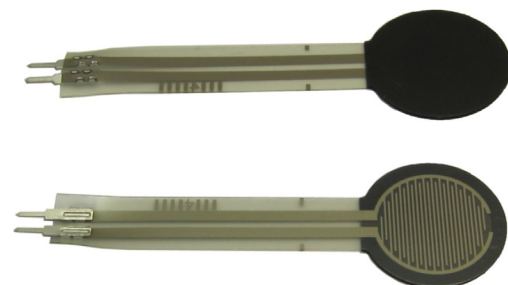


Description

Interlink Electronics FSR™ 400 series is part of the single zone Force Sensing Resistor™ family. Force Sensing Resistors, or FSRs, are robust polymer thick film (PTF) devices that exhibit a decrease in resistance with increase in force applied to the surface of the sensor. This force sensitivity is optimized for use in human touch control of electronic devices such as automotive electronics, medical systems, and in industrial and robotics applications.

The standard 402 sensor is a round sensor 18.28 mm in diameter. Custom sensors can be manufactured in sizes ranging from 5mm to over 600mm. Female connector and short tail versions can also be ordered.



Features and Benefits

- Actuation Force as low as 0.1N and sensitivity range to 10N.
- Easily customizable to a wide range of sizes
- Highly Repeatable Force Reading; As low as 2% of initial reading with repeatable actuation system
- Cost effective
- Ultra thin; 0.45mm
- Robust; up to 10M actuations
- Simple and easy to integrate

Industry Segments

- Game controllers
- Musical instruments
- Medical device controls
- Remote controls
- Navigation Electronics
- Industrial HMI
- Automotive Panels
- Consumer Electronics

Figure 1 - Force Curve

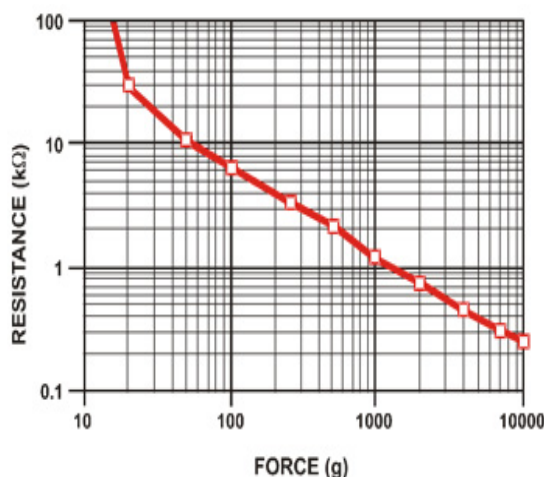
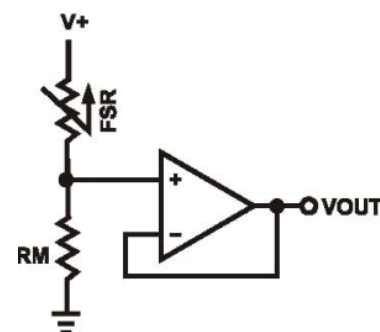


Figure 2 - Schematic



Interlink Electronics - Sensor Technologies

Applications

Detect & qualify press

Sense whether a touch is accidental or intended by reading force

Use force for UI feedback

Detect more or less user force to make a more intuitive interface

Enhance tool safety

Differentiate a grip from a touch as a safety lock

Find centroid of force

Use multiple sensors to determine centroid of force

Detect presence, position, or motion

Of a person or patient in a bed, chair, or medical device

Detect liquid blockage

Detect tube or pump occlusion or blockage by measuring back pressure

Detect proper tube positioning

Many other force measurement applications

Device Characteristics

Feature	Condition	Value*	Notes
Actuation Force		0.1 Newtons	
Force Sensitivity Range		0.1 - 10.0 ² Newtons	
Force Repeatability ³	(Single part)	± 2%	
Force Resolution ³		continuous	
Force Repeatability ³	(Part to Part)	±6%	
Non-Actuated Resistance		10M W	
Size		18.28mm diameter	
Thickness Range		0.2 - 1.25 mm	
Stand-Off Resistance		>10M ohms	Unloaded, unbent
Switch Travel	(Typical)	0.05 mm	Depends on design
Hysteresis ³		+10%	$(R_{F+} - R_{F-})/R_{F+}$
Device Rise Time		<3 microseconds	measured w/steel ball
Long Term Drift		<5% per log ₁₀ (time)	35 days test, 1kg load
Temp Operating Range	(Recommended)	-30 - +70 °C	
Number of Actuations	(Life time)	10 Million tested	Without failure

* Specifications are derived from measurements taken at 1000 grams, and are given as one standard deviation / mean, unless otherwise noted.

1. Max Actuation force can be modified in custom sensors.
2. Force Range can be increased in custom sensors. Interlink Electronics have designed and manufactured sensors with operating force larger than 50Kg.
3. Force sensitivity dependent on mechanics, and resolution depends on measurement electronics.