
FROM NT1065 TO NT1068.2. REPLACEMENT GUIDELINES

1. NT1068.2 FEATURES

The key features of NT1068.2 over NT1065 are:

- S band support
- Special configuration to acquire signals of S+L2 bands and L1+L3/L5 bands with single chip
- Special configuration to acquire all signals of Galileo (E1, E5a, E5b and E6) or other signal combinations in L2/L3/L5 band and L1+L3+L5 bands with single chip
- Internal 1-to-n RF splitter (n=2,3,4) with configurable channel combination that can be used along with separate RF inputs for other channels
- LVDS output data and CLK output type selection
- CLK output disable when not used
- Extended TCXO frequency range: 5 - 60 MHz
- TCXO frequency detector
- TCXO pass-through mode (direct or divided)
- Extended supply voltage range: from $1.8V \pm 5\%$ to $3.3V \pm 10\%$
- Smart input supply voltage detection system
- Power economy mode
- Special mode to apply 1.8V supply voltage directly to each block
- Chip software reset to default settings

2. REPLACEMENT OF NT1065 WITH NT1068.2

Changes to be implemented in hardware

NT1065 and NT1068.2 are pin-to-pin compatible, i.e. NT1065 can be easily replaced with NT1068.2:

- NT1065 supply voltage is $3.0V \pm 5\%$, while for NT1068.2 it was extended - NT1068.2 covers range from $1.8V \pm 5\%$ to $3.3V \pm 10\%$. **No changes** in power supply scheme are needed.
- **Change** elements in matching network circuits at channel inputs according to section 4.2 of the datasheet.
- If RF splitter input is to be used, refer to application schematic on Figure 4.3 of the datasheet. If not, then just **connect pin #9 to ground** as it was in NT1065.

Differences in programmable registers and changes to be implemented in registers configuration

When using NT1068.2, **do not execute** LPF auto-calibration procedure (Reg4, D0 in NT1065). LPF auto-calibration system status (Reg4, D1 in NT1065) is not relevant in NT1068.2. Exclude it from AOK. Write the following values:

- Reg4 00
- Reg6 0D
- Reg106 00

Also pay attention to the following registers:

- Read back of chip number and version from Reg0, Reg1: 1068.2

- Absolute values of IF pass band settings in NT1068.2 are different from NT1065. Refer to Reg14 for Channel#1 / Reg21 for Channel#2 / Reg28 for Channel#3 / Reg35 for Channel#4 description in the datasheet. Channel #2 passband (Reg14) should be set \geq Channel #1 passband (Reg21).
- Absolute values of RF power gain settings in NT1068.2 are different from NT1065. Refer to Reg17 for Channel#1 / Reg24 for Channel#2 / Reg31 for Channel#3 / Reg38 for Channel#4 description in the datasheet. Status of RF power gain value in auto gain control mode is still available in Reg9 D3-D0.
- Control of RF AGC upper and lower thresholds in NT1068.2 is extended over NT1065. If not default codes are used, then refer to Reg16 for Channel#1 / Reg23 for Channel#2 / Reg30 for Channel#3 / Reg37 for Channel#4 description in the datasheet.
- Absolute values of IFA coarse and fine gain settings in NT1068.2 are different from NT1065. Refer to Reg17 for Channel#1 / Reg24 for Channel#2 / Reg31 for Channel#3 / Reg38 for Channel#4 and Reg18 for Channel#1 / Reg25 for Channel#2 / Reg32 for Channel#3 / Reg39 for Channel#4 description in the datasheet.
- In NT1068.2 status of IFA coarse and fine gain values in auto gain control mode are available as separate statuses: Reg 9, D7-D6; Reg10, D4-D0 vs common status in NT1065 in Reg10, D4-D0.
- Absolute values of IFA output DC level settings in NT1068.2 are different from NT1065. Refer to Reg15 for Channel#1 / Reg22 for Channel#2 / Reg29 for Channel#3 / Reg36 for Channel#4 description in the datasheet.
- Result of temperature measurement is calculated according to another formula. See in Reg7 description in the datasheet.
- Minimum value of PLL# N divider ratio is 48 in NT1068.2 vs 8 in NT1065, however it doesn't limit functionality. Refer to Reg42 for PLL “A” / Reg46 for PLL “B”.
- Refer to the document "NT1068.2_Recommendations_v1.x.pdf" to write per-band recommended settings.