



That's how good hearing sounds.

Acceleration-based body sound sensor - BMA550

BMA550 for hearables makes a big wave against unwanted sound waves. The innovative accelerometer works as body sound sensor for sensing bone conducted voice. Smart “voice enhancement” filters out distracting noises during phone calls and amplifies your own voice. This means that the person you are talking to can always understand you, even in noisy atmospheres. The BMA features 5-7x lower noise than standard accelerometers, low power consumption and high data rate up to 48kHz for low latency.



Target applications



Hearables



Noise suppression and voice enhancement

Benefits



Easy-to-integrate

High level of integrability into compact devices such as hearables due to small size (2 x 2 x 0.65 mm³).



Voice activity detection, key word trigger and speech processing



Enhanced speech processing

“Immunity” to surrounding noise enhances speech processing.



Speaker identification by voice



Continuously usable

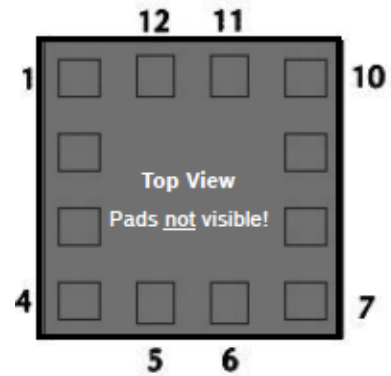
Always-on low-power speech processing enables continuous use

Technical features

BMA550 technical data

Package dimensions (typ.)	2 x 2 x 0.65 mm ³
Digital Resolution	16 bit
Supply voltage V _{DDIO}	1.08 ... 3.6 V
Supply voltage V _{DD}	1.71 ... 3.6 V
Interface	TDM interface + I2C
Output data rate	Up to 48 kHz
Bandwidth	50 Hz ... 2350 Hz
Noise (in low noise mode)	1.2 mg-rms @2350 Hz BW
Total Harmonic Distortion +Noise	0.25%
Power consumption	290 µA in low noise mode 104 µA in low power mode
FIFO	1kb
Interrupts	FIFO + Voice activity detection

Pin configuration



Pin	Name	Description
1	TDM_SDOUT	TDM mode data output
2	TDM_WCLK	TDM mode word clock
3	VDDIO	Power Supply for I/O
4	I2C_SDA	I2C Serial Data
5	I2C_SCL	I ² C Serial Clock
6	I2CASEL	I ² C Address selection line
7	VDD	Power Supply for VDD
8	GNDIO	0V Supply for I/O Pads
9	GND	0V Supply for Circuits
10	Res	Reserved
11	INT	Interrupt
12	TDM_BCLK	TDM Mode Bit Clock



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