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Flexible film pressure sensor

DF9-16 Series

Features

ÿ Ultra-thin, thickness less than 0.3mm ÿ Fast response speed ÿ Long life, more than 1 million times Upper press test

ÿ The detection circuit is simple and easy to integrate application

ÿ Customizable sensor shape

ÿ Customizable sensor range parameters

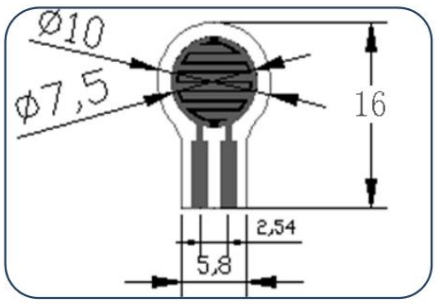
Product Description

DF9-16 series flexible film pressure sensor is a product independently developed by Suzhou Nengsda Electronics. Intellectual property flexible pressure sensing technology is printed on flexible and thin materials with strong adhesion and durability. Flexible nano-functional materials with high bending and sensitivity enable them to achieve high sensitivity to pressure Detection.

The thin film pressure sensor is a resistive sensor. The pressure on the sensor surface increases and decreases. Through the specific pressure-resistance relationship, the It is suitable for pressure measurement scenarios on flexible surfaces and can be widely used in smart homes. Home, consumer electronics, automotive electronics, medical equipment, industrial control, intelligent robots, etc. domain.

DF9-16 series currently has different weights such as 500g, 2kg, 5kg, 10kg, 20kg, etc. Process model products.

Dimensions



Dimensions

Logo	Dimensions (mm)
length	16.0
Outer diameter of sensitive area	10.0
Inner diameter of sensitive area	7.5
Pin distance	2.54
tolerance	0.2

Size Chart

ÿROHS certified

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Performance Indicators

model	DF9-16@500g DF9-16@2kg DF9-16@5kg DF9-16@10kg DF9-16@20kg				
Range	500g	2kg	5kg	10kg	20kg
thickness	< 0.3mm				
Dimensions	See size chart				
Response Point	20g	20g	150g	150g	200g
Repeatability	<±9.7% (60% load)				
consistency	±10% (same model batch)				
Hysteresis	+10% (RF+ - RF-)/RF+				
Durability	ÿ1 million times				
Initial resistance	ÿ10Mÿ(no load)				
Response time	< 1ms				
Recovery time	< 15ms				
Test voltage	Typical value DC 3.3V				
Operating temperature	-20ÿ - 60ÿ				
Electromagnetic Interference EMI	No				
Electrostatic Discharge (ESD)	Insensitive				

Force Sensitivity

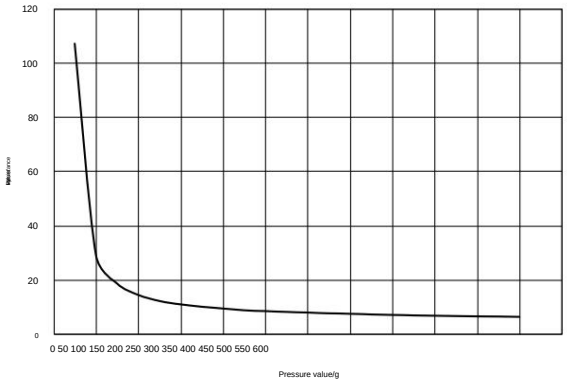
The following is a pressure-resistance curve for each model of the DF9-16 series flexible film pressure sensor. The left graph shows the full resistance range. The pressure-resistance relationship within the range; the right chart is a partial detail of the left chart, showing the pressure-resistance relationship for resistance values below 30kÿ relation.

Notice:

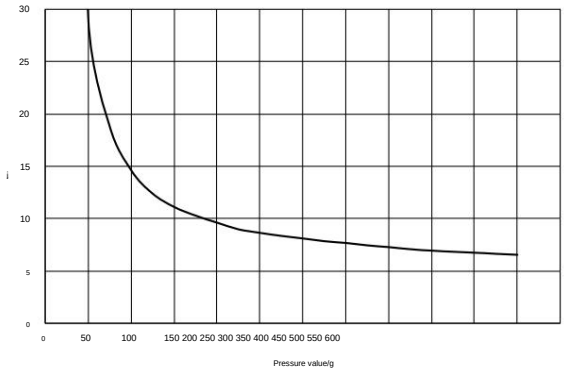
The curves in the chart are drawn from data measured under specific conditions. The curve relationship is for reference only. The actual data should be based on the specific application situation. Test after installation.

DF9-16@500g

DF9-16@500g



DF9-16@500g 30kÿ or less



DF9-16@2kg

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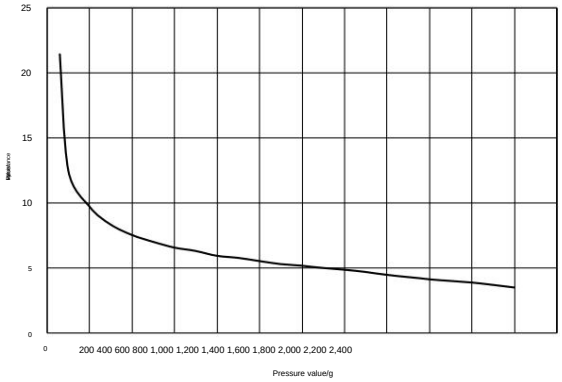
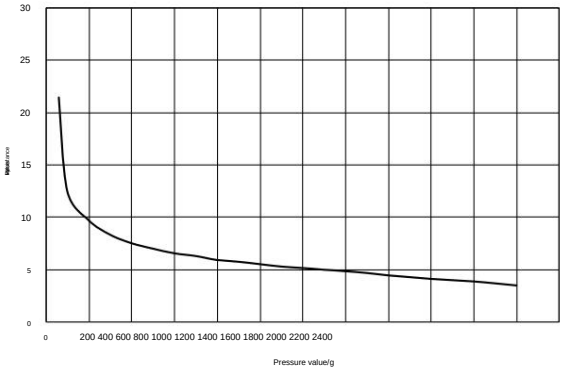
DF9-16@2kg

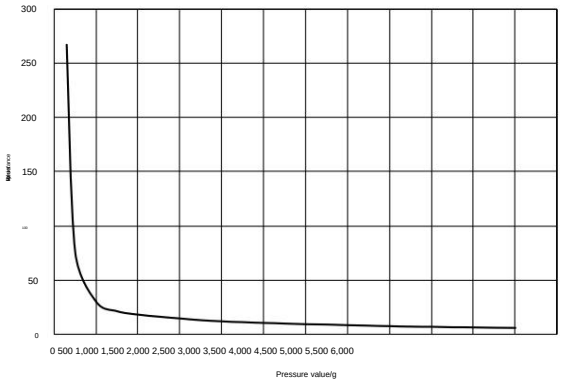


DF9-16@2kg 30kÿ or below

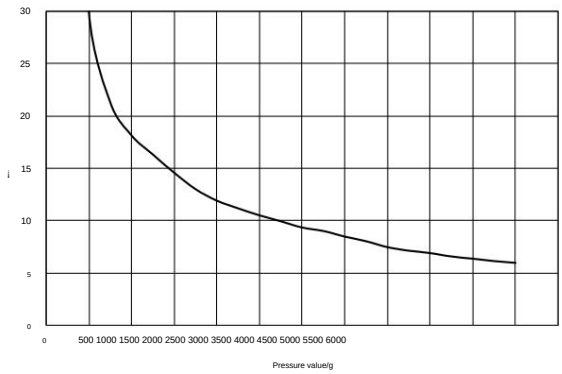


DF9-16@5kg

DF9-16@5kg

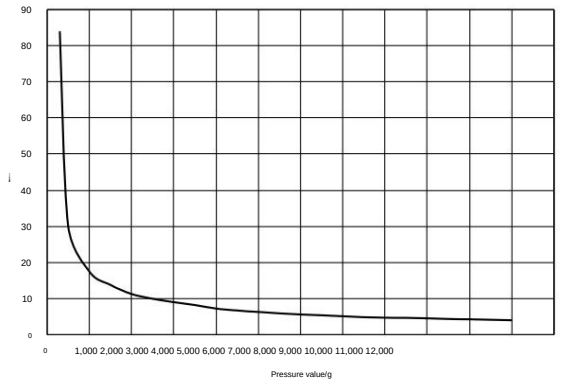


DF9-16@5kg 30kÿ or below

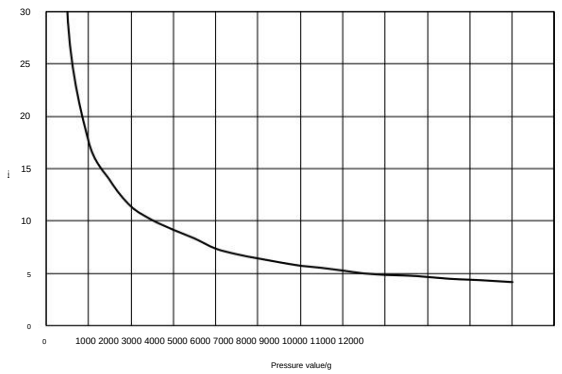


DF9-16@10kg

DF9-16@10kg

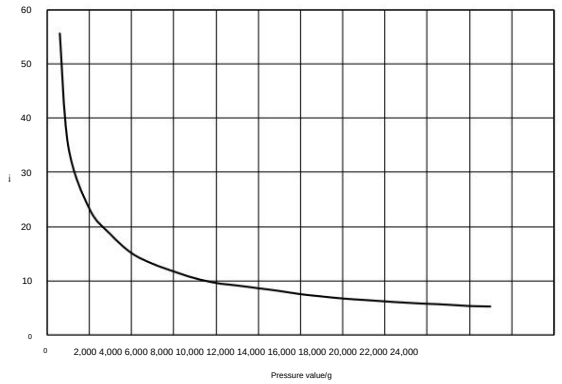


DF9-16@10kg 30kÿ or below

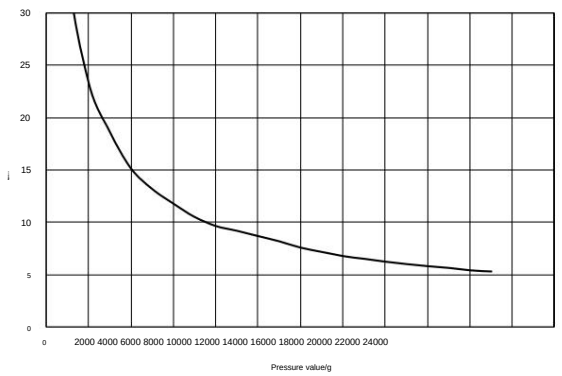


DF9-16@20kg

DF9-16@20kg



DF9-16@20kg 30kÿ or below



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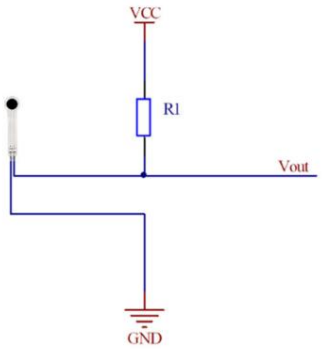
References



Reference circuit 1: Using

the pressure division method to measure. The pressure change is generated on the sensor

The change in resistance is converted into a change in voltage, Vout is

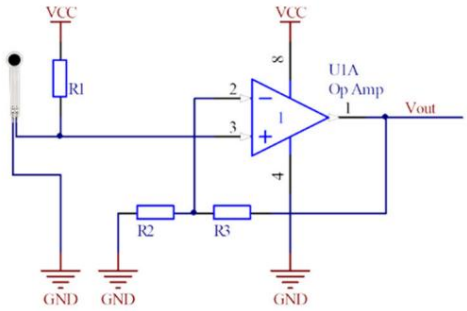
Output voltage, can be connected to the back-end circuit.

ÿ Select R1 according to actual situation , Usually advisable

47kÿ~1Mÿÿÿÿÿ

ÿ When there is no pressure, the sensor resistance is above 10Mÿ, equivalent to

On circuit breaker.



Reference circuit 2:

On the basis of voltage division measurement, adding an operational amplifier circuit can

Improve voltage measurement resolution; increase drive current. ÿ Select circuit

parameters according to actual conditions; ÿ When there is no

pressure, the sensor resistance is above 10Mÿ, equivalent to

On circuit breaker.

Precautions

- When using the sensor, try to make the load evenly distributed and avoid sharp objects from directly contacting the sensor. Using beyond the
- range will reduce the performance of the sensor or even damage the sensor. The force-sensitive
- characteristic curve is for reference only. The
- sensor terminal is made of tin-plated copper, and the lead wires can be welded by yourself according to needs. Please note that the welding temperature should not be too high, and it is recommended not to exceed 300°C.

  The contact time should not exceed 1 second to prevent the high temperature from melting and deforming the film substrate.

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