Zhongshan K-mate General Electronics Co.,Ltd

Approval Sheet

Issued	Checked	Approved

CUSTOMER	
PRODUCT NAME	**Bluetooth Module**
CUSTOMER'S MODEL	
E.A.'s MODEL	KMBT007A(08M FLASH) KMBT007B(16M FLASH) KMBT007C(32M FLASH)
APPROVAL MEMO	V1.1
DATE	2008-08-20

Contents

1. Device Features

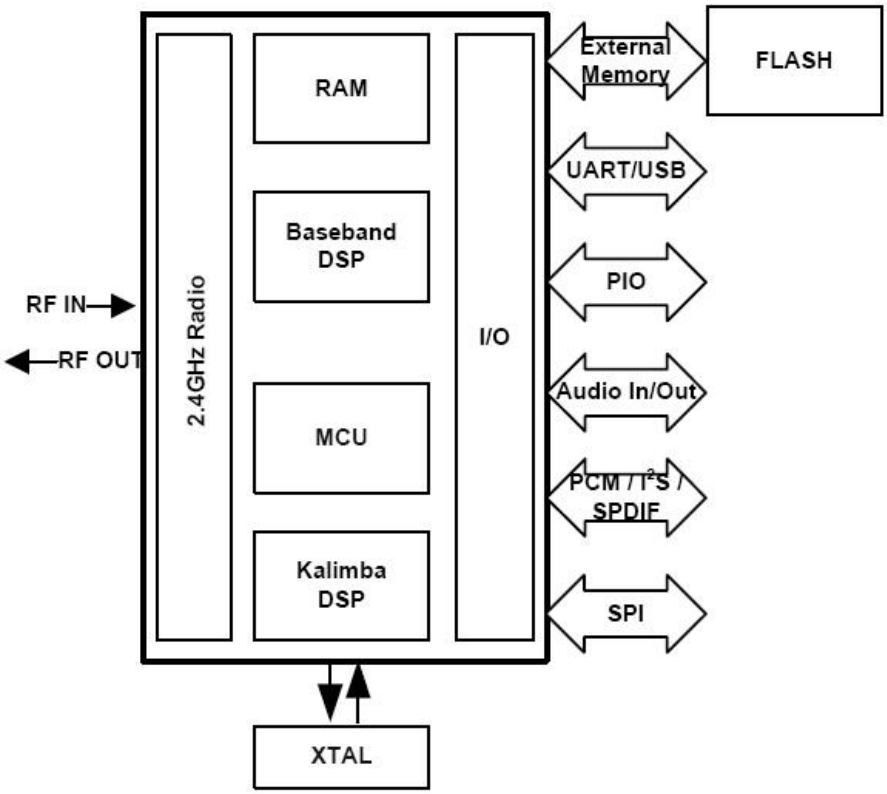
- Fully Qualified Bluetooth V2.1+EDR specification system
- Best in Class Bluetooth Radio with +8dBm Transmit Power and -90dBm Receive Sensitivity
- 64MIPS Kalimba DSP Co-Processor
- 16-bit Internal Stereo CODEC - 95dB SNR for DAC
- Low-Power 1.5V Operation, 1.8V to 3.6V I/O
- Integrated 1.5V and 1.8V Linear Regulators
- Integrated Switched-Mode Regulator
- Integrated Battery Charger
- USB, I2C and UART with Dual Port Bypass Mode to 4Mbits/s
- Supports up to 32Mbits of External Flash Memory (8Mbits Typical Requirement)
- Multi-Configurable I2S, PCM or SPDIF Interface
- Enhanced Audibility and Noise Cancellation
- Support for 802.11 Co-existence
- RoHS Compliant
- Surface-mount, Size: 18.50×13.00×2.00mm max

TOP View

2. General Description

The KMBT007 is a Bluetooth sub-system using BlueCore5-Multimedia External chipset from leading Bluetooth chipset supplier Cambridge Silicon Radio.The BlueCore5-Multimedia External is a single-chip radio and baseband IC for Bluetooth 2.4GHz systems.

KMBT007 interfaces up to 32Mbit of external Flash memory. When used with CSR Bluetooth stack, it provides a fully compliant Bluetooth system to V2.1+EDR of the specification for data and voice.

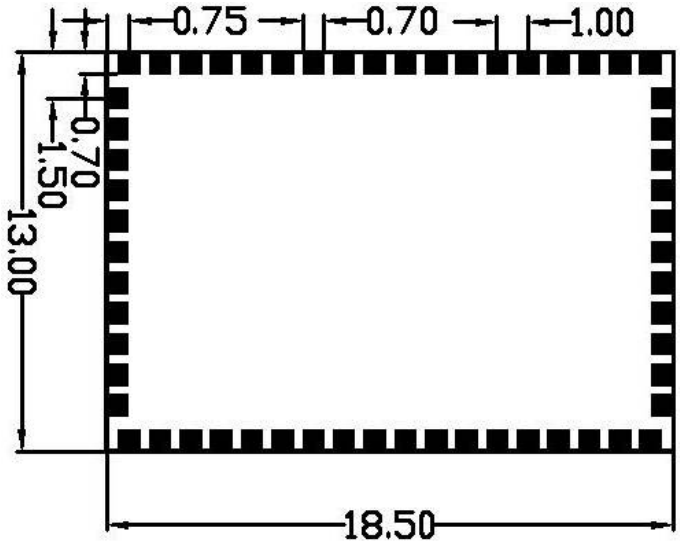


System Architecture

3. Applications

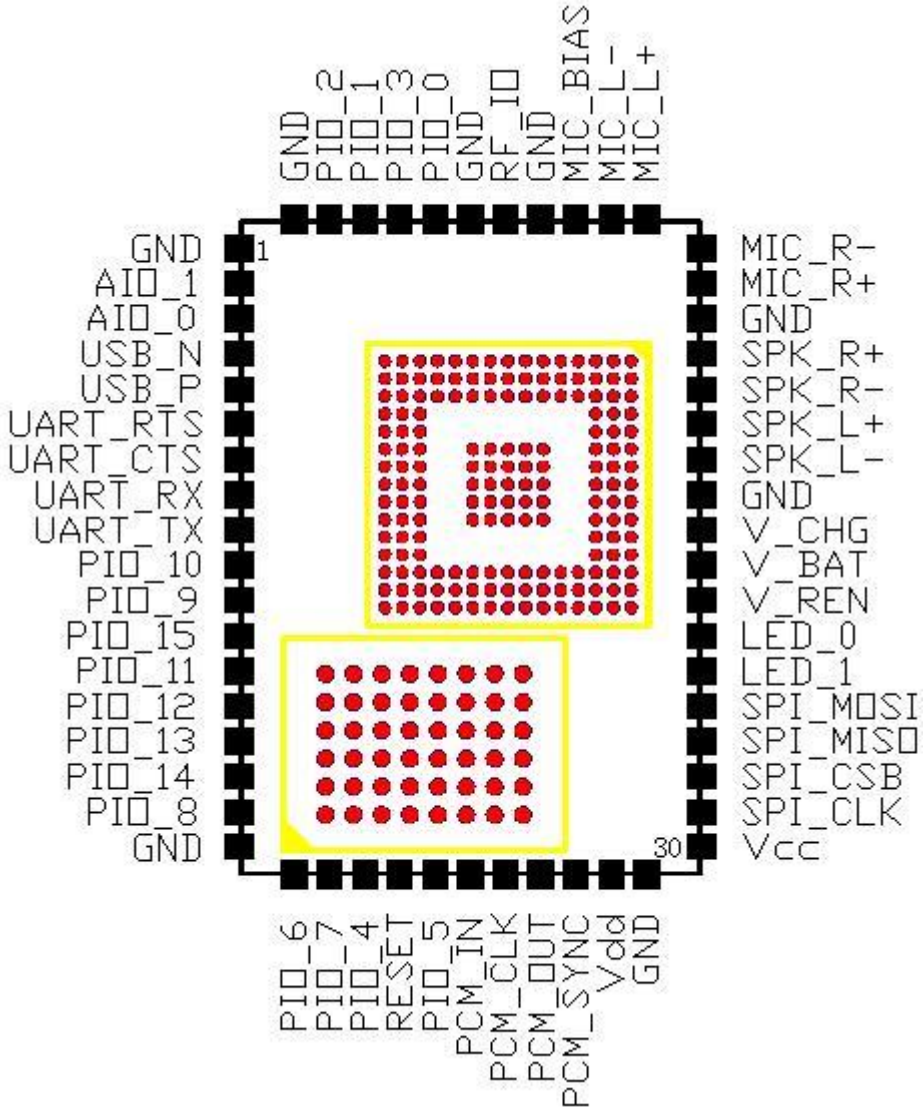
- Bluetooth-Enabled Automotive Wireless Gateways
- High Quality Stereo Wireless Headsets
- High Quality Mono Headsets
- Hands-Free Car Kits
- Wireless Speakers
- VOIP Handsets
- Analogue and USB Multimedia Dongles

4. Physical Dimension



TOP View

5. PIN Description



TOP View

Pin No.	Pin name	I/O	Description
1	GND	GND	Ground connections
2	AIO(1)	I/O	Analogue programmable input/ output line
3	AIO(0)	I/O	Analogue programmable input/ output line
4	USB_DN	I/O	USB data minus
5	USB_DP	I/O	USB data plus with selectable internal 1.5kΩ pull-up resistor
6	UART_RTS	I/O	UART request to send active low
7	UART_CTS	I/O	UART clear to send active low
8	UART_RX	I	UART data input
9	UART_TX	O	UART data output
10	PIO_10	I/O	Programmable input/output line
11	PIO_9	I/O	Programmable input/output line

12	PIO_15	I/O	Programmable input/output line
13	PIO_11	I/O	Programmable input/output line
14	PIO_12	I/O	Programmable input/output line
15	PIO_13	I/O	Programmable input/output line
16	PIO_14	I/O	Programmable input/output line
17	PIO_8	I/O	Programmable input/output line
18	GND	GND	Ground connections
19	PIO_6	I/O	Programmable input/output line
20	PIO_7	I/O	Programmable input/output line
21	PIO_4	I/O	Programmable input/output line
22	RESET	I	Reset if low. Input de bounced so must be low for >5ms to cause a reset
23	PIO_5	I/O	Programmable input/output line
24	PCM_IN	I	Synchronous data input
25	PCM_CLK	I/O	Synchronous data clock
26	PCM_OUT	O	Synchronous data output
27	PCM_SYNC	I/O	Synchronous data sync
28	Vdd	I	+2.8～+3.3V
29	GND	GND	Ground connections
30	Vcc	O	+1.8V
31	SPI_CLK	I/O	SPI clock
32	SPI_CSB	I/O	SPI active low
33	SPI_MISO	O	SPI data output
34	SPI_MOSI	I	SPI data input
35	LED_1	I/O	LED driver
36	LED_0	I/O	LED driver
37	V_REN	I	Take high to enable high-voltage linear regulator and switch-mode regulator
38	V_BAT	I/O	Lithium ion/polymer battery positive terminal. Battery charger output and input to switch-mode regulator
39	V_CHG	I	Lithium ion/polymer battery charger input
40	GND	GND	Ground connection
41	SPK_L-	O	Speaker output negative, left
42	SPK_L+	O	Speaker output positive, left
43	SPK_R-	O	Speaker output negative, right
44	SPK_R+	O	Speaker output positive, right
45	GND	GND	Ground connection
46	MIC_R+	I	Microphone input positive, right
47	MIC_R-	I	Microphone input negative, right
48	MIC_L+	I	Microphone input positive, left
49	MIC_L-	I	Microphone input negative, left
50	MIC_BIAS	O	Microphone bias

51	GND	GND	Ground connection
52	RF_I/O	I/O	50 ohm Rx/Tx connection to antenna
53	GND	GND	Ground connection
54	PIO_0	I/O	Programmable input/output line
55	PIO_3	I/O	Programmable input/output line
56	PIO_1	I/O	Programmable input/output line
57	PIO_2	I/O	Programmable input/output line
58	GND	GND	Ground connection

6. Specification

6.1 General Specification

Items	Specification
Operating Frequency Band	2.402GHz-2.480GHz unlicensed ISM Band(USA,Spain, France)
Bluetooth Specification	V2.1+EDR
Output Power Class	Class II
Operating Voltage	+1.8V, +3.3V
Host interface	UART
Audio interface	Analog 、PCM、I2S、SPDIF
Baseband Crystal OSC	26.000MHz
Output Interface	UART,I2C

6.2 Electrical Characteristics

Absolute Maximum Rating		
Rating	Min	Max
Storage Temperature	-25° C	+125° C
Supply Voltage: Vcc	-0.4V	+2.1V
Input I/O Voltage: Vdd	-0.4V	+3.6V
Supply Voltage: V_BAT, V_REN	-0.4V	+4.5V
Supply Voltage: V_CHG	-0.4V	+6.3V
Recommended Operating Conditions		
Operating Condition	Min	Max
Operating Temperature Range	-20° C	+70° C
Supply Voltage: Vcc	+1.75V	+1.9V
Supply Voltage: Vdd	+2.75V	+3.5V
Supply Voltage: V_BAT	+3.1V	+4.3V
Supply Voltage: V_CHG	+5.0V	+6.0V

Input/Output Terminal Characteristics			
Linear Regulator	Minimum	Typical	Maximum
Output Voltage (Iload = 200mA / VREG_IN = 3.0V)	1.70V	1.8V	1.9V

Maximum Output Current	-	-	200mA
Crystal frequency		26.000MHz	
Maximum RF transmit power	-6dBm	0dB	+4dBm
Sensitivity at 0.1% BER for all packet types	-	-84dBm	-75dBm
Audio Output power into 32Ω		30mW	

Typical Average Current Consumption		
Mode	Average	Units
ACL data transfer 115.2kbps UART no traffic (Master)	2.5	mA
ACL data transfer 115.2kbps UART no traffic (Slave)	10	mA
SCO connection HV3 (30ms interval Sniff Mode) (Slave)	13	mA
SCO connection HV3 (30ms interval Sniff Mode) (Master)	14	mA
SCO connection HV3 (Slave)	17	mA
SCO connection HV3 (Master)	14	mA
SCO connection HV1 (Slave)	25	mA
SCO connection HV1 (Master)	24.5	mA
Microphone inputs and ADC / channel	1	mA
DAC and loudspeaker driver, no signal / channel	1.5	mA
Digital audio processing subsystem	8	mA
General conditions: **Vcc=1.8V Vdd_Flash=3.3V Temperature = +20°C Output Power = +4dBm**		