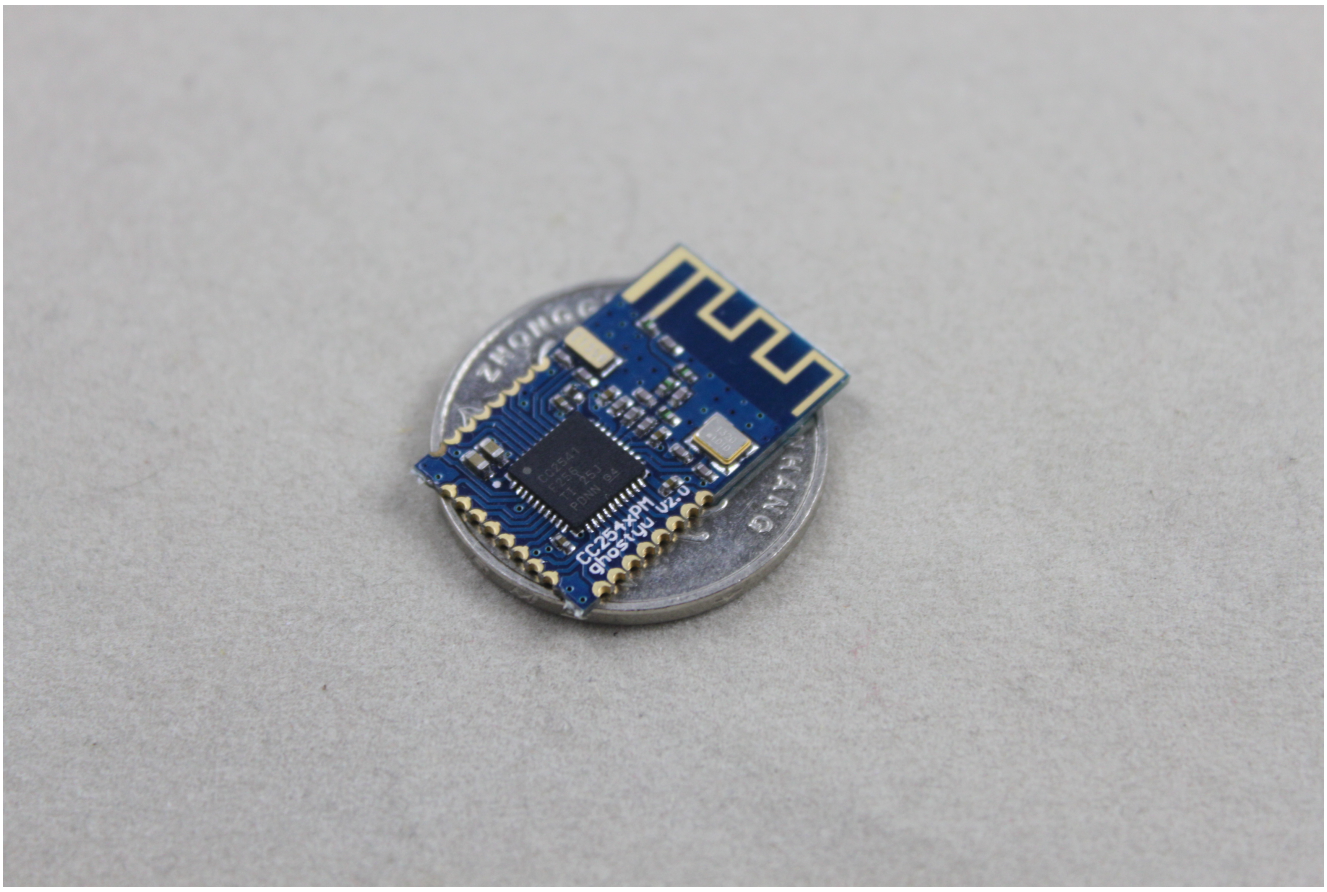
CC254xPM

DATA SHEET


CC254xPM
ghostyu V2.0

VERSION HISTORY

Version	Comment
0.1	First draft

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PMv2 *Bluetooth*® low energy single mode module

DESCRIPTION

PM, *Bluetooth* low energy single mode module is a single mode device targeted for low power sensors and accessories.

PM offers all *Bluetooth* low energy features: radio, stack, profiles and application space for customer applications, so no external processor is needed. The module also provides flexible hardware interfaces to connect sensors, simple user interfaces or even displays directly to the module.

PM can be powered directly with a standard 3V coin cell batteries or pair of AAA batteries. In lowest power sleep mode it consumes only 400nA and will wake up in few hundred microseconds.

APPLICATIONS:

- Heart rate sensors
- Pedometers
- Watches
- Blood pressure and glucose meters
- Weight scales
- Key fobs
- Households sensors and collector devices
- Security tags
- Wireless keys (keyless go)
- Proximity sensors
- HID keyboards and mice
- Indoor GPS broadcasting devices

KEY FEATURES:

- *Bluetooth v.4.0*, single mode compliant
  - Supports master and slave modes
  - 4+ simultaneous connection in master mode
- Integrated *Bluetooth* low energy stack
  - GAP, GATT, L2CAP, SMP
  - *Bluetooth* low energy profiles
- Radio performance
  - TX power: +3dBm to -23dBm
  - RX sensitivity: -87dBm to -93dBm
- Ultra low current consumption
  - Transmit: 27mA (0dBm)
  - Sleep mode 3: 0.4uA
- Programmable 8051 processor for embedding full applications

1 BLE112 Product numbering

CC254xPM

Available products and product codes

Product code	Description
CC2540PM	Chip is CC2540 ,with PCB Antenna
CC2541PM	Chip is CC2541 ,with PCB Antenna

2 Pinout and Terminal Description

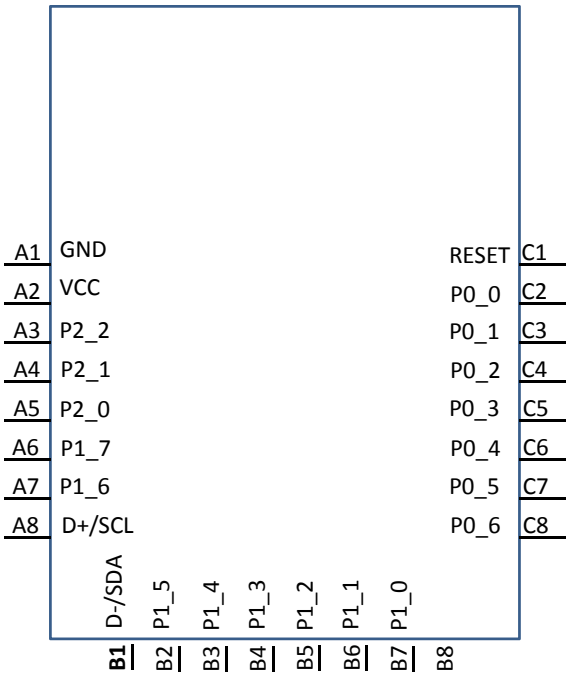


Figure 1

PIN NUMBER	PIN NAME	PIN TYPE	DESCRIPTION
A1	GND	Digital I/O	GROUND
A2	VCC	Digital I/O	POWER
A3	P2_2	Digital I/O	DBG-DC
A4	P2_1	Digital I/O	DBG-DD
A5	P2_0	Digital I/O	Configurable I/O port, See table 3
A6	P1_7	Digital I/O	Configurable I/O port, See table 3
A7	P1_6	Digital I/O	Configurable I/O port, See table 3
A8	D+/SCL	Digital I/O	USB data plus or I2C-SCL
B1	D-/SDA	Digital I/O	USB data minus or I2C-SDA
B2	P1_5	Digital I/O	Configurable I/O port, See table 3
B3	P1_4	Digital I/O	Configurable I/O port, See table 3
B4	P1_3	Digital I/O	Configurable I/O port, See table 3
B5	P1_2	Digital I/O	Configurable I/O port, See table 3
B6	P1_1	Digital I/O	Configurable I/O port, See table 3
B7	P1_0	Digital I/O	Configurable I/O port, See table 3
B8	P0_7	Digital I/O	Configurable I/O port, See table 3
C1	Reset		Active low reset
C2	P0_0	Digital I/O	Configurable I/O port, See table 3
C3	P0_1	Digital I/O	Configurable I/O port, See table 3
C4	P0_2	Digital I/O	Configurable I/O port, See table 3
C5	P0_3	Digital I/O	Configurable I/O port, See table 3
C6	P0_4	Digital I/O	Configurable I/O port, See table 3
C7	P0_5	Digital I/O	Configurable I/O port, See table 3
C8	P0_6	Digital I/O	Configurable I/O port, See table 3

PERIPHERAL / FUNCTION	P0								P1								P2		
	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	2	1	0
ADC	A7	A6	A5	A4	A3	A2	A1	A0											
Operational amplifier						O	-	+											
Analog comparator			+	-															
USART 0 SPI			C	SS	MO	MI													
Alt. 2											MO	MI	C	SS					
USART 0 UART			RT	CT	TX	RX													
Alt.2											TX	RX	RT	CT					
USART 1 SPI			MI	MO	C	SS													
Alt.2									MI	MO	C	SS							
USART 1 UART			RX	TX	RT	CT													
Alt.2									RX	TX	RT	CT							
TIMER 1		4	3	2	1	0													
Alt.2	3	4												0	1	2			
TIMER 3												1	0						
Alt.2									1	0									
TIMER 4															1	0			
Alt.2																			0
DEBUG																	DC	DD	
OBSSEL											5	4	3	2	1	0			

Table 3:Peripheral I/O Pin Mapping

3 Electrical Characteristics

3.1 Absolute Maximum Ratings

Note: These are absolute maximum ratings beyond which the module can be permanently damaged. These are not maximum operating conditions. The maximum recommended operating conditions are in the table 5.

Rating	Min	Max	Unit
Storage Temperature	-40	85	°C
VCC	-0.3	3.9	V
Other Terminal Voltages	VSS-0.4	VDD+0.4	V

Table 4: Absolute Maximum Ratings

3.2 Recommended Operating Conditions

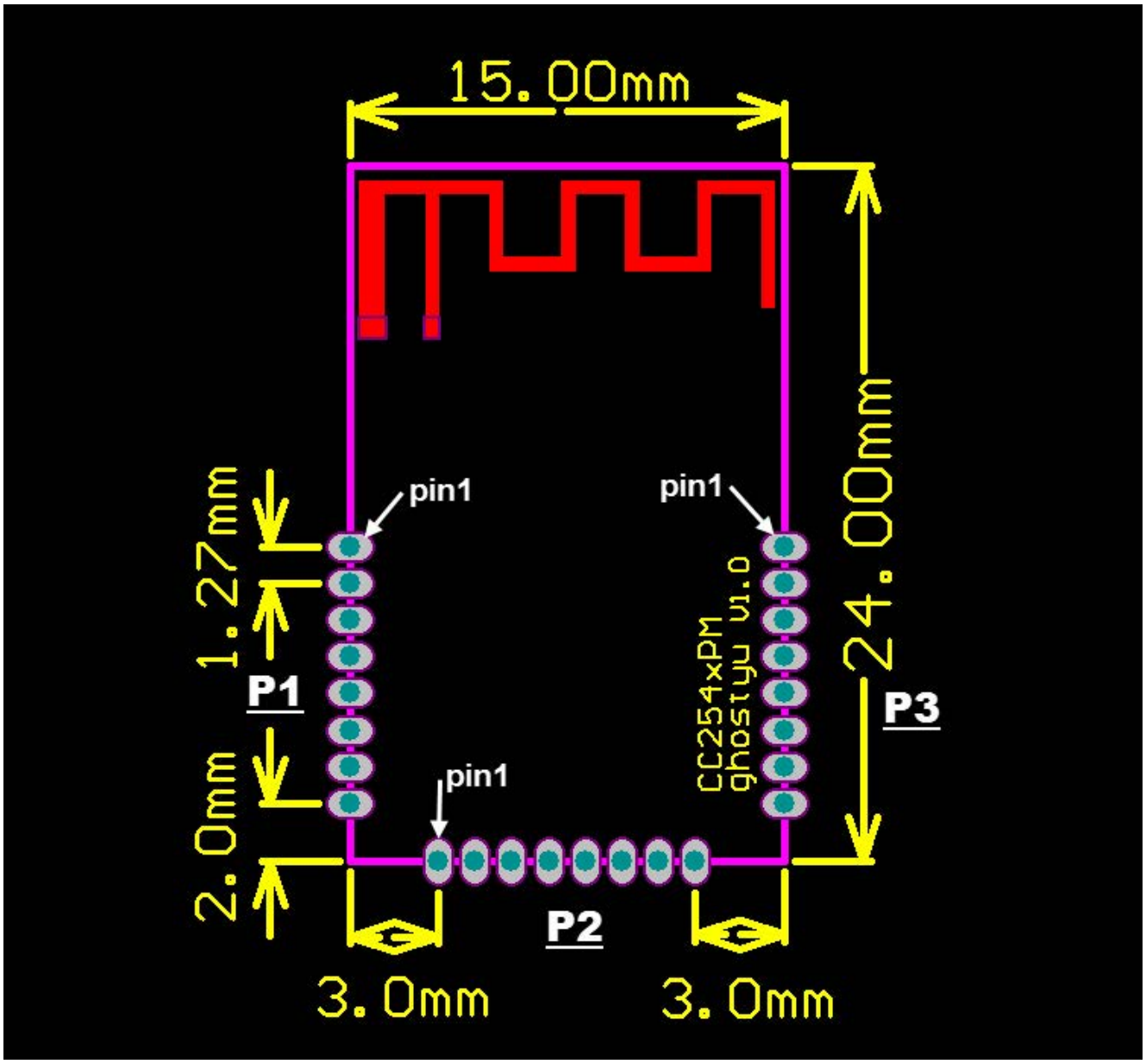
Rating	Min	Max	Unit
Operating Temperature Range	-40	85	°C
VCC	2.0	3.6	V

*) Supply voltage noise should be less than 10mVpp. Excessive noise at the supply voltage will reduce the RF performance.

Table 5: Recommended Operating Conditions

For the I/O terminal characteristic refer to the CC2540 datasheet available in (http://www.ti.com/lit/ds/symlink/cc2540.pdf)

3.3 Current Consumption

Power mode	Min	Typ	Max	Unit
Active mode TX 2 dBm			36	mA
Active mode TX -2 dBm			30	mA
Active mode TX -6 dBm			28	mA
Active mode RX			25	mA
Power mode 1		235		uA
Power mode 2		0.9		uA
Power mode 3		0.4		uA

3.4 Physical Dimensions