

Acceleration sensor | SMA380

High Bandwidth

Enables vibration measurements

Function



The SMA380 is a state-of-the-art acceleration sensor designed specifically for road noise cancellation applications. Engineered for acceleration measurements in high bandwidth and very low latency.

Application



Active Road Noise Cancellation: reduces tire and road noise inside the cabin by detecting road-induced vibrations and generating an opposite sound wave through the vehicle speakers. It improves acoustic comfort, especially in electric vehicles where road noise is more noticeable.

Key Features



High Bandwidth: Provides coverage of acceleration signals at high frequencies.

Low Latency: Delivers new acceleration samples immediately upon availability, reducing system response time.

High ODR: High bandwidth requires a high ODR to avoid aliasing.

Selectable filters: wide range of low pass filter are available in order to tune the noise/latency trade-off

Audio Interface: The TDM interface allows the sensor to be easily integrated into audio systems.

Automotive Qualification



Qualified according to automotive standard

Low Latency

For real time application



Technical features

Package	12 pin LGA - 2.3x2.8 mm
Supply voltage	1.7 - 3.6 V
Supply current	< 1 mA
Operating temperature	-40 to +125 °C
Interface	TDM / I2C
Data resolution	16 bit
Sensing axes	X, Y, Z
Range	± 10 20 g
Sensitivity	3277 1638 LSB/g

Dynamic Performance

	typ	unit
Corner frequency (-3dB)	Filter bypass 6.1 6.9	kHz
	Selectable filters 0.5 0.7 1.1 1.5 3.3	kHz
Noise Density (10g)	30	µg/√Hz
Noise RMS (10g)	0.7 ... 3.5 (filter dependent)	mg
Latency	72 (filter bypass)	µs
ODR	24 48	kHz