	133.33 (LVPECL)	Fractional
Mid / Float*	Mid / Float*	156.25 (LVPECL)	Integer **
Mid / Float	High	125.00 (LVPECL)	Integer **
High	Low	25.00 (LVPECL)	Integer
High	Mid / Float	100.00 (LVPECL)	Integer **
High	High	161.1328 (LVPECL)	Fractional

*(Default)

**** These frequencies selections are not recommended for use. They have potential to start up at incorrect frequency (2 or 2.5x desired frequency). Multiple power cycles maybe required to achieve the correct frequency.**

**Current NB3H5150 Datasheet****Table 4. NB3H5150 – CLK4A & CLK4B OUTPUT FREQUENCY SELECT TRUTH TABLE (MHz) WITH 25 MHz CRYSTAL***

FS4A	FS4B	CLK4 (MHz)	Divider Type
Low	Low	33.33 (LVCMOS)	Integer
Low	Mid / Float	66.66 (LVCMOS)	Fractional
Low	High	133.33 (LVCMOS)	Fractional
Mid / Float	Low	155.52 (LVPECL)	Fractional
Mid / Float*	Mid / Float*	156.25 (LVPECL)	Integer
Mid / Float	High	125.00 (LVPECL)	Integer
High	Low	106.25 (LVPECL)	Fractional
High	Mid / Float	100.00 (LVCMOS)	Integer
High	High	161.1328 (LVPECL)	Fractional

*(Default)

New NB3H5150 Datasheet**Table 4. NB3H5150 – CLK4A & CLK4B OUTPUT FREQUENCY SELECT TRUTH TABLE (MHz) WITH 25 MHz CRYSTAL***

FS4A	FS4B	CLK4 (MHz)	Divider Type
Low	Low	33.33 (LVCMOS)	Integer
Low	Mid / Float	66.66 (LVCMOS)	Fractional
Low	High	133.33 (LVCMOS)	Fractional
Mid / Float	Low	155.52 (LVPECL)	Fractional
Mid / Float*	Mid / Float*	156.25 (LVPECL)	Integer **
Mid / Float	High	125.00 (LVPECL)	Integer **
High	Low	106.25 (LVPECL)	Fractional
High	Mid / Float	100.00 (LVCMOS)	Integer **
High	High	161.1328 (LVPECL)	Fractional

*(Default)

**** These frequencies selections are not recommended for use. They have potential to start up at incorrect frequency (2 or 2.5x desired frequency). Multiple power cycles maybe required to achieve the correct frequency.**

List of Affected Parts:

NB3H5150-01MNTXG

NB3H5150MNTXG