

StretchFABRIC Sensing Element

SSD18 – StretchFABRIC Sensing Element



For sensors purchased before 20/12/2018, please refer to the OSEF StretchFABRIC Datasheet or contact us at sales@stretchsense.com

Technical Datasheet

Product overview

StretchFABRIC sensors are soft, flexible, and precise making them ideal for the measurement of soft object deformation. They connect to 10-channel SPI Sensing Boards which pair with the Android and iOS data visualization apps.

StretchFABRIC sensors come bonded onto white Lycra® fabric providing an integration zone for easy sewing into garments. They connect to 10 Channel SPI boards via 2-pin female connectors.

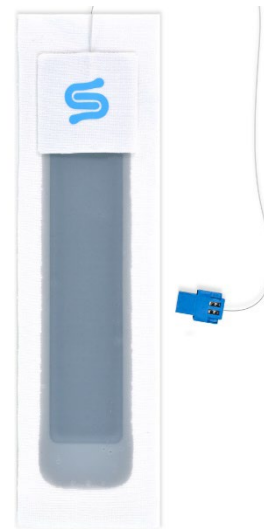


Figure 1: StretchFABRIC sensor

Features

- Soft, flexible, and lightweight for unobtrusive and comfortable measurement of motion
- Easy sewing integration into garments
- Highly precise measurement of deformation

Applications

- Smart garments
- Sports and fitness
- Wearables
- VR/AR

The data displayed in this document uses aggregated test data tested at room temperature. These values are indicative only; individual sensing element performance may vary.

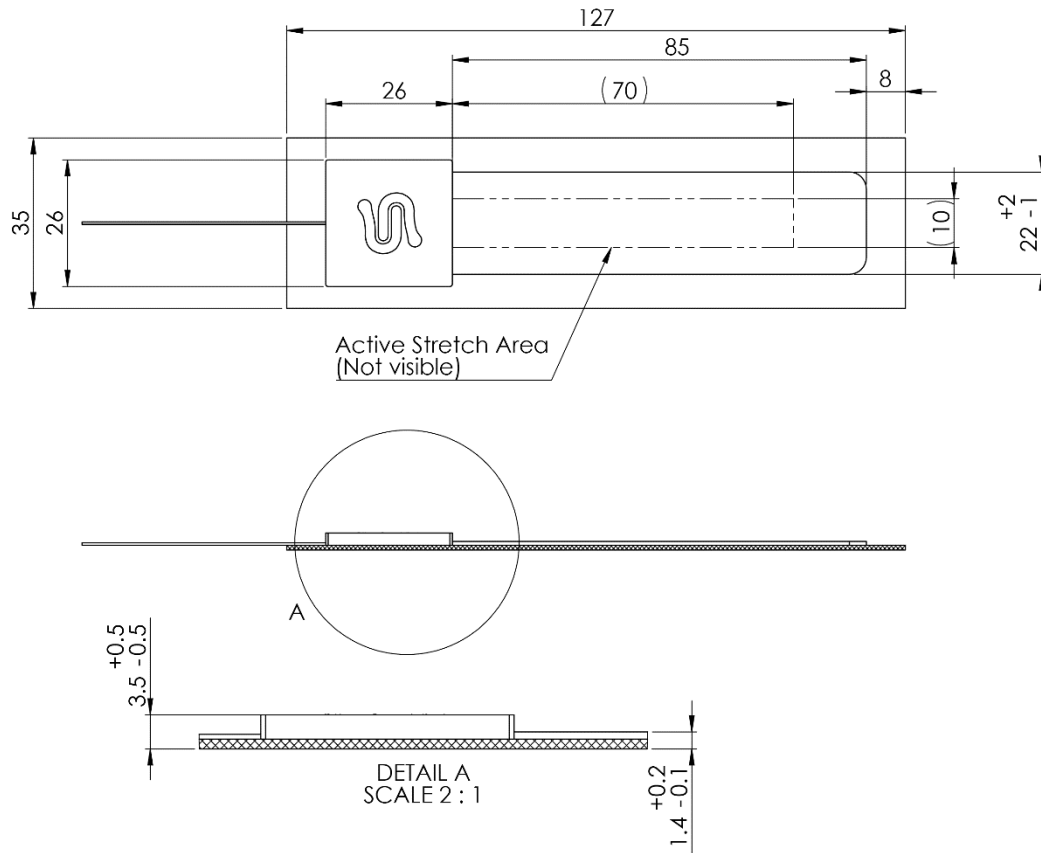
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1. Physical Specifications

1.1 Technical Drawing

1.2 Dimensions



NOTES:

- DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED
- LINEAR TOLERANCE ± 1 mm UNLESS OTHERWISE SPECIFIED

Figure 2: Engineering Drawing of a StretchFABRIC Sensing Element

Zone	Length (mm)	Tolerance (mm)	Width (mm)	Tolerance (mm)
Active Sensing Zone	70.0	± 1.00	10.0	± 1.00
Overall Silicone Zone	85.0	± 2.00	22.0	± 2.00
Fabric Backing	127	± 2.00	35.0	± 4.00
Coaxial Cable Length	1000	± 1.00	0.445	-

2. Specifications

2.1 Sensing Characteristics

The data below was collected under the following testing conditions:

- The sensors were clamped on both ends
- The sensors were pre-stretched to remove any slack
- The sensors underwent uniaxial stretch up to 80% stretch

Parameter	Min	Typ.	Max	Units	Notes
Base Capacitance	410	445	480	pF	
Sensitivity	3.98	5.30	6.30	pF/mm	
Noise With Standard 10 Channel Circuit (3 Sigma)	0.13	0.16	0.50	pF	
Operating Temperature Range	10.0		30.0	°C	Recommended range only
Connection Pitch		2.54		mm	

All values shown at 3 s.f.

Base capacitance includes a cable capacitance of $117 \pm 3pF$

2.2 Capacitance vs Extension

Linear Fit

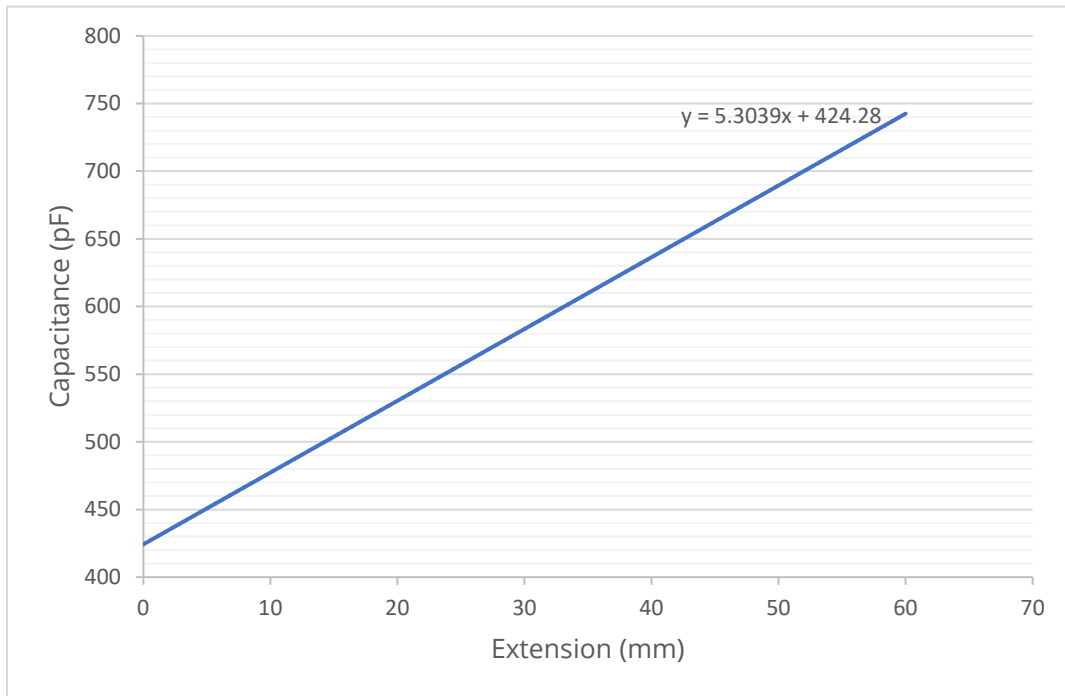


Figure 3: Typical StretchFABRIC Sensing Element performance based on a linear fit

Quadratic Fit

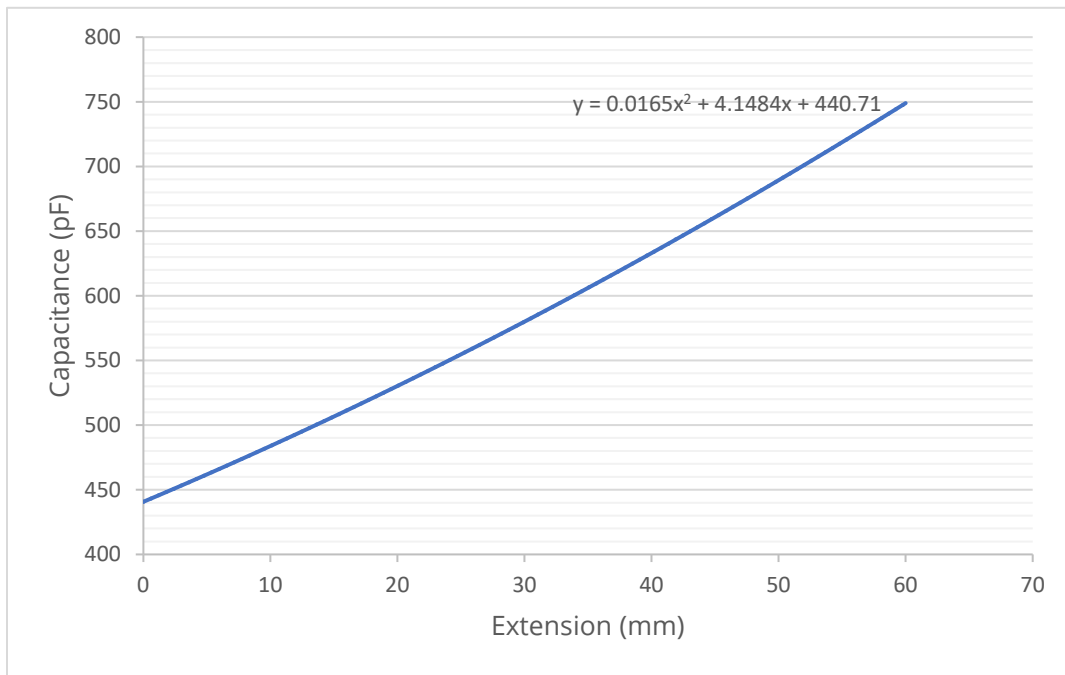


Figure 4: Typical StretchFABRIC Sensing Element performance based on a quadratic fit

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