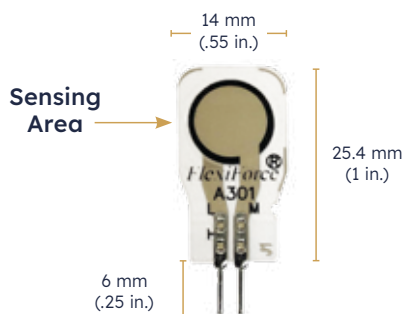


Actual size of sensor



The A301 is optimized for high volume manufacturing and is ideal for embedding into products and applications. This sensor is available off-the-shelf, ideal for an easy proof of concept. The A301 can be used with our test & measurement, prototyping, and embedding electronics, including the FlexiForce Sensor Characterization Kit, FlexiForce Prototyping Kit, FlexiForce Quickstart Board, and the ELF™ System*. You can also use your own electronics, or multimeter.

Benefits

- **Small size is ideal for prototyping and integration**
- **Available with Enhanced Stability Series (ESS) pressure sensitive ink for high-temperature and high-humidity environments**
- **Thin and Flexible**
Easily integrates into tight spaces for non-intrusive force measurement between mating surfaces.
- **Easy to Use**
Compatible with a variety of electronics and ready-to-use for testing, prototyping, or embedding.

Physical Properties

Thickness	0.203 mm (0.008 in.)	Connector	2-pin Male Square Pin
Length	25.4 mm (1 in.)**	Substrate	Polyester
Width	14 mm (0.55 in.)	Pin Spacing	2.54 mm (0.1 in.)
Sensing Area	9.53 mm (0.375 in.) diameter		

- * Sensor will require an adapter/extender to connect to the ELF System. Contact your Tekscan representative for assistance.
 ** Length does not include pins. Please add approximately 6 mm (0.25 in.) for pin length for a total length of approximately 32 mm (1.25 in.).

	Typical Performance	Evaluation Conditions
Linearity (Error)	< ±3% of full scale	Line drawn from 0 to 50% load
Repeatability	< ±2.5%	Conditioned sensor, 80% of full force applied
Hysteresis	< 4.5% of full scale	Conditioned sensor, 80% of full force applied
Drift	< 5% per logarithmic time scale	Constant load of 111 N (25 lb)
Response Time	< 5µsec	Impact load, output recorded on oscilloscope
Operating Temperature	-40°C - 60°C (-40°F - 140°F)	Convection and conduction heat sources
Durability	≥ 3 million actuations	Perpendicular load, room temperature, 22 N (5 lb)
Temperature Sensitivity	0.36%/°C (± 0.2%/°F)	Conductive heating

All data above was collected utilizing an Op Amp Circuit (shown on the next page).
 If your application cannot allow an Op Amp Circuit, visit www.tekscan.com/flexiforce-integration-guides, or contact a FlexiForce Applications Engineer.

Typical Performance

Standard Force Ranges as Tested with Inverting Op-Amp Circuit

4.4 N (0 - 1 lb)

111 N (0 - 25 lb)

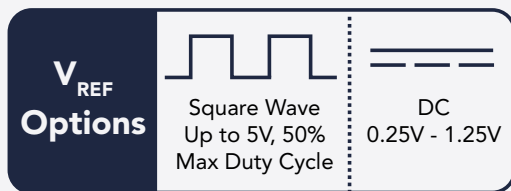
445 N (0 - 100 lb) †

†This sensor can measure up to 4,448 N (1,000 lb). To measure higher forces, apply a lower drive voltage (-0.5 V, -0.25 V, etc.) and reduce the resistance of the feedback resistor (1kΩ min.). To measure lower forces, apply a higher drive voltage and increase the resistance of the feedback resistor.

Sensor output is a function of many variables, including interface materials. Calibration is recommended. See [FlexiForce Best Practices](#) for details.

Recommended Circuit

$$V_{OUT} = -V_{REF} * (R_F / R_S)$$

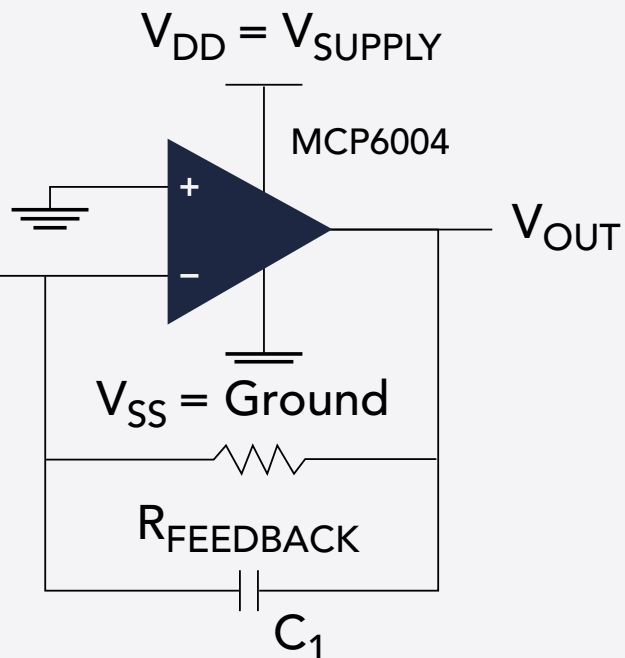


$$R_{FEEDBACK}(R_F) = 100k\Omega$$

POTENTIOMETER

$$C_1 = 47 \text{ pF}$$

100K potentiometer and 47 pF are general recommendations; your specific sensor may be best suited with a different potentiometer and capacitor. Testing should be performed to determine this.



- Polarity of V_{REF} must be opposite the polarity of V_{SUPPLY}
- Sensor Resistance R_S at no load is typically $>1M\Omega$
- Max recommended current is 2.5mA