BC660K-GL&BC66&BC66-NA

Compatible Design

NB-IoT Module Series

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About the Document

Revision History

Version	Date	Author	Description
-	2020-11-26	Clifton HE	Creation of the document
1.0	2021-02-18	Clifton HE	First official release
1.1	2022-06-08	Glenn GE/ Fly ZHU/ Randy LI	1. Added the information of BC66-NA. 2. Deleted chapters of network status indication, USIM interface, RF antenna interface and recommended stencil design. 3. Deleted B14 of BC660K-GL in Table 3. 4. Updated peak current in Table 4. 5. Added a 10 kΩ resistor for pin USB_MODE in reference design of USB interface in Chapter 4.4. 6. Added software compatible design in Chapter 5.

Contents

Table Index

Figure Index

1 Introduction

Quectel NB-IoT module BC66 and BC66-NA are compatible with Quectel NB-IoT module BC660K-GL. This document outlines the compatible design for the three modules.

1.1. Special Mark

Table 1: Special Mark

Mark	Definition
*	Unless otherwise specified, when an asterisk (*) is used after a function, feature, interface, pin name, AT command, or argument, it indicates that the function, feature, interface, pin, AT command, or argument is under development and currently not supported; and the asterisk (*) after a model indicates that the sample of the model is currently unavailable.

2 General Description

2.1. Product Description

BC66/BC66-NA and BC660K-GL are high-performance, low power consumption and multi-band NB-IoT modules designed as compatible products to meet different requirements. This compatible design manual helps to ensure the smooth migrations among these three modules in your products.

2.1.1. General Information

Table 2: General Information

Module	Appearance	Packaging	Dimension (mm)	Description
BC66		44 LCC pins 14 LGA pins	17.7 × 15.8 × 2.0	Multi-band NB-IoT module
BC66-NA		44 LCC pins 14 LGA pins	17.7 × 15.8 × 2.0	Multi-band NB-IoT module
BC660K-GL		44 LCC pins 14 LGA pins	17.7 × 15.8 × 2.0	Multi-band NB-IoT module

2.1.2. Frequency Bands

Table 3: Frequency Bands

Module	BC66/BC66-NA	BC660K-GL
Frequency Bands	BC66(Cat NB1): LTE HD-FDD: B1/B2/B3/B4/B5/B8/B12/B13/B17/B18/ B19/B20/B25/B26*/B28/B66 BC66-NA (Cat NB2): LTE HD-FDD: B1/B2/B3/B4/B5/B8/B12/B13/B17/B18/ B19/B20/B25/B26*/B28/B66/B71/B85	Cat NB2: H-FDD: B1/B2/B3/B4/B5/B8/B12/B13/B17/B18/ B19/B20/B25/B28/B66/B70/B85

2.2. Feature Overview

The following table compares the general properties and features of BC66/BC66-NA and BC660K-GL modules.

Table 4: Features Overview

Feature	BC66/BC66-NA	BC660K-GL
Power Supply	2.1–3.63 V Typ. 3.3 V	2.2–4.3 V Typ. 3.3 V
Peak Current	VBAT: Max. 0.8 A	VBAT: Max. 0.8 A
Sleep Current	3.5 μA @ Deep Sleep (Typ.)	800 nA @ Deep Sleep (Typ.)
Temperature Range	● Operating temperature range: -35 to +75 °C [1] ● Extended temperature range: -40 to +85 °C [2] ● Storage temperature range: -40 to +90 °C	● Operating temperature range: -35 to +75 °C [1] ● Extended temperature range: -40 to +85 °C [2] ● Storage temperature range: ● -40 to +90 °C

[1] Within the operating temperature range, the module meets 3GPP specifications.
[2] Within the extended temperature range, the module remains able to maintain functions such as SMS*, data transmission, etc., without any unrecoverable malfunction. Radio spectrum and radio network are not influenced, while one or more specifications, such as P_{out}, may exceed the specified tolerances of 3GPP. When the temperature returns to the operating temperature range, the module meets 3GPP specifications again.

UART Interface	**Main UART Interface:** ● When used for AT command communication and data transmission, the module defaults to auto-baud mode, where the main UART interface automatically synchronizes within 115200 bps its baud rate with that of the MCU who keeps sending AT commands to the module until **OK** is returned to indicate the synchronization succeeds. When the module wakes up from Deep Sleep mode, its UART interface automatically uses the previously synchronized baud rate. ● When used for firmware upgrade, the baud rate of the UART interface defaults to 921600 bps. **Debug UART interface:** It's used for software debugging and its default baud rate is 115200 bps. **Auxiliary UART interface:** It's used for software debugging and its default baud rate is 115200 bps **Signal level:** 1.8 V	**Main UART interface:** ● When used for AT command communication and data transmission, it supports baud rates 2400 bps, 4800 bps, 9600 bps, 19200 bps, 38400 bps, 57600 bps, 115200 bps (default), 230400 bps, and 460800 bps. ● When used for firmware upgrade, it supports baud rate 921600 by default. **Debug UART interface:** It's used for software debugging and its default baud rate is 6 Mbps. **Signal level:** 1.8/3.3 V
USIM	1.8 V USIM card	1.8/3.0 V USIM card
ADC	ADC0	ADC0
Firmware Upgrade	Main UART interface, DFOTA or USB interface	Main UART interface or DFOTA

3 Pin Definition

This chapter describes and compares the pins of BC66/BC66-NA and BC660K-GL.

3.1. Pin Assignment

The following figure shows the pin assignment of BC66/BC66-NA and BC660K-GL.

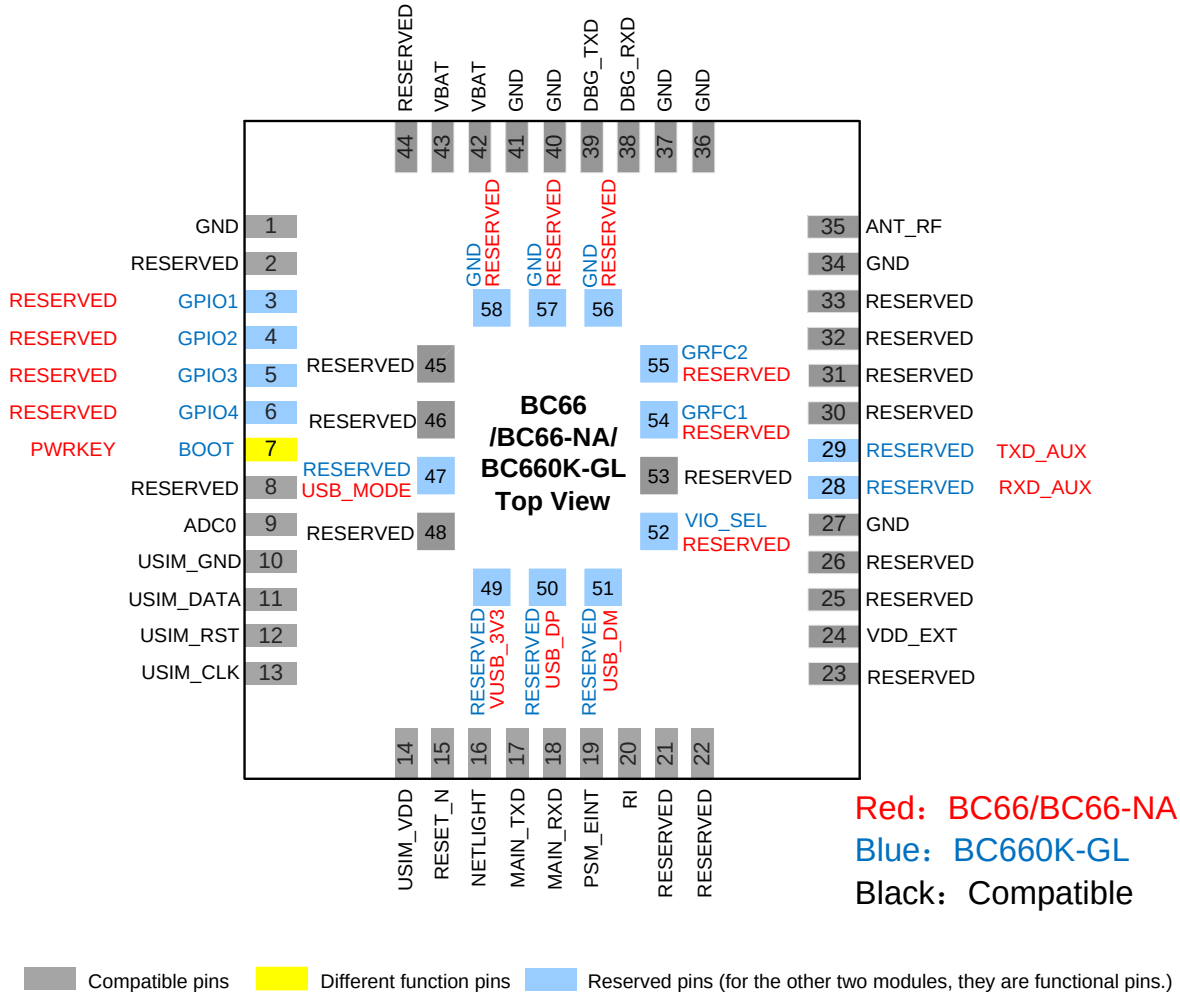

Figure 1: BC66/BC66-NA/BC660K-GL Pin Assignment (Top View)

NOTE

1. The pin names marked in **red** are defined for the BC66 and BC66-NA modules.
2. The pin names marked in **blue** are defined for the BC660K-GL module.
3. The pin names marked in **black** are function compatible pins for BC66/BC66-NA and BC660K-GL modules.
4. Keep all reserved and unused pins disconnected.

3.2. Pin Description

Table 5: Description of I/O Type

Type	Description
AI	Analog Input
DI	Digital Input
DIO	Digital Input/Output
DO	Digital Output
PI	Power Input
PO	Power Output

The pin functions, I/O and DC characteristics of BC66/BC66-NA and BC660K-GL modules are compared in the following table.

Table 6: Pin Comparison

Pin No.	BC66/BC66-NA			BC660K-GL		
	Pin Name	I/O	Description	Pin Name	I/O	Description
3	RESERVED			GPIO1	DIO	General-purpose input/output
4	RESERVED			GPIO2	DIO	General-purpose input/output
5	RESERVED			GPIO3	DIO	General-purpose input/output

6	RESERVED			GPIO4	DIO	General-purpose input/output
7	PWRKEY	DI	Turn on the module	BOOT	DI	Make the module enter download mode
9	ADC0	AI	General-purpose ADC interface	ADC0	AI	General-purpose ADC interface
10	SIM_GND		Dedicated ground for USIM card	USIM_GND		Dedicated ground for USIM card
11	SIM_DATA	DIO	USIM card data	USIM_DATA	DIO	USIM card data
12	SIM_RST	DO	USIM card reset	USIM_RST	DO	USIM card reset
13	SIM_CLK	DO	USIM card clock	USIM_CLK	DO	USIM card clock
14	SIM_VDD	PO	USIM card power supply	USIM_VDD	PO	USIM card power supply
15	RESET	DI	Reset the module	RESET_N	DI	Reset the module
16	NETLIGHT	DO	Indicate the module's network activity status	NETLIGHT*	DO	Indicate the module's network activity status
17	TXD	DO	Main UART transmit	MAIN_TXD	DO	Main UART transmit
18	RXD	DI	Main UART receive	MAIN_RXD	DI	Main UART receive
19	PSM_EINT	DI	External interrupt pin. Dedicated to waking up the module from Deep Sleep mode.	PSM_EINT	DI	External interrupt pin dedicated to waking up the module from Deep/Light Sleep mode.
20	RI	DO	Ring indication	RI	DO	Ring indication
24	VDD_EXT	PO	Provide 1.8 V voltage for external circuits. No voltage output in Deep Sleep mode.	VDD_EXT	PO	Provide 1.8/3.3 V voltage for external circuits. No voltage output in Deep/Light Sleep mode.
28	RXD_AUX	DI	Auxiliary UART receive	RESERVED		
29	TXD_AUX	DO	Auxiliary UART transmit	RESERVED		
35	RF_ANT	DIO	Antenna interface	ANT_RF [3]	DIO	Antenna interface

[3] BC660K-GL's antenna interface ANT_RF is compatible with BC66 and BC66-NA's antenna interface RF_ANT. The impedance of the antenna interfaces is 50 Ω.

38	RXD_DBG	DI	Debug UART receive	DBG_RXD	DI	Debug UART receive
39	TXD_DBG	DO	Debug UART transmit	DBG_TXD	DO	Debug UART transmit
42	VBAT_BB	PI	Power supply for the module's baseband part	VBAT	PI	Power supply for the module
43	VBAT_RF	PI	Power supply for the module's RF part	VBAT	PI	Power supply for the module
47	USB_MODE	DI	Pull down the pin to enable USB download function	RESERVED		
49	VUSB_3V3	PI	USB power supply	RESERVED		
50	USB_DP	DIO	USB differential data (+)	RESERVED		
51	USB_DM	DIO	USB differential data (-)	RESERVED		
52	RESERVED			VIO_SEL	DI	IO Voltage selection [4]
54	RESERVED			GRFC1*	DO	Generic RF controller
55	RESERVED			GRFC2*	DO	Generic RF controller
56	RESERVED			GND		Ground
57	RESERVED			GND		Ground
58	RESERVED			GND		Ground
1, 27, 34, 36, 37, 40, 41	GND		Ground	GND		Ground
2, 8, 21–23, 25–26, 30–33, 44–46, 48, 53	RESERVED			RESERVED		

[4] When VIO_SEL is grounded and VBAT < 3.3 V, VDD_EXT = VBAT; When VIO_SEL is grounded and VBAT ≥ 3.3 V, VDD_EXT = 3.3 V; When VIO_SEL is floating, VDD_EXT = 1.8 V.

NOTE

1. The pins in **blue** are compatible pins of different functions.
2. The pins in **black** are compatible pins of the same functions.
3. Keep all reserved and unused pins disconnected.

4 Hardware Interface Design

The following chapters describe the compatible design of BC66/BC66-NA and BC660K-GL in terms of their main application functions and interfaces.

4.1. Power Supply

4.1.1. Operating Voltage

The power supply ranges of BC66/BC66-NA and BC660K-GL are listed below:

Table 7: Module Operating Voltage Range

Module	Power Supply Pins	Min.	Typ.	Max.	Unit	Conditions
BC66/ BC66-NA	VBAT_BB and VBAT_RF	2.1	3.3	3.63	V	The actual input voltages must stay between the minimum and maximum values.
BC660K-GL	VBAT	2.2	3.3	4.3	V	

When considering the compatible design of the modules, make sure the input voltage is 2.2–3.63 V. Ensure the module's input voltage never drops below 2.2 V during operation.

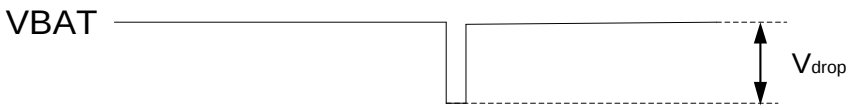

Figure 2: VBAT Voltage Waveform Diagram

4.1.2. Power Supply Reference Design

Power design for a module is critical to its performance. It is recommended to use a low quiescent current LDO with an output capacity of 0.8 A to regulate the power supply for BC66, BC66-NA and BC660K-GL.

To ensure better power supply performance and compatibility, the recommended input voltage is 3.3 V.

Also, it is recommended to add 100 μF, 100 nF, 100 pF and 22 pF capacitors near the VBAT pins of BC66, BC66-NA or BC660K-GL. Additionally, it is recommended to add a TVS on the VBAT traces (near the VBAT pins) to improve surge voltage withstand capability.

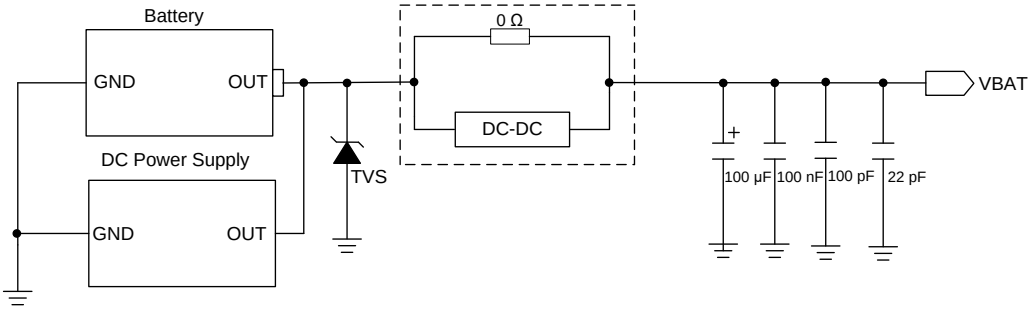

Figure 3: Compatible Reference Design for Power Supply

Due to different types of power supply (battery or DC power supply), the reference design for power switching circuit in the above dashed box may vary. The details are illustrated in the table below.

Table 8: Power Switching Circuit Design Based on Power Supply Type

Power Supply Type	Component Used for the Power Switching Circuit	
	BC66/BC66-NA (VBAT = 2.1–3.63 V)	BC660K-GL (VBAT = 2.2–4.3 V)
Li-SOCl2 Battery	0 Ω Resistor	0 Ω Resistor
Li-MnO2 Battery	0 Ω Resistor	0 Ω Resistor
DC Power Supply	DC-DC Converter	DC-DC Converter

NOTE

1. If the Li-SOCl2 battery voltage is higher than 3.63V, then it cannot be directly connected to BC66/BC66-NA in case it should damage the module.
2. The original BC66/BC66-NA circuit design can be directly migrated to the BC660K-GL.

4.2. Turn-on/Turn-off

The methods of turning on and turning off BC66 are appropriate for BC66-NA, but are different from BC660K-GL's.

4.2.1. Turn-on

The methods of turning on BC66/BC66-NA and BC660K-GL are different:

Table 9: Turn-on Methods

Module	Turn-on Methods	Comment
BC66/BC66-NA	Driving low its PWRKEY pin for at least 500 ms.	It is recommended to use an open drain/collector driver or a button to control the PWRKEY.
BC660K-GL	Keep RESET_N and BOOT high (default)	● Power up VBAT pins of the module before the turn-on operation. ● The module will turn on automatically after the turn-on operation.

For BC660K-GL, drive and keep the BOOT pin low during module resetting or powering up, and the module will enter download mode in which firmware can be downloaded through the main UART interface. After the download is completed, the module needs to be reset to exit from this mode.

An open drain/collector driver or a button can be used to control the BOOT pin for BC660K-GL and the PWRKEY pin for BC66 and BC66-NA.

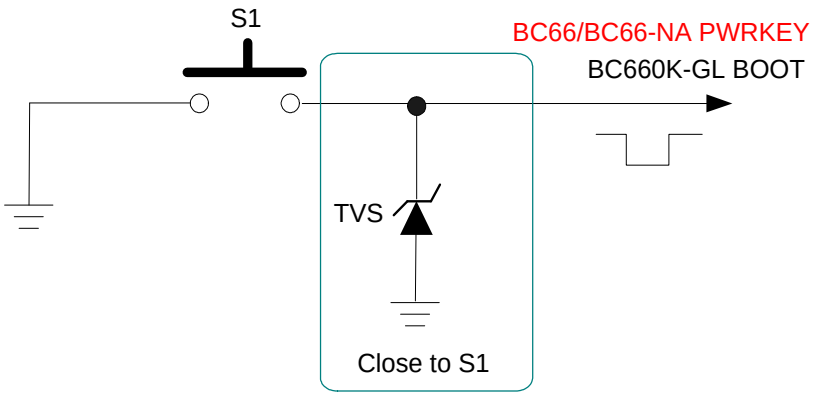

Figure 4: Compatible Reference Design for BOOT/PWRKEY Controlled with a Button

The turn-on timing of BC66/BC66-NA/BC660K-GL is illustrated below.

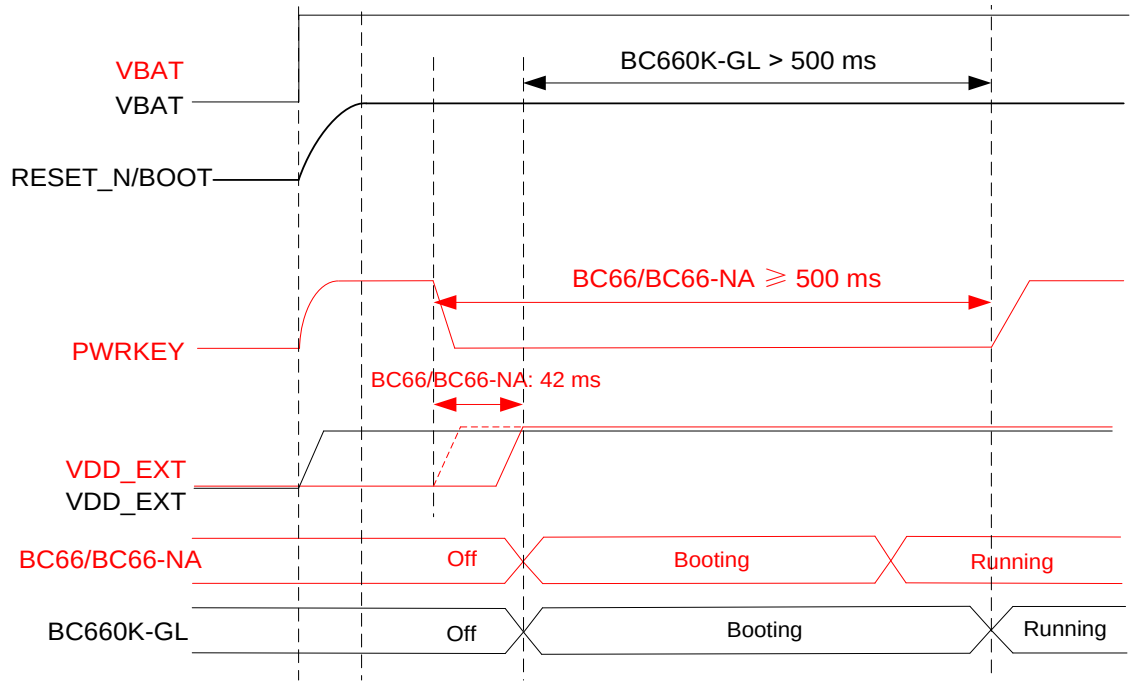

Figure 5: BC66/BC66-NA/BC660K-GL Turn-on Timing

NOTE

1. For BC66/BC66-NA, please ensure that VBAT_ BB and VBAT_RF are stable before driving low PWRKEY to turn on the module and that PWRKEY is not kept low all the time, otherwise the modules cannot enter Deep Sleep mode.
2. For BC660K-GL, after the module is turned off, it can be turned on again only after its VBAT voltage drops below 0.7 V. The actual discharging time of VBAT is up to the circuit tests and enough time margin should be left to avoid abnormal module turn-on. After VBAT is powered up, RESET_N and BOOT automatically rise to high level due to internal pull-ups.
3. The **red** part in the above figure is for BC66 and BC66-NA.
4. The **black** part in the above figure is for BC660K-GL.
5. The original BC66/BC66-NA circuit design can be directly migrated to the BC660K-GL.

4.2.2. Turn-off

The methods of turning off BC66/BC66-NA and BC660K-GL are also different:

Table 10: Turn-off Methods

Module	Turn-off Methods
BC66/BC66-NA	Execute **AT+QPOWD=0**

	Cut off the VBAT power supply
BC660K-GL	Cut off the VBAT power supply

The turn-off timings via AT command and pin VBAT are respectively illustrated in the figures below.

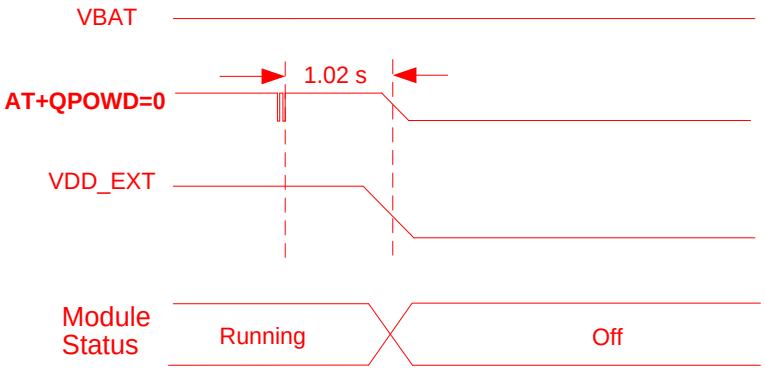

Figure 6: Turning Off BC66/BC66-NA via AT Command

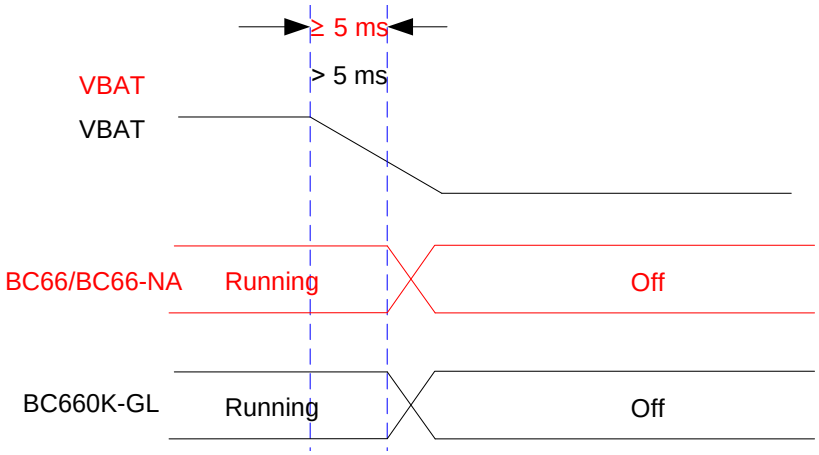

Figure 7: Turning Off BC66/BC66-NA/BC660K-GL via pin VBAT

NOTE

1. The **red** part in the above figure is for BC66 and BC66-NA.
2. The **black** part in the above figure is for BC660K-GL.
3. The original BC66/BC66-NA circuit design can be directly migrated to the BC660K-GL.

4.3. Reset

BC66/BC66-NA and BC660K-GL can be reset through hardware and software as illustrated in the following two subchapters.

4.3.1. Hardware Reset

Driving the RESET/RESET_N low for at least 50 ms to reset BC66/BC66-NA/BC660K-GL. The reference design for resetting the module is shown below. An open drain/collector driving circuit or button can be used to control the RESET/RESET_N pin.

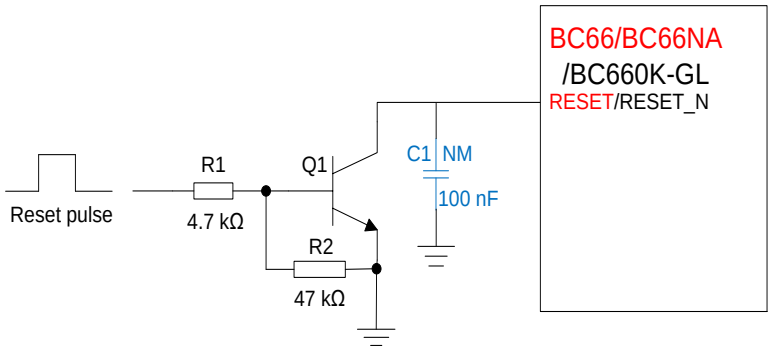

Figure 8: Compatible Reference Design for Reset Controlled with an OC/OD Driver

NOTE

1. It is recommended to reserve a 100 nF capacitor (C1 marked in **blue**) not mounted by default.
2. The original BC66/BC66-NA circuit design can be directly migrated to the BC660K-GL.
3. The **red** part in the above figure is for BC66 and BC66-NA.

The reset timing of BC66/BC66-NA/BC660K-GL is illustrated in the figure below.

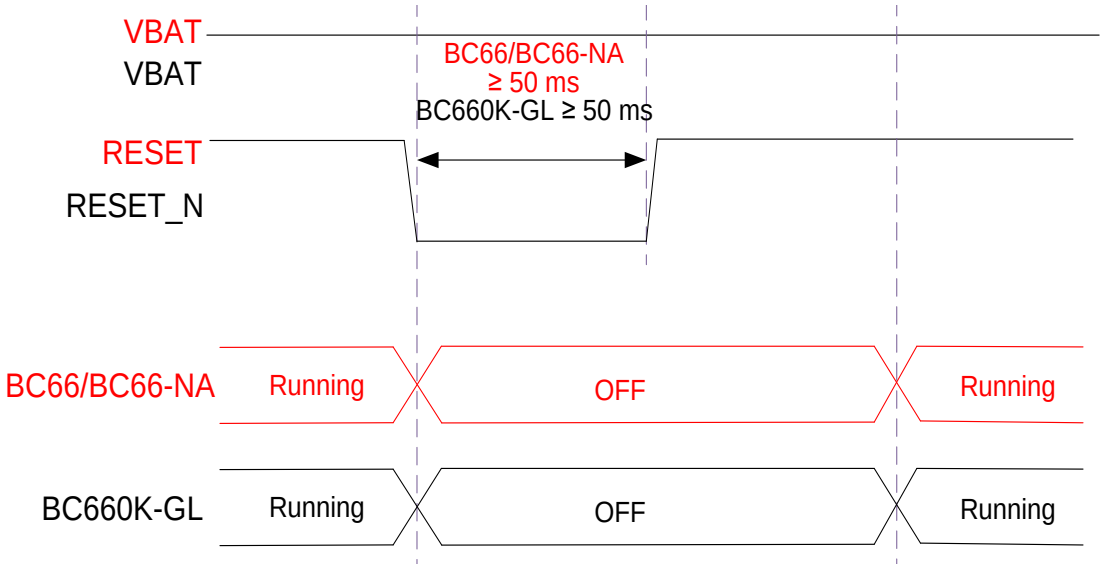

Figure 9: Timing of Module Reset

NOTE

1. The **red** part in the above figure is for BC66 and BC66-NA.
2. The **black** part in the above figure is for BC660K-GL.

4.3.2. Software Reset

AT+QRST=1 can be executed to reset BC66/BC66-NA/BC660K-GL. For more details about the command, see ***document [1]*** and ***document [2]***.

4.4. USB Interface

BC66 or BC66-NA has a USB interface which conforms to USB 1.1 specifications and supports full-speed (12 Mbps) mode. Supporting USB serial drivers for Windows/Linux operating systems, the interface can be used for software debugging and firmware upgrade. For more details, see ***document [7]*** and ***document [8]***.

BC660K-GL does not support USB function.

The following is a reference design for the USB interface of BC66/BC66-NA:

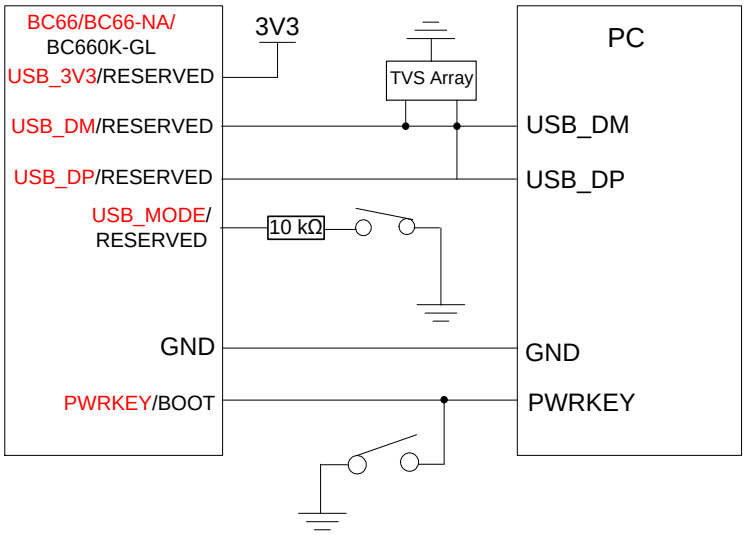

Figure 10: Compatible Reference Design for USB Interface

NOTE

For BC66/BC66-NA:

1. USB_MODE must be pulled down through a 10 kΩ resistor to perform the USB download function.
2. When the USB interface is used for log capturing, the module cannot enter Deep Sleep mode.
3. To use USB function, an external 3.3 V power supply should be provided.

4.5. UART Interfaces

BC66/BC66-NA is different from BC660K-GL in AUX UART and part of voltage domains, as listed below.

Table 11: UART Interface Voltage Domain

Module	UART Interface	Voltage Domain
BC66/BC66-NA	Main UART	1.8 V
	Debug UART	
	AUX UART	
BC660K-GL	Main UART	1.8/3.3 V
	Debug UART	

The following figure shows the compatible reference design for level-shifting circuit for the UART interfaces of BC66/BC66-NA/BC660K-GL. The two solid lines are examples to refer to for designing the dotted lines whose connection direction also deserves close attention.

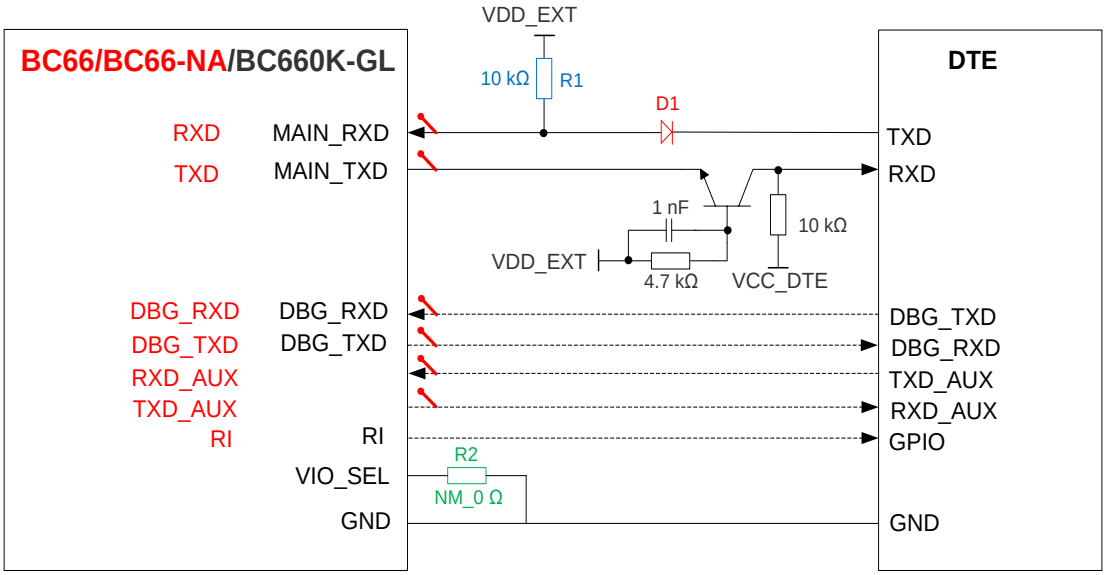

Figure 11: Compatible Reference Design for Level-shifting Circuits

NOTE

1. The level-shifting circuit shown above is not suitable for applications with high baud rates exceeding 460 kbps.
2. "\" represents the test points of UART interfaces. It is recommended to reserve the test points of VBAT_BB, VBAT_RF and PWRKEY for BC66/BC66-NA, and the test points of VBAT, BOOT and RESET_N for BC660K-GL, for facilitating firmware upgrade and software debugging when necessary.
3. While using BC66/BC66-NA, mount R1 in **blue** but do not mount R2 in **green**.
4. While using BC660K-GL, do not pull up MAIN_RXD to VDD_EXT directly, do not mount R1 in **blue**, and substitute D1 in **red** with a 1 kΩ resistor.
5. While using BC660K-GL, do not mount R2 in **green**.
6. For BC660K-GL, pay attention to the following notes about VIO_SEL:
   When VIO_SEL is grounded and VBAT < 3.3 V, VDD_EXT = VBAT;
   When VIO_SEL is grounded and VBAT ≥ 3.3 V, VDD_EXT = 3.3 V;
   When VIO_SEL is floating, VDD_EXT = 1.8 V.
7. It is important to note that compared with BC66/BC66-NA, the MAIN_RXD of BC660K-GL has a wake-up function, and it is still powered during sleep mode, so it cannot be directly pulled up to VDD_EXT.

4.6. ADC Interface

Table 12: ADC Interface Parameter

Module	Resolution	Max. Voltage Value
BC66/BC66-NA	10-bit	1.4 V
BC660K-GL	12-bit	1.2 V

NOTE

For BC660K-GL, a 320 kΩ pull-down resistor is integrated inside its BB chip, to which the ADC pin is connected. This resistor value needs to be considered when you apply the voltage division rule (voltage divider) to calculate the total voltage across the circuit.

5 Software Compatible Design

5.1. Application Layer Protocols

5.1.1. Default DNS Server Scheme

Table 13: Default DNS Server Scheme

Module	Details
BC66/BC66-NA	Although the module has its own default DNS server, it is still recommended to set up your own DNS server in case that the default DNS server inside the module should fail.
BC660K-GL	The module has no default DNS server, so it is recommended to execute **AT+QIDNSCFG=0** to check and query whether the DNS server has been assigned by the network operator after the module registers on the network successfully. If not, you need to set up your own DNS sever.

5.1.2. Supported SSL Cipher Suites

Table 14: Supported SSL Cipher Suites

Module	Details
BC66/BC66-NA	Supports 10 SSL cipher suites, as shown below: ● 0X002F TLS_RSA_WITH_AES_128_CBC_SHA ● 0X0035 TLS_RSA_WITH_AES_256_CBC_SHA ● 0X000A TLS_RSA_WITH_3DES_EDE_CBC_SHA ● 0X00FF TLS_EMPTY_RENEGOTIATION_INFO_SCSV ● 0X003C TLS_RSA_WITH_AES_128_CBC_SHA256 ● 0X003D TLS_RSA_WITH_AES_256_CBC_SHA256 ● 0X008D TLS_PSK_WITH_AES_256_CBC_SHA ● 0X00AE TLS_PSK_WITH_AES_128_CBC_SHA256 ● 0X008C TLS_PSK_WITH_AES_128_CBC_SHA ● 0X008B TLS_PSK_WITH_3DES_EDE_CBC_SHA
BC660K-GL	Supports 4 SSL cipher suites, as shown below:

	• 0X002F TLS_RSA_WITH_AES_128_CBC_SHA • 0X0035 TLS_RSA_WITH_AES_256_CBC_SHA • 0X000A TLS_RSA_WITH_3DES_EDE_CBC_SHA • 0X00FF TLS_EMPTY_RENEGOTIATION_INFO_SCSV

NOTE

See the corresponding SSL application note for more details.

5.2. Network Searching Scheme

5.2.1. Network Searching Scheme

Table 15: Network Searching Scheme

Module	Details
BC66/BC66-NA	• If there is no high-priority EARFCN, the module performs a high-priority band search. After searching all EARFCNs of high-priority band, the module selects the best EARFCN to camp on. • If there is no high-priority BAND, the module will scan all bands and select the best EARFCN to camp on. • If there is a priority EARFCN, search for the priority EARFCN and camp on it.
BC660K-GL	• If there is no priority EARFCN, a quick search will be performed first. If the search fails, a high-priority band search starts. When a suitable EARFCN is found, the module will camp on the cell corresponding to the EARFCN. • During band scanning, the module will search for a band first, and then search for the next band. • If there is a priority EARFCN, the module searches for a priority EARFCN and then camps on the cell corresponding to the EARFCN.

5.2.2. Network Feature Comparison

Table 16: Comparison of AT+QBAND Command

Module	Details
BC66/BC66-NA	**AT+QBAND** takes effect after the module reboots.
BC660K-GL	**AT+QBAND** will automatically trigger the detachment and attachment processes.

Table 17: Comparison of Rel-14

Module	Details
BC66	Does not support Rel-14 mode.
BC66-NA	Supports Rel-14 mode.
BC660K-GL	Supports Rel-14 mode. When Rel-14 mode is configured by **AT+QCFG="relversion"**, NB category changes automatically from NB1 to NB2.

Table 18: Comparison of OOS

Module	Details
BC66/BC66-NA	Does not support configuring OOS mode to change OOS timer.
BC660K-GL	Supports configuring OOS mode to change OOS timer by **AT+QCFG="OOSScheme"**.

Table 19: Comparison of SIMBIP

Module	Details
BC66/BC66-NA	Supports SIMBIP but does not support enabling/disabling SIMBIP by AT command.
BC660K-GL	Supports SIMBIP feature and enabling/disabling SIMBIP by **AT+QCFG="simbip"**.

Table 20: Comparison of AT+CSIM and AT+CRSM Commands

Module	Details
BC66/BC66-NA	The commands **AT+CSIM** and **AT+CRSM** can be executed directly.
BC660K-GL	Before **AT+CSIM** or **AT+CRSM** is executed, it is necessary to disable SIM card sleep by **AT+QSIMSLEEP=0**.

Table 21: Comparison of AT+QNBIOTRAI Command

Module	Details
BC66/BC66-NA	● **AT+QNBIOTRAI** is used to configure RAI flag 0,1 or 2.

	● When **AT+QNBIOTRAI** is executed, the specified RAI flag 0,1 or 2 will be carried in the next UL packet sent by the module.
BC660K-GL	● **AT+QNBIOTRAI** is used to configure RAI mode 0 and 1. ● When **AT+QNBIOTRAI=1** is executed, the module will send a UL packet carrying RAI flag 1 directly.

6 Recommended Footprint

This chapter introduces the recommended compatible footprint of BC66/BC66-NA and BC660K-GL. All dimensions are measured in millimeter (mm), and the dimensional tolerance is ±0.2 mm unless otherwise specified.

6.1. Recommended Compatible Footprint

The following figure shows the bottom view of BC66/BC66-NA/BC660K-GL.

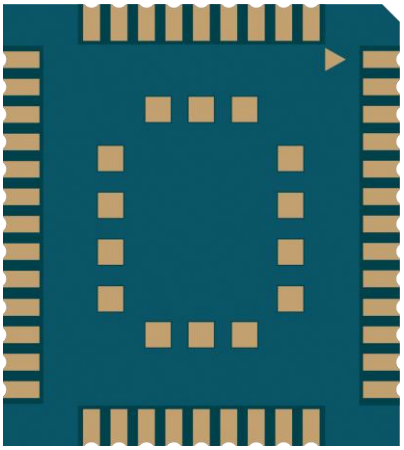

Figure 12: Bottom View of BC66/BC66-NA/BC660K-GL

NOTE

The image above is for illustration purpose only and may differ from the actual module. For authentic appearance and label, please refer to the module received from Quectel.

The following figure shows the recommended compatible footprint of BC66/BC66-NA and BC660K-GL.

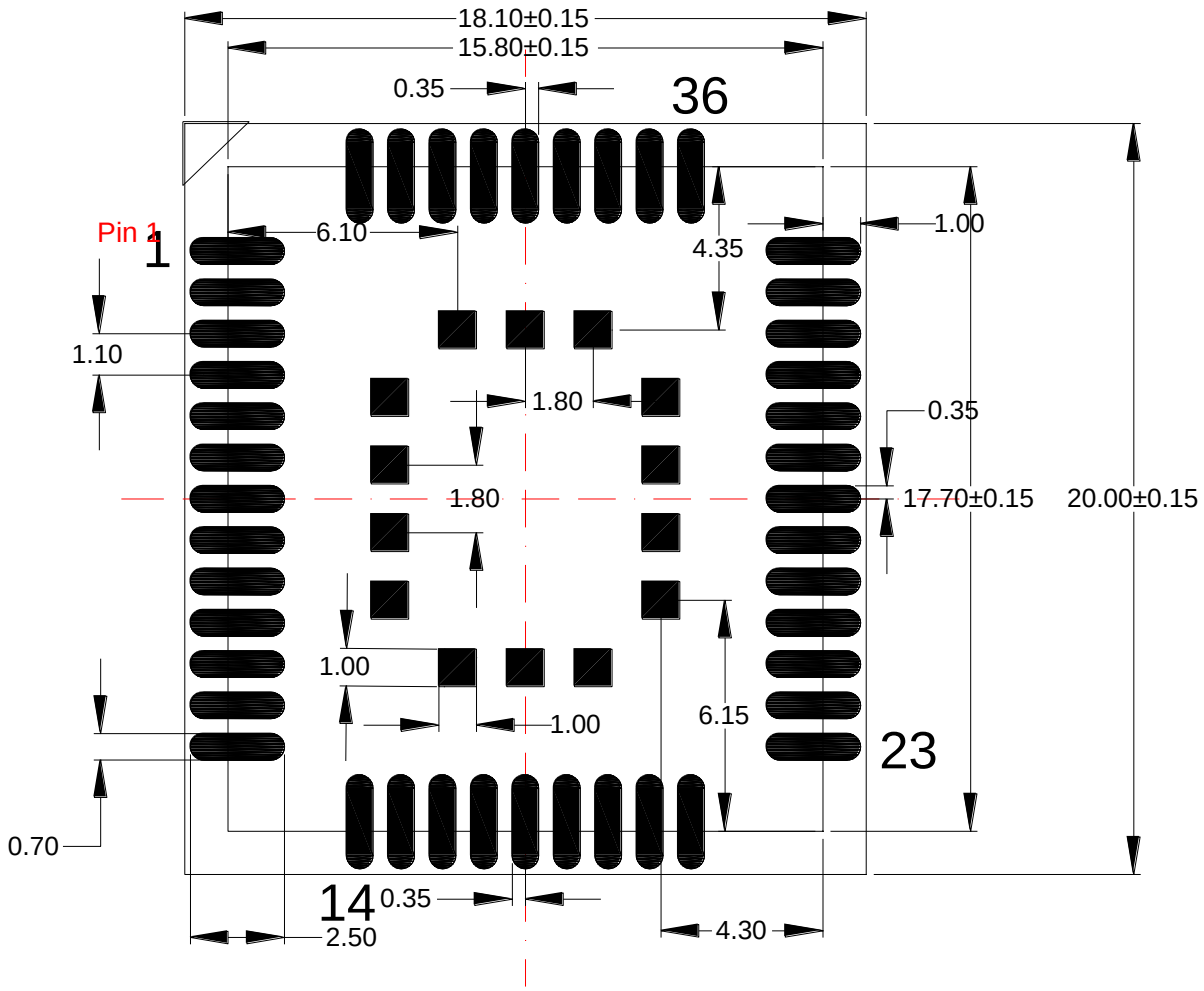

Figure 13: Recommended Footprint of BC66/BC66-NA/BC660K-GL (Unit: mm)

NOTE

Keep at least 3 mm between the module and other components on the motherboard to improve soldering quality and maintenance convenience.

6.2. Installation Sketch Map

The following is an installation sketch map for BC66/BC66-NA and BC660K-GL modules:

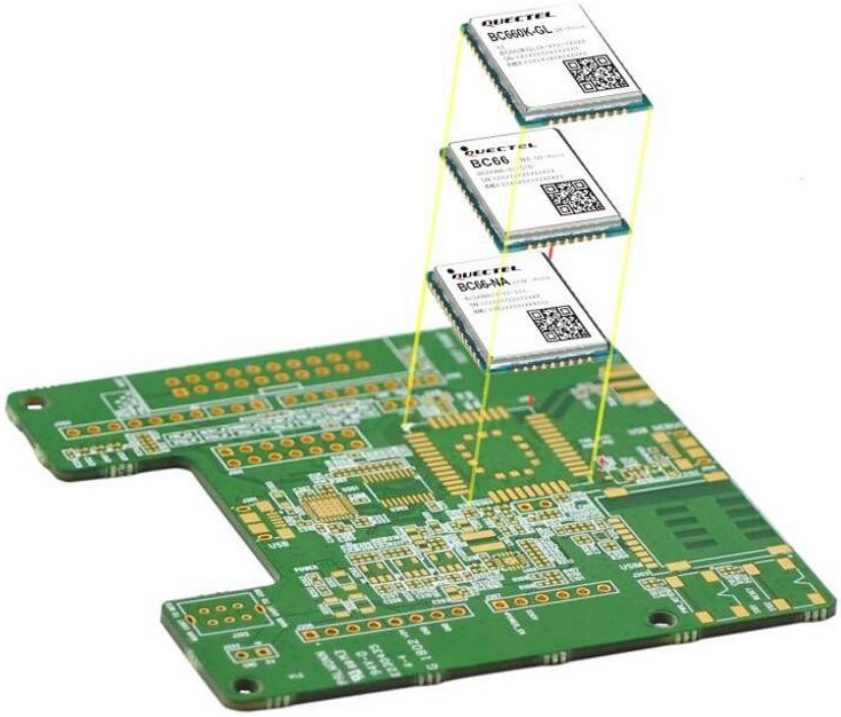

Figure 14: Installation Sketch Map for BC66/BC66-NA/BC660K-GL

7 Appendix References

Table 22: Related Documents

Document Name
[1] Quectel_BC66&BC66-NA_AT_Commands_Manual
[2] Quectel_BC660K-GL_AT_Commands_Manual
[3] Quectel_BC66&BC66-NA_TCP(IP)_Application_Note
[4] Quectel_BC660K-GL_TCP(IP)_Application_Note
[5] Quectel_BC66&BC66-NA_SSL_Application_Note
[6] Quectel_BC660K-GL_SSL_Application_Note
[7] Quectel_BC66_Hardware_Design
[8] Quectel_BC66-NA_Hardware_Design
[9] Quectel_BC660K-GL_Hardware_Design

Table 23: Terms and Abbreviations

Abbreviation	Description
ADC	Analog-to-Digital Converter
DNS	Domain Name System
kbps	kilobits per second
LCC	Leadless Chip Carriers
LGA	Land Grid Array
LED	Light Emitting Diode
Li-MnO2	Lithium Manganese Dioxide

Li-SOCl2	Lithium Thionyl Chloride
LTE HD-FDD	Half Frequency Division Duplexing
NB-IoT	Narrow Band - Internet of Things
PCB	Printed Circuit Board
RF	Radio Frequency
RXD	Receive Data
SIM	Subscriber Identity Module
SMS	Short Message Service
SSL	Secure Sockets Layer
TXD	Transmit Data
OOS	Out of Service
UL	Uplink
UART	Universal Asynchronous Receiver & Transmitter
USIM	Universal Subscriber Identification Module