We-Vibe Model 3000 Universal Board

This product uses a 4.2 V lithium ion battery, motor control drivers, charging and battery protection circuits, and a 2.4 GHz Bluetooth LE SoC (system on chip) with antenna matching network.

The SoC operates at 32 MHz with a 32 MHz crystal.

The radio communication is in accordance with Bluetooth LE PHY specification 4.0.

Motor Control Outputs

Two outputs from the processor are used to control motors P1_1 and P1_0. These are connected to hardware PWM within the processor and are capable of running autonomously without processor interference. Each output drives a Mosfet which pulls one side of the motor to ground, the other side of the motor is connected to the battery. Diodes D30 and D31 provide back EMF protection.

Push Button Switch

The ON/OFF control switch SW20 is read by the processor at P0_5

The board uses BT protocol with the following parameters:

- Operating frequency range 2402 to 2480 MHz
- Modulation type : Gaussian frequency shift keying (GFSK)
- Channels are 2 MHz apart
- 3 Advertising channels, 37 Data channels
- Modulation index of 0.5
- Antenna type is simple 50 ohm whip antenna ¼ wavelength

Processor TI CC2542

FEATURES

– 2.4-GHz Bluetooth low energy Compliant Microcontroller Core With Code Prefetch and Proprietary RF System-on-Chip

 – In-System-Programmable Flash, 128- or

– Supports 250-kbps, 500-kbps, 1-Mbps, 2- 256-KB Mbps Data Rates

– 8-KB RAM With Retention in All Power

– Extensive Baseband Automation, Including

– Programmable Output Power up to 0 dBm Auto-Acknowledgment and Address

– Excellent Receiver Sensitivity (–94 dBm at Decoding 1 Mbps), Selectivity, and Blocking

– Powerful Five-Channel DMA Regulations: ETSI EN 300 328 and EN 300

– General-Purpose Timers (One 16-Bit, Two 440 Class 2 (Europe), FCC CFR47 Part 15 8-Bit) (US), and ARIB STD-T66 (Japan)

– IR Generation Circuitry • Layout

– 32-kHz Sleep Timer With Capture

– Battery Monitor and Temperature Sensor

– 6-mm × 6-mm QFN-40 Package

– 12-Bit ADC With Eight Channels