BlueSoleil™ i50E
Datasheet

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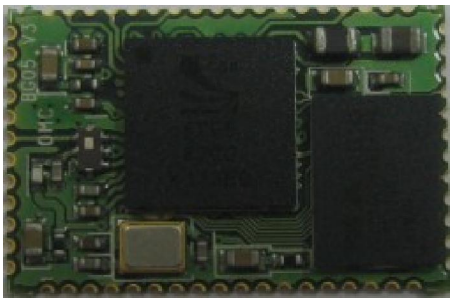
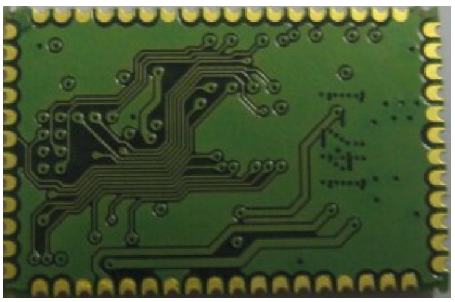
BlueSoleil i50E

BlueSoleil i50E is a Class2 Bluetooth module. It is built on CSR BC05 MulitMedia External Core and 8Mbit/16Mbit Flash Memory.It’s a short range , compact and cost effective module,Be able to be embedded into your electronics devices,such as PND,Car Audio,Home Audio,Car Kit,Handsfree applications. It provides a Bluetooth specification V2.1+EDR fully compliant system for data and voice. It's easy to use and completely encapsulated.





i50E Features

- Bluetooth Specification V2.1 + EDR Compliant
- Bluetooth profile

  supported:HSP,HFP,A2DP(sink),AVRCP,HID,OPP,SPP,PBAP
- Class 2 type Output Power, up to 10 meters range
- Basic module without antenna, as SMD type
- Integrated audio codec, acoustic echo cancellation algorithm
- USB, UART and PCM Interfaces
- Support for 802.11 Co-Existence
- RoHS Compliant
- Dimension is 21mm(L)x13.5mm(W)x2.5mm(H)

Electrical Characteristics

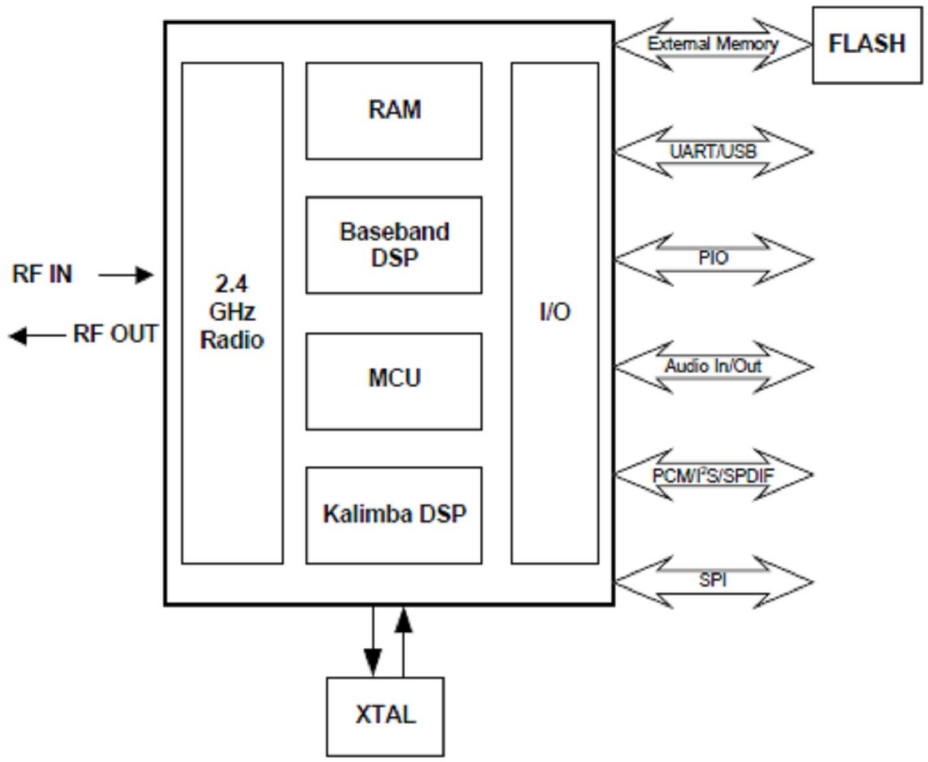
Absolute Maximum Ratings		
Rating	Min	Max
Storage temperature	-40℃	+85℃
Supply voltage: VBAT	-0.4V	6.5V
Other terminal voltages	VSS-0.4V	VDD+0.4V

Recommended Operating Conditions			
Operating Condition	Min	Typ.	Max
Operating temperature range	-40℃	20℃	+85℃
IO supply voltage	-0.4V	3.3V	3.6V
Supply voltage: VBAT	2.2V	3.7V	4.2V

RF Characteristics

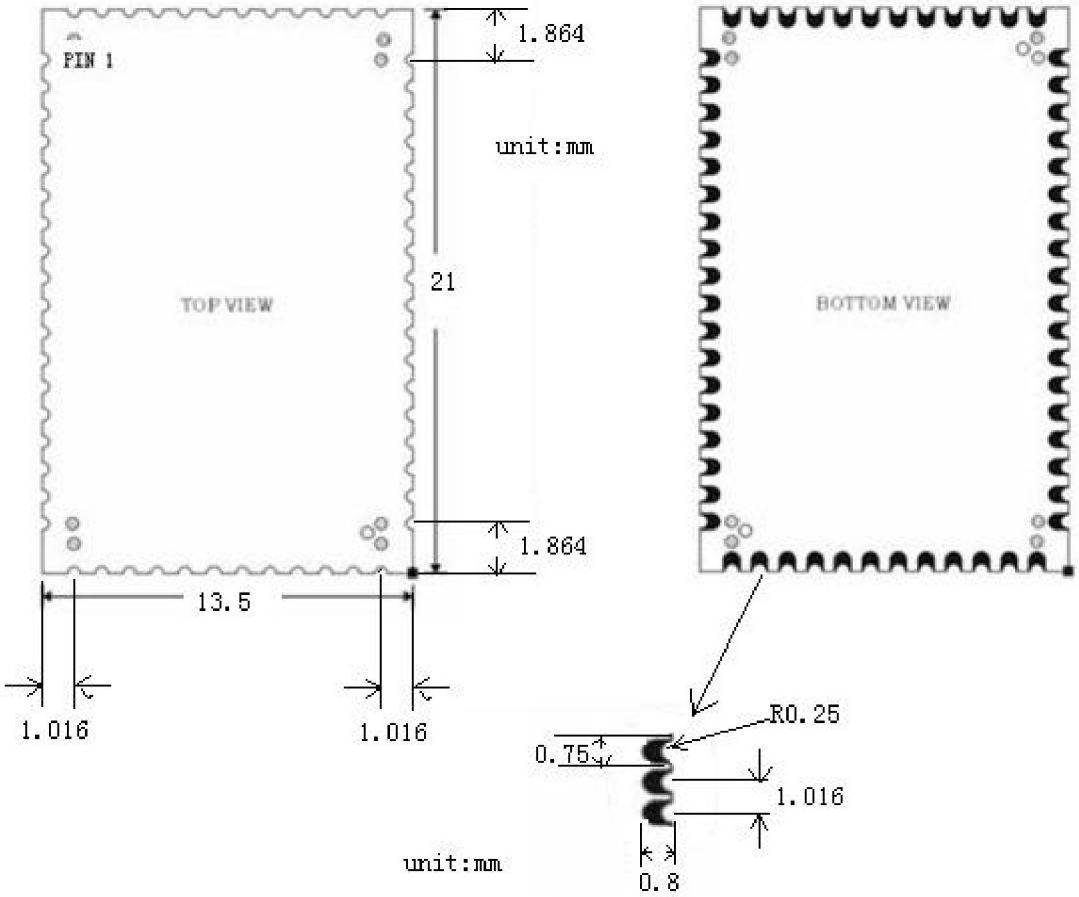
Radio Characteristics	VDD = 1.8V			Temperature = +20℃	
	Min	Typ	Max	Bluetooth Specification	Unit
Maximum RF transmit power		2.5		-6 to + 4	dBm
RF power variation over temperature range with compensation enabled(±)		1.5			dB
RF power variation over temperature range with compensation disabled(±)		2			dB
RF power control range		35		≧16	dB
RF power range control resolution		0.5			dB
20dB bandwidth for modulated carrier		780		≦1000	kHz
Adjacent channel transmit power $F = F_0 \pm 2MHz$		-40		≦-20	dBm
Adjacent channel transmit power $F = F_0 \pm 3MHz$		-45		≦-40	dBm
Adjacent channel transmit power $F = F_0 \pm > 3MHz$		-50		≦-40	dBm
$\Delta f1_{avg}$ Maximum Modulation		165		$140 < f1_{avg} < 175$	kHz
$\Delta f2_{max}$ Minimum Modulation		150		≧115	kHz
$\Delta f1_{avg} / \Delta f2_{avg}$		0.97		≧0.80	
Initial carrier frequency tolerance		6		±75	kHz
Drift Rate		8		≦20	kHz/ 50μs
Drift (single slot packet)		7		≦25	kHz
Drift (five slot packet)		9		≦40	kHz
2nd Harmonic Content		-65		≦-30	dBm
3rd Harmonic Content		-45		≦-30	dBm

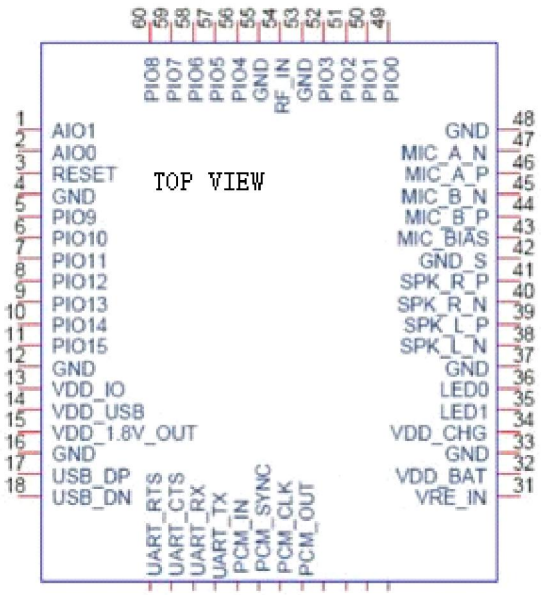
Block Diagram



System Architecture

Dimension and PIN Definition





PIN Description

PIN NO.	NAME	TYPE	FUNCTION
1	AIO1	Bi-directional	Programmable input/output line
2	AIO0	Bi-directional	Programmable input/output line
3	RESET	CMOS Input with weak internal pull-up	Reset if low. Input debounced so must be 5ms to cause a reset
4	GND	GND	Ground
5	PIO9	Bi-directional	Programmable input/output line
6	PIO10	Bi-directional	Programmable input/output line
7	PIO11	Bi-directional	Programmable input/output line
8	PIO12	Bi-directional	Programmable input/output line
9	PIO13	Bi-directional	Programmable input/output line
10	PIO14	Bi-directional	Programmable input/output line
11	PIO15	Bi-directional	Programmable input/output line
12	GND	GND	Ground
13	VDD_IO	Power	+3.3V power supply
14	VDD_USB	Power	Positive supply for UART/USB ports
15	VDD_1.8V_OUT	Power	+1.8V power output
16	GND	GND	Ground
17	USB_DP	Bi-directional	USB Date plus
18	USB_DN	Bi-directional	USB Date minus
19	UART_RTS	CMOS Output	UART Request to Send (active low)
20	UART_CTS	CMOS Output	UART Clear to Send (active low)
21	UART_RX	CMOS Output	UART Data input
22	UART_TX	CMOS Output	UART Data output
23	PCM_IN	CMOS Input	Synchronous data input
24	PCM_SYNC	Bi-directional	Synchronous data Sync
25	PCM_CLK	Bi-directional	Synchronous data clock
26	PCM_OUT	CMOS Output	Synchronous data output
27	NC		Used for manufactory
28	NC		Used for manufactory

29	NC		Used for manufactory
30	NC		Used for manufactory
31	VRE_IN	analogue	Take high to enable
32	VDD_BAT	Battery terminal +ve	Lithium ion/polymer battery positive terminal. Battery charger output and input to switch- mode regulator
33	GND	GND	Ground
34	VDD_CHG	Charger input	Lithium ion/polymer battery charger input
35	LED1	Open drain output	LED driver
36	LED0	Open drain output	LED driver
37	GND	GND	Ground
38	SPK_L_N	Analogue	Speaker output negative , left
39	SPK_L_P	Analogue	Speaker output positive , left
40	SPK_R_N	Analogue	Speaker output negative , right
41	SPK_R_P	Analogue	Speaker output positive , right
42	GND	GND	Ground
43	MIC_BIAS	Analogue	Microphone bias
44	MIC_B_P	Analogue	Microphone input positive , right
45	MIC_B_N	Analogue	Microphone input negative , right
46	MIC_A_P	Analogue	Microphone input positive , left
47	MIC_A_N	Analogue	Microphone input negative , left
48	GND	GND	Ground
49	PIO0	Bi-directional	Programmable input/output line
50	PIO1	Bi-directional	Programmable input/output line
51	PIO2	Bi-directional	Programmable input/output line
52	PIO3	Bi-directional	Programmable input/output line
53	GND	GND	Ground
54	RF I/O	RF	RF Interface
55	GND	GND	Ground
56	PIO4	Bi-directional	Programmable input/output line
57	PIO5	Bi-directional	Programmable input/output line
58	PIO6	Bi-directional	Programmable input/output line
59	PIO7	Bi-directional	Programmable input/output line
60	PIO8	Bi-directional	Programmable input/output line

Reference Design