CSR8645 Manual

Contents

1. **CSR8645**

1.1 **Product Description**

This module master uses CSR's BC8645 chip to provide high quality sound quality and compatibility for the module, and overall performance is superior. Bluetooth module using the drive-free way, customers only need to access the application module, you can quickly achieve the music wireless transmission, enjoy the fun of wireless music. Support high-quality audio APT-X digital transmission, and can connect two main devices Bluetooth. After the module is switched on automatically connected to the last pairing phone, the penultimate paired phone needs to be manually connected. If the 6 pairing devices are turned on at the same time, the last pairing phone is automatically connected。

1.2 **Application areas**

The module is mainly used for short distance music transmission, and can easily and notebook computers, mobile phones, PDA and other digital products connected to the Bluetooth device to achieve the wireless transmission of music。

1) Stereo Bluetooth speakers；
2) Stereo Bluetooth Headset；
3) Bluetooth handsfree calls；
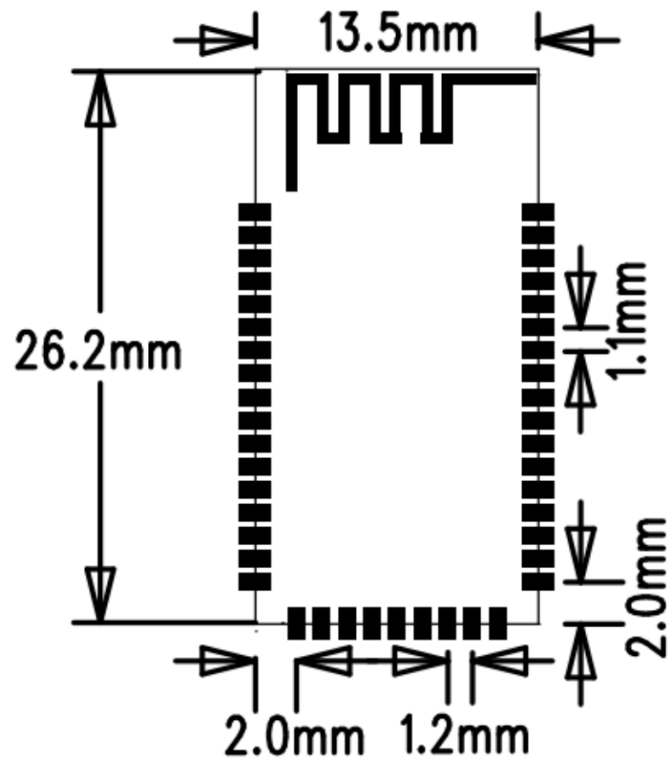4) Bluetooth control and multimedia devices；

1.3 **Basic features**

1) Bluetooth v4.0；
2) A2DP v1.2；
3) AVRCP v1.4；
4) HFP v1.6；
5) GAVDP1.2；
6) HSP1.2。

1.4 **Property**

Model	CSR8645
Bluetooth specifications	Bluetooth V4.0
Modulation mode	GFSK，π/4 DQPSK，8DPSK
Supply voltage	BAT：3.3-4.2V；
Support for Bluetooth protocol	HFPV1.6, A2DPV1.2,AVRCPV1.4，HSPV1.2
Working current	≤30mA
Standby current	<50uA
temperature range	-40ºC ~ +85ºC
Wireless transmission range	≤10M
Transmission power	Class1/Class2/Class3 9dbm
Sensitivity	-80dBm<0.1%BER
Frequency Range	2.4GHz~2.480GHz
Audio performance	ACC，MP3，SBC，APT-X
Audio signal to noise ratio	≥75dB
Distortion	≤0.1%

1.5 **Module Size**

PAD SIZE：R1_6x0_8MM

1.1 Module Size

1.6 **IO Definition**

IO Number	IO Name	IO Description
1	LED2	Unused
2	LED1	LED driver(Open drain output)
3	LED0	LED driver(Open drain output)
4	AIO0	Unused
5	MISO	SPI port
6	CSB	SPI port
7	CLK	SPI port
8	MOSI	SPI port
9	SPI_EN	SPI/PCM select input
10	TX	Unused
11	RX	Unused
12	VBUS	Unused
13	RST#	Reset if low. Input debounced so must be low for >5ms to cause a reset
14	BAT	Battery Power supply input for 3.3~4.2V
15	POWER_EN	Power on/off input key indication
16	1.8V	Internal 1.8V
17	GND	Ground
18	CHG_EXT	Unused
19	BAT_SENSE	Unused
20	PIO10	Unused
21	PIO11	Unused
22	PIO12	Unused
23	PIO13	Unused
24	USB_N	USB data minus
25	USB_P	USB data plus with selectable internal 1.5kΩ pull-up resistor
26	MUTE（PIO9）	MUTE
27	PIO6	Unused
28	P.P/CALL（PIO7）	P.P/CALL
29	PIO8	Unused
30	PREV（PIO18）	PREV
31	NEXT（PIO19）	NEXT
32	VOL-（PIO20）	VOL-
33	VOL+（PIO21）	VOL+
34	MIC_BIAS	Microphone bias
35	MIC_AN	MIC_AN input negative
36	MIC_AP	MIC_AP input positive
37	MIC_BN	Unused
38	MIC_BP	Unused
39	SPK_R_N1	Speaker output negative right
40	SPK_R_P1	Speaker output positive，right
41	SPK_L_N1	Speaker output negative，left
42	SPK_L_P1	Speaker output positive，left
43	RFOUT	Unused

1.7 Precautions

1. If the module antenna next to the battery, metal, LCD screen, speakers, etc., from the antenna at least 3cm away from the proposed, or the proposed external antenna.
2. Layout of the bus line recommended the use of star routing, and to ensure that the Bluetooth module power supply line performance is better. There are BT and the op amp, amplifier, MCU and other places to separate, and BT side can not have other interference, it is recommended that the Bluetooth module on the floor corner.
3. It is recommended that the module antenna part float outside the bottom plate, the antenna can not go around the control line, power lines, audio lines, MIC and other interference lines, if the module to be placed in the middle, the antenna should be around the slot, Set the antenna.
4. If the module antenna near the row of seats, the shell has a metal wire and other signals have an impact, it is recommended to use an external antenna to solve the problem of distance.
5. Module external amplifier, you must access the differential input amplifier, if not connected to the input power amplifier, you must take an op amp to balance the two differential levels, otherwise there will be "flap" of the impact。