BOOMTECH SEMICONDUCTORS CO.,LTD

Product Specification

Model :	**BT1212**
REV :	**V1.0**
DRAWN BY：	
CHECKED BY：	
APPD. BY：	

1. Introduction

Boomtech Semiconductors Co., Ltd the pioneer of the Bluetooth 4.0 modules BT1212 which is a high performance, cost effective, low power and compact solution. The Bluetooth module provides a complete 2.4GHz Bluetooth system BlueCore® CSR8670™ BGA consumer audio platform for wired and wireless applications integrates an ultralow-power DSP and application processor with embedded flash memory, a high-performance stereo codec, a power management subsystem, LED and LCD drivers and capacitive touch sensor inputs in a SoC IC. The enhanced Kalimba DSP coprocessor with 80MIPS supports enhanced audio and DSP applications.

2. Key Features

• Fully Qualified Single-chip Bluetooth® v4.0 System
• Receiver sensitivity: -90dBm (basic rate) and -92dBm(EDR)
• 10dBm RF transmit power with level control from on‑chip 6‑bit DAC
• Support for CSR's latest CVC technology for narrow-band and wideband voice connections including wind noise reduction
• Stereo codec with 2 channels of ADC and up to 6 microphone inputs (includes bias generators and digital microphone support)
• Multipoint HFP connection to 2 phones for voice
• Multipoint A2DP connection enables a headset(A2DP) connection to 2 A2DP source devices for music playback
• Audio interfaces: I²S PCM and SPDIF
• aptX, SBC, MP3 and AAC decoder support
• Serial interfaces: UART, USB 2.0 full-speed, I²C
Supported sample rates of 8, 11.025, 16, 22.05, 32,44.1, 48 and 96kHz (DAC only)

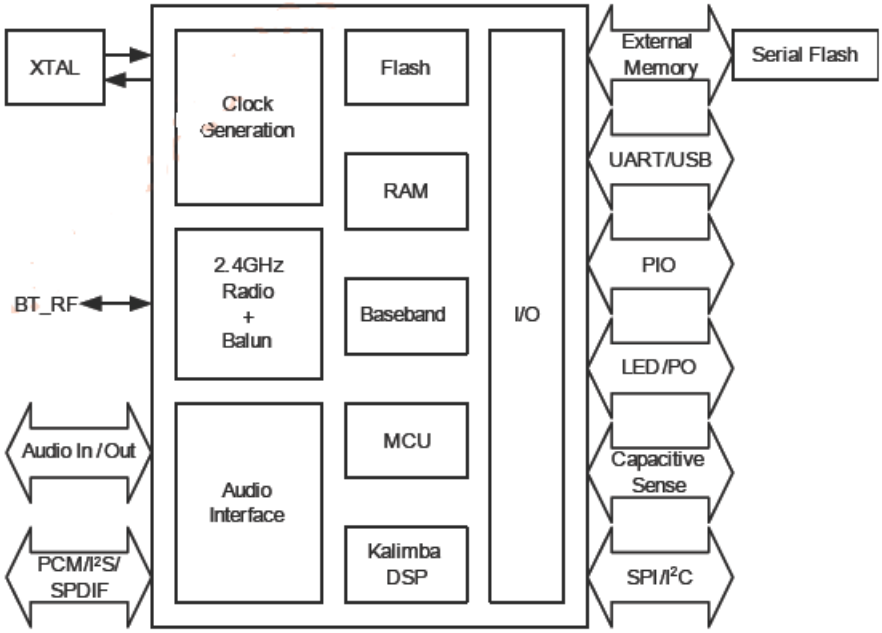
■Bluetooth low energy
• Dual-mode Bluetooth low energy radio
• Support for Bluetooth basic rate / EDR and low energy connections
• 3 Bluetooth low energy connections at the same time as basic rate A2DP

• Slim module with 19mm x 12mm x 2.0mm
• RoHS Compliant

3. Applications

• Smart remote controllers
• Wired or wireless soundbars
• Wired or wireless speakers and headphones
• Wearable audio (on-the-go)
• Wearable audio with sensors (health and wellbeing applications)

4. Block Diagram

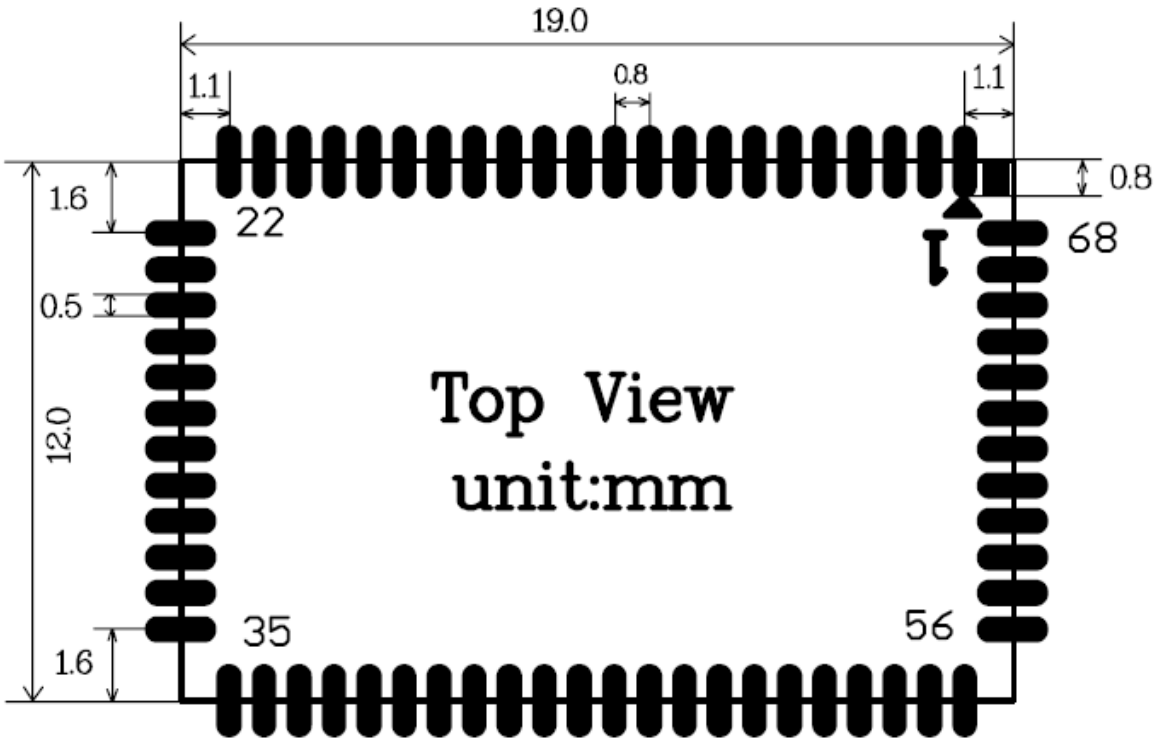


5. General specifications

Model Name	BT1212		
Bluetooth Standard	Bluetooth v4.0 Standard		
Dimension	19mm x 12mm x 2.0mm		
Electrical Characteristics RF			
Frequency Range	2402～2480MHz		
Maximum RF Transmit Power	10dBm		
Receive Sensitivity	-90dBm		
Electrical Characteristics(Absolute Maximum Ratings)			
Pin Name	Min	Max	Unit
VBAT	-0.4	4.4	V
CHARGE	-0.4	5.7	V
LED(0:1)	-0.4	4.4	V
PIO	-0.3	3.6	V
Recommended Operating Conditions			
VBAT	/	4.2	V
CHARGE	/	5	V
LED(0:1:2)	/	10	mA
PIO	/	1.8-3.3	V
Operating Temperature Range	-10	70	℃
Storage Temperature	-40	85	℃

6. Module Package Information

6.1 Pinout Diagram and package dimensions



6.2 Module Pin descriptions

PIN NO.	Pin Name	Description
1	CAP_SENSE[5]	Capacitive touch sensor input
2	CAP_SENSE[3]	Capacitive touch sensor input
3	CAP_SENSE[4]	Capacitive touch sensor input
66	CAP_SENSE[0]	Capacitive touch sensor input
67	CAP_SENSE[1]	Capacitive touch sensor input
68	CAP_SENSE[2]	Capacitive touch sensor input
65	AIO[0]	Analogue programmable input / output line
4	AIO[1]	Analogue programmable input / output line
5	SPI_CLK	SPI clock
6	SPI_MOSI	SPI data input
7	SPI_MISO	SPI data output
8	SPI_CS	Chip select for SPI, active low

9	PCM1_IN	synchronous data input [PIO17]
10	PCM1_CLK	synchronous data clock [PIO20]
11	PCM1_SYNC	synchronous data sync [PIO19]
12	PCM1_OUT	synchronous data output [PIO18]
13	RESET	Reset if low. Input debounced so must be low for >5ms to cause a reset
14	UART_RTS	UART request to send, active low [PIO16]
15	UART_CTS	UART clear to send,active low
16	UART_RX	UART data input
17	UART_TX	UART data output
18	LED0	LED driver [PO29]
19	LED1	LED driver [PO30]
20	LED2	LED driver [PO31]
21	PIO/0	Programmable input / output line 0
22	GND	Ground
23	PIO/1	Programmable input / output line 1
24	PIO/2	Programmable input / output line 2
25	PIO/15	Programmable input / output line 15
26	PIO/3	Programmable input / output line 3
27	PIO/4	Programmable input / output line 4
28	PIO/5	Programmable input / output line 5
29	PIO/6	Programmable input / output line 6
30	PIO/7	Programmable input / output line 7
31	PIO/8 [Wake]	Programmable input / output line 8
32	PIO/9 [Wake]	Programmable input / output line 9
33	PIO/10	Programmable input / output line 10
34	PIO/14	Programmable input / output line 14
35	PIO/13	Programmable input / output line 13
36	PIO/12	Programmable input / output line 12
37	PIO/11	Programmable input / output line 11
38	USB_N	USB data minus
39	USB_P	USB data plus with selectable internal 1.5kΩ pull-up resistor
40	QSPI_FLASH_IO[2]	Serial quad I/O flash data bit 2. Alternative function PIO[27].
41	QSPI_FLASH_CS	SPI flash chip select. Alternative function PIO[23]
42	QSPI_FLASH_IO[0]	Serial quad I/O flash data bit 0. Alternative function PIO[25].

43	GND	Ground
44	VBAT	Battery Power supply input for 3.0~4.2V
45	POWER/VREGENABLE	Power on/off input key indication
46	CHARGE	Internal charger input for charging(5V)
47	QSPI_FLASH_IO[1]	Serial quad I/O flash data bit 1. Alternative function PIO[26].
48	QSPI_FLASH_IO[3]	Serial quad I/O flash data bit 3. Alternative function PIO[28].
49	QSPI_SRAM_CS#	SPI RAM chip select. Alternative function PIO[24].
50	QSPI_FLASH_CLK	SPI flash clock. Alternative function PIO[21].
51	QSPI_SRAM_CLK	SPI RAM clock. Alternative function PIO[22].
52	1V8	Internal 1.8V
53	MIC_AN	Microphone input negative, channel A
54	MIC_AP	Microphone input positive, channel A
55	MIC_BIAS	Microphone bias output
56	MIC_BN	Microphone input negative, channel B
57	MIC_BP	Microphone input positive, channel B
58	SPK_RN	Speaker output negative, right
59	SPK_RP	Speaker output positive, right
60	SPK_LN	Speaker output negative, left
61	SPK_LP	Speaker output positive, left
62	GND	Ground
63	BT_RF	Bluetooth 50Ω transmitter output /receiver input
64	GND	Ground

7. Example Application Schematic