博 昊 科 技 有 限 公 司
BOUGH TECHNOLOGY COMPANY LIMITED
Room626-630,F Building,Digital Silicon Valley Industrial Park,HengPing Road
HengGang Street,LongGang District,ShenZhen,GuangDong,China.
Tel：+86 755 28918311 Fax：+86 755 28919311. www.bough.com.cn

BG314

Bluetooth Audio Module

Specification

Ver:12

Version Update

Item	Version	Date	Description
1	V10	Oct13，2013	The First Version
2	V11	May17，2014	Change Module Pad Size
3	V12	July09，2014	Change Pin Define

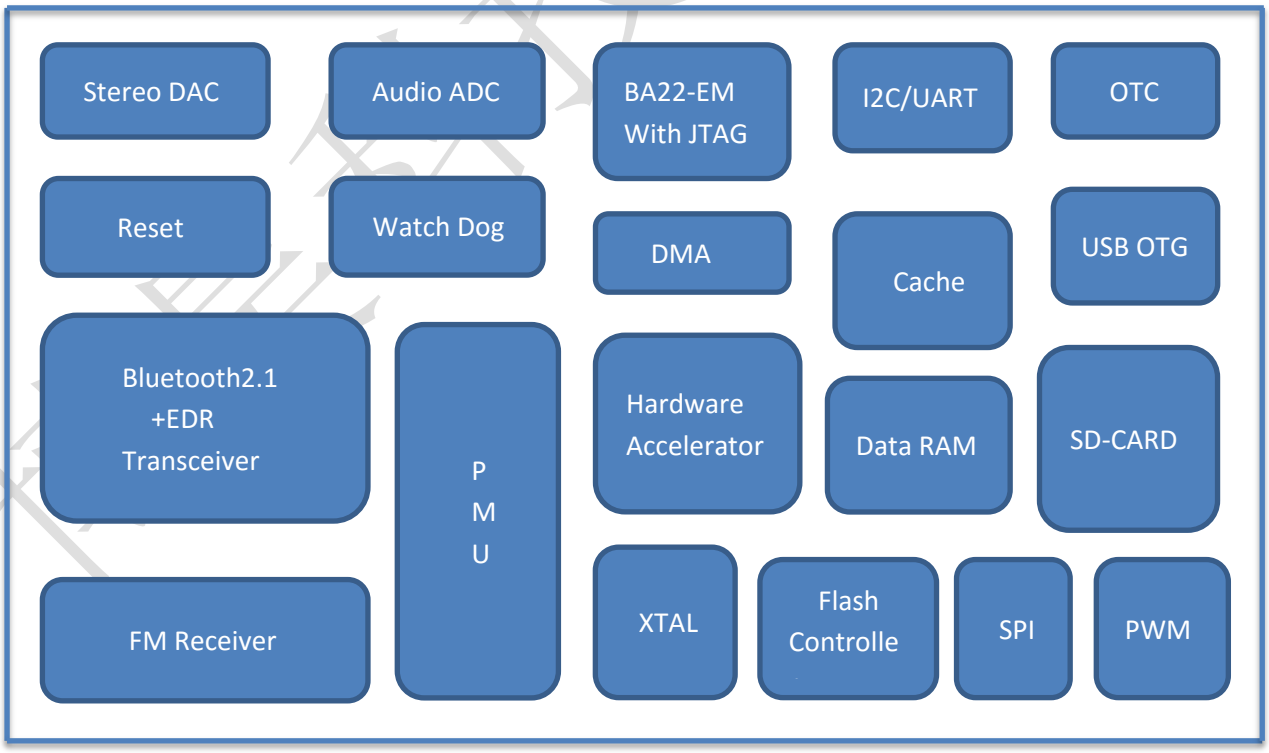
DESCRIPTION

The BG314 Module is a highly integrated single-chip Bluetooth multimedia device. It integrates Bluetooth transceiver, FM receiver, SD-card interface, USB OTG, and high performance audio peripheral. The BG314 cache based architecture enables it is fully programmable with any application, that it may be used for control and multimedia hybrid application, BG314 using the control chip BK3254

FEATURES

- Operation voltage from 2.8V to 5.2V
- Bluetooth 2.1+EDR compliant
- -90dBm sensitivity for 1Mbps mode and 5dB transmit power
- -107dBm sensitivity FM receiver
- 1-wire or 4-wires SD-card interface
- USB2.0 host and device
- Integrated 90dB SNR ADC and stereo DAC
- I2C,SPI and Uart interface
- Bluetooth A2DP,AVRCP and HFP profile

Chip Block Diagram



DC CHARACTERISTICS

Absolute Maximum Ratings

PARAMETER	DESCRIPTION	MIN	TYP	MAX	UNIT
VCCBAT	Battery regulator supply voltage	-0.3	3.3	5.5	V
PRX	RX input power	-	10	-	dBm
VCCIO	IO interface voltage	-0.3	2.8	4.2	V

Recommended Operating Conditions

PARAMETER	DESCRIPTION	MIN	TYP	MAX	UNIT
VCCBAT	Battery regulator supply voltage	2.8	4.2	5.5	V
VCCIO	IO interface voltage	1.8	-	3.6	V

Typical Power Condition

STATE	DESCRIPTION	MIN	TYP	MAX	UNIT
Shut down	Software shut down,wake up from GPIO	-	30	-	uA
Bluetooth Idle-Sniff	Idle state at Sniff mode	-	3	-	mA
Active (A2DP)	3DH1	-	45	-	mA
Active (HFP)	HV1	-	50	-	mA

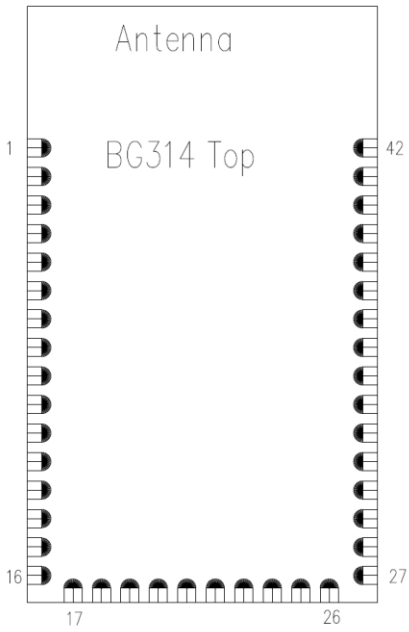
Bluetooth Characteristics

PARAMETER	Condition	MIN	TYP	MAX	UNIT
Operate Frequency	2402-2480	2402		2480	MHZ
RXSENS-1Mbps	BER=0.001		-90		dBm
RXSENS-2Mbps	BER=0.0001		-92		dBm
RXSENS-3Mbps	BER=0.0001		-84		dBm
Maximum received signal	BER=0.001	0			dBm
Maximum RF transmit power			5		dBm
RF Power Control Range		30			dB

Audio Characteristics

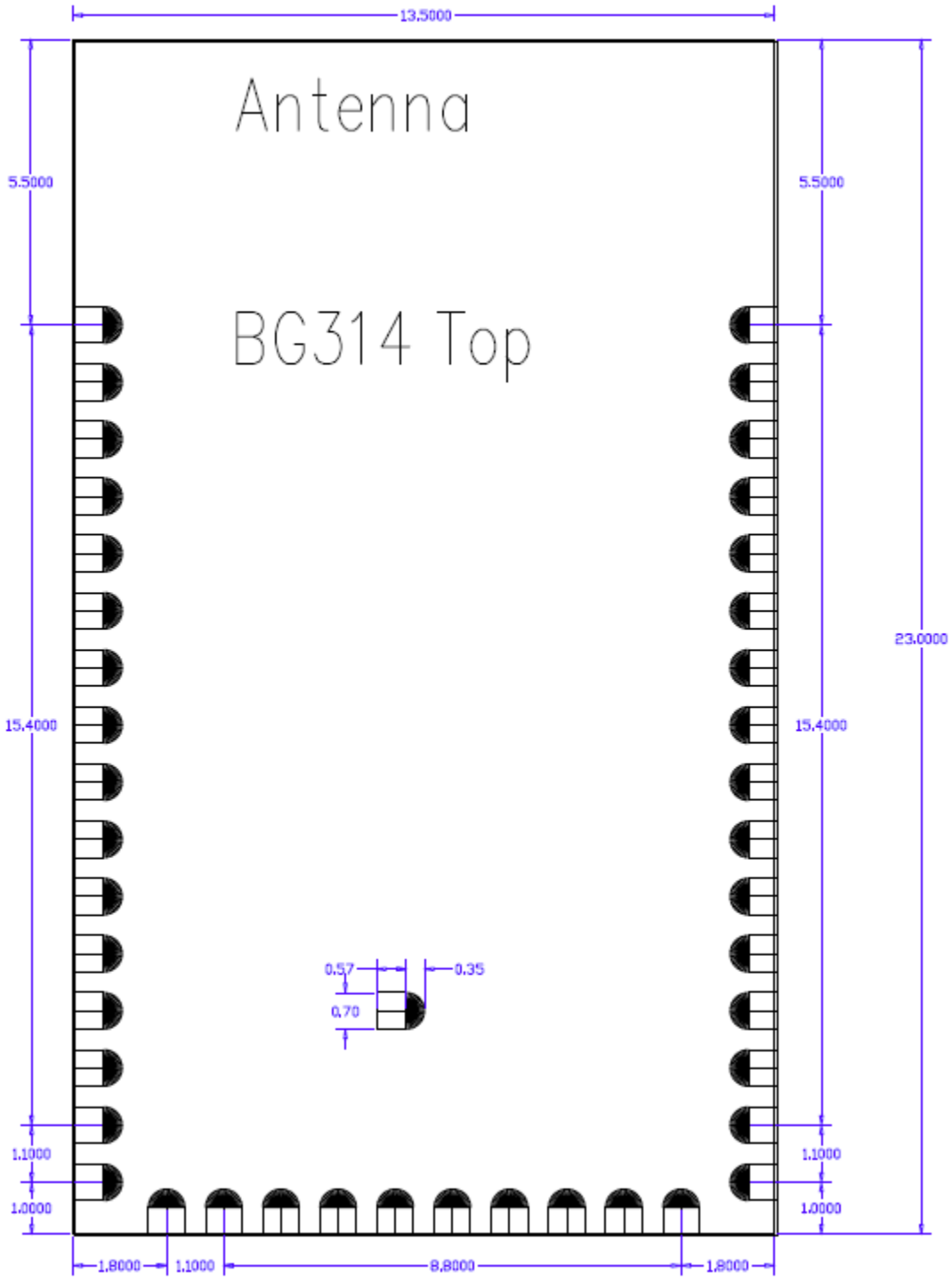
Parameter	Condition	MIN	TYP	MAX	UNIT
DAC Output Amplitude	Single-end Output			1	Vrms
DAC Noise Floor	@600ohm loading		-89		dBm
DAC Dynamic Range	1KHZ Sine wave		90		dB
DAC SNDR	Single-end@1.0Vrms		75		dB
DAC Sample Rate		8		48	KHZ
ADC SNDR	1KHZ Sine wave		96		dB
ADC Sample Rate		8		16	KHZ

PIN Define



Pin No	PIN Name	PIN Type	Description		PIN Name	PIN Type	Description
1	GND	Ground	RF Ground	22	GPIO08	Digital I/O	NC
2	ANT	Antenna	External Antenna	23	GPIO07	Digital I/O	NC
3	GND	Ground	RF Ground	24	VDD3IO_FLA		VDD3IO
4	GND	Ground	RF Ground	25	VDD_SYS		VCC_SYS
5	GPIO01	Digital I/O	Uart RXD	26	GND	Ground	AGND
6	GPIO00	Digital I/O	Uart TXD	27	VBAT		VCC
7	GND	Ground	AGND	28	GPIO04	Digital I/O	KEY
8	CH_R		Audio R output	29	GPIO11	Digital I/O	NC
9	CH_L		Audio L output	30	GPIO10	Digital I/O	NC
10	AGND	Ground	AGND	31	GPIO019	Digital I/O	TMS
11	AUX_R		AUX R intput	32	GPIO018	Digital I/O	PA_MODE
12	AUX_L		AUX L intput	33	TDO		AUX_DET
13	MIC		MiC intput	34	TDI		TDI
14	MICREF		MICREF	35	GPIO017	Digital I/O	LED1
15	FMINP		AGND	36	GPIO016	Digital I/O	LED
16	FMINN		FM RF	37	GPIO015	Digital I/O	NC
17	GND	Ground	AGND	38	GPIO014	Digital I/O	SD_D0
18	GPOI02	Digital I/O	USB_D+	39	GPIO013	Digital I/O	SD_CMD
19	GPOI03	Digital I/O	USB_D-	40	GPIO012	Digital I/O	SD_CLK
20	GPIO22	Digital I/O	NC	41	GPIO06	Digital I/O	MUTE
21	GPIO09	Digital I/O	NC	42	GND	Ground	AGND

Module Size

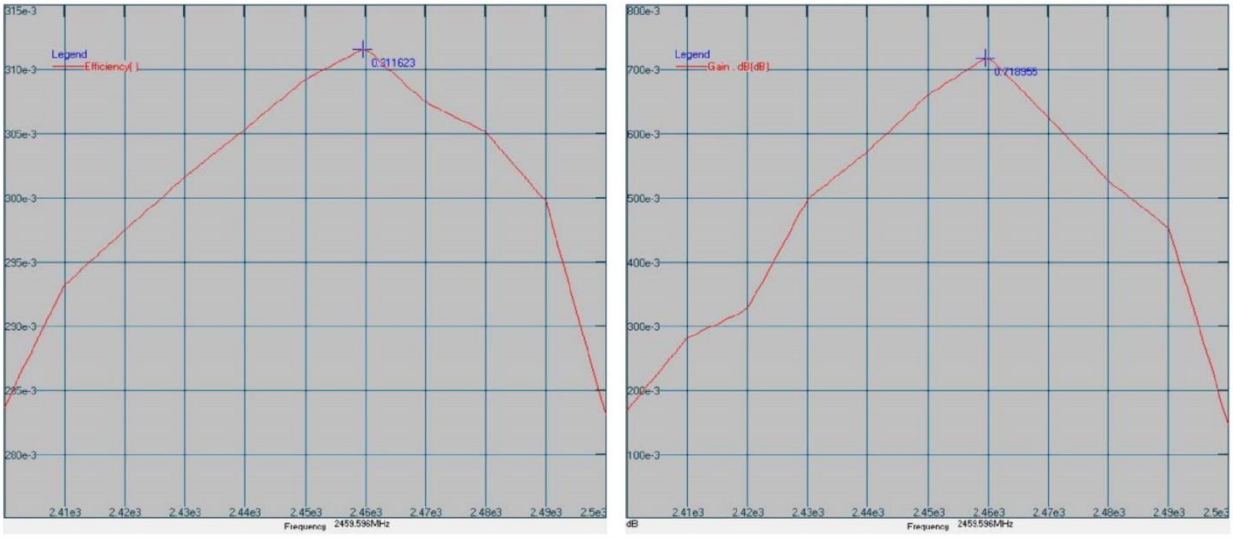

13.5000
Antenna
BG314 Top
5.5000
5.5000
15.4000
15.4000
23.0000
0.57
0.35
0.70
1.1000
1.1000
1.0000
1.0000
1.8000
1.1000
8.8000
1.8000

PCB Antenna Characteristics

Return Loss, VSWR

S11 VSWR

Antenna Efficiency, Peak Gain

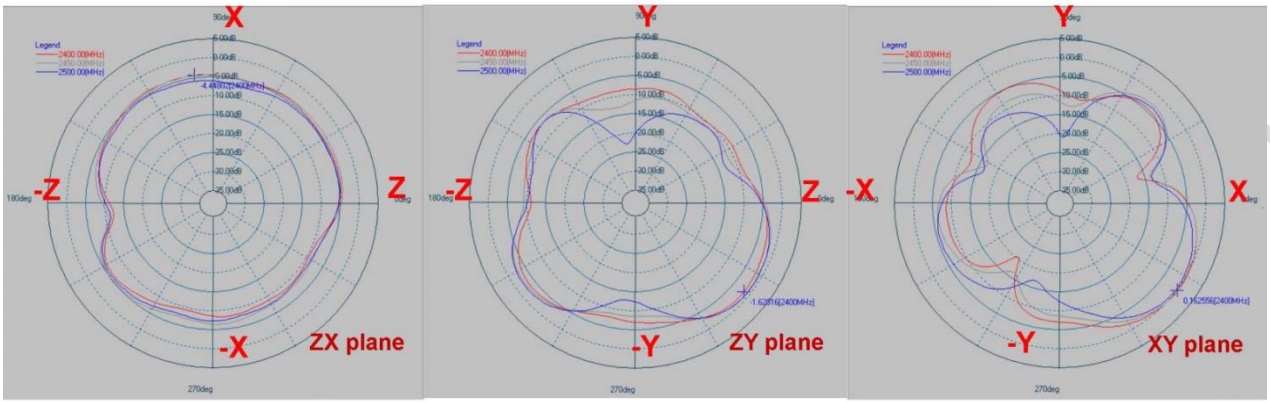


Maximum efficiency at 2.45GHz:31.1%

Maximum Peak Gain at 2.45GHz:0.71dBi

Redaction Patterns

Antenna the Patterns

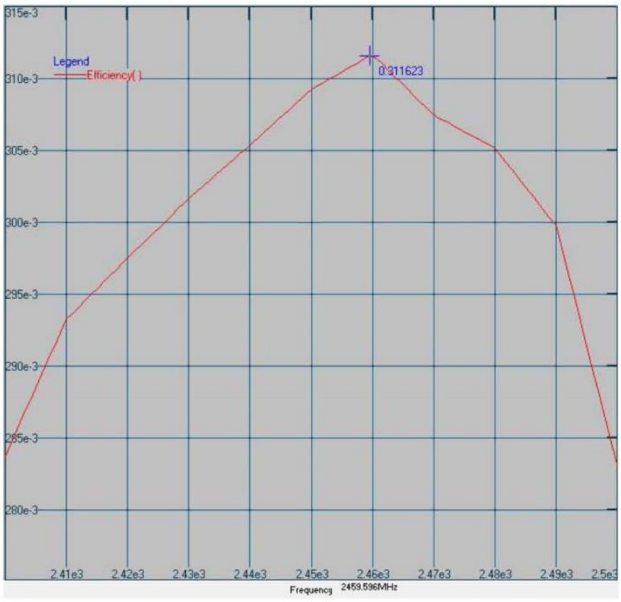


Antenna the Gain table

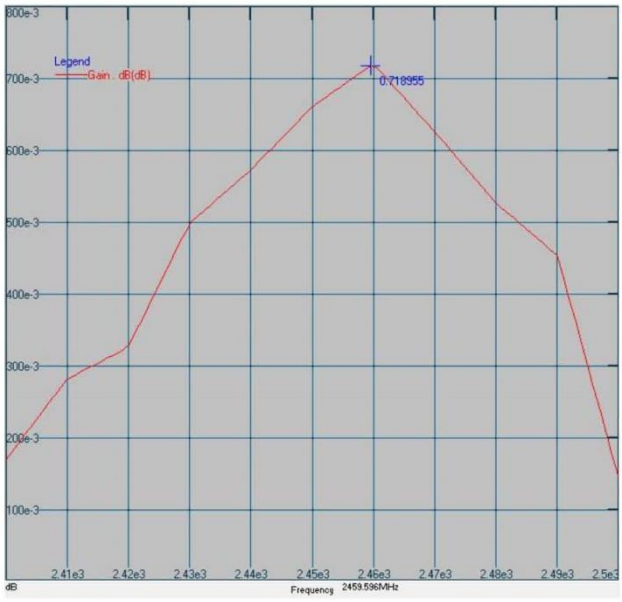
Radiation Pattern			
Plane	**Frequency [MHz]**	**Max Value**	**Average**
ZX	2400	-4.45	-6.45
	2450	-3.95	-5.76
	2500	-4.84	-6.72
ZY	2400	-1.63	-5.97
	2450	-0.90	-5.85
	2500	-0.77	-6.18
XY	2400	0.16	-5.50
	2450	0.32	-5.64
	2500	-0.33	-6.47

Summary

PCB Antenna



(1)



(2)