

Datasheet

PT215 – Agnostic Force Sensor

Strain gauge sensor combined with a spring
V0.9 (Preliminary)

FEATURES

- High sensitivity / high linearity
- Low power consumption
- High durability
- Small footprint
- SMD solderable
- Small size
- Spring load sensor

TYPICAL APPLICATION

- Input systems with clip mounting
- Force sensing in display applications (3D-Touch)
- Force sensing in industrial applications (e.g. end stop)

DESCRIPTION

The PT215 sensor is a piezo-resistive sensor offering low profile, low power consumption, high sensitivity and high durability. The Micro Strain Gauge material is directly printed on a FR4 substrate. The PT215 sensor is produced as a SMD type device with solder pads.

Enabled by its unique properties, the PT215 sensor provides accurate measurements of small forces in a wide range of applications. The cantilever type spring load sensor detects micromovements of any type of material.

The PT215 sensor consists of an array of piezoresistors in a Wheatstone-bridge configuration. When a force is applied, the deformation of the sensor leads to a change in resistance, which is then converted to a voltage output signal.

ORDERING INFORMATION

Order Number	Part	Size	Packaging	MOQ
tbd	PT215	8.4 * 5.1 * 1.75mm	Reel	1000

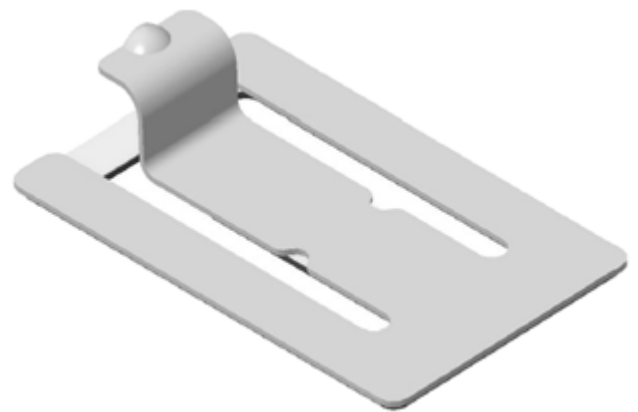
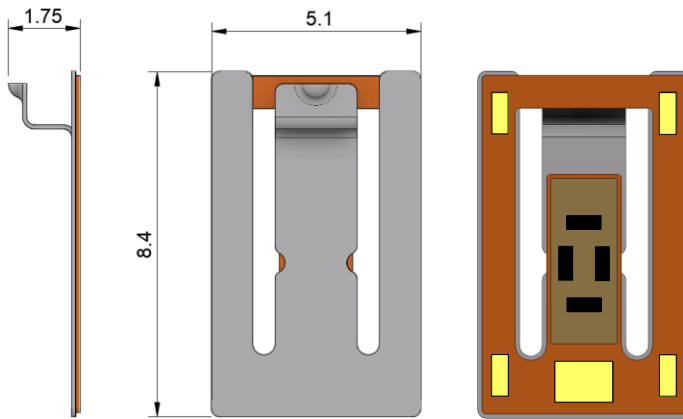


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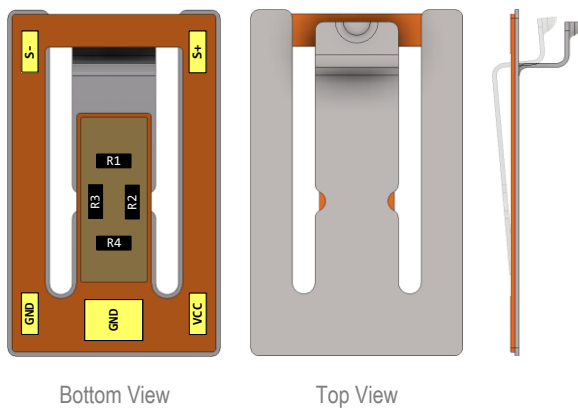
PRODUCT DIMENSIONS & MATERIALS



Material:

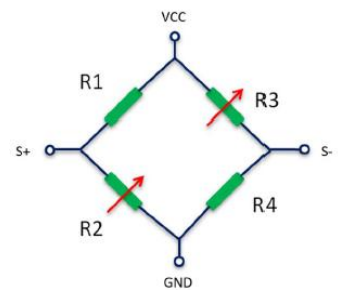
- Stainless Steel for spring loaded cantilever
- Flexible Printed Circuits (FPC) as connector base

PIN CONFIGURATION & FUNCTION



The movement of the cantilever causes R2 and R3 to bend. This changes the resistance value and results in an output signal. Recommended deflection is 0.5mm.

#	Pin name	Pin description
1	VCC	Sensor supply voltage
2	S+	Sensor positive output terminal
3	S-	Sensor negative output terminal
4	GND	Ground



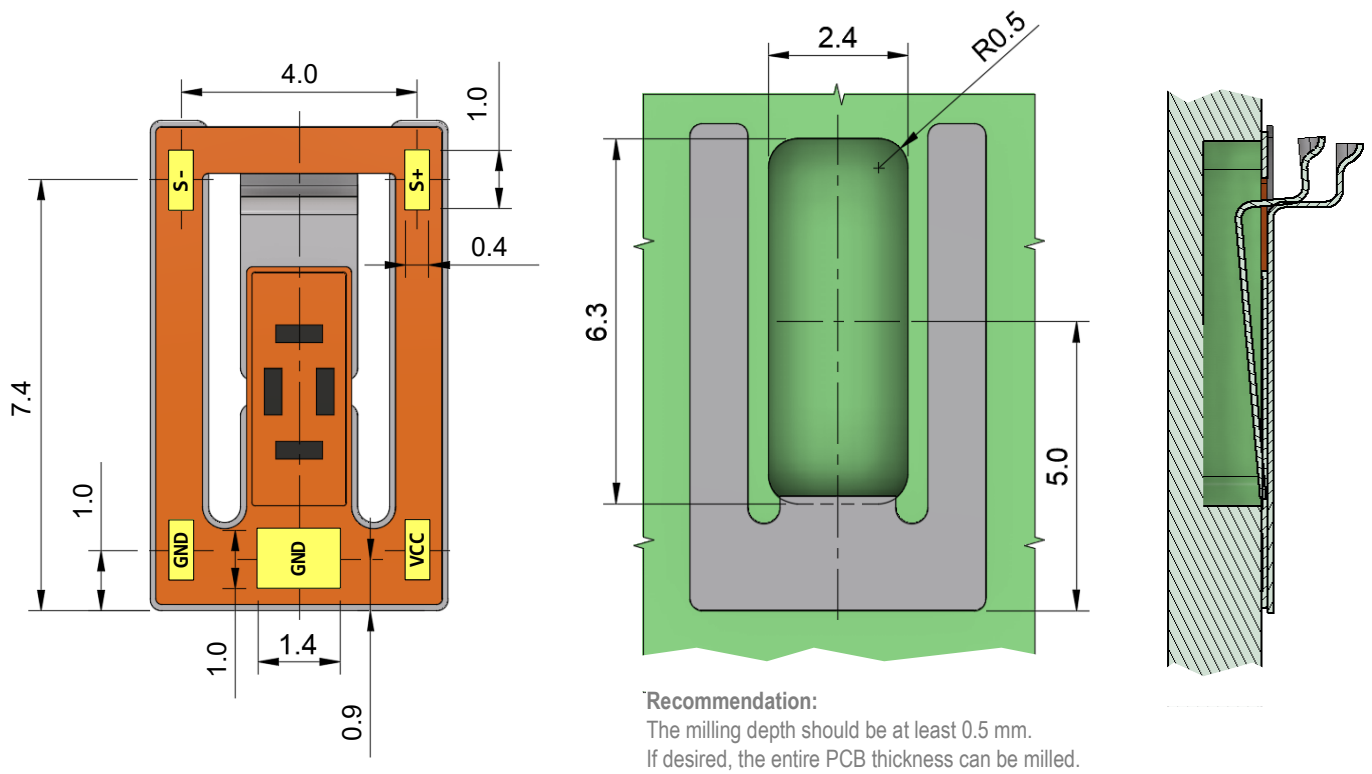
ABSOLUTE MAXIMUM RATINGS

Parameter	Unit	Min	Max
Supply voltage	V	0	10
Storage temperature	°C	-40	105
Operating temperature	°C	-40	105

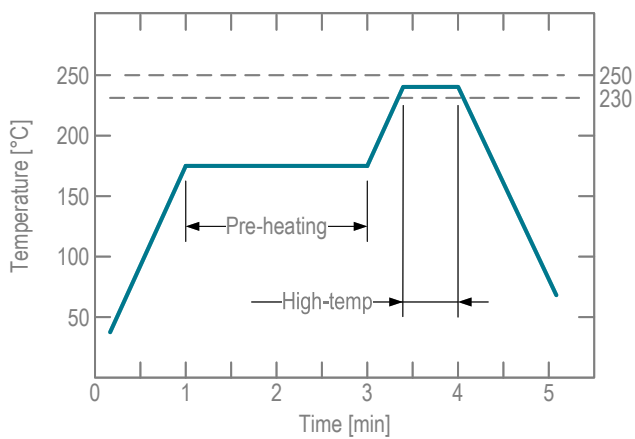
ELECTRICAL CHARACTERISTICS

Parameter	Unit	Min	Typ	Max
Movement	mm	0	0	1.2
Output signal @ 3Vdc	uV/um		39	
Offset voltage @ 3Vdc	mV	-200	0	200
Linearity (R ²)			0.995	
Temp variation @ -20 to 50°C			30%	
Bridge resistance	kOhm	2	6	10

LAYOUT GUIDELINES & FOOTPRINT

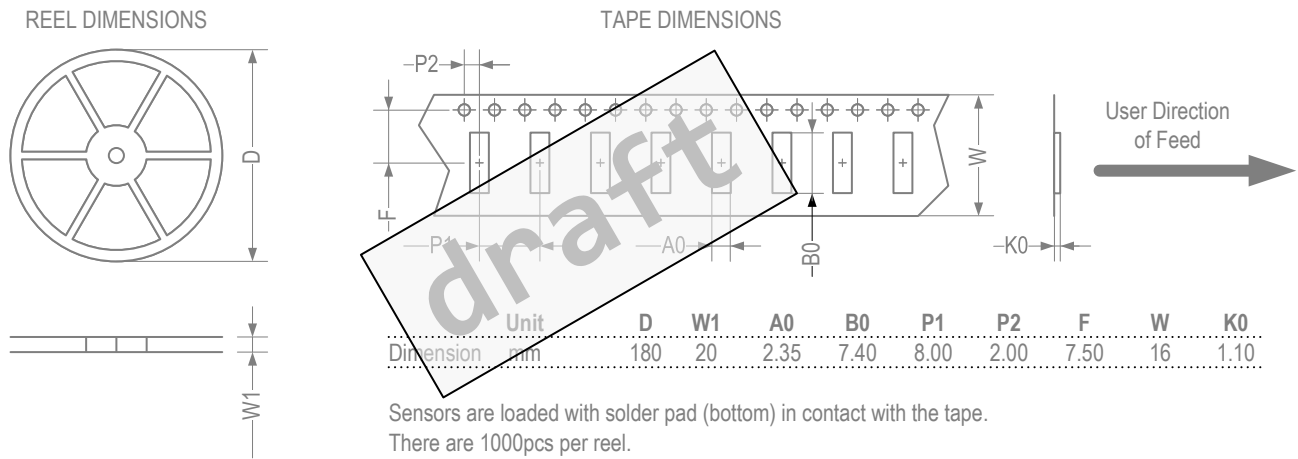


SOLDERING PROFILE



Pre-heating period	≥ 60s
Pre-heating temperature	<180°C
High-temperature period	30 to max 60s
Maximum soldering temperature	250°C

PACKAGE INFORMATION



MOISTURE SENSITIVE LEVEL (MSL)

The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications is Level-2.

COMPLIANCE INFORMATION

The PT215 sensor 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	-