SHARP

LEADING WIRELESS NETWORK

Wireless communication for tomorrow's networks

Bluetooth device catalog

Bluetooth™

Taking the Lead

Wireless Connections Made Easy.

Bluetooth is a next-generation technology for short-range wireless connectivity that links a wide range of different digital devices, without a lot of messy network configuration. A new interface for linking device to device and people to people, Bluetooth is changing the shape of networking. Wireless communication is creating the networked society of tomorrow, and Bluetooth is playing a leading role.

Wireless communications

The Business Leader of the Future

Bluetooth™

Bluetooth is a global standard whose use in devices is royalty free. Additionally, no charges apply to communications between devices equipped with this technology. Many device makers, especially mobile phone manufacturers, are now considering going with the Bluetooth standard and this is expected to create a lot of new business. Sharp has a proven track record with mobile equipment, networked home appliances, and devices, and our Bluetooth standard is developing the business leaders of the future.

With Bluetooth, you don't have to choose a lead player

Up until now, networks have been based around PCs and mobile phones. But when you put together a network of Bluetooth, any type of device can play the leading role.

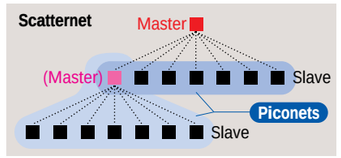
Major features of Bluetooth

- Compact, low power consumption, and low cost. Expands the possibilities for device connectivity.
- Uses the same 2.4 GHz frequency band worldwide. Use the same environment anywhere in the world.
- Allows communication up to a radius of about 10 m (class 1 type can communicate up to 100 m).
- Allows wireless connectivity without the need for any devices to face each other.
- Allows connections through walls and other obstacles.*
- Extremely easy to connect and disconnect devices equipped with Bluetooth.
- In addition to data transmission, also allows printing and other commands to be sent.

* Depending upon the type and structure of walls and other obstacles, connectivity may be affected.

Piconet

A piconet is a network consisting of up to 8 Bluetooth. The network is built around a master unit and up to 7 slaves, connected to the master via point-to-point connections. Furthermore, the master can in turn become the slave in another piconet. Thus, it is possible to construct a multi-node network out of piconets (this is called scatternet).

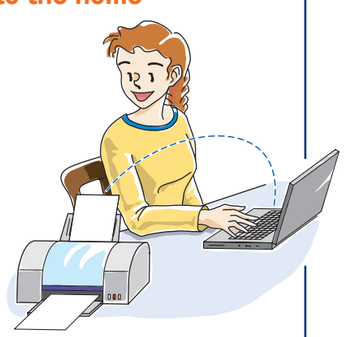


Bluetooth — Opening a world of possibilities

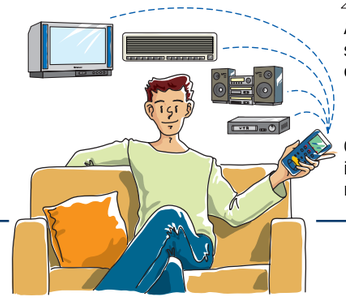
INDOORS

From the office to the home

At meetings, share data between PCs on the spot. Easily transmit data from your PC to a projector as well via wireless connection.



At home or in the office, print data straight from your PC or digital camera over a wireless connection.



Control all the digital devices in your home with a single remote control.

OUT DOORS

A part of every aspect of your life

Use Bluetooth to access the latest in a variety of the latest information such as fashion and lifestyle. Bluetooth will also enable cashless shopping at stores and vending machines.

Voice commands can be used to operate a number of devices such as your car audio system or car navigation system. Other possibilities for use are drive-through purchases and garage door openers.

ON THE GO

A more compact, simple mobile experience

As long as you have a mobile phone or other Internet-connected device, you can connect your PC or PDA right to the Internet via wireless communication.

Display images taken with a digital or video camera on your PC or digital TV, or send them directly to a friend's mobile phone, all through wireless connections.

Use a wireless connection to listen to music on your portable audio player or PC anytime.

Bluetooth CF Card

Power class 3-compliant
DC2C1BZ001

Power class 1-compliant (Under development)
DC2C1BZ002

Use this CompactFlash[*1] card type with notebook PCs (equipped with a CF or PC card slot), mobile phones and more, in order to easily create a wireless network.

Features

- **Compact size with built-in high-sensitivity antenna**

  Compact size: 42.8 x 49.4 x 3.3 mm
  (CFA[*2] Type 1 compatible)

- **Low current consumption**

  Low current consumption design allows the device to be mounted on mobile equipment

- **Bluetooth V1.1 certified**

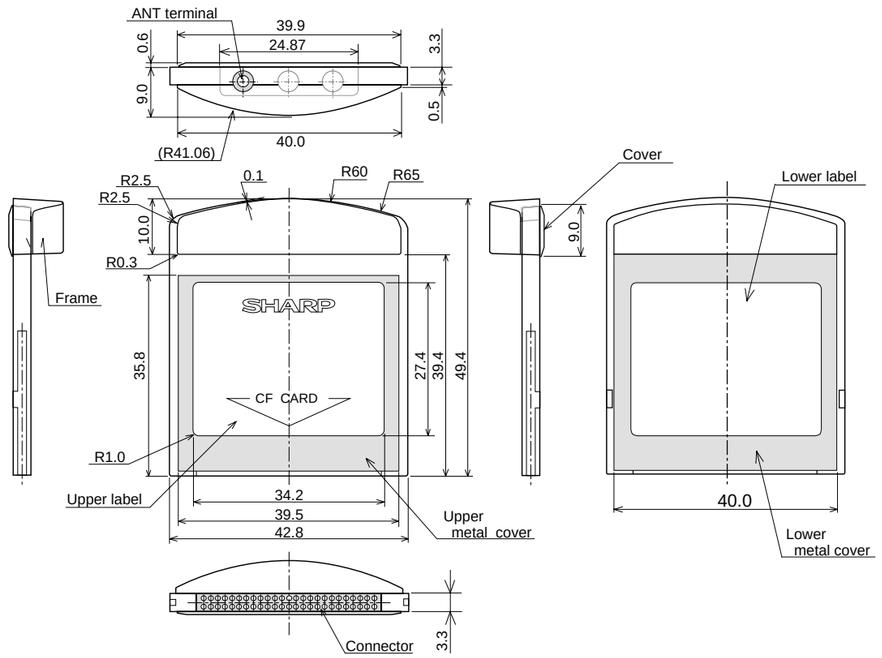
  DC2C1BZ001 (power class 3-compliant)
  Ref no. of QPN:010-7LⅠ_1

Main Specifications

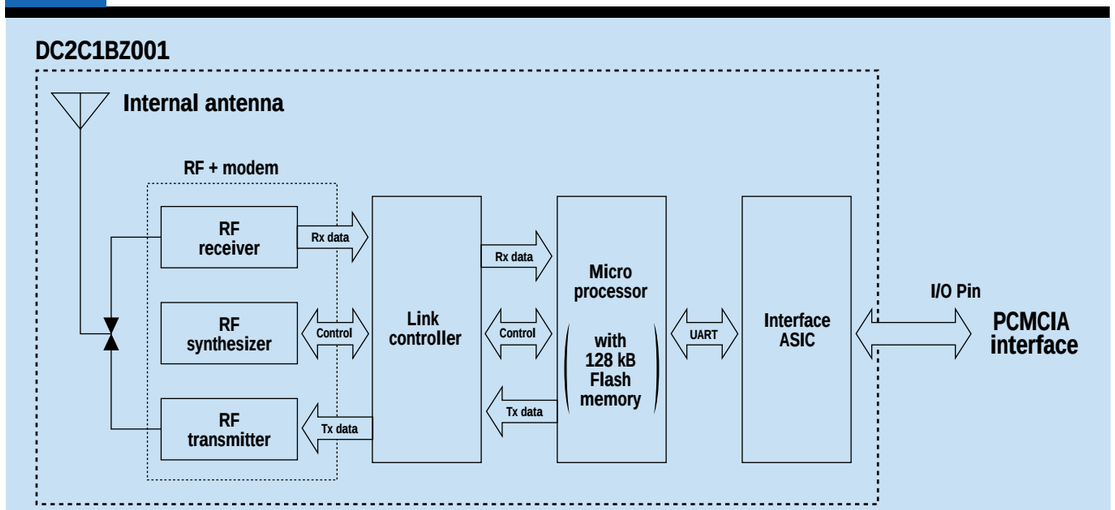
Model No.	DC2C1BZ001	DC2C1BZ002 (Under development)
Frequency range	2,402 to 2,480 MHz	
No. of channels	79 ch	
Channel spacing	1 MHz	
Transmission power	0 dBm, Power class 3	+20 dBm, Power class 1
Modulation method	GFSK	
Communication method	TDD	
Spread spectrum method	Frequency hopping: 1,600 hops/s	
Data rate	1 Mbps	
Antenna	Built-in inverted F type antenna	
Achievable distance*	10 m (TYP.)	Insight 100 m (TYP.)
Supply voltage	3.3 V DC	
Current consumption	Transmission: 85 mA, Reception: 86 mA	Transmission: 165 mA, Reception: 86 mA
Outline dimensions	42.8×49.4×3.3 mm (antenna width: 9.0 mm)	
Weight	Approx. 13 g	

* Communication distances may differ due to the conditions to be used. Take the values herein as references.

Outline Dimensions



Block Diagram



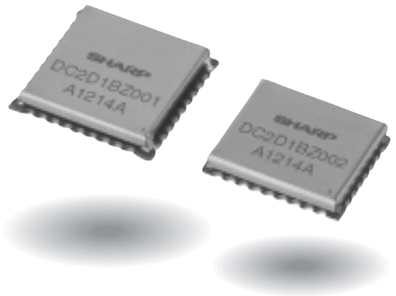
*1. CompactFlash is a trademark of SanDisk Corporation.
*2. CompactFlash™ Association: The international standard defining CompactFlash™ card specifications. Outline dimensions (mm): Type I (36.4 x 42.8 x 3.3); Type II (36.4 x 42.8 x 5.0)

Bluetooth modules

Module with Baseband
DC2D1BZ001 / 003

RF Module
DC2D1BZ002

Sharp has built on its strong track record with network devices to offer a Bluetooth module.
Perfect for mounting on mobile devices, peripherals, and more.



Features

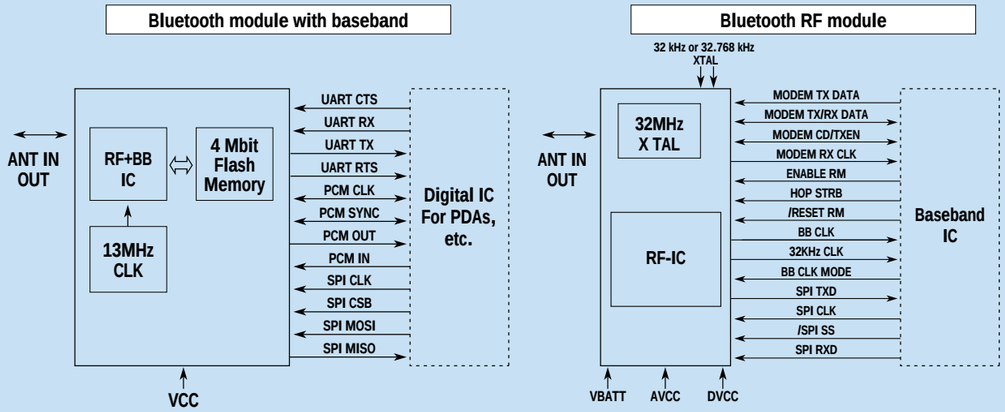
- **Ultra-compact, surface-mount package**
- **Compatible with UART and USB output interfaces**
  DC2D1BZ001: UART interface*3
  DC2D1BZ003: USB interface*3
- **Low current consumption design**
- **Support kits available for evaluation**
  Provides evaluation board and software allowing basic communications testing, including internal register configuration and link establishment using modules with built-in baseband*4
- **Bluetooth v1.1 certified**
  DC2D1BZ001
  Ref no. of QPN:026-CTCM
  DC2D1BZ002
  Ref no. of QPN:009-7LI

Note: User must support drivers, utilities, etc.

Main Specifications

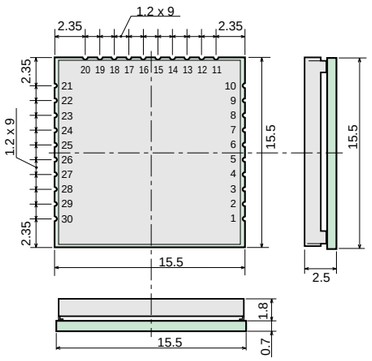
Model No.	DC2D1BZ001	DC2D1BZ003	DC2D1BZ002
Circuit configuration	RF section + baseband modem + crystal oscillation circuit + Flash Memory		RF section + crystal oscillation circuit
Frequency range	2,402 to 2,480 MHz		
Data rate	1 Mbps		
Data transfer rate	723.2 kbps / 57.6 kbps (Asymmetric) 433.9 kbps (Symmetric)		
Spread spectrum method	Frequency hopping: 1,600 hops/s		
Receiving sensitivity	-85 dBm (TYP.)		
Current consumption (Transmission / Reception)	85 mA / 85 mA		46 mA / 57 mA
Output power	0 dBm, Power class 3		
Compliance standard	Bluetooth v1.1, ARIB STD-T66		
Supply voltage	2.85 to 3.15 V DC		
Output interface	UART	USB	Sharp Original
Package / Output terminal	Surface mount / 30-pin		Surface mount / 32-pin
Outline dimensions	15.5X15.5X2.5 mm		16.0X13.8X2.5 mm

Block Diagram



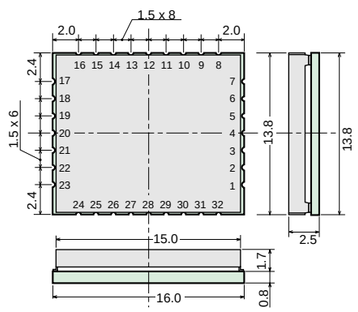
Outline Dimensions

Bluetooth module with baseband



No.	Terminal Name	No.	Terminal Name	No.	Terminal Name
1	GND	11	PI02	21	GND
2	ANT-IN/OUT	12	PI03	22	PCM-IN
3	GND	13	PI00	23	PCM-SYNC
4	VCC	14	PI01	24	PCM-OUT
5	RESET	15	TEST-B	25	PCM-CLK
6	SPI-MOSI	16	PI-06	26	UART-RX
7	SPI-MISO	17	PI-07	27	UART-TX
8	SPI-CLK	18	PI-05	28	UART-RTS
9	SPI-CSB	19	TEST-A	29	UART-CTS
10	GND	20	PI-04	30	GND

Bluetooth RF module



No.	Terminal Name	No.	Terminal Name	No.	Terminal Name
1	GND	12	GND	23	GND
2	MODEM_RX TX DATA	13	GND	24	V_BATT
3	MODEM_RX CLK	14	GND	25	32 kHz +
4	MODEM_TX DATA	15	GND	26	32 kHz –
5	MODEM_CD/TXEN	16	GND	27	32 kHz_CLK
6	BB_CLK	17	GND	28	SPI_RXD
7	GND	18	VCC_D	29	/SPI_SS
8	ENABLE_RM	19	VCC_A	30	SPI_TXD
9	HOP_STRB	20	V2, 3 OUT	31	SPI_CLK
10	BB_CLK MODE	21	GND	32	RESET_RM
11	GND	22	ANT_IN OUT		

*3. UART (Universal Asynchronous Receiver Transmitter): A method to convert parallel data into serial data.
USB (Universal Serial Bus): An industry standard for serial data connecting computers and peripherals. The USB 1.0 standard enables a maximum data rate of 12 Mbps.
*4. Baseband processing circuit: A circuit to process signals (baseband signals) containing data needed to be transmitted or received.
Some circuits have a built-in interface for connecting peripherals such as microprocessors and memories.

Bluetooth module evaluation kit

Offering module-on evaluation boards and software to support for your easy testing.

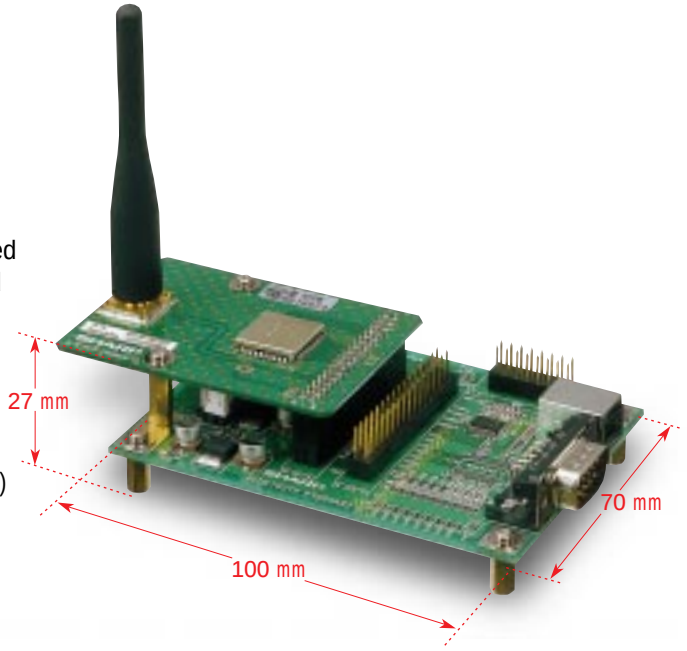
Main Specifi-cations

Evaluation board hardware

Output terminal: RS-232C (UART) or USB
Supply voltage: 5 V DC or 3 V DC
Antenna: Connector for external antenna included
Test terminal: 34 terminal pins mounted on board (for user testing)
Outline dimensions (mm): 100 x 70 x 27

Operation verification software

Link establishment
Chat function (transmission and receive text & files)
Internal register set up



SHARP

SHARP CORPORATION

SALES & MARKETING GROUP
-ELECTRONIC COMPONENTS & DEVICES
22-22, NAGAIKE-CHO, ABENO-KU, OSAKA 545-8522, JAPAN
PHONE: (81) 6-6621-1221
FAX: (81) 6117-725300, 6117-725301, 6117-725302
http://sharp-world.com/products/device/index.html

NORTH AMERICA: SHARP MICROELECTRONICS OF THE AMERICAS
5700 North West, Pacific Rim Boulevard
Camas, Washington 98607, U.S.A.
PHONE: (1) 360-834-2500
FAX: (1) 360-834-8903
http://www.sharpsma.com

EUROPE: SHARP MICROELECTRONICS EUROPE
a division of Sharp Electronics (Europe) GmbH
Sonninstrasse 3, 20097 Hamburg, Germany
PHONE: (49) 40-2376-2286
FAX: (49) 40-2376-2232
http://www.sharpsme.com/

CHINA: SHARP MICROELECTRONICS OF CHINA (SHANGHAI) CO., LTD.
28 Xin Jin Qiao Road King Tower 16F
Pudong Shanghai 201206 P. R. China
PHONE: (86) 21-5854-7710/21-5834-6056
FAX: (86) 21-5854-4340/21-5834-6057
Head Office:
No. 360, Bashen Road, Xin Development Bldg. 22
Waigaoqiao Free Trade Zone Shanghai 200131
P. R. China
E-mail: SMC@china. global.sharp.co.jp

HONG KONG: SHARP-ROXY (HONG KONG) LTD.
3rd Business Division,
17/F, Admiralty Centre, Tower 1,
18 Harcourt Road, Hong Kong
PHONE: (852) 28229311
FAX: (852) 28660779
http://www.sharp.com.hk
Shenzhen Representative Office:
Room 13B1, Tower C, Electronics Science & Technology Building, Shen Nan Zhong Road, Shenzhen, P. R. China
PHONE: (86) 755-3273731
FAX: (86) 755-3273735

TAIWAN: SHARP ELECTRONIC COMPONENTS (TAIWAN) CORPORATION
8F-A, No. 16, Sec 4, Nanking E. Rd.,
Taipei, Taiwan
PHONE: (886) 2-2577-7341
FAX: (886) 2-2577-7326/2-2577-7328

SHINGAPORE: SHARP ELECTRONICS (SHINGAPORE) PTE., LTD.
438A, Alexandra Road, #05-01/02,
Alexandra Technopark, Singapore 119967
PHONE: (65)271-3566
FAX: (65)271-3855

KOREA: SHARP ELECTRONIC COMPONENTS (KOREA) CORPORATION
RM 501 Geosung ilsin. 541,
Dohwa-dong, Mapo-ku, Seoul 121-701, Korea
PHONE: (82) 2-711-5813 to 8
FAX: (82) 2-711-5819

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