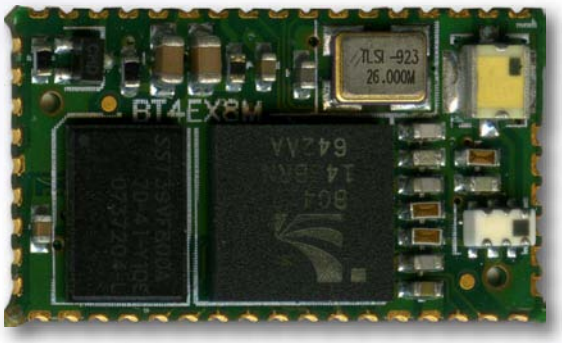
ARWEST
A JAVAD COMPANY

AlphaWave
Narrowband Radio Modems
WIRELESS SOLUTIONS

BT4EX8M



Scale 4:1

BT4EX8M module is designed for industrial use and makes your market advancement more simple and fast. The module can be used in extremely low and high temperatures in a wide spectrum of Bluetooth applications. BT4EX8M's engineering and design allows integrating the module without additional cost, saving your money and time.

BT4EX8M is a Class 2 Bluetooth module using BlueCore4-External chipset from leading Bluetooth chipset supplier Cambridge Silicon Radio (CSR).

BT4EX8M contains the CSR Bluetooth software stack and is fully compliant with v2.0 of the Bluetooth specification for data and voice communications.

Features

- Fully Qualified Bluetooth v2.0+EDR
- Enhanced Data Rate (EDR) compliant with v2.0.E.2 of specification for both 2Mbps and 3Mbps modulation modes
- Full Speed Bluetooth Operation with Full Piconet Support
- Scatternet Support
- Support for 802.11 Co-Existence
- Flash Memory Size 8Mbit
- Small Form Factor. 18 mm X 10.7mm x 1.7mm
- RoHS Compliant

Interfaces

- UART or USB Interface
- PCM Audio Interface
- Serial Peripheral Interface (SPI) for Integration, Test and Diagnostics.
- Programmable I/O (PIO) Pins
- 50Ω Antenna Launch for Radio

Electrical

- Operating Voltage +3.3V
- Power consumption 0.26 Watt

Environmental

- Operating Temperature: -40°C to +85°C
- Storage Temperature: -40°C to +85°C

Applications

- Industrial Products
- Handheld Terminals
- Other Portable Devices which require Wireless connectivity.

BT4EX8M

Pin #	Signal Name	I/O	Pin Type	Description
1	GND			Ground
2	RF	I/O	Analogue	Transmitter output/switched receiver input
3	GND			Ground
4	GND			Ground
5	PIO8	I/O	Bi-directional with programmable strength internal pull-up/down	Programmable input/output line
6	PIO2	I/O	Bi-directional with programmable strength internal pull-up/down	Programmable input/output line
7	PIO9	I/O	Bi-directional with programmable strength internal pull-up/down	Programmable input/output line
8	AIO2	I/O	Bi-directional	Programmable input/output line
9	AIO1	I/O	Bi-directional	Programmable input/output line
10	AIO0	I/O	Bi-directional	Programmable input/output line
11	1V8	O		For test only
12	GND			Ground
13	USB_D+	I/O	Bi-directional	USB data plus with selectable internal 1.5kΩ pull-up resistor
14	USB_D-	I/O	Bi-directional	USB data minus
15	RESET_B	I	CMOS input with 10kOhm internal pull-up	Reset if low. Input debounced so must be low for >5ms to cause a reset
16	RESET	I	Input with internal 10kOhm pull-down	Reset if high.
17	GND			Ground
18	UART_RTS_OUT	O	CMOS output, tri-state, with weak internal pull-up	UART request to send active low
19	UART_CTS_IN	I	CMOS input with weak internal pull-down	UART clear to send active low
20	UART_RX_IN	I	CMOS input with weak internal pull-down	UART data input
21	UART_TX_OUT	O	CMOS output, tri-state, with weak internal pull-up	UART data output
22	GND			Ground
23	PCM_IN	I	CMOS input, with weak internal pull-down	Synchronous data input
24	PCM_SYNC	I/O	Bi-directional with weak internal pull-down	Synchronous data sync
25	PCM_CLK	I/O	Bi-directional with weak internal pull-down	Synchronous data clock
26	PCM_OUT	O	CMOS output, tri-state, with weak internal pull-down	Synchronous data output
27	GND			Ground
28	GND			Ground
29	PIO6	I/O	Bi-directional with programmable strength internal pull-up/down	Programmable input/output line or optional WLAN_Active/Ch_Data input for co-existence signaling
30	PIO7	I/O	Bi-directional with programmable strength internal pull-up/down	Programmable input/output line
31	PIO4	I/O	Bi-directional with programmable strength internal pull-up/down	Programmable input/output line or optional BT_Priority/Ch_Clk output for co-existence signaling
32	PIO5	I/O	Bi-directional with programmable strength internal pull-up/down	Programmable input/output line or optional BT_Active output for co-existence signaling
33	SPI_CSB	I	CMOS input with weak internal pull-up	Chip select for Synchronous Serial Interface. Active low.
34	SPI_MOSI	I	CMOS input with weak internal pull-down	Serial Peripheral Interface data input
35	SPI_CLK	I	CMOS input with weak internal pull-down	Serial Peripheral Interface clock
36	SPI_MISO	O	CMOS output, tri-state, with weak internal pull-down	Serial Peripheral Interface data output
37	PIO10	I/O	Bi-directional with programmable strength internal pull-up/down	Programmable input/output line
38	PIO3	I/O	Bi-directional with programmable strength internal pull-up/down	Programmable input/output line
39	3V3	I		+3.0 to +3.6 VDC Power Input
40	GND			Ground
41	PIO1	I/O	Bi-directional with programmable strength internal pull-up/down	Control output for external PA (If fitted)
42	PIO0	I/O	Bi-directional with programmable strength internal pull-up/down	Control output for external LNA (if fitted)
43	PIO11	I/O	Bi-directional with programmable strength internal pull-up/down	Programmable input/output line
44	GND			Ground
45	GND			Ground
46	GND			Ground
47	GND			Ground
48	GND			Ground
49	GND			Ground

Radio Characterictics

Transmitter

Radio Characteristics	Min	Typ	Max
Maximum RF transmit power, dBm	1	4	-
RF power control range, dB	25	35	-
RF power range control resolution, dB	-	0.5	1.2
20dB bandwidth for modulated carrier, kHz	-	790	1000
2nd Harmonic Content, dBm	-	-90	-
3rd Harmonic Content, dBm	-	-75	-

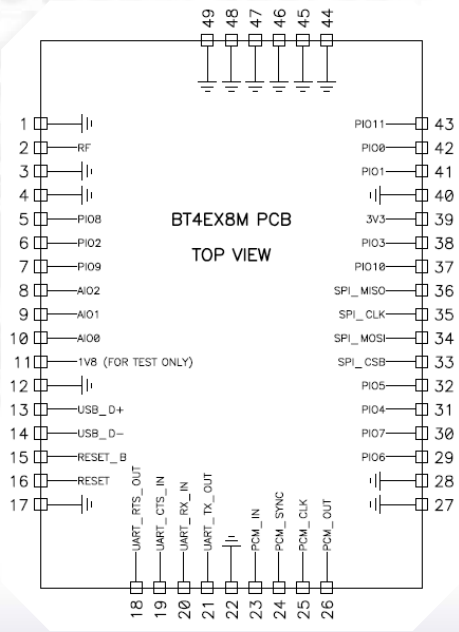
Receiver

Radio Characteristics	Frequency(GHz)	Min	Typ	Max
Sensitivity at 0.1% BER for all packet types	2.402	-	-85.0	-81.0
	2.441	-	-85.0	-81.0
	2.480	-	-87.0	-83.0
Maximum received signal at 0.1% BER, dBm		-20	10	-
C/I co-channel, dB		-	6	11
Adjacent channel selectivity C/I F= F_O+1MHz		-	-5	0
Adjacent channel selectivity C/I F= F_O-1MHz		-	-4	0
Adjacent channel selectivity C/I F= F_O+2MHz		-	-44	-30
Adjacent channel selectivity C/I F= F_O-2MHz		-	-23	-20
Adjacent channel selectivity C/I F= F_O+3MHz		-	-45	-40
Adjacent channel selectivity C/I F= F_O-5MHz		-	-45	-40

Measured at F_O = 2441MHz

Compliance

Parameter	Specification
FCC	47CFR PT 15.247
Industry Canada	RSS-210
R&TTE	ETSI EN 300 328 ETSI EN 301 489-17



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