

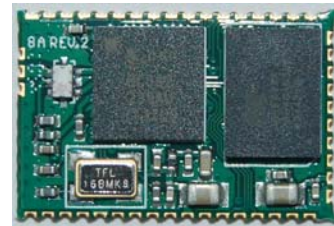
## Features

- Bluetooth Spec. v1.2 Compliant
- Class 2 type Output Power
- Support Firmware Upgrade
- Support Piconet, up to 7 Slaves
- Full Speed Bluetooth, 723K/57.6Kbps
- USB 1.1 and UART Host Interface
- Digital Audio Interface: PCM, I2S, SPDIF
- Built in 16-bit Stereo Codec
- Factory configurable to either 1.8V or 3.3V supply.
- 8MB Flash Memory
- Surface-mount, Size: 20mm x 13 mm x 2mm
- Weight:

## DKBM-08 Class 2 Module



CSR, BC352239A  
DKBM-08 Rev.1.9  
December 2007  
Zeng Dequn



## Product Description

The DKBM-08 is a Class 2 Bluetooth sub-system using BlueCore3-Multimedia External chipset from leading Bluetooth chipset supplier Cambridge Silicon Radio. DKBM-08 interfaces to 8Mbit of external Flash memory. When used with the CSR Bluetooth software stack, it provides a fully compliant Bluetooth system to v1.2 of the specification for data and voice communications the module and device firmware is fully compliant with the Bluetooth specification v1.2.

## Applications

- Hands-free Car Kit
- Stereo Headset
- AV Headphones
- Echo Cancellation
- High Performance Telephony Headsets
- A/V Profile Support
- AV USB Dongle

## Specifications

Operating Frequency Band	2.4GHz ~ 2.48GHz unlicensed ISM band
Bluetooth Specification	V1.2
Output Power Class	Class 2
Operating Voltage	3.3V
Host Interface	USB 1.1 or UART
Audio Interface	PCM, I2S, SPDIF
Flash Memory Size	8MB
Dimension	20mm (L) x 13 (W) mm x 2mm (H)

Specifications are subject to change without prior notice

## Electrical Characteristics

Absolute Maximum Rating	Min	Max
Storage Temperature	-40°C	+85°C
Supply Voltage, (VDD, VPA)	-0.30V	+3.60V

Recommended Operating Conditions	Min	Max
Operating Temperature Range	-25°C	+75°C
Supply Voltage, (VCC)	3.0V	3.6V
Supply Voltage, (VDD)	1.7V	1.9V

Power Consumption	Units	Average
SCO Connection HV3 (30ms interval sniff mode)	mA	21
SCO Connection HV1	mA	42
ACL Data Transfer 115.2Kbps UART no traffic (Master)	mA	5
ACL Data Transfer 115.2Kbps UART no traffic (Slave)	mA	22
ACL Data Transfer 721Kbps USB	mA	45
Standby	mA	0.15
<b>CODEC</b>		
Microphone inputs and ADC/channel	mA	0.85
DAC and loudspeaker driver, no signal/channel	mA	1.4
Digital audio processing subsystem	mA	8

VDD = 3.3V; f = 2.45GHz; T=20°C

## RF Characteristics

Receiver	Units	Min	Typ	Max	Bluetooth Spec
Sensitivity at 0.1% BER	dBm	-	-80	-78	-70
Maximum Receiver Signal	dBm	-	-	-8	-20
C/I Co-Channel	dB	-	9	-	11
Adjacent Channel Selectivity C/I 1MHz	dB	-	-	0	0
2nd Adjacent Channel Selectivity C/I 2MHz	dB	-	-	-30	-30
3rd Adjacent Channel Selectivity C/I >3MHz	dB	-	-	-40	-40
Image Rejection C/I	dB	-	-	-9	-9

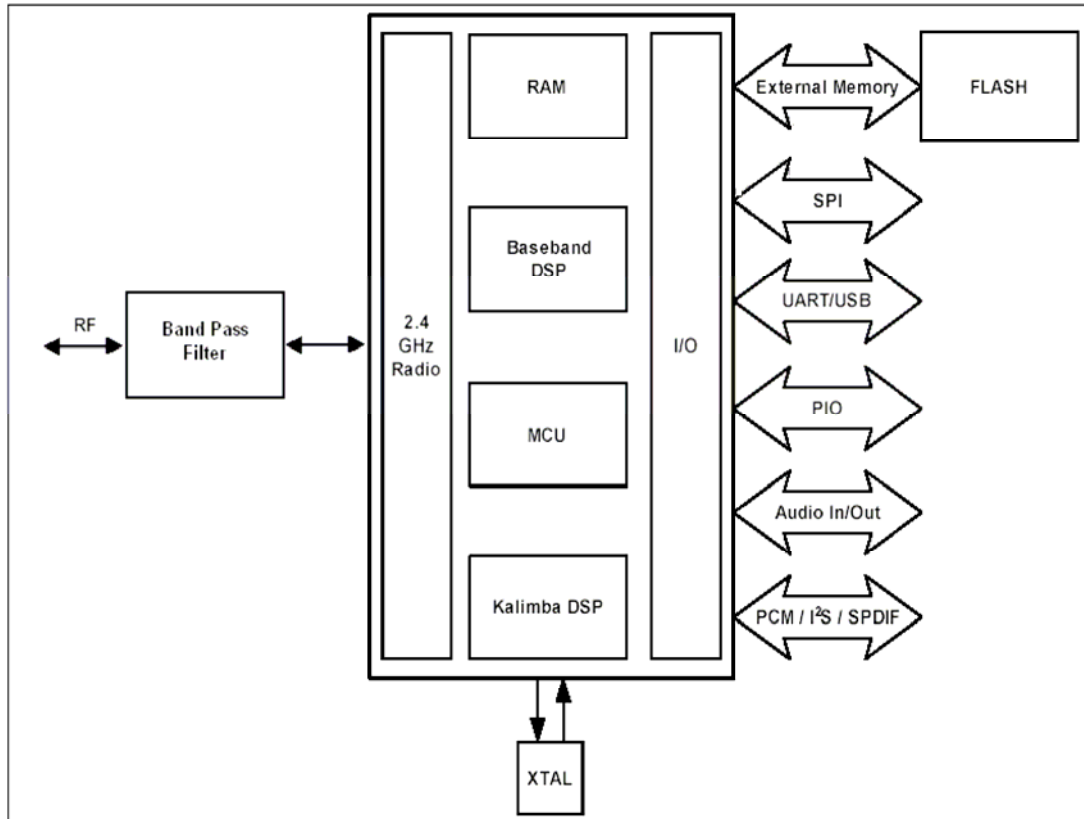
VDD = 3.3V; f = 2.45GHz; T=20°C

Transmitter	Units	Min	Typ	Max	Bluetooth Spec
RF Output Power	dBm	-	3	-	-6 to +4
RF Power Control Range	dB	-	30	-	> 16
RF Power Range Control Resolution	dB	2	-	6	-
20dB Bandwidth for Modulated Carrier	KHz	-	850	-	<1000
2nd Adjacent Channel Power (+/- 2MHz)	dBc	-	-	-	-20
3rd Adjacent Channel Power (+/- 3MHz)	dBc	-	-	-	-40

VDD = 3.3V; f = 2.45GHz; T=20°C

All specifications including pinouts and electrical specifications may be changed without prior notice

### Block Diagram

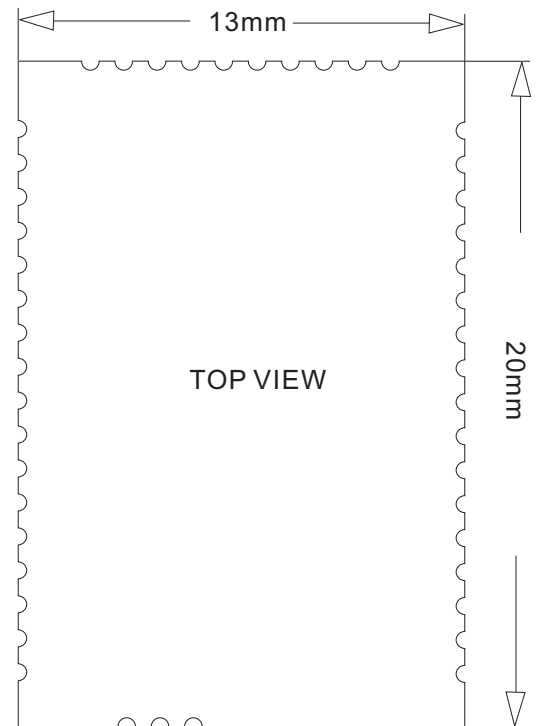
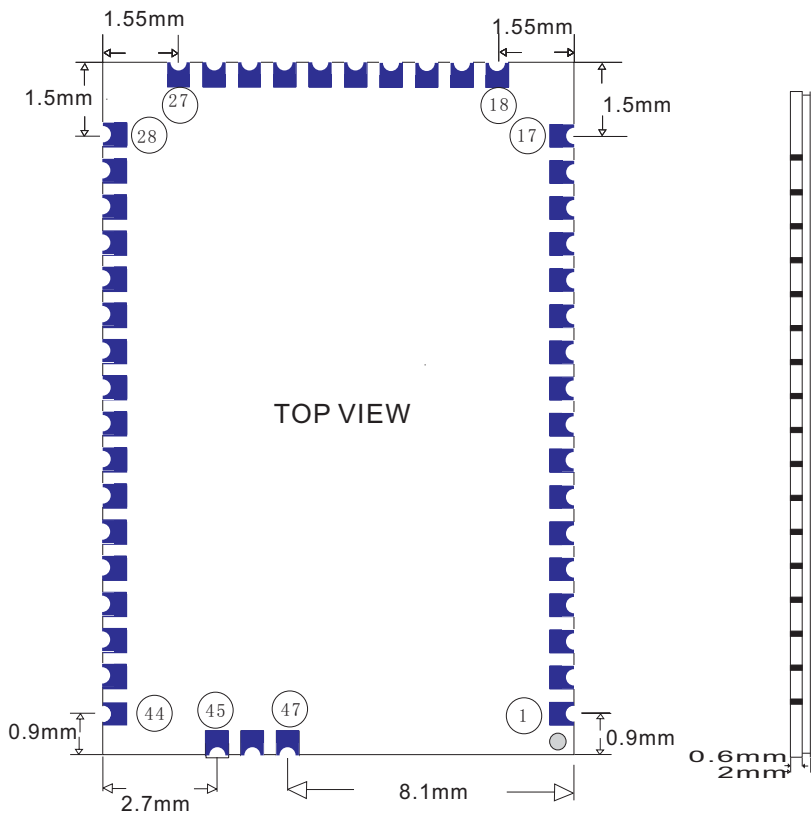


## Pin Configurations

PIN NO.	NAME	TYPE	FUNCTION	RE-MARK
1	SPK L-	Analogue	Speaker output negative (left side)	
2	SPK L+	Analogue	Speaker output positive (left side)	
3	SPK R-	Analogue	Speaker output negative (right side)	
4	SPK R+	Analogue	Speaker output positive (right side)	
5	GND	GND	Ground	
6	MIC L+	Bi-directional	Programmable input/output line	
7	MIC L-	Bi-directional	Programmable input/output line	
8	MIC R+	Bi-directional	Programmable input/output line	
9	MIC R-	Bi-directional	Programmable input/output line	
10	1.8V	POWER	+1.8V Supply	For 1.8V Version
11	PCM-IN	CMOS Input	Synchronous Data Input	
12	PCM-SYNC	Bi-directional	Synchronous Data Sync	
13	PCM-CLK	Bi-directional	Synchronous Data Clock	
14	PCM-OUT	CMOS Output	Synchronous Data Output	
15	AIO0	Bi-directional	Programmable input/output line	
16	AIO1	Bi-directional	Programmable input/output line	
17	AIO3	Bi-directional	Programmable input/output line	
18	GND	GND	Ground	
19	3.3V	POWER	+3.3V Supply	For 3.3V Version
20	USB D+	Bi-directional	USB Data Plus	
21	USB D-	Bi-directional	USB Data Minus	
22	RTS	CMOS output, tri-state, with weak internal pull-up	UART request to send active low	
23	CTS	CMOS input with weak internal pull-down	UART clear to send active low	
24	TX	CMOS output, tri-state, with weak internal pull-up	UART data output	
25	RX	CMOS input with weak internal pull-down	UART data input	
26	RESET	CMOS Input	Reset If High	

27	GND	GND	Ground	
28	PIO4	Bi-directional with programmable strength	PIO or USB on (input senses when VBUS is high, wakes BlueCore3-Multimedia)	
29	PIO5	Bi-directional with programmable strength	PIO line or chip detaches from USB when this input is high	
30	PIO6	Bi-directional with programmable strength	PIO line or clock request output to enable external clock for external clock line	
31	PIO7	Bi-directional with programmable strength	Programmable input/output line or programmable frequency clock output	
32	MOSI	CMOS Input	Serial Peripheral Interface Data Input	
33	CSB	CMOS Input	Chip Select For Synchronous Serial Interface (Active Low)	
34	CLK	CMOS Input	Serial Peripheral Interface Clock	
35	MISO	CMOS Output	Serial Peripheral Interface Data Output	
36	PIO10	Bi-directional	Programmable input/output line	
37	PIO11	Bi-directional	Programmable input/output line	
38	PIO3	Bi-directional with programmable strength	PIO or output goes high to wake up PC. When in USB mode or clock request input from host controller	
39	PIO2	Bi-directional with programmable strength	PIO or external clock request	
40	PIO1	Bi-directional with programmable strength	Control output for external PA (if fitted)	
41	PIO0	Bi-directional with programmable strength	Control output for external Tx/Rx switch (if fitted)	
42	PIO8	Bi-directional	Programmable input/output line	
43	PIO9	Bi-directional	Programmable input/output line	
44	GND	GND	Ground	
45	GND	GND	Ground	
46	ANT	RF	RF Interface	
47	GND	GND	Ground	

## Mechanical Drawing



NO	PIN NAME	NO	PIN NAME
1	Spk L-	25	RX
2	SPK L+	26	RESET
3	SPK R-	27	GND
4	SPK R+	28	PI04
5	GND	29	PI05
6	MIC L+	30	PI06
7	MIC L-	31	PI07
8	MIC R+	32	MOSI
9	MIC R-	33	CSB
10	1.8V	34	CLK
11	PCM-IN	35	MISO
12	PCM-SYNC	36	PI010
13	PCM-CLK	37	PI011
14	PCM-OUT	38	PI03
15	AIO0	39	PI02
16	AIO1	40	PI01
17	AIO3	41	PI00
18	GND	42	PI08
19	3.3V	43	PI09
20	USB D+	44	GND
21	USB D-	45	GND
22	RTS	46	ANT
23	CTS	47	GND
24	TX		

## Document References

References	Version
Specifications of the Bluetooth System	V1.2, 05 November 2003
BlueCore3-Multimedia External Product Data Sheet	BC352239A-ds-001Pb August 2004

## Contact Information

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