

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 mm³). 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.



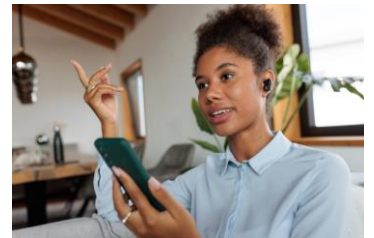
Target applications



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.



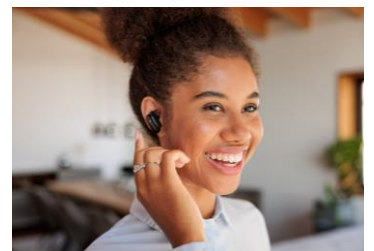
Unique speech processing

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.



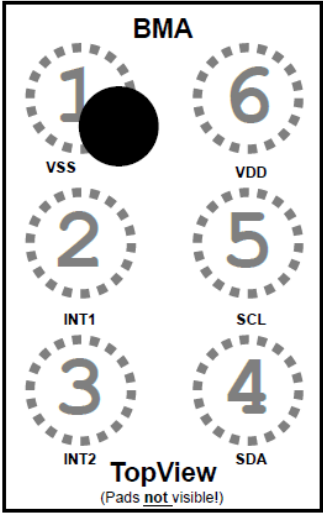
User interface features



Power management

Technical features

BMA580 technical data	
Package dimensions (typ.)	1.2 x 0.8 x 0.55 mm³ 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	I³C, I²C and SPI 2 Interrupt Pins (I²C, I³C) 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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