

Neoway Tech

Neo_M590

Product Specification

Version 1.3

Let's enjoy the wireless life!

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Clarification

This specification applies to M590.

This specification is for system engineer, research engineer and test engineer.

As the upgrading of the product version or some other reasons, we'll do some necessity updating to the content of this specification without advance notice.

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1 Summerization

M590 module is a kind of GSM/GRPS industrial wireless module for Dual Band. It can offer high-quality voice, SMS, data service and other functions. It is widely used in different kinds of industrial and commercial fields.

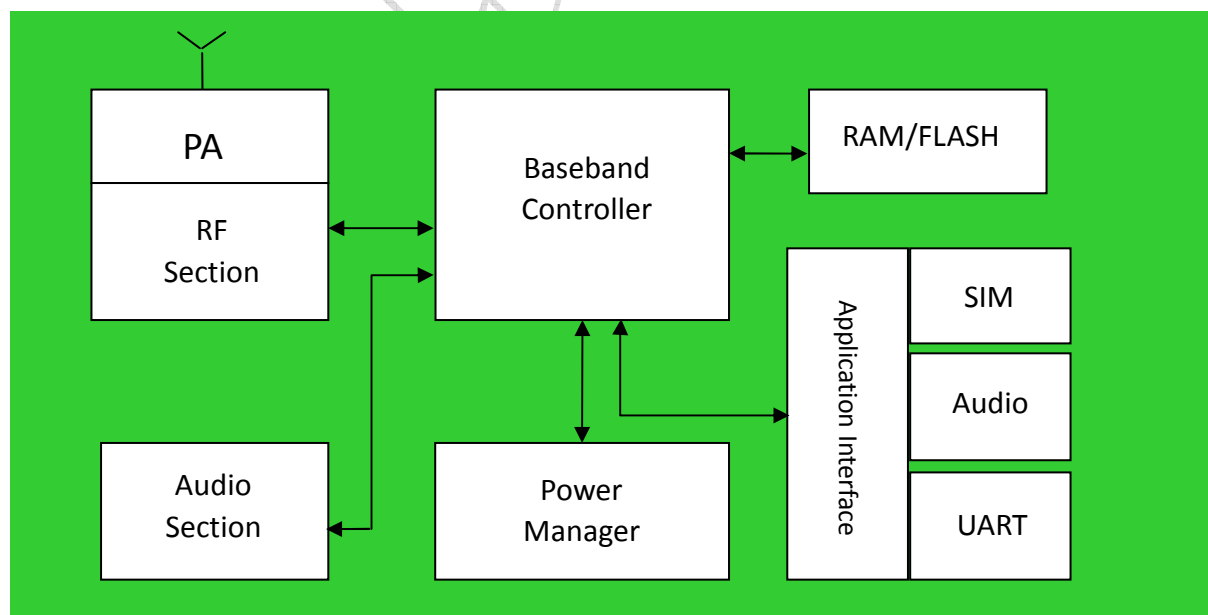
The manual introduces the various properties, index and test criteria of M590 module in details.

2 Shape

TABLE 1 Shape of M590

SPECIFICATION	DESCRIPTION
Dimension	28mm*24mm*11mm(length*width*height)
weight	7g
overview	

3 Design Diagram



4 Features

TABLE 2 Main Features of M590

SPECIFICATION	DESCRIPTION
Frequency	Dual band(EGSM900/DCS1800)
Sensitivity	-106dBm
The Maximum Transmitting Power	EGSM900 Class4(2W)
	DCS1800 Class1(1W)
Max Instantaneous Current	Max 2A
Working Current	210mA
Waiting Current	2.5mA
Working Temperature	-40℃~+80℃
Working Voltage	3.3V~4.8V (The recommend value is 3.9V)
Protocol	Compatible with GSM/GPRS Phase2/2+
AT	Infineon E-GOLD voice V2 AT sets
	Extended sets
Connector	20Pin soldering-pan/Pin connector
	GSC RF connector
Voice	FR、EFR、HR、AMR voice coding
	Multiple echo control
SMS	TEXT/PDU
	Point to point/cell broadcast
Grouped Data	GPRS CLASS 10
	Coding mode: CS1, CS2, CS3, CS4
Circuit Switched Data	Support CSD data service
	Support USSD
Supplementary Services	Caller ID display
	Call transfer (CFB,CFNA,CFU)
	Call waiting
	Three way calling

5 Interface Description

5.1 Definition of the signal

TABLE 3 Definition of M590 Interface Signal

PIN	SIGNAL NAME	I/O	SPECIFICATION DESCRIPTION	REMARKS
1	GND	PWR	Ground	
2-3	VCC_MAIN	PWR	Main power supply input	
4	GND	PWR	Ground	

5	VCCMEM//RUN	O	Module power supply 2.85V output//Indicate the module is running normal	See the Hardware Design Manual for details.
6	DCD	O	Data Carrier Detect	Nonsupport in this stage
7	RXD	I	Receive Data	
8	TXD	O	Transmit Data	
9	DTR	I	Data Terminal Ready	Low level available
10	RING	O	Ring	Low level available
11	SIMIO	I/O	SIM card data	
12	SIMCLK	O	SIM card clock	
13	SIMRST	O	SIM card reset	
14	SIMVCC	PWR	SIM card power supply output	
15	GND	PWR	Ground	
16	LIGHT	O	Indicate the working status	
17	DSR	O	Data Set Ready	Nonsupport in this stage
18	EMERGOFF	I/O	Emergency OFF	
19	ON/OFF	I	ON/OFF control	
20	GND	PWR	Ground	

5.2 Signal connector

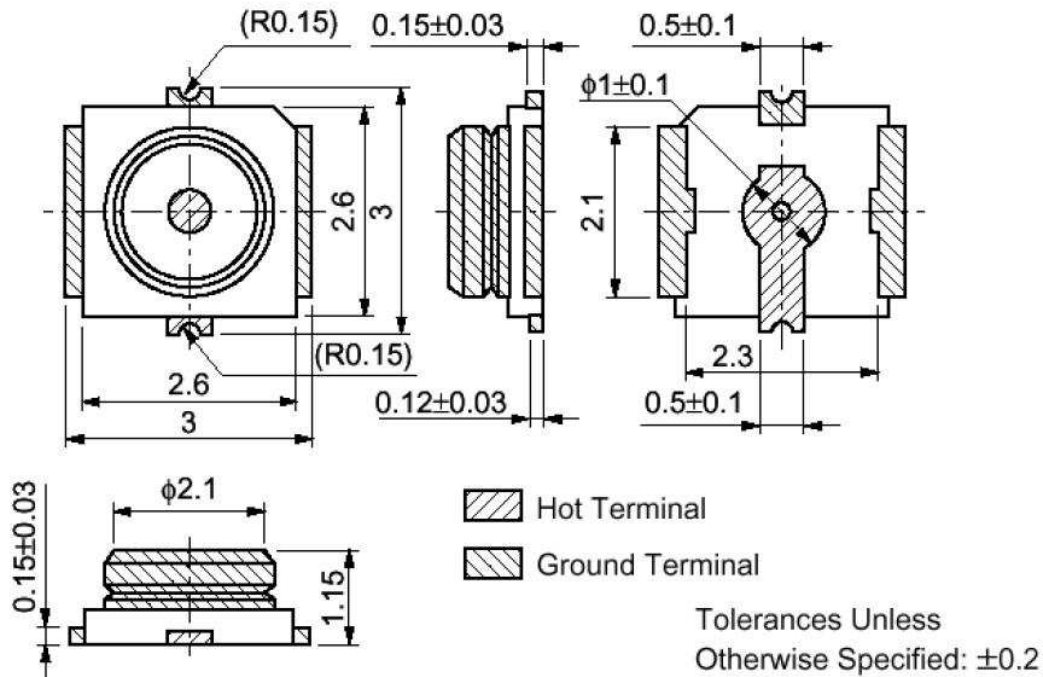
The signal connector of M590 is constituted by 20Pin soldering-pan or DIP pins, the distance of soldering-pan/pin is 2.54mm.

Because there are two connectors: soldering-pan connector and DIP pin connector, there are two corresponding wiring diagrams of the PCB board.

If using soldering-pan connector, the wiring of PCB board is shown as Picture 1.

5.3 RF connector

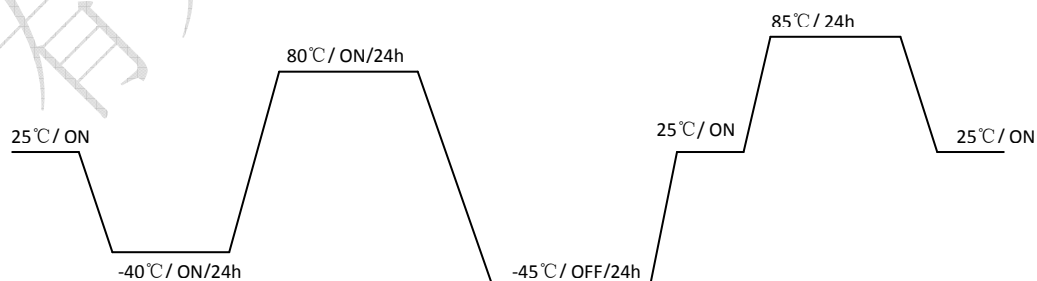
The antenna interface of M590 is GSC RF connector, the external antenna is connected by RF cable. This connector is supplied by Murata Company, its Part Number is MM9329-2700RA1, packing information as the picture below.



6 Reliability specification and test criteria

6.1 Temperature index and test criteria

- Working temperature: $-40^{\circ}\text{C} \sim +80^{\circ}\text{C}$
- Storing temperature: $-45^{\circ}\text{C} \sim +85^{\circ}\text{C}$
- Humidity: 0% ~ 95%



The graph for temperature testing
(when the module powers on, if the testing result can meet the index, means 'pass'.)

6.2 EMI/EMC index and test criteria

- ESD anti-interference
 - Contact discharge: operating voltage 4kV
 - Air discharge: operating voltage 8kV
 - a. RF electromagnetic field radio anti-interference testing
 - Testing field intensity 10V/M (Frequency range: 80MHz-1000MHz)
- Radiate continuous interference
 - Testing range: 30MHz-1GHz (Quasi-peak value and average value assessment)
- Radiate stray interference
 - Testing range: 30MHz-6000MHz

7 Assemblage

The M590 module has two ways of connector: soldering-pan connector and DIP pin connector.

7.1 Bondingpad connector

Welding directly, there is no need other fixing.

7.2 Pin connector

Use DIS Socket pin connector.

8 Abbreviation

ADC	Analog-Digital Converter
AFC	Automatic Frequency Control
AGC	Automatic Gain Control
AMR	Acknowledged multi-rate (speech coder)
CSD	Circuit Switched Data
CPU	Central Processing Unit
DAI	Digital Audio interface
DAC	Digital-to-Analog Converter
DCE	Data Communication Equipment
DSP	Digital Signal Processor
DTE	Data Terminal Equipment
DTMF	Dual Tone Multi-Frequency
DTR	Data Terminal Ready
EFR	Enhanced Full Rate
EGSM	Enhanced GSM
EMC	Electromagnetic Compatibility
EMI	Electro Magnetic Interference

ESD	Electronic Static Discharge
ETS	European Telecommunication Standard
FDMA	Frequency Division Multiple Access
FR	Full Rate
GPRS	General Packet Radio Service
GSM	Global Standard for Mobile Communications
HR	Half Rate
IC	Integrated Circuit
IMEI	International Mobile Equipment Identity
LCD	Liquid Crystal Display
LED	Light Emitting Diode
MS	Mobile Station
PCB	Printed Circuit Board
PCS	Personal Communication System
RAM	Random Access Memory
RF	Radio Frequency
ROM	Read-only Memory
RMS	Root Mean Square
RTC	Real Time Clock
SIM	Subscriber Identification Module
SMS	Short Message Service
SRAM	Static Random Access Memory
TA	Terminal adapter
TDMA	Time Division Multiple Access
UART	Universal asynchronous receiver-transmitter
VSWR	Voltage Standing Wave Ratio