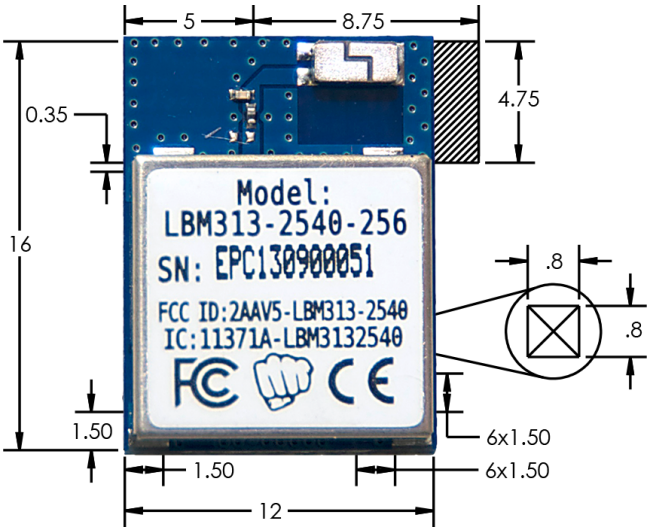
LBM313 (LBM313-2540-256)

Bluetooth Low Energy Module



Product Summary

The LBM313 was custom designed from the ground up by Punch Through to meet the needs of our clients. It smaller than our most commonly used module, and more flexible when paired with our development services.

Power Consumption

The LBM313 flexible low power modes allow for long term usage with coin-cell battery applications. The nature of the BLE protocol allows for ultra low power consumption with the ability for applications to run for months using a single coin cell battery.

- As low as 17.9mA during RX mode and 18.2 mA during TX operation.
- 1Mbps data rate to reduce time spent in active modes.
- Sleep modes with as low as 1uA, all of which include RAM retention.

Key Features

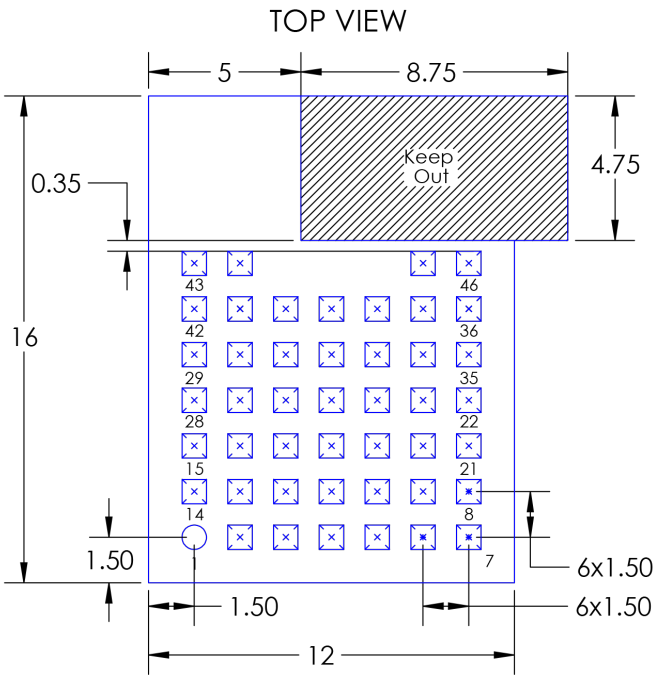
- 2.4Ghz bluetooth low energy (Bluetooth Smart, Bluetooth 4.0) compliant
- Data rates from 250kbps to 1mbps
- Programmable output power
- Operating voltage of 2.0V - 3.6V
- 8051 microcontroller with 256kB of in system programmable flash and 8kB of RAM
- Eight channel 12-bit ADC
- Two USARTs supporting both UART and SPI protocol.
- USB 1.1
- AES Security Coprocessor
- 23 General Purpose I/O
- Integrated Comparator
- Extensive development tools including IAR Embedded Workbench.
- Bluetooth 4.0 Stack that supports both master and slave

- Modular Certification under FCC, IC, CE saves $30,000+ and 3 months of development.

Summary of Benefits

- Reduced size in both length and height
- Uses LGA footprint. Footprint uses less area than with use of castellated vias
- 32.768 kHz external crystal can optionally be added, reducing cost.
- Flexible with PTD design services.

Footprint



Pinout

Name	Pin	Pin Type
USB_P	2	USB_P
P1_4	4	GPIO
P1_1	5	GPIO
P1_0	8	GPIO
P1_2	10	GPIO
P1_5	11	GPIO
USB_N	12	USB_N
P1_7	15	GPIO
P1_6	16	GPIO
P1_3	18	GPIO
P0_6	20	GPIO
P0_7	21	GPIO
P0_4	22	GPIO
P0_2	23	GPIO
P0_3	24	GPIO
P2_0	26	GPIO
P2_1	27	GPIO
P2_2	28	GPIO
P2_4/OSC32K_Q1	29	GPIO
P2_3/OSC32K_Q2	30	GPIO
P0_1	33	GPIO
P0_0	34	GPIO
P0_5	35	GPIO
RESET_N	37	Digital Input
GND	1, 7, 9, 13, 17, 19, 25, 32, 36, 39, 43, 44, 45, 46	Ground
VCC	3, 6, 14, 31, 38, 40, 41, 42	Power

Specifications

Radio:

Frequency	2.402 GHz to 2.480 GHz
Data Rate	1 mbps
Modulation	GFSK
Output Power	-20 dBm to 0 dBm
Sensitivity	-93 dBm

Microcontroller:

Microcontroller Core	8051
Clock Speed	32 mHz
Flash Size	256 kB
RAM Size	8 kB
GPIO	23

Electrical:

Supply Voltage	2.0 V to 3.6 V
Supply Current, Active-Mode TX	18.2 mA
Supply Current, Active-Mode RX	17.9 mA
Supply Current, Sleep State	.4 uA
Operating Temperature	-40 C to 85 C

Mechanical:

Width	12 mm
Length	16 mm
Height	2 mm
Total Area	192 mm (sq)
Footprint	LGA
Number of pins	46

Antenna:

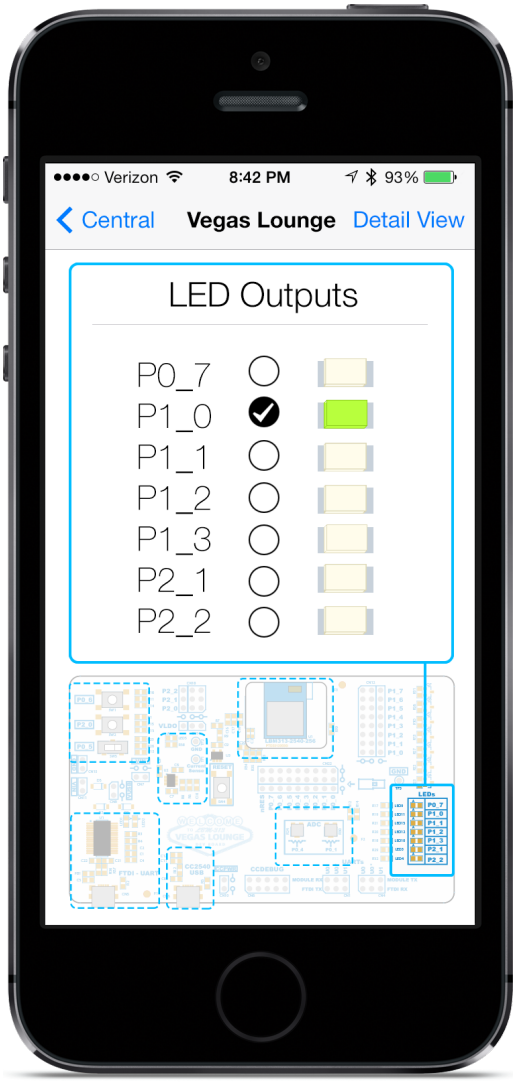
Peak Gain	1.7 dBi
Operating Temp:	-40 to +85 °C
Return Loss min	-8 dB

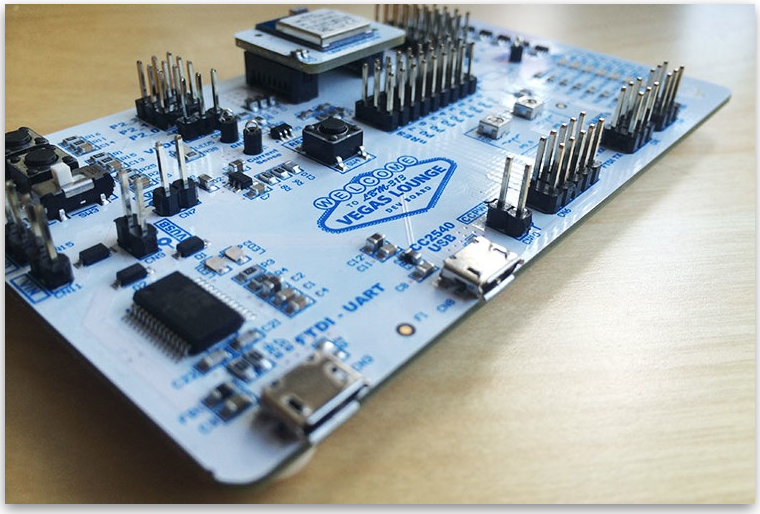
Applications

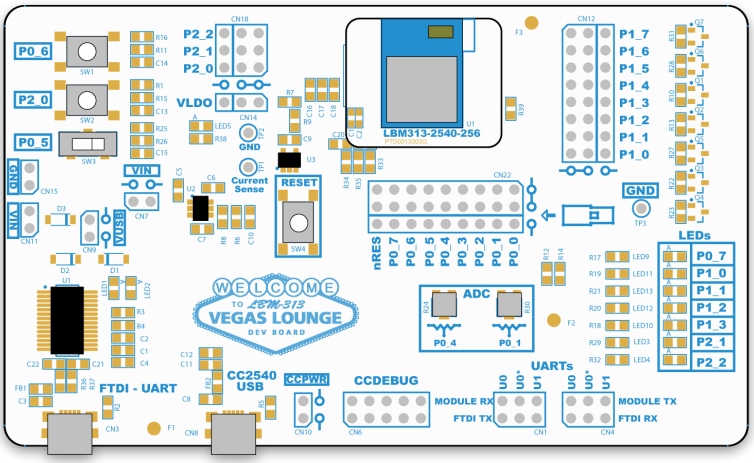
- iOS Accessories
- Android Accessories
- Heart Rate monitors
- Blood Glucose readers
- Blood Pressure Monitor
- Cycling Applications
- Proximity Detection

LBM313 Development Kit

'Vegas Lounge'







Find the Dev Kit Documentation Here.
Purchase the 'Vegas Lounge' Dev Kit Here.

Preliminary Pricing

Contact Punch Through for quotes about 5k units.

Part	Qty 1	Qty 100	Qty 1K	Qty 5K
LBM313-256	$10	$9.55	$9.20	$8.90
LBM313DEV	$199			