

Datasheet

DF060 – Force Sensor Module

Force sensor module with Agnostic sensor PT061 (strain gauge sensor)
V0.x (Preliminary)

FEATURES

- Ultra-compact force sensing module
- High-sensitivity PT061 strain gauge technology
- STEMMA QT / Qwiic compatible
- 24-bit precision measurement with NAU7802 ADC
- Easy integration into maker and professional projects
- Flexible mounting with screws or adhesive tape

TYPICAL APPLICATION

- Touch-through-metal buttons
- Grip force measurement and collision detection in robotics
- Weight detection and load monitoring
- Interactive furniture or musical instruments...

DESCRIPTION

The DF060 Force Sensor Module is an easy-to-use force sensing solution designed for seamless integration into a wide range of applications. Its STEMMA QT / Qwiic interfaces make it a perfect fit for the maker community, as well as for rapid prototyping and product development.

At the heart of the module is an ultra-compact, SMD-solderable strain gauge sensor. This sensor (PT061) is highly sensitive to mechanical deflection. The differential signal of the sensors integrated Wheatstone bridge is digitized by a high-resolution 24-bit ADC (NAU7802).

The DF060 module is easy to install and can be mounted either with screws or by using high-performance VHB adhesive tape.

There is a wide variety of applications for the DF060 module. Whether detecting a finger press through a metal surface or sensing the presence of an object, the module offers a flexible and robust force sensing solution.

ORDERING INFORMATION

Order Number	Part	Size	Packaging	MOQ
172314	DF060	20 x 30 x 4 mm	ESD	10

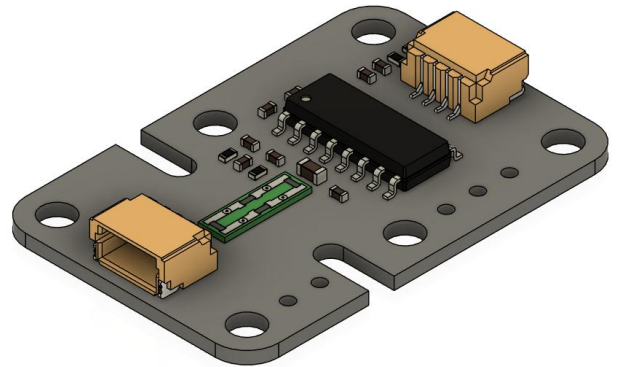
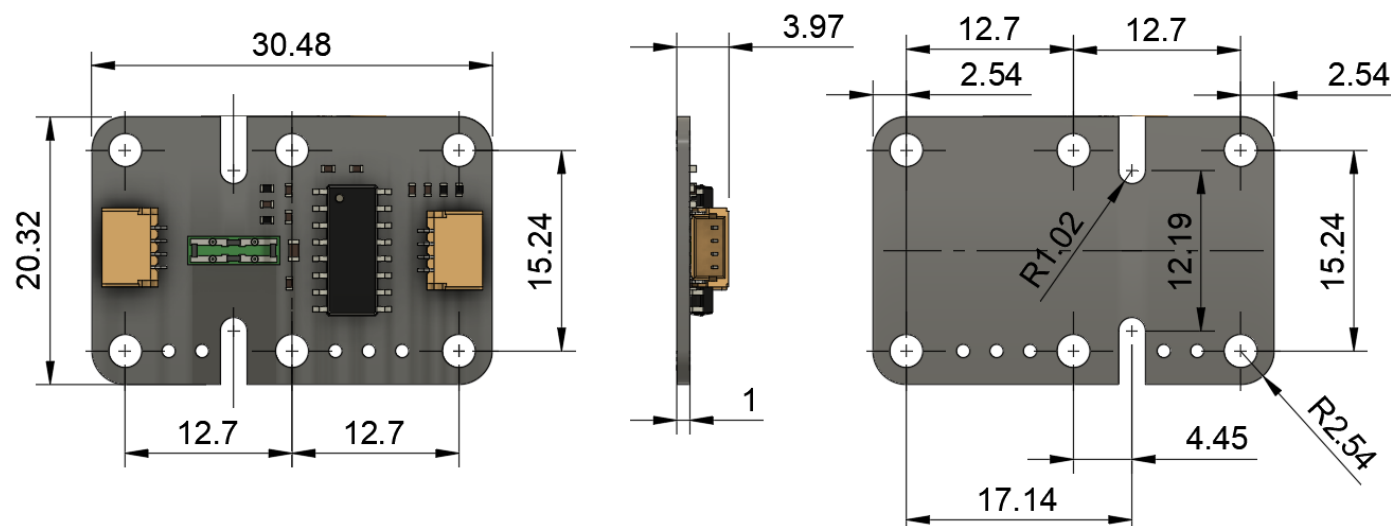


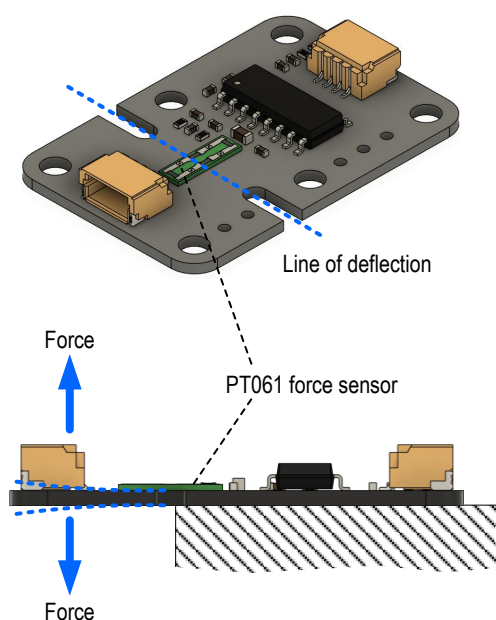
TABLE OF CONTENTS

	Page
FEATURES	1
TYPICAL APPLICATION	1
DESCRIPTION	1
ORDERING INFORMATION	1
PRODUCT DIMENSIONS	2
PIN CONFIGURATION & FUNCTION	2
ABSOLUTE MAXIMUM RATINGS	2
ELECTRICAL CHARACTERISTICS	2
CURVATURE RANGE & SENSITIVITY	3
COMPLIANCE INFORMATION	3
REVISION HISTORY	3

PRODUCT DIMENSIONS (mm)



PIN OUT & FUNCTION



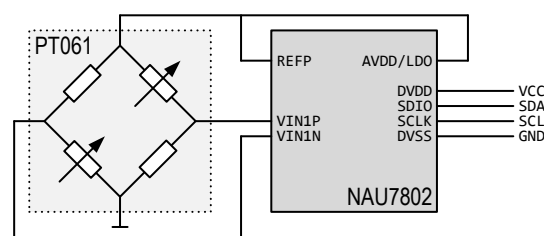
Pin Pin name Pin description

1	GND	Ground
2	VCC	Power supply voltage (3V3 or 5V)
3	SDA	I2C Serial Data
4	SCL	I2C Serial Clock

Connector System

STEMMA QT / Qwiic JST-SH, 4-polig, 1.0 mm

Block diagram



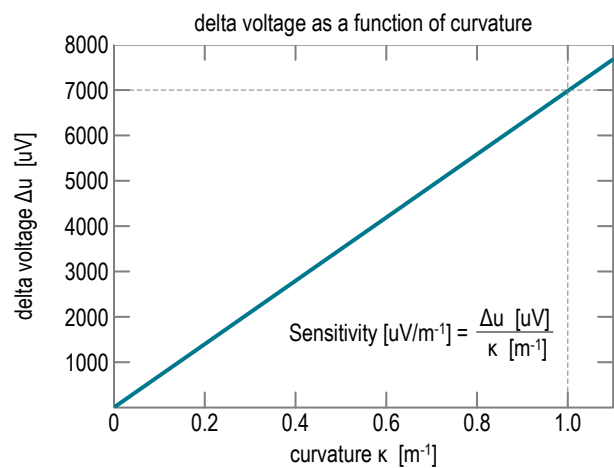
ABSOLUTE MAXIMUM RATINGS

Parameter	Unit	Min	Max
Supply voltage	V	-0.3	6.0
Storage temperature	°C	-40	105
Operating temperature	°C	-40	85
Curvature	m ⁻¹		5

ELECTRICAL CHARACTERISTICS

Parameter	Condition	Unit	Min	Typ	Max
Supply Voltage		V	2.7		5.5
Supply current	@ 5.0Vdc	mA		3.5	

CURVATURE RANGE & SENSITIVITY



Curvature is defined as the change in direction as the curve is traversed. The curvature of a straight line is zero everywhere because its direction remains the same. A circle of radius r has the same curvature everywhere. The smaller the radius, the greater the curvature. For a circle:

$$\text{curvature } \kappa \text{ [m}^{-1}\text{]} = \frac{1}{\text{radius [m]}}$$

The characteristic range for the sensor is 0 to 1.1 m^{-1} . This results in a bending radius of infinite to 0.9m.

COMPLIANCE INFORMATION

The module is in compliance with RoHS, REACH and CMRT. A written certification can be supplied upon request.

REVISION HISTORY

Version	Date	Description	Pages
V0.9	xxxx-xx-xx	Preliminary version	-