	High-Sensitivity Accelerometer Specification [Provisional version]	No. ANT-02/ANT-04 Rev.0 February 2021

Feature

・Detection range :+/-2G(ANT-02), +/-4G(ANT-04)
・Low noise :<=20 μG/√Hz(ANT-02, Typical)
・32 bit digital output (I²C or SPI)
・Bandwidth (-3dB) : >=500Hz
・Current consumption : <1mA
・Sealed with ceramic package
・PCB implemented with 8pin header output

Description

The ANT-02/ANT-04 is high-sensitivity one axis accelerometer with 32-bit digital output. The sensor element fabricated by MEMS (microelectromechanical systems) technology is assembled and sealed in a ceramic package to protect it from the outer environment. The package is implemented on the PCB, where data can be accessed through an I²C or SPI interface. The easy connection to various microcomputers constitutes a part of IoT sensor.

Remarks: This documents is provisional. Features and specifications may be subject to change without notice.

Contact Us:
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Sales Section
URL: https://www.ntt-at.com/product/high-sensitivity_mems_accelerometer/

Contents

Specifications

Table 1. Specification

Parameter	Units	Min	Typical	Max
Detection Range	G		±2 (ANT-02) ±4 (ANT-04)	
Mechanical Resonance	Hz		1400 (ANT-02) 2000 (ANT-04)	
Noise Density	μG/√Hz		20 (ANT-02) 40 (ANT-04)	
Operating Temperature	°C	-20		80
Operating Voltage	V	3	3.3	3.6
Current Consumption (sampling rate <500Hz)	mA		<1	
SPI Communication Rate	MHz			20
I^2C Communication Rate	kHz		100	
Start-Up Time	ms	3.9		4.0
Bandwidth (-3dB)	Hz		500	

Remarks: Specifications may differ depending on the operating and environmental conditions. Features and specifications may be subject to change without notice.

Block diagram

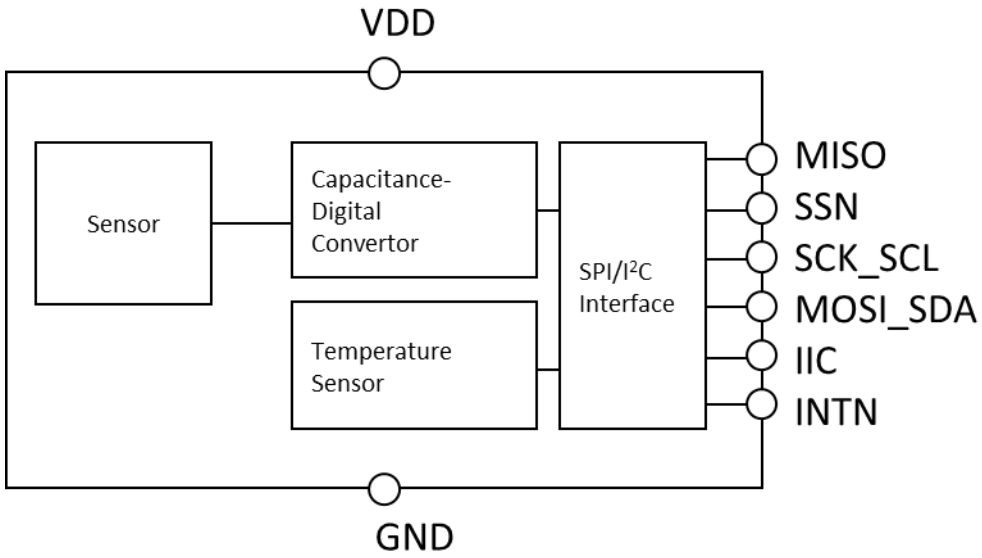


Figure 1. Block diagram

Table 3. Pin description

Pin	Description	If Not Used
VDD	I/O supply voltage	VDD
MISO	Master in/save out when SPI is used.	open
SSN	Serial select line when SPI is used.	open
SCK_SCL	Serial clock for SPI/I²C.	
MOSI_SDA	Master out/slave in when SPI is used. Otherwise, serial data for I²C.	
IIC	Serial interface select. 0 = SPI enable, 1 = I²C enable.	
INTN	Monitor signal of the end of data conversion.	open
GND	Ground	GND

Module pin arrangement

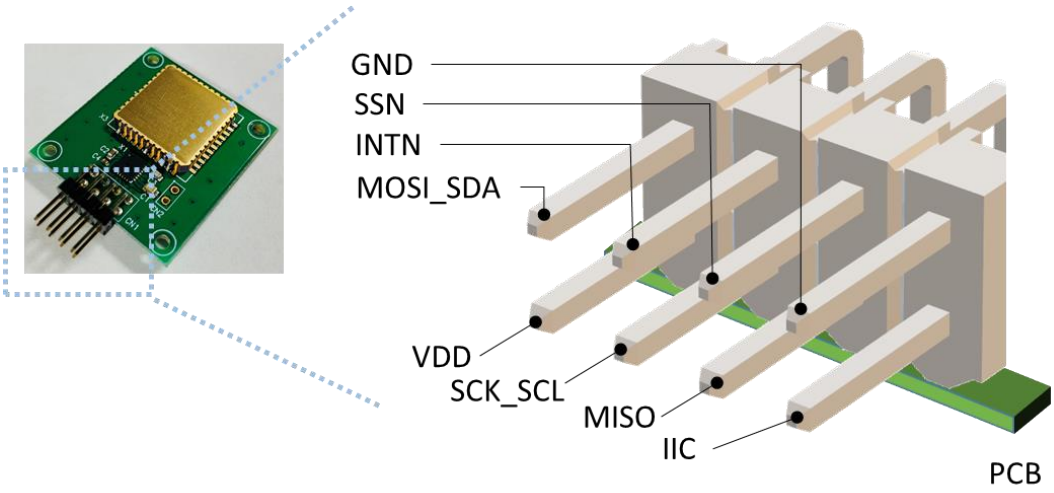
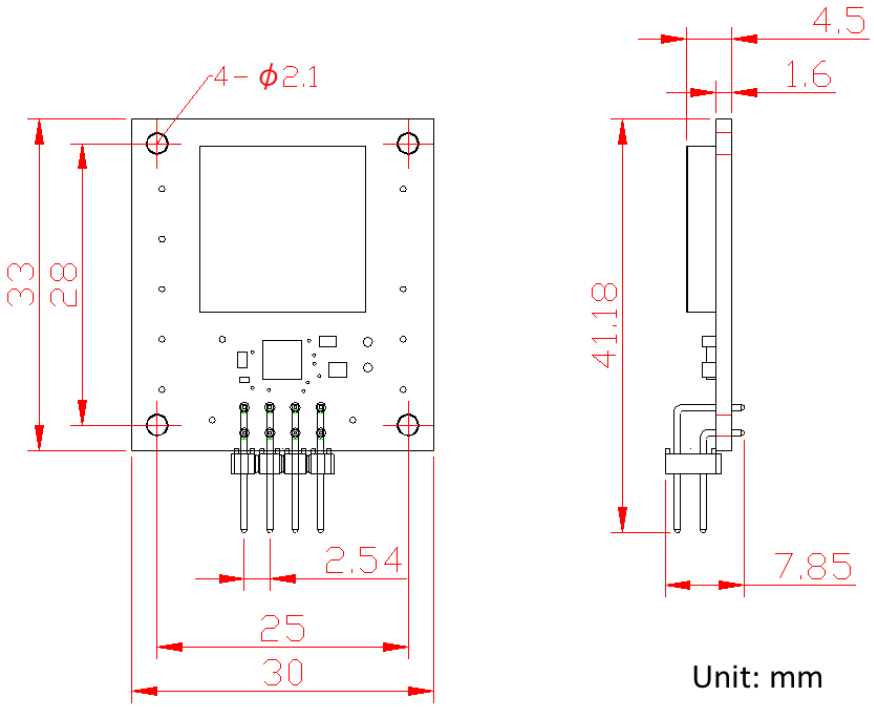


Figure 2. Module pin arrangement

Module dimensions



Module weight: 5.83g

Figure 3. Module dimensions

Typical performance (Provisional data)

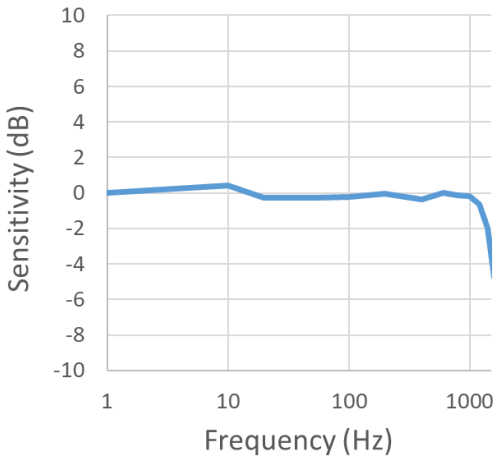


Figure 4. Frequency response
(ANT-02, Room temperature)

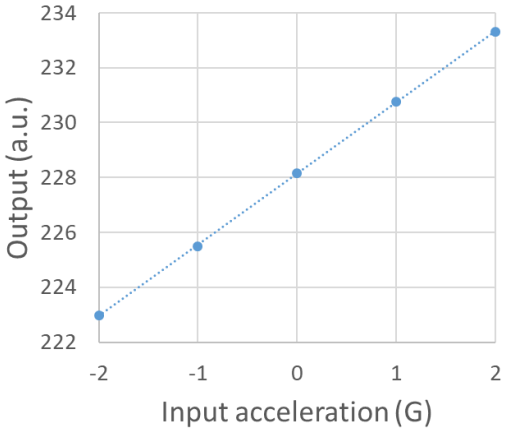


Figure 5. Input acceleration response
(ANT-02, Room temperature)

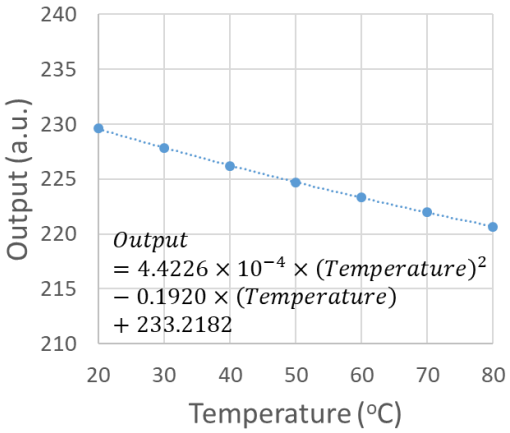


Figure 6. Output vs. temperature
(ANT-02)

Digital Interfaces

This sensor uses ScioSense Pcap04 Capacitance-to-Digital convertor IC (https://www.sciosense.com/products/sensor-interfaces/pcap04-capacitance-to-digital-converter/), please check that reference for details.
An example code for Arduino including details of firmware and read/write register data can be provided separately.