

Bluetooth hands-free carkit module

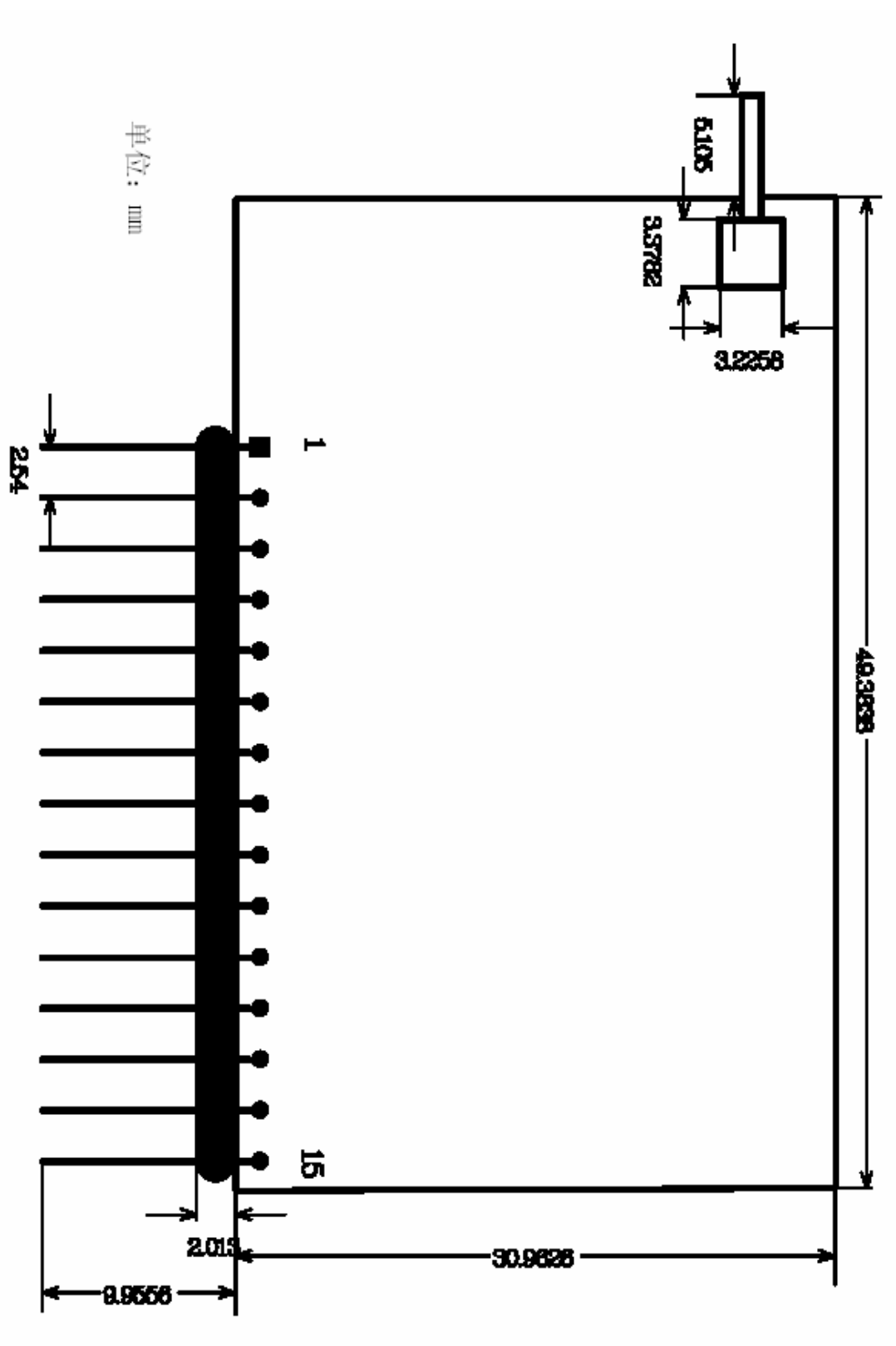
(BC04-FM1073DSP) Manual

BTM 1004C2P AND BTM 1104C2H MANUAL

OEM blue.com

**Chongqing Jinou Science & Technology
Development Co., LTD.**

1. SIZE



English web: www.OEMblue.com
Chinese web: www.jinoux.com

2. Specification

- ◆ Bluetooth V 2.0
- ◆ Class 2
- ◆ External antenna
- ◆ Accord with Bluetooth (Hands-free Profile) 1.5
- ◆ DSP realizes echo dispose, erase noise and echo etc.
- ◆ Support cellphone book in-phase, realize cellphone book in-phase by multi mode, select mode automatically.
- ◆ Support many types of coding format of the cellphone book content (GB2312、 UTF8、 UNICODE)
- ◆ Standard UART port(Default: baud rate 9600bit/s , 1 unit start bit , 8 units data bit , 1 unit stop bit , none parity bit)
- ◆ Analog sound port
- ◆ Automatic Save power mode
- ◆ Safe authentication, data encryption
- ◆ Realize protocol : LM、 LC、 L2cap、 SDP、 RFCOMM、 OBEX
- ◆ Profile
 - Bluetooth Headset Profile
 - Bluetooth Hands-free Profile
 - Bluetooth Obex Object Push Profile
 - Bluetooth Synchronization Profile
 - Bluetooth Serial Port Profile
- ◆ support multifunctional phone operation
 - dial phone
 - sound dial
 - reject
 - answer
 - ring off
 - speak incoming telephone number
- ◆ support sound transmission, you can switch the calling in the state of hands-free to cellphone or cellphone to hands-free (cellphone port need to support)
- ◆ paired several cellphone in the same time
- ◆ the function of sound automatically becoming mute during calling
- ◆ Adjust function of the calling volume (volume-low to loud: 15 steps)
- ◆ LED indicator light function
- ◆ Mute function
- ◆ Support Bluetooth cellphone V1.0、 1.1、 1.2 and 2.0
- ◆ Work temperature rang : -20 ~ +75
- ◆ Storage temperature range : -40 ~ +85

3. Pin definition

Pin	Name	Describe	Input/output	Electric speciality
1	LED0	LBD indication, high voltage indicates light.	Output	VoL:0—0.3v,VoH:2—VCC Drive current : 5mA
2	Mute	Mute output, it is low voltage during calling, usual is high voltage.	Output	VoL:0—0.3v,VoH:2—VCC Drive current : 5mA
3	LED1	LBD indication, high voltage indicates light.	Output	VoL:0—0.3v,VoH:2—VCC Drive current : 5mA
4	RTS	General serial asynchronism communication flow control: request send	Output	VoL:0—0.3v,VoH:2—VCC
5	CTS	General serial asynchronism communication flow control: CTS	Input	ViL:0—0.7v,ViH:2—VCC+0.3
6	RXD	General serial asynchronism communication data input	Output	VoL:0—0.3v,VoH:2—VCC
7	TXD	General serial asynchronism communication data output	Output	VoL:0—0.3v,VoH:2—VCC
8	VCC	Power supply input		3—3.6V, current less than 140mA Support power supply is 400mA
9	Reset	Replacement: low voltage is available, the low voltage more than 5ms	Input	ViL:0—0.7v,ViH:2—VCC+0.3

		supports replacement		
10	Mic_en	Mic benchmark Voltage signal, high voltage while calling	output	VoL:0—0.3v,VoH:2—VCC Drive current : 5mA
11	Mic_N	Mic difference input	Analog input	
12	Mic_P	Mic difference input	Analog input	
13	Spk_P	Loudhailer output positive	Analog output	0---1000mV Drive power less than 10mW
14	Spk_N	Loudhailer output negative	Analog output	0---1000mV Drive power less than 10mW
15	GND	GND		

4. electric characteristic

Parameter	Min	Typ	Max	Units
VCC	3	3.3	3.6	V
IO input voltage	-0.3		VCC+0.3	V
Voltage wave			50	mV
Work temperature	-40	25	85	°C
Loudhailer connects power magnifier input resistance			20k	ohm
Loudhailer connects power magnifier drive power			40	db
Mic sensitive	-44		-47	db
Mic work voltage		2		V
Mic direct current resistance		2.2k		ohm
Mic spaces	0.6			m

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loudhailer				
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Electric characteristic—— power consume

Parameter	Min	Typ	Max	Units
Calling		137		mA
Inquiry			83 . 2	mA
Bluetooth connect	14		16.5	mA
Dormancy	1.4		6.6	mA

AC electric characteristic

Parameter	Min	Typ	Max	Units
Mic signal input	0		1.2	V
Sampling speed	8		11	Khz
Mic signal input SNR		78		db
Mic signal input THD+ noise		70		db
Mic signal input resistance		20		K
Loudhailer output resistance		1K		
Loudhailer output rang	0		1000	mV
Loudhailer output SNR		78		db
Loudhailer output THD+ noise		70		db
ESD protection			5000	V
RF distance (open area) (connect antenna)			25	m
RF distance (inside vehicle) (connect antenna)	10			m
RF output		4	6	dbm

5. Direction of the indicator state

- Electrify
LED0 input 5 times with high voltage, winks 5 times rapidly while connect indicator light ;
- Standby state
LED0 every 3 seconds input high voltage with 2 times, LED1 keep low voltage;
- Pair mode
LED0 and LED1 output high voltage alternately (winks alternately while connects high voltage)
- Connect state
LED0 every 3 seconds output high voltage with 2 times, LED1 keeps low voltage:
(LED0 indicator every 3 seconds winks 2 times while connects indicator light)
- Calling
LED0 every 1 second output high voltage: LED1 keeps low voltage (LED0 indicator every 1 second winks 1 times while connects indicator light)

6. mute output explanation

Mute – sets as high voltage while in the state of dial No, calling or sound connecting, sets as low voltage in other states. That means output high voltage as bluetooth need using sound, or output low voltage when in no use.

7. UART Port (AT Command explain)

Send command	Reply	Explain
	\r\n+OPEN:c\r\n	Return after module electrifies and initializes, it shows the module stored c units of the paired information.
AT\r\n	\r\nOK\r\n	Test command
AT+VERSION?\r\n	\r\n+VERSION:xxxxxxx\r\n	Enquire version No.
AT+HF=0\r\n AT+HF=1\r\n	\r\nOK\r\n	Set as earphone mode(0) or hands-free mode(1). Default (0) , usually have no use for

		switching. Mostly it is used when paired, and it would automatically switch mode when connecting.
AT+PAIR=n\r\n	\r\nOK\r\n	Module enters into pairing state. 0- circle pair. That means according to the fundamental of FIFO, keep or take paired information 1-3 orientation pair. That means let the current paired information of the cellphone keeps into fixed code of the module.
AT+CANCEL\r\n	\r\nOK\r\n	Cancel pairing
	\r\n+PAIR:c,n\r\n	Pair successful. C indicates module has stored c units paired information of the cellphones. N indicates the code of the current paired cellphone information, which would be stored into module.
	\r\n+PAIR:ERROR\r\n	Pair failed.
AT+DISC=n,0\r\n AT+DISC=n,1\r\n	\r\nOK\r\n	Cut off connection with Bluetooth cellphone. Establish connection with Bluetooth cellphone. (n indicates the code which is stored into module by Bluetooth cellphone, that means the return code when pairing.)
	\r\n+MODE:n,m\r\n	Data chain (ACL) connects successfully. n: the code which is stored into module by Bluetooth cellphone. m: earphone mode(0) or hands-free mode(1)

	\r\nDISC\r\n	Cut off the joint between module and cellphone.
AT+CIND\r\n	\r\nOK\r\n	Read cellphone state.
	\r\n+CIND:a,s,f\r\n	Cellphone state a : indicates if establish data chain(ACL) between module and cellphone. s : indicates if establish sound chain(SCO) between module and cellphone. f : 0 indicates there is out of phone,1 indicates this phone comes from others,2 indicates local phone dials out.
ATDxxxxxxx\r\n	\r\nOK\r\n	Dial-up(xxxxxxx indicates phone No.)
ATD>xxx	\r\nOK\r\n	Dial-up(xxx indicates the position where cellphone should store phone No.)
AT+BLDN\r\n	\r\nOK\r\n	Redial last time No.
AT+BVRA=1\r\n	\r\nOK\r\n	1 – startup sound dial-up.
AT+BVRA=0\r\n	\r\nOK\r\n	0 – close sound dial-up.
	\r\n+BVRA:1\r\n	The state of sound dial-up.
AT+CLIP=1\r\n	\r\nOK\r\n	Permit/forbid coming telephone. Default: permit.
AT+CLIP=0\r\n	\r\nOK\r\n	Permit/forbid coming telephone. Default: permit.
	\r\nRING\r\n	Incoming telephone.
	\r\n+CLIP:xxxxxxx\r\n	Incoming telephone No.(xxxxxxx indicates phone No.)
ATA\r\n	\r\nOK\r\n	Answer
AT+CHUP\r\n	\r\nOK\r\n	Hang up
AT+VGS=0 ,c\r\n	\r\nOK\r\n	Earpiece volume turn to m (0<=c<=15)
AT+VGS=1 ,c\r\n	\r\nOK\r\n	Earpiece volume add 1 (c is invalidation here)
AT+VGS=2 ,c\r\n	\r\nOK\r\n	Earpiece volume minus 1 (c is invalidation here)
	\r\n+VGS:c\r\n	Volume return Volume value of the current earpiece.

	\r\nNo Carrier\r\n	The opposing party hangs up or rejects (allows cellphone port to support)
AT+SWT=1\r\n AT+SWT=0\r\n	\r\nOK\r\n	Sound transmit (1- sound sends to module port,0-sound sends to cellphone port, allows cellphone port to support.)it can realize the function of privacy mode. Use circs: When sound stays on module port, though the way of sending AT+SWT=0 to realize the function of privacy mode letting sound switch back to cellphone port.
	\r\n+SWT:0\r\n \r\n+SWT:1\r\n	Sound direction (1- sound stay on hands-free port;0- sound stay on cellphone port)
AT+VTS=m\r\n	\r\nOK\r\n	Send key-press information to cellphone(m : 0~9 , * , #)
AT+CPBS=?\r\n	\r\nOK\r\n	Enquire the value CPBS supporting
	\r\n +CPBS:("SM", "ME", "RC", "MC", "DC")\r\n	the value CPBS supporting
AT+CPBS=type\r\n	\r\nOK\r\n	Set “ SM” ;“ ME” ;“RC” ;“MC” ;“DC” , It respectively indicates card, cellphone, answered phone, miss phone, dialed phone. For example : AT+CPBS= “ SM ”
AT+CPBS?\r\n	\r\nOK\r\n	Enquire current value of CPBS
	\r\n +CPBS:"SM"\r\n	current value of CPBS
AT+CSCS=?\r\n	\r\nOK\r\n	Enquire support value of CPBS
	\r\n +CSCS:("xxx" , "xxx", "xxx",...)\r\n	The value CSCS supporting
AT+CSCS=type\r\n	\r\nOK\r\n	Set chinese coding format which returns the name of phone No. “ GB2312”、“UNICODE”、“ UTF8”、 “ xxx”、 ... For example :AT+CSCS=“ GB2312 ”
AT+CSCS?\r\n	\r\nOK\r\n	Enquire current CSCS value

	+CSCS:"GB2312"\r\n	current CSCS value
AT+CPBR=?\r	\r\nOK\r\n	Enquire the storage of the cellphone book
	\r\n+CPBR(s - e)\r\n	the storage of the cellphone s : start bit e : stop bit
AT+CPBR=s,e\r\n	\r\nOK\r\n	Read cellphone or SIM phone book s : read phonebook start bit e : read phonebook stop bit (s < e) s = 1 e =999 Read all No. in phone book.
	\r\n+CPBR:n,xxxxxxxx,mmmm\r\n	Read phone record n : phone serial No. xxxxxxxx: phone No. mmmm : phone name
	\r\nOVER\r\n	Done with phone book reading
AT+COPS?\r\n	\r\nOK\r\n	Enquire running merchandiser
	\r\nCOPS:comp\r\n	running merchandiser informaton
AT+CSQ\r	\r\nOK\r\n	Enquire cellphone signal value
AT+CSQ=1\r AT+CSQ=0\r	\r\nOK\r\n	
	\r\n +CSQ:rssi \r\n	Cellphone signal value Rssi indicates signal value
AT+RNAME\r	\r\nOK\r\n	Enquire cellphone name
	\r\n+RNAME:name\r\n	cellphone name
	\r\n+CBC:batt\r\n	Batt indcates cellphone electric capacity
	\r\n+ROAM:ind\r\n	Ind indicates current cruising state
AT+USERID=xxxx	\r\nOK\r\n	Amend module name
AT+INIT	\r\nOK\r\n	Delete all paired informations and renew leaving factory setting.
AT+DFU?\r	\r\nOK\r\n	Read online-upgrade random value.
	\r\n+DFU:ran\r\n	Upgrade random value.
AT+DFU=ran\r	\r\nOK\r\n	Enter into upgrade state.

Warning : do not get into upgrade state under normal state, or else program can not work.



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