

User Manual for PW8Q7 smart module

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Revision History

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CONFIDENTIAL

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A. Product Description

A.1 General Descriptions

This document describes and specifies requirements for smart Module PW8Q7, PW8Q7 is smart module for smart phone and Tablet . It can support Bluetooth, WiFi and GPS function.

It can support SD card, LCM,Touch Screen,Audio,two camera,Flash LED,Accelerometer/Magnetometer/Gyroscope/Pressure/Temperature/P&L Sensor functions though application design board.

A.2 Applicable Device

WNC PW8Q7 module integrate high speed dual core application processor and high speed modem with 300pin connector connection form factor and is focusing on the Handheld,Gateway, Notebook,Tablet and other portable device marketing.

- ◆ Handheld Device
- ◆ Tablet
- ◆ Mobile Internet Device
- ◆ Handheld Device
- ◆ Notebook/ Netbook
- ◆ Wireless Multimedia Device

B. Main Features1

- ◆ Multi-band:
 - ✧ Wifi 2.4GHz (HT20)/5GHz (HT20/HT40) 802.11 a/b/g/n
 - ✧ BT 2.4GHz Bluetooth 4.0
 - ✧ GPS
- ◆ Application Processor
 - ✧ APQ8060A, Dual Core 1.5 GHz
 - ✧ Support LCM/Camera/Touchpanel/SD/USB/Sensor/Audio/HDMI
- ◆ Operation System
 - ✧ Android
- ◆ Certification
 - ✧ CE Compliance
 - ✧ FCC Compliance

- ✧ RoHS Compliance
- ◆ Environment
 - ✧ Operating temperature: -30°C ~ +70°C @ humidity 10% to 85%
 - ✧ Storage temperature: -30°C~ +70°C@ humidity 5% to 90%

B.1 Application Processor features

- ◆ Qualcomm APQ8060A Dual Core 1.5 GHz processor
- ◆ 1GB LPDDR2 HYNIX H9TKNNN8KDARAR-NGM
- ◆ 8GB eMMC MICRON MTFC8GLVEA-4M

C. General Specification

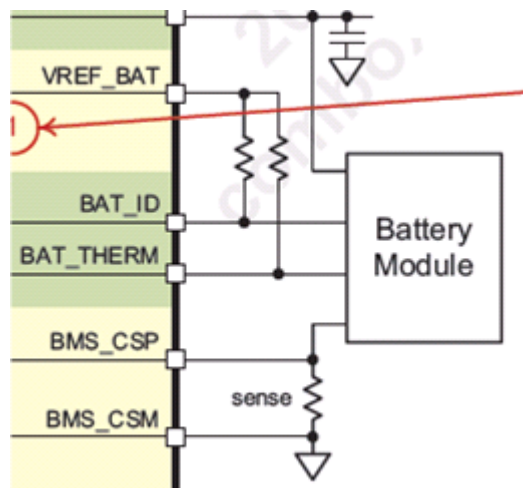
Item	Parameter
Form Factor (mm)	40 x 62 x 5.0 mm
Weight (g)	20g (TBD)
Processor	APQ8060A, Dual Core 1.5 GHz
WLAN	2.4GHz/5GHz 802.11 a/b/g/n
Bluetooth	2.4GHz Bluetooth 4.0
Memory	1 GB LPDDR2 8 GB eMMC
GPS	MS-Based/MS-Assisted/Standalone
Application interface	LCM: MIPI DSI Camera :MIPI CSI /I2C Flash LED: I2C Touch screen: I2C Sensor(Accelerometer,P&L,E-Compass,Pressure,Temperature,Gyroscope): I2C SD USB HSIC HDMI Audio(Receiver/Speaker/Microphone/Headset): Analog signal Keypad Vibrator

	Indicator Lights GPIO
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D. Application

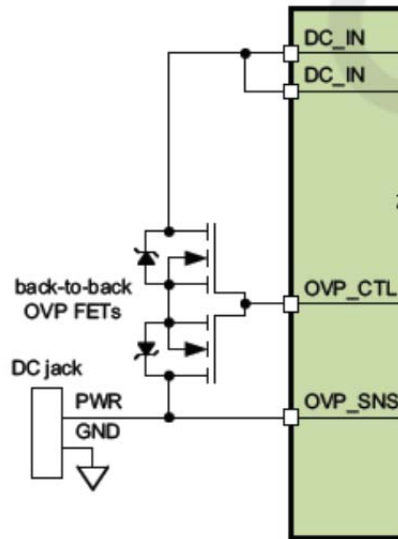
◆ Battery connection

- ✧ A stable and accurate 1.80 V bias voltage is available at the VREF_BAT pin
Supplements off-chip resistors and the battery module to create analog voltages needed to identify the battery type and determine its temperature
- ✧ Coulomb Counter, require to install a 10 m ohm resistor between battery negative and GND



◆ DC Charging

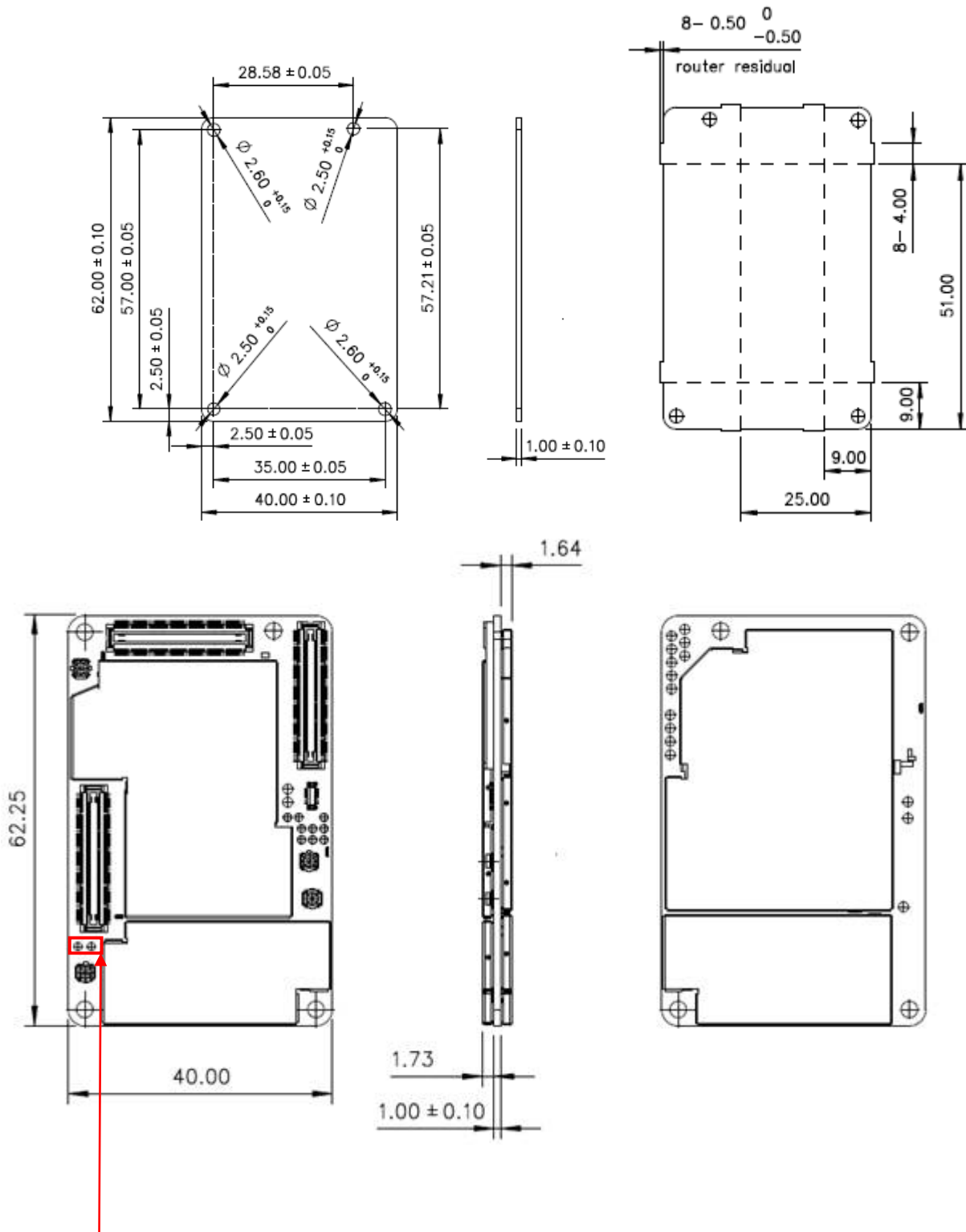
If you want to support two charging power sources: a USB charger and a wall charger They can be connected one at a time or simultaneously. The system recognizes the state of both input sources, selects which to use, and supports or provides OVP at both input nodes But you must install a back-to-back MOSFET to support OVP function



E. Power Consumption

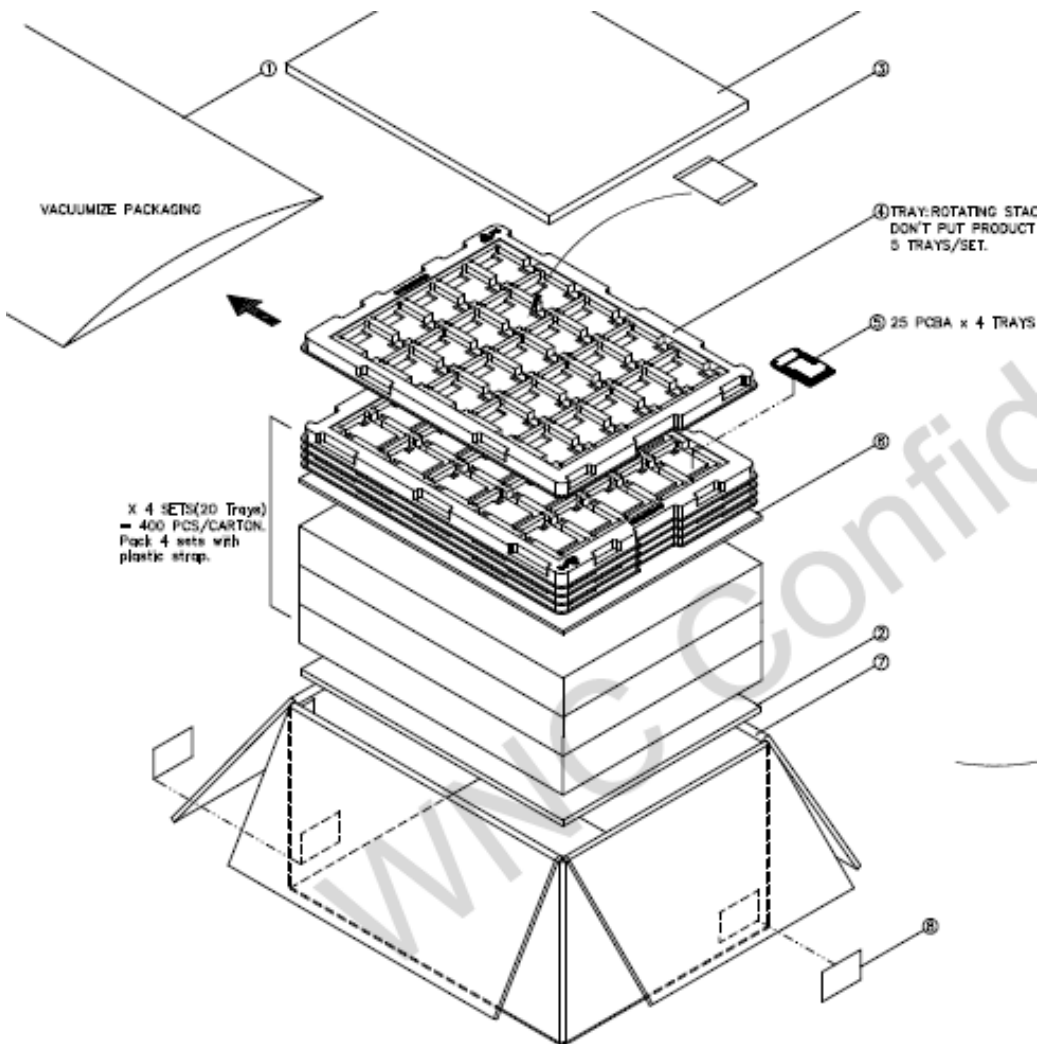
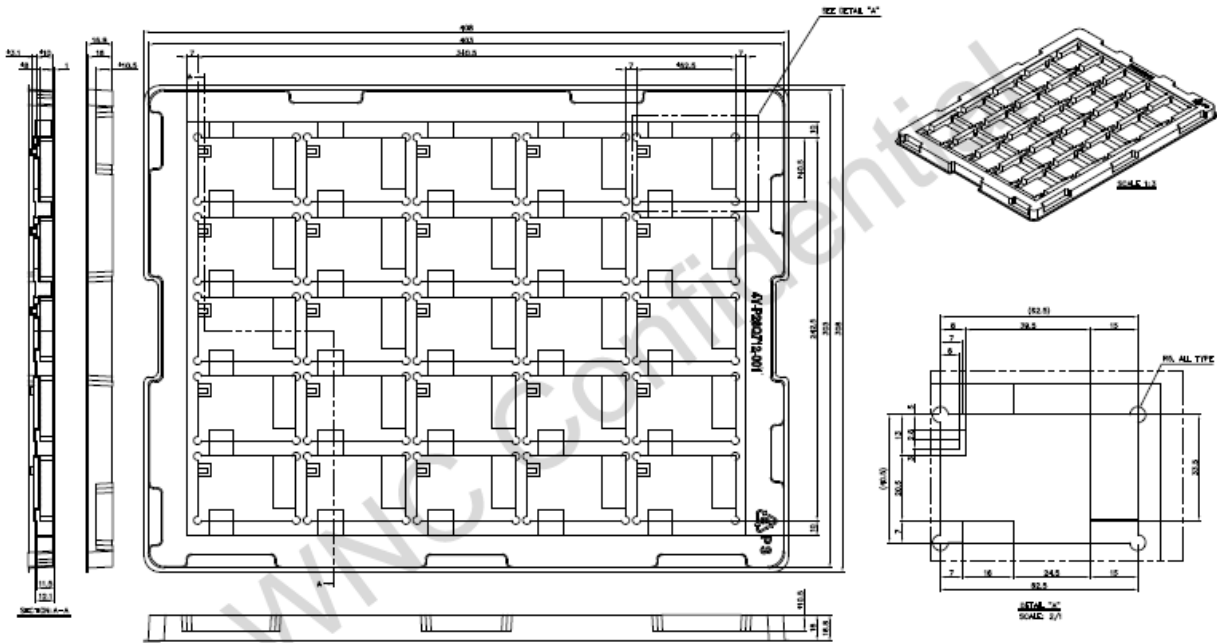
Work Mode	Definition	Min.	Typ.	Max.
Sleep (Airplane mode)	Airplane; backlight and display off		3.5mA	4mA
WLAN (DTIM1) with W standby	WLAN standby, beacon cycle 100 ms		9mA	11mA

F. Mechanic Specifications



Emergency Download Test Points: Pull these two points to ground if you want to enter the emergency download mode

G. Package Specifications

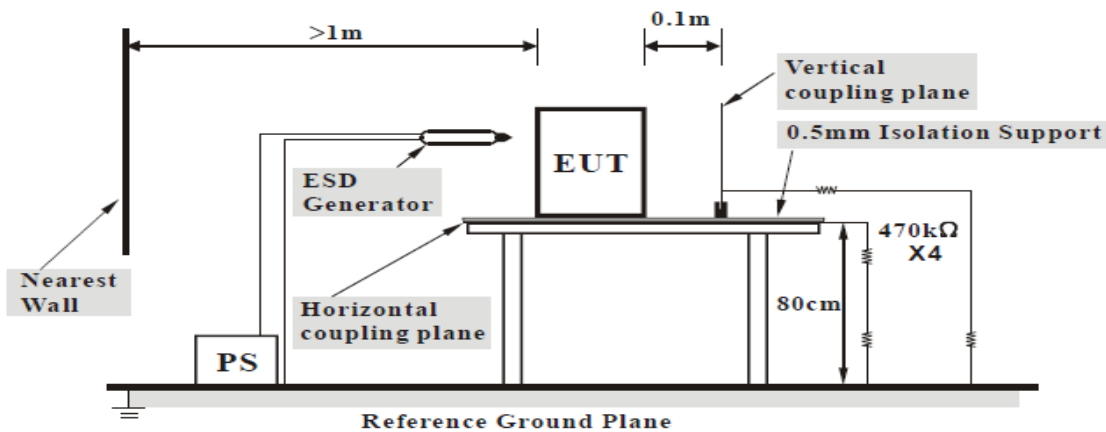


H. Electrostatic discharge (ESD)

The OEM is responsible for ensuring that the Mini board interface pins are not exposed to ESD during handling or normal operation.

ESD protection is highly recommended for the user interface connector at the point where the contacts are exposed and for any other signals from the host interface that would be subjected to ESD by the user of the product.

P28Q7 can meet IEC 61000-4-2 test requirement, Indirect application of the discharge $\pm 4\text{kV}$ -Level2, Include Horizontal coupling plane (HCP) and Vertical coupling plane (VCP) mode. the criterion is TT/TR



I FCC and CE Warnings

FCC Regulations:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

This device has been tested and found to comply with the limits for a Class B digital device , pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiated radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

RF Exposure Information

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation.

IMPORTANT NOTE:

This module is intended for OEM integrator. The OEM integrator is still responsible for the FCC compliance requirement of the end product, which integrates this module. 20cm minimum distance has to be able to be maintained between the antenna and the users for the host this module is integrated into. Under such configuration, the FCC radiation exposure limits set forth for an population/uncontrolled environment can be satisfied.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

USERS MANUAL OF THE END PRODUCT:

In the users manual of the end product, the end user has to be informed to keep at least 20cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the FCC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. If the size of the end product is smaller than 8x10cm, then additional FCC part 15.19 statement is required to be available in the users manual: This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

LABEL OF THE END PRODUCT:

The final end product must be labeled in a visible area with the following " Contains TX FCC ID: **NKR-PW8Q7A**". If the size of the end product is larger than 8x10cm, then the following FCC part 15.19 statement has to also be

available on the label: This device complies with Part 15 of FCC rules.

Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

CE Conformance:

The device is tested for typical body worn operation. The minimum distance between the user and/or any bystander and the radiating structure of the transmitter is 20cm.

WLAN 5150MHz to 5250MHz is limited indoor use.

Complies with the essential requirements of Article 3 of the R&TTE 1999/5/EC Directive, if used for its intended use and that the following standards have been applied:

1. Health (Article 3.1(a) of the R&TTE Directive)

Applied Standard(s):

- EN62311 :2008
- EN 62479 :2010

2. Safety (Article 3.1(a) of the R&TTE Directive)

Applied Standard(s):

- EN 60950-1:2006+A11:2009+A1:2010+A12:2011

3. Electromagnetic compatibility (Article 3.1 (b) of the R&TTE Directive)

Applied Standard(s):

- EN 301 489-1 V1.9.2/-3 V1.4.1-17 V2.2.1

4. Radio frequency spectrum usage (Article 3.2 of the R&TTE Directive)

Applied Standard(s):

- EN 300 328 V1.8.1
- EN 301 893 V.1.7.1
- EN 300440-1 V1.6.1
- EN 300440-2 V1.4.1

All the reports of the applied standards have the Positive Opinion of Notified Body:

PHOENIX TESTLAB, Königswinkel 10 D-32825 Blomberg, Germany

Identification mark: **0700** (Notified Body) **CE** **C E 0700** **!**



J. Support



Support

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