



## The Bluetooth module F-3299 Manual

### 一、 Product overview:

F-3299 is a Bluetooth 4.2 class 2 module which is a high performance, cost effective, low power and compact solution. The Bluetooth class 2 module provides a complete 2.4GHz, Bluetooth system based on CSRA64215 chip which is a single chip radio and baseband IC for Bluetooth 2.4GHz systems. This module is fully compliant to Bluetooth v4.2 for audio communications.

### 二、 Application Area :

- ※ Bluetooth speaker
- ※ Bluetooth stereo headphones
- ※ hands-free calling
- ※ bluetooth wireless audio transmission

### 三、 Main Features:

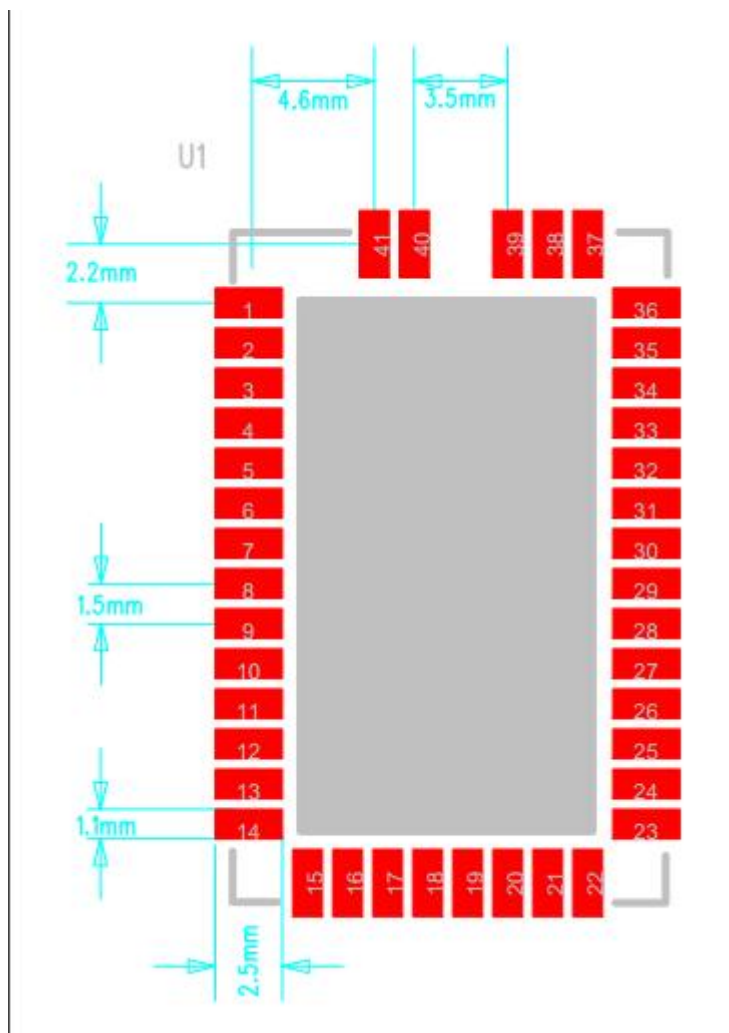
- ※ Bluetooth V4.2 specification support
- ※ AVRCP V1.6
- ※ A2DP V1.6
- ※ HFP V1.6
- ※ HSP V1.2
- ※ DI V1.3
- ※ TrueWireless Stereo (TWS)
- ※ Multipoint support for A2DP
- ※ Code formats support aptX, aptX Low Latency, SBC, AAC( CSRA64215 supports APT-X lossless encoding)
- ※ 10 EQ adjustment built-in
- ※ MeloD Expansion 3D, Support 3D audio
- ※ Support dynamic range of Audio compression
- ※ 12. Support Multiple languages

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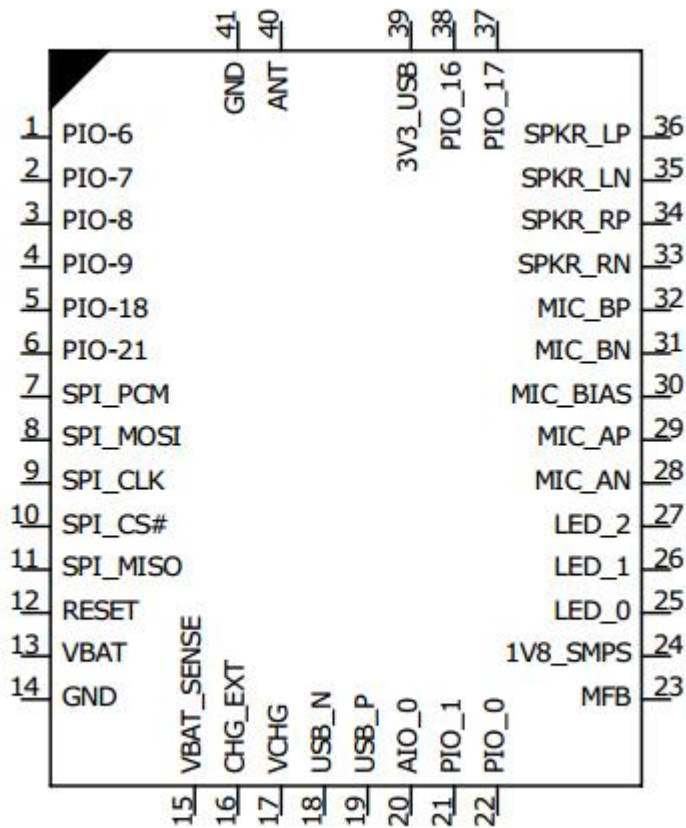
#### 四、Parameters:

Model	F-3299
Bluetooth version	Bluetooth V4.2
Modulation mode	$\pi/4$ DQPSK, 8DPSK
Voltage:	3.3-4.2V
Bluetooth protocol	HFP V1.6, HSP V1.2, A2DP V1.3, AVRCP V1.6, DI V1.3
Working Current	$\leq 30\text{mA}$
Standby Current	$< 50\mu\text{A}$
Temperature range	$-40^{\circ}\text{C}$ to $+80^{\circ}\text{C}$
Wireless transmission range	More than 10 meters
Power :	Support CLASS1/CLASS2/CLASS3 Up to 9dBm
Sensitivity:	-92.0 dBm (typ) $\pi/4$ DQPSK receiver sensitivity -82.0 dBm (typ) 8DPSK receiver sensitivity
Frequency:	2.4GHz-2.480GHz
External Port:	PIO/SPI debug/PCM/IIS/Audio in/out/MIC/USB
Audio performance	aptX, aptX Low Latency, SBC and AAC
Audio SNR:	$\geq 75\text{dB}$
Distortion measure	$\leq 0.1\%$
Module dimension	$23.8 \times 14.9 \times 1.8\text{MM}$

五、 The size of the module graph:



-六、 Module pin definition diagram



七、 Pin description

Pin	Symb	I/O	Description
1	PIO-6	Bi-directional with strong pull-down	Programmable input/output
2	PIO-7	Bi-directional with strong pull-down	Programmable input/output
3	PIO-8	Bi-directional with strong pull-down	Programmable input/output
4	PIO-9	Bi-directional with strong pull-down	Programmable input/output
5	PIO-18	Bi-directional with weak pull-down	Programmable input/output
6	PIO-21	Bi-directional with weak pull-down	Programmable input/output

		pull-down	
7	SPI-PCM	Input with weak pull-down	SPI/PCM select input/0-PCM/PIO 1-SPI 0: PCM/PIO interface 1: SPI
8	SPI-MOSI	Bi-directional with weak pull-down	Programmable input/output SPI-MOSI PCM synchronous data input
9	SPI-CLK	Bi-directional with weak pull-down	Programmable input/output SPI -CLK PCM synchronous data clock
10	SPI-CS	Bi-directional with weak pull-down	Programmable input/output SPI CS# PCM synchronous data sync
11	SPI-MISO	Bi-directional with weak pull-down	Programmable input/output SPI-MISO PCM synchronous data output
12	RST		Reset if low,pull low minimum 5ms to case a reset
13	VBAT	Battery positive terminal	DC3.3-4.2V
14	GND	Ground	Ground connect battery negative
15	VBAT-SENSE		Battery charger sense input
16	CHG_EXT	External Battery charger	Charge
17	VCHG	Battery charger	DC5V charge input
18	USB-N	Bidirectional	USB data minus
19	USB-P	Bidirectional	USB data plus
20	AIO-0	Bidirectional	Reset if low. Pull low for minimum 5 ms to cause a reset
21	PIO-1	Bi-directional with strong pull-up	Programmable input/output UART_TX:UART data output
22	PIO-0	Bi-directional with strong pull-up	Programmable input/output UART_TX:UART data input
23	MFB	POWER	Regulator enable input
24	1V8_SMPS	POWER	1V8 output
25	LED-0	Bi-directional	LED Driver

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26	LED-1	Bi-directional	LED Driver
27	LED-2	Bi-directional	LED Driver
28	MIC-AN	Analogue in	MIC-A negative input
29	MIC_AP	Analogue in	MIC-A positive input
30	MIC-BIAS	POWER	MIC bias
31	MIC-BN	Analogue in	MIC-B negative input
32	MIC-BP	Analogue in	MIC-B positive input
33	SPK_RN	Analogue out	Speaker output negative, right
34	SPK_RP	Analogue out	Speaker output positive, right
35	SPK_LN	Analogue out	Speaker output negative, left
36	SPK_LP	Analogue out	Speaker output positive, left
37	PIO-17	Bidirectional with strong pull-down	Programmable input/output UART-CTS
38	PIO-16	Bidirectional with strong pull-uo	Programmable input/output UART-RTS
39	3V3_USB	PWOER	Usb power output
40	ANT	RF pin	Bluetooth 50R transmitter output /receiver input
41	GND	Ground pin	Connect to ground

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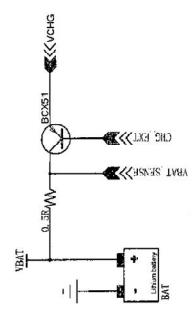
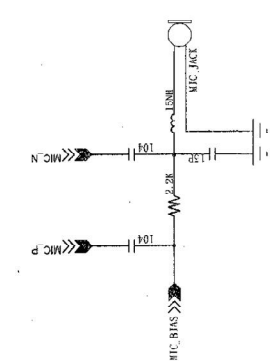
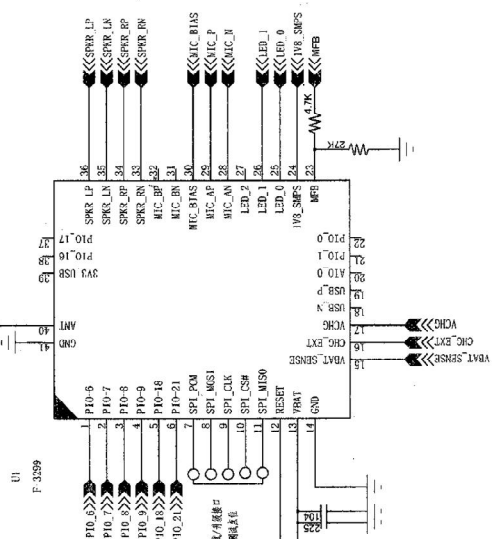
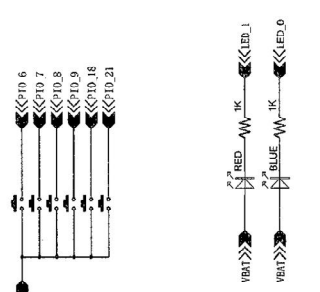
-八、 matters needing attent

- A. A. if a battery module antenna, next to the metal, liquid crystal screen, loudspeaker, at least from the antenna from the 15mm
- B. B. layout power lines suggest using star line, and to ensure that the Bluetooth module power supply linearity is better, and BT to be operational amplifier, power amplifier, separate etc., and the underside of the BT have no other interference.
- C. do not go around the antenna control line, power line, audio line, MIC interference lines
- D. if the module antenna near a row seat, shell with metallic iron net impact on signal, recommend the use of professional high gain antenna
- E. Noted:1. the use of internal charging current up to 250mA., the use of external charging current up to 750 ma.

九、 The application circuit:

REVISION RECORD		
DATE	REV. NO.	APPROVED

按键功能可以自由定义  
 逻辑控制IO口固定使用，如下：  
 MUTE-PIO\_6 (播放: H/暂停: L)  
 开机出高电平-PIO\_7



COMPANY:		C_chip	
TITLE:			
DRAWN:		DATE:	
CHECKED:	DATE:	SIZE:	DRAWING NO:
QUALITY CONTROL:	DATE:	B	CSR_64XXX_module_sch
DATE:	DATE:	SCALE:	1.0
SHEET: 1 OF 1			



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†. Print PCB antenna selection

**Real Designs**

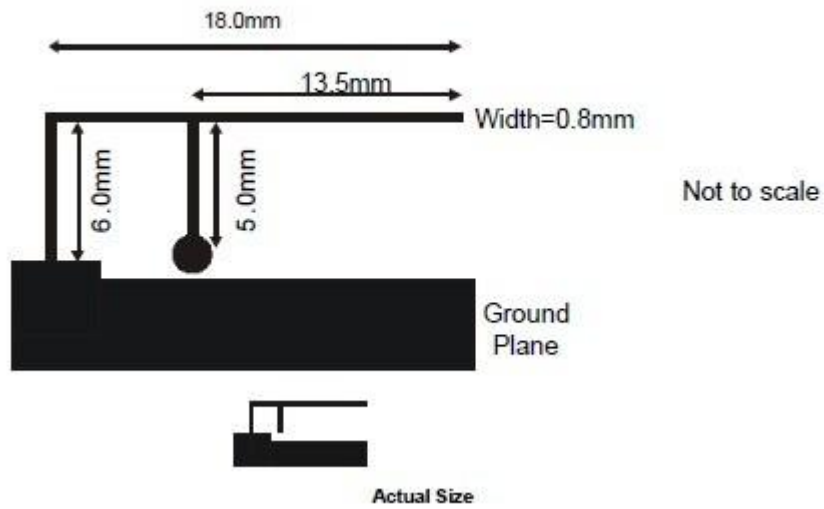
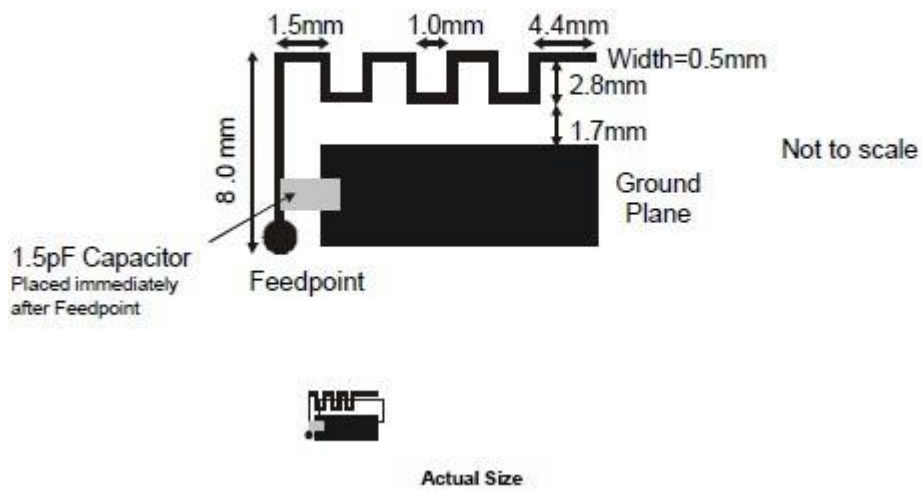
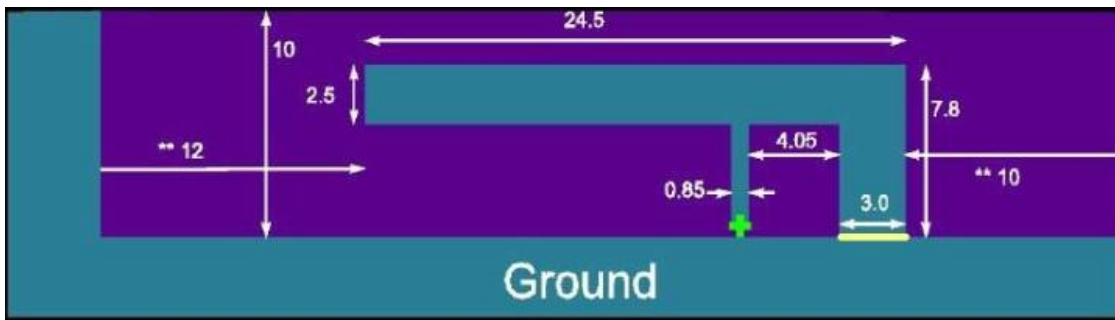
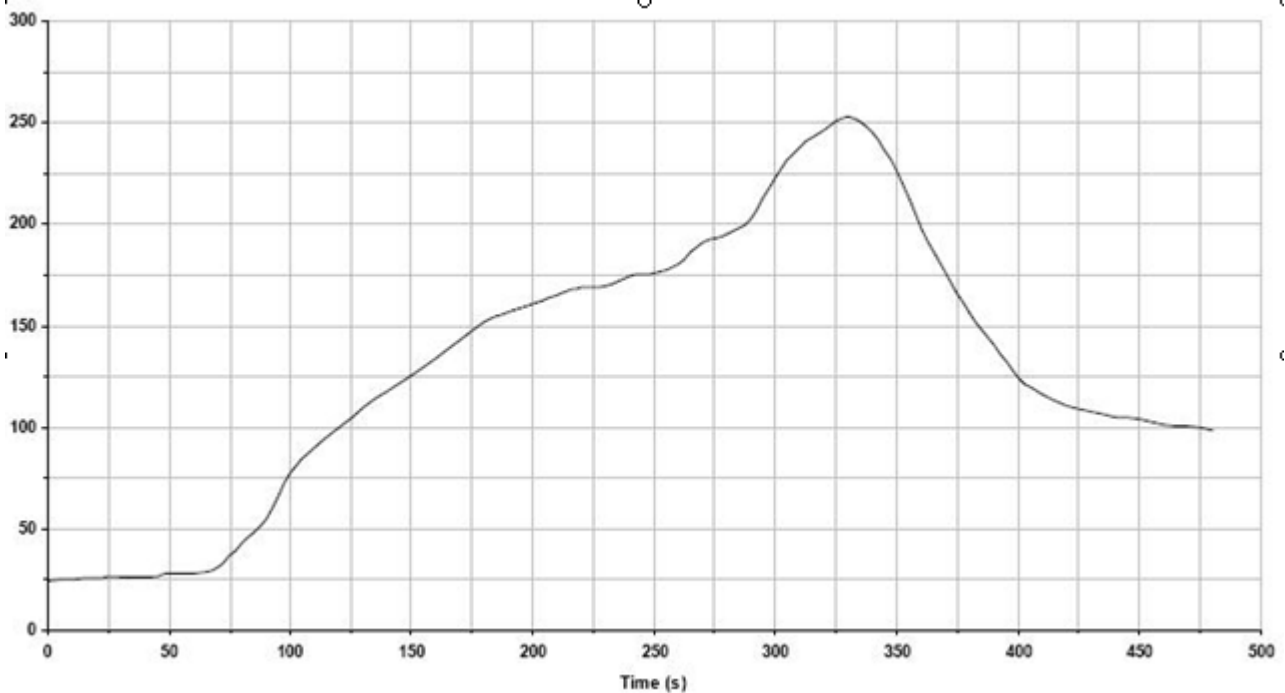


Figure 4.1: Approximate Dimensions of Inverted-F Antenna





## 十二、 Recommended reflow



Key features of the profile:

- Initial Ramp=1-2.5°C/sec to 175°C equilibrium
- Equilibrium time=60 to 80 seconds
- Ramp to Maximum temperature (250°C)=3°C/sec Max
- Time above liquidus temperature(217°C): 45 - 90 seconds
- Device absolute maximum reflow temperature: 250°C