

WM620 Specifications

Version 1.2



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Revision Record

| Issue | Changes | Date |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| V1.0 | Initial draft | 2014-01 |
| V1.1 | <ul style="list-style-type: none">• Modified pin definition figure and recommended PCB foot print• Modified operating temperature, voltage, current, and ESD testing indicator• Added dimensions tolerance• Deleted CSD | 2017-06 |
| V1.2 | <ul style="list-style-type: none">• Modified model• Modified GSM bands | 2017-07 |

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1 Overview

WM620 is a WCDMA module that supports multiple network modes including HSDPA, UMTS, EDGE, GPRS, and GSM. HSDPA supports 3.6Mbps high-speed download . WM620 provides high-quality data and voice communication, SMS and other functions. It is widely applied to electricity, Internet of Vehicle (IoV), video monitoring, handset devices, etc.

WM620 is an SMT module in LCC compact package. It can be easily adopted for standard Mini PCI-E interface. The model of WM620 is shown as follows.

| Band Model | HSDPA | UMTS 2100 | UMTS 900 | DCS 1800 | EGSM 900 |
|-----------------------|--------------|------------------|-----------------|-----------------|-----------------|
| WM620F-A | | √ | √ | √ | √ |
| WM620-A | √ | √ | √ | √ | √ |

This user guide details the features, indicators, and testing standards of WM620.

2 Specifications

Table 2-1 WM620 specifications

| Specifications | Description |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Frequency Band | WM620F-A: UMTS2100/900 MHz GSM900/1800 MHz WM620-A: HSDPA/UMTS2100/900 MHz GSM900/1800 MHz |
| Sensitivity | -108 dBm |
| Max. Transmit Power | GSM/GPRS 900 MHz: +33 dBm (Power Class 4) GSM/GPRS 1800 MHz: +30 dBm (Power Class 1) EDGE 900 MHz: +27 dBm (Power Class E2) EDGE1800 MHz: +26 dBm (Power Class E2) |
| | HSDPA/WCDMA: +23 dBm (Power Class 3) |
| Transient Current | Max 2 A |
| Standby Current (Idle) | <5.0 mA |
| Operating Temperature | -40 °C to + 85 °C |
| Dimension | 30±0.1 mm x 30±0.1 mm x 2.7±0.1 mm |
| Operating Voltage | 3.3 V to 4.2 V DC (recommended 3.9 V, 25 °C) |
| AT Command | GSM07.07 Neoway extended AT commands (Refer to <i>Neo_WM620 WCDMA Module AT Command Set</i>) |
| Driver | Supporting Windows XP, Windows 7, Linux(2.6.1) |
| Audio | GSM: FR, EFR, HR, AMR Voice Coding, DTMF WCDMA: AMR, ARM-WB |
| SMS | TEXT/PDU |
| | Point of Point / Cell Broadcast |
| Technical Standard | UMTS/WCDMA/GSM/GPRS/EDGE Specification Release 99 (3GPP R99) UMTS/WCDMA Specification Release 5 (3GPP R5) GSM/GPRS/EDGE Specification Release 4 (3GPP R4) GPRS/EDGE Multislot Class 12, Release 4 DTM Multislot Class 11 |
| Data Rate | GSM CS: UL 14.4 Kbit/s / DL 14.4 Kbit/s GPRS: UL 85.6 Kbit/s / DL 85.6 Kbit/s EDGE: DL 236.8 Kbit/s / UL: 236.8 Kbit/s WCDMA CS: UL 64 Kbit/s / DL 64 Kbit/s WCDMA PS: UL 384 Kbit/s / DL 384 Kbit/s HSDPA: DL 3.6 Mbit/s / UL 384Kbit/s |

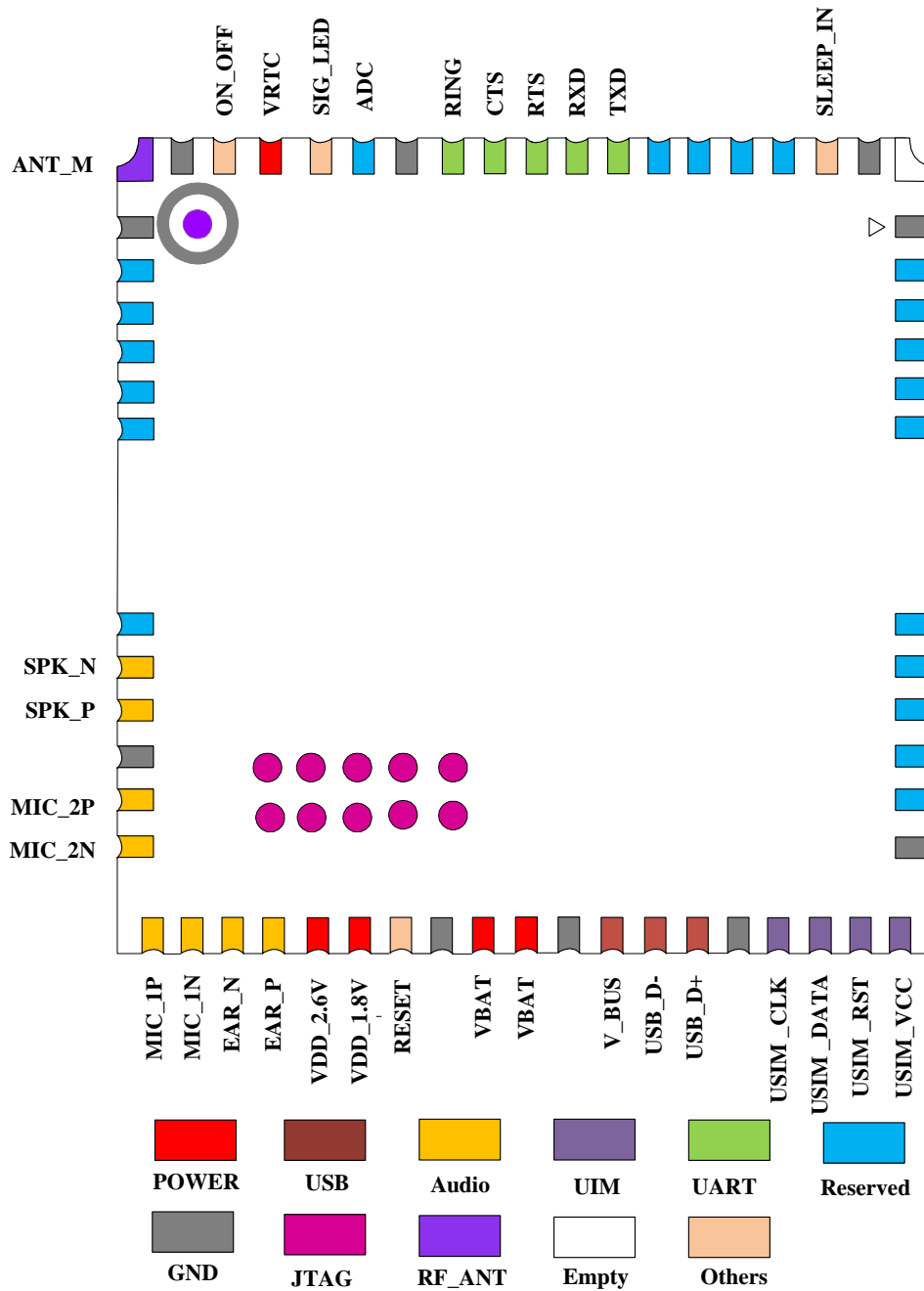
| | |
|-----------------------|----------------------------------|
| Circuit Switched Data | Support USSD |
| Supplementary Service | Call Forwarding (CFB, CFNA, CFU) |
| | Call Waiting |
| | Three-Way Calling |

3 Pin Description and PCB Foot Print

Figure 3-1 Specifications

| Specifications | WM620 |
|----------------|------------------------------------------------|
| Dimensions | 30±0.1 mm x 30±0.1 mm x 2.7±0.1 mm (H x W x D) |
| Weight | 5 g |
| Encapsulation | 62-pin LCC |

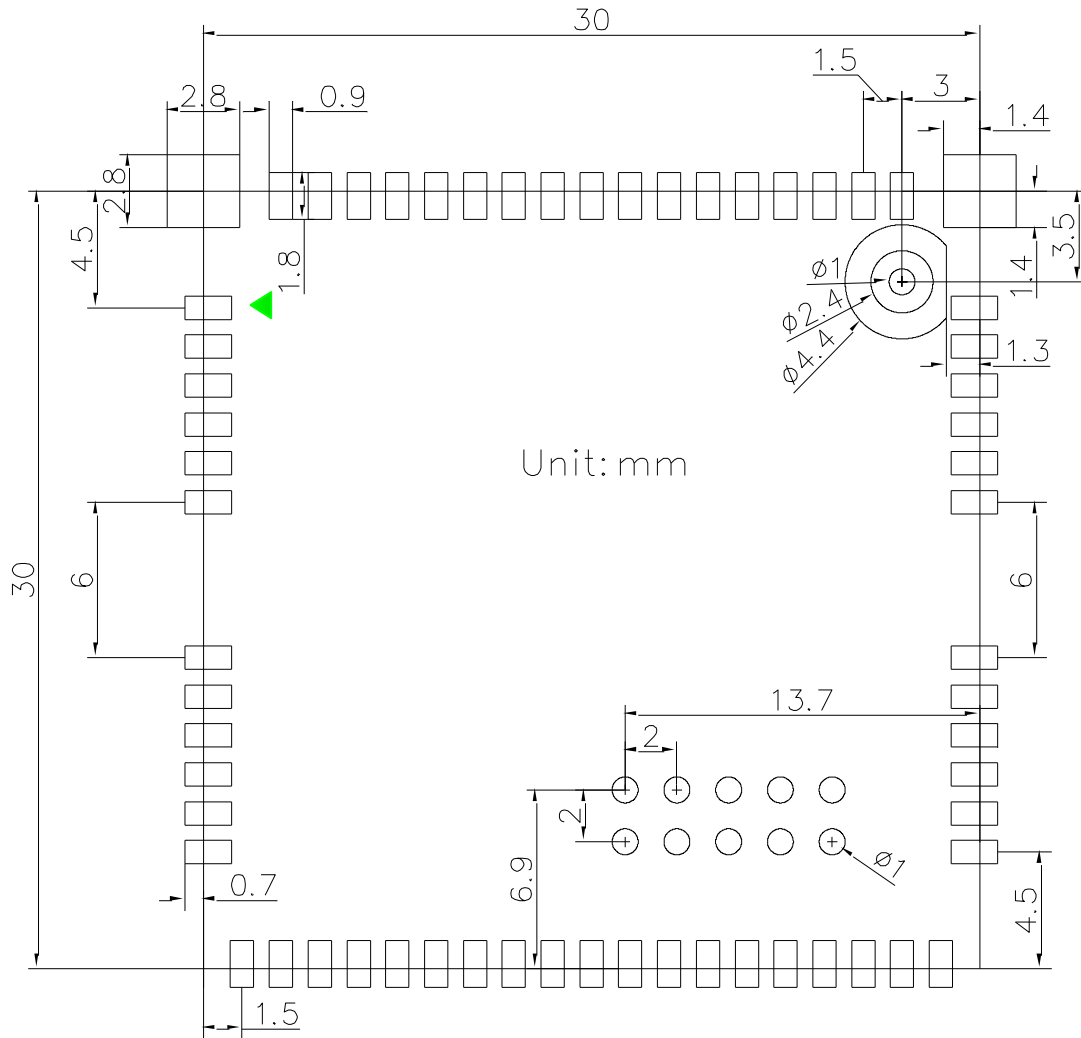
Figure 3-2 Bottom view of the WM620 module



4 PCB Foot Print

LCC packaging is adopted to package the pins of the WM620 module. Figure 4-1 shows the recommended PCB foot print.

Figure 4-1 PCB foot print recommended for WM620 (unit: mm)

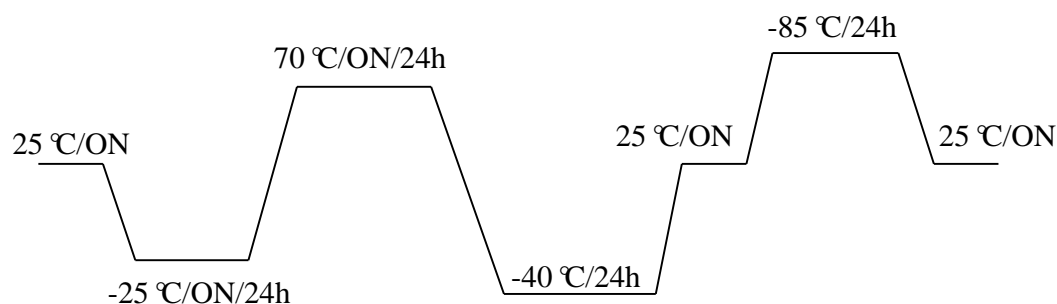


5 Reliability and Testing Standards

5.1 Temperature

- Operating temperature: -40 °C ~ +85 °C
- Humidity: 0% ~ 95%

Figure 5-1 Testing temperature curve



5.2 Work Band

Table 5-1 Work band

| Work Band | Uplink | Downlink |
|----------------------|---------------|---------------|
| UMTS 2100 (Band I) | 1920–1980 MHz | 2110–2170 MHz |
| UMTS 900 (Band VIII) | 880–915 MHz | 925–960 MHz |
| GSM 900 | 880–915 MHz | 925–960 MHz |
| GSM 1800 (DCS) | 1710–1785MHz | 1805–1880 MHz |

5.3 ESD Protection

Table 5-2 ESD feature of the module

| Testing Point | Contact Discharge | Air Discharge |
|------------------|-------------------|---------------|
| VBAT, GND | ±8 kV | ±15 kV |
| USB, UART | ±4 kV | ±8 kV |
| Antenna | ±8 kV | ±15 kV |
| Other Interfaces | ±2 kV | ±4 kV |

6 Mounting the Module onto the Application Board

WM620 is compatible with industrial standard reflow profile for lead-free SMT process.

The reflow profile is process dependent, so the following recommendation is just a start point guideline:

- Only one flow is supported.
- Quality of the solder joint depends on the solder volume. Minimum of 0.15mm stencil thickness is recommended.
- Use bigger aperture size of the stencil than actual pad size.
- Use a low-residue, no-clean type solder paste.

7 Package

WM620 modules are packaged in sealed bags on delivery to guarantee a long shelf life. Follow the same package method again in case of opened for any reasons.

If the module is exposed to air for more than 48 hours at conditions not worse than 30 °C/60% RH, bake it at a temperature higher than 90 degree for more than 12 hours before SMT. Or, if the indication card shows humidity greater than 20%, the baking procedure is also required. Do not bake modules with the package tray directly.