

# A new dimension of acceleration

## Easy-to-integrate accelerometer – BMA580

Stylish and minimalistic hearables offer little space for powerful components. The next-generation accelerometer with unique voice activity detection through bone conduction and advanced power mode features is *world's smallest acceleration sensor* (1.2 x 0.8 x 0.55 mm<sup>3</sup>). It is especially designed for compact devices such as *hearables* requiring the smallest components. BMA580 ensures that the microphone is turned on only if necessary to *detect voice activity* and save power.



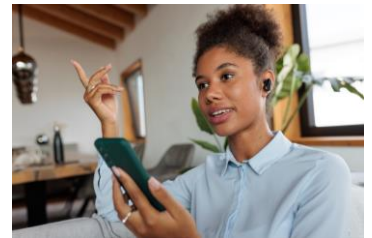
### Target applications



Hearables



Consumer devices with advanced performance requirements



Voice activity detection

### Benefits



#### Easy to assemble

High level of integrability into compact devices such as hearables due to the smallest size on the market.



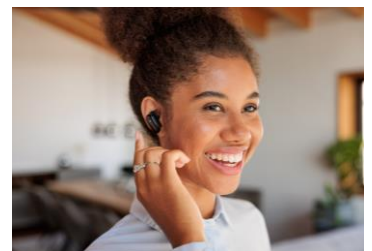
#### Unique speech processing

Speech processing with integrated voice activity detection saves power.



#### Highly flexible

Due to different power modes and automatic power mode switching, the sensor ensures high flexibility.



User interface features



Power management

# Technical features

## BMA580 technical data

Package dimensions (typ.) 1.2 x 0.8 x 0.55 mm<sup>3</sup>  
Wafer level chip scale package

Digital resolution 16 bit

Measurement ranges ±2, ±4, ±8, ±16 g

Output data rate ~1.56 Hz ... 6.4 kHz

Offset soldered, over lifetime ± 50 mg

TCO ± 0.2 mg/K

Sensitivity Error 0.5%

Noise density 120 µg/√Hz

Current consumption (high perf, continuous measurement) 125 µA

Current consumption (low power@ 100 Hz) 18 µA

Current consumption (suspend mode, data retention) 4.75 µA

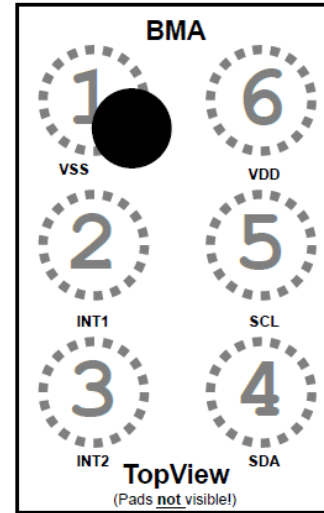
Interface I<sup>3</sup>C, I<sup>2</sup>C and SPI  
2 Interrupt Pins (I<sup>2</sup>C mode)  
1 Interrupt Pin (3-wire SPI)

Power modes High perf. mode, Low power mode (LPM)  
Self-wake-up: LPM to High perf. mode

FIFO 1 KB (incl. FIFO full, FIFO watermark interrupt)

Interrupts Data Ready interrupt  
3 generic interrupts, incl. Any-/No-motion  
Tap/Double Tap/ Triple Tap  
Voice activity detection  
Supports in-ear/out-ear algorithm

## Pin configuration



Pin	Name	Description
1	VSS	Ground (VSS=GND=GNDIO)
2	INT1	Interrupt pin 1 (or Serial Data)
3	INT2	Interrupt pin 2 (or Chip Select for SPI)
4	SDA	Serial Data
5	SCL	Serial Clock
6	VDD	Power supply analog and digital domain and digital I/O 1.62V ... 3.63V (VDD=VDDIO)



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