

PRODUCT OVERVIEW

PRESSURE MEASUREMENT

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PE351 Sputtered Thin Film Metal Base Pressure Sensitive Chip



Characteristics

- ☆ Sputtered film technology ensures good long-term stability and high reliability
- ☆ Wide working temperature range, low temp. drift, high overload capacity
- ☆ Integrated structure, suitable for a variety of fluid media
- ☆ 17-4PH stainless steel material with strong corrosion resistance
- ☆ Small size: outer diameter of strain surface & at the step is 7mm & 9.5mm respectively, height 5mm, weight is 1g

Applications

- ☆ Aerospace & ship
- ☆ Rail Transit
- ☆ Construction machinery
- ☆ Gasoline direct injection & diesel high pressure common rail direct injection
- ☆ Petroleum and Chemicals
- ☆ Gas and liquid pressure measurement in industrial automation control and other fields
- ☆ Pressure transmitters, pressure testing instruments

Profiles

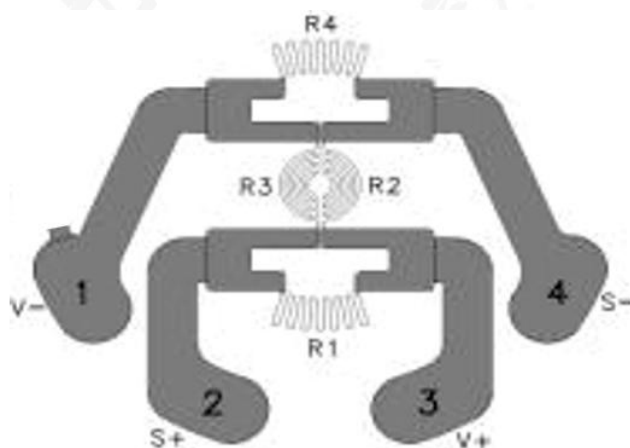
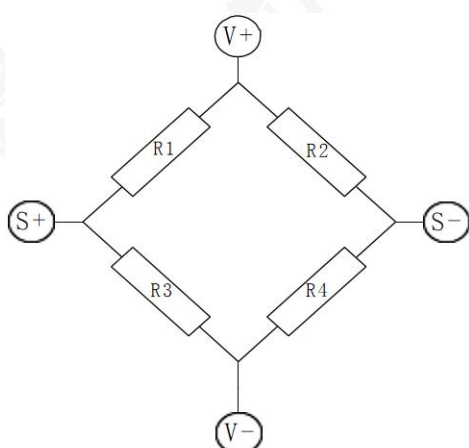
PE351 metal-based pressure-sensitive chip adopts MEMS technology, and the strain resistance is directly done on the 17-4 PH stainless steel substrate. Through the elastic deformation of the substrate, the chip outputs a mV voltage signal that is linearly related to the measured pressure, and realizes fast and accurate measurement.

This product is specially designed for OEM manufacturers and integrators who have high-standard requirements of sensor, high reliability and stability. The output of the chip is a mV voltage signal, and customers can process the signal according to their actual requirements.

Specifications

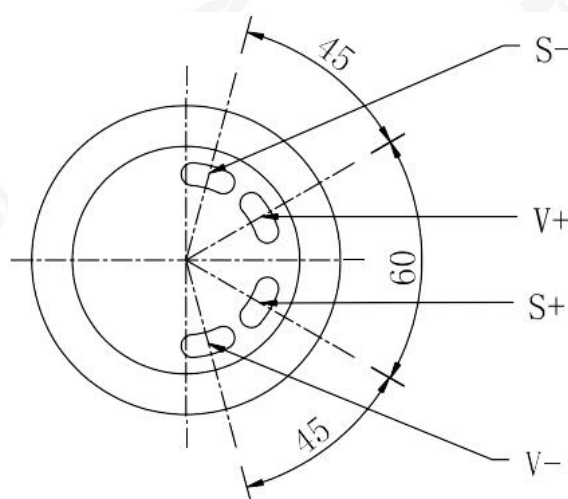
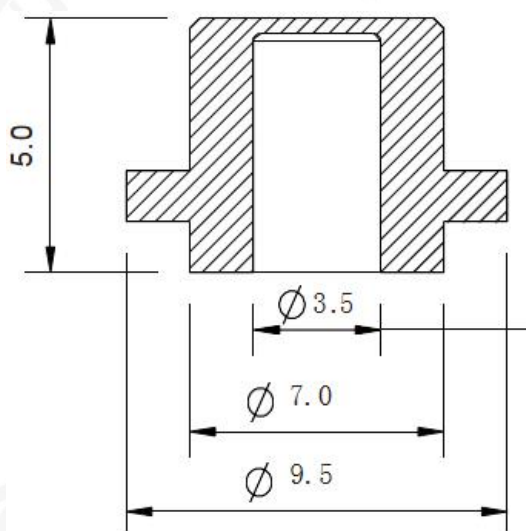
Parameter	PE351
Measuring range(MPa)	0.5MPa~250MPa
Measuring medium	Gases, liquids compatible with stainless steel
Pressure type	Gauge pressure, absolute pressure
Accuracy	$\pm 0.03\%F.S.$, $\pm 0.05\%F.S.$, $\pm 0.1\%F.S.$, $\pm 0.2\%F.S.$, $\pm 0.5\%F.S.$, $\pm 1\%F.S.$
Working temp.	$-40\sim +105^{\circ}\text{C}$ or by customized
Long-term stability	$\pm 0.2\%F.S./\text{year}$
Nonlinear	$\pm 0.1\%F.S.$, $\pm 0.15\%F.S.$, $\pm 0.2\%F.S.$, $\pm 0.3\%F.S.$, $\pm 0.4\%F.S.$, $\pm 0.5\%F.S.$, $\pm 0.6\%F.S.$
Hysteresis	$\pm 0.1\%F.S.$
Repeatability	$0.1\%F.S.$
Sensitivity	$1.3\pm 0.10\text{mV/V}$, $1.4\pm 0.25\text{mV/V}$, $1.5\pm 0.10\text{mV/V}$, $1.7\pm 0.20\text{mV/V}$
Burst pressure	$1000\%\sim 4000\%F.S.$ (the max is $\leq 400\text{MPa}$)
Allowable overload	$150\%\sim 200\%F.S.$ or by customized
Zero point temp. drift	$\pm 0.01\%F.S/^{\circ}\text{C}$
Full range temp. drift	$\pm 0.03\%F.S/^{\circ}\text{C}$
Response time	$\leq 0.1\text{ms}$
High reliability	Resistant to 10 million shocks, can be continuously pressurized
Insulation resistance	$\geq 1000\text{M}\Omega/500\text{VAC}$
Material	17-4PH
Dimensions	Strain surface outer diameter is 7mm The outer diameter at the step is 9.5mm Height is 5mm

Circuit Principle and Pin Definition

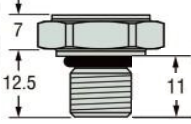
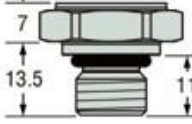



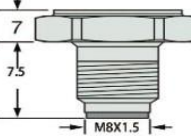
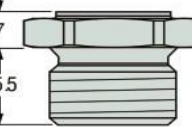
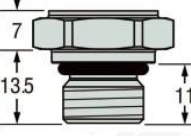
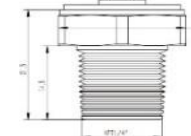


Pin No.	1	2	3	4
Function Code	V-	S+	V+	S-
Function Definition	Power -	Signal +	Power +	Signal -

Dimensions and Wiring



Pressure Connections

Code	G2	M3	G1	G5	M6
Overall dimensions	 G1/4-19	 M12x1.5	 G1/8	 G1/4-19A	 M20x1.5
Code	M1	G4	M4	N2	
Overall dimensions	 M8x1.25 female	 G1/2	 M14x1.5	 NPT1/4	

Pressure Rating, Sensitivity and Pressure Resistance Range

Pressure (MPa)	Sensitivity (mV/V)	Nonlinearity ($\pm\%$ F.S)	Overload pressure (rated pressure)	Burst pressure (rated pressure)
0.5	1.4 \pm 0.25	0.50	$\times 2$	$\times 30$
0.7	1.4 \pm 0.25	0.50	$\times 2$	$\times 3$
1.0	1.3 \pm 0.10	0.60	$\times 2$	$\times 40$
1.6	1.5 \pm 0.10	0.60	$\times 2$	$\times 40$
2.0	1.7 \pm 0.20	0.40	$\times 2$	$\times 40$
2.5	1.7 \pm 0.20	0.30	$\times 2$	$\times 40$
4	1.7 \pm 0.20	0.30	$\times 2$	$\times 20$
5	1.7 \pm 0.20	0.20	$\times 2$	$\times 20$
6	1.7 \pm 0.20	0.20	$\times 2$	$\times 20$
10	1.7 \pm 0.20	0.20	$\times 2$	$\times 20$
16	1.7 \pm 0.20	0.20	$\times 2$	$\times 10$
25	1.7 \pm 0.20	0.15	$\times 2$	$\times 10$
40	1.7 \pm 0.20	0.15	$\times 2$	$\times 10$
60	1.7 \pm 0.20	0.15	$\times 2$	$\leq 400\text{MPa}$
100	1.5 \pm 0.10	0.10	$\times 1.5$	$\leq 400\text{MPa}$
160	1.5 \pm 0.10	0.10	$\times 1.5$	$\leq 400\text{MPa}$
250	1.5 \pm 0.10	0.10	$\leq 300\text{MPa}$	$\leq 400\text{MPa}$

Order Information

PE351 (Model)	D			066	11
Item					
Accuracy	A= 0.03%FS C= 0.1%FS E= 0.5%FS	B= 0.05%FS D= 0.2%FS F =1%FS			
Pressure Measurement	055= 0.5MPa 165= 1.6MPa 046= 4 MPa 106= 10 MPa 406= 40 MPa 706= 70 MPa 257= 250 MPa	075= 0.7MPa 205= 2 MPa 056= 5 MPa 166= 16 MPa 506= 50 MPa 107= 100 MPa	105= 1 MPa 255= 2.5MPa 066= 6 MPa 256= 25 MPa 606= 60 MPa 167= 160 MPa		
Temperature range	11= 0~85℃ 22= -10~105℃ 32= -25~105℃ 42= -40~105℃ 52= -55~105℃				