

1. Scope

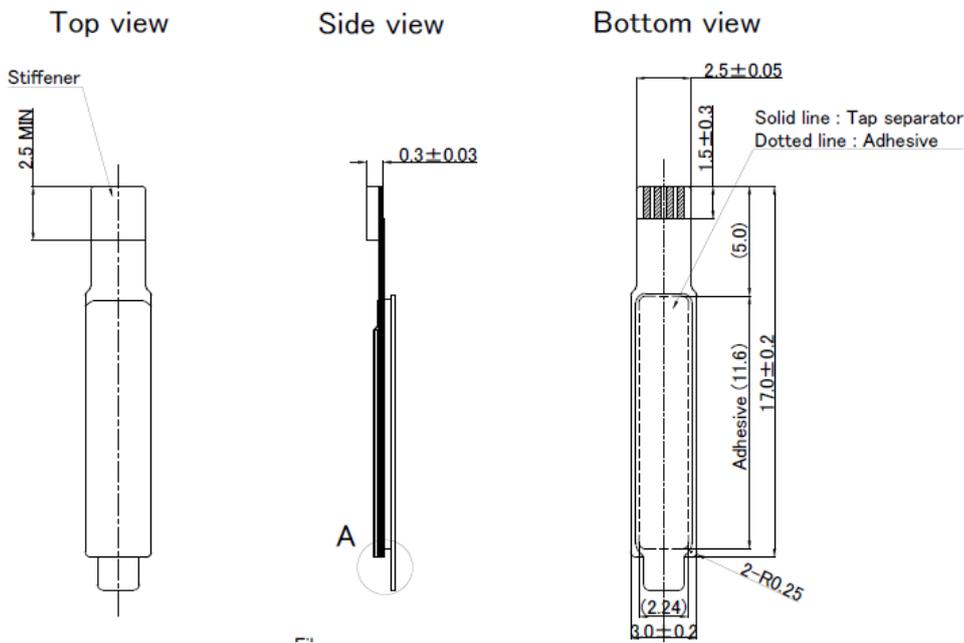
This datasheet is applied to Picoleaf which is piezo film sensor product.

- Specific applications: consumer product
- Unsuitable Application: Applications listed in "Limitation of applications" in this datasheet.

2. Application/Features

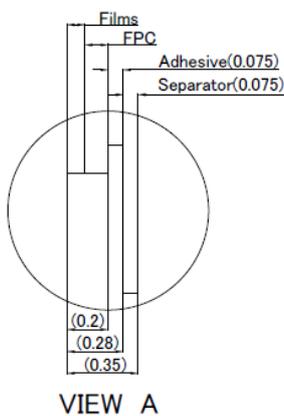
- Piezoelectric film sensor
- Size : 17x3mm
- Thickness : typ0.21mm, connection area 0.3mm
- IF: ZIF type (FPC insert type connector shape)
- Generate the electric by displacement

3. Dimension: mm



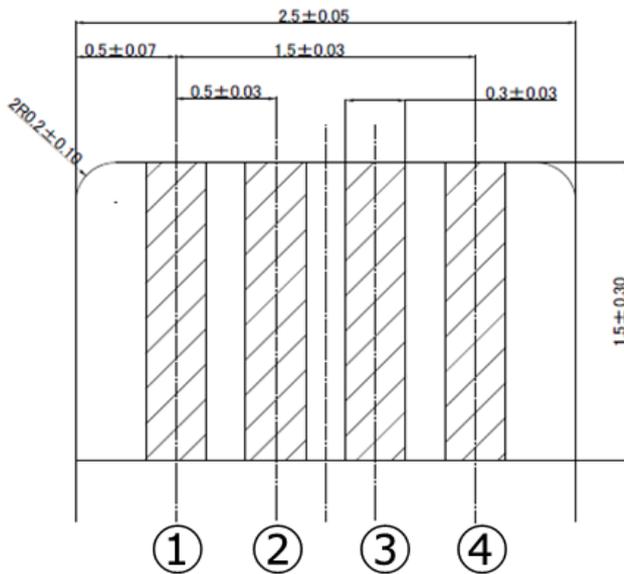
Global tolerance : 0.2mm

Cross section view



4. Interface information

FPC insert type design



No	Terminal name	Description
①	GND	GND
②	Hot	Sensor output
③	Hot	Sensor output
④	GND	GND

FPC ZIF connector reference

Hirose: FH34SRJ-4S-0.5SH

(0.5mm pitch and 4 terminals)

5. Electrical characteristics

5-1) output voltage(reference)

Parameter	Symbol	Conditions	MIN	TYP	MAX	Units
Output voltage @0.28um displacement	Vout	Test circuit: Fig.1	0.12	0.24	0.36	V/N

By applying the specified displacement to the measurement stage with the Piezo Actuator, displacement is applied to the piezoelectric sensor, then measure the output value.

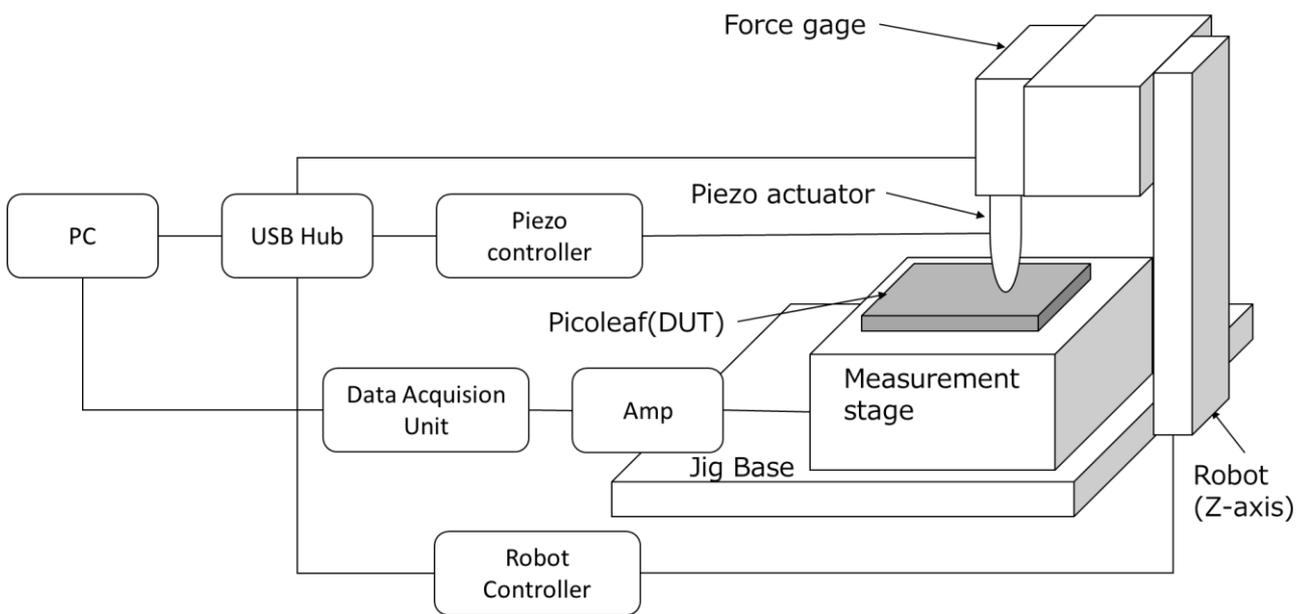


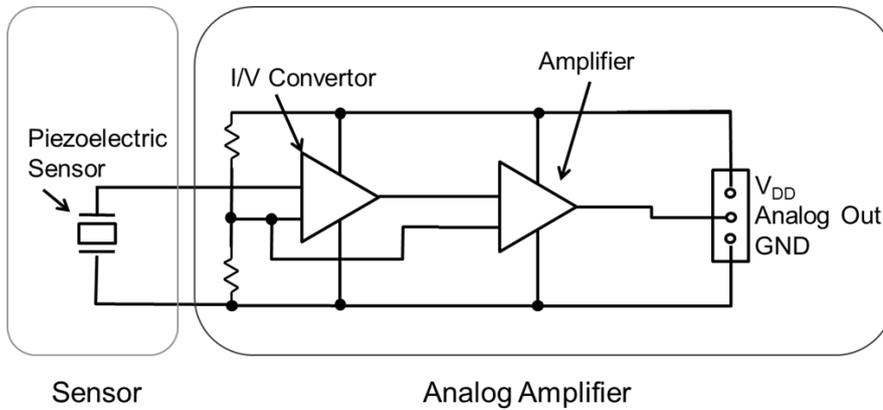
Fig.1 Measurement Jig

6. Reliability Test

No	Items	Test condition		Specification	QTY	Judge	
1	Temperature cycle	Temperature	1)-10℃ 30min 2)+70℃ 30min	Electrical characteristics in 4-1)	22	OK	
		Cycle	20cycles				
2	High temp Exposure	Temperature	+70℃	Electrical characteristics in 4-1)	22	OK	
		Period	96hrs				
3	Low Temp. Exposure	Temperature	-10℃	Electrical characteristics in 4-1)	22	OK	
		Period	96hrs				
4	Humidity (Steady State)	Temperature	+50℃	Electrical characteristics in 4-1)	22	OK	
		Humidity	85%RH				
		Time	96hrs				
		Condition	Supply voltage				
5	Operating life test	Temperature	25℃	Electrical characteristics in 4-1)	5	OK	
		Test time	4M times (Load: 1N)				
		Condition	Current applying state				
6	Vibration test	Condition	10~55Hz/10G、 Amplitude:1.5mm、 1octave/min	Electrical characteristics in 4-1)	5	OK	
		Test time	24times/direction, 3directions Round-trip sweep time: 5min				
7	Drop	Condition	500G 1msec	Electrical characteristics in 4-1)	5	OK	
		Test time	3times/area total:18times				
8	ESD	Condition	MM: ±200V 10times	Electrical characteristics in 4-1)	3	OK	
		Test times		HBM: ±1000V 10times	Electrical characteristics in 4-1)	3	OK
				CDM: ±1000V 10times	Electrical characteristics in 4-1)	3	OK

7. Reference circuit information

Murata can provide reference circuit information.



8. Maximum Ratings (Environmental capability)

Rating	Symbol	Value	Unit
Rated Voltage	V _{DD}	-0.3 to 6.0	V
Operating Temperature (TBD)	T _{OP}	0 to 50	°C
Storage Temperature (TBD)	T _{STO}	-10 to 70	°C

9. Reference circuit Electrical Characteristics (T=25 °C)

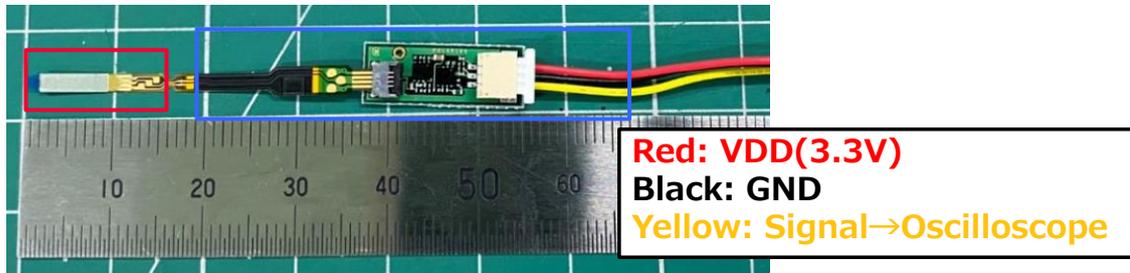
1) Power Supply specification

Parameter	Symbol	Min.	Typ.	Max.	unit
Operating voltage	V _{DD}		3.3		V

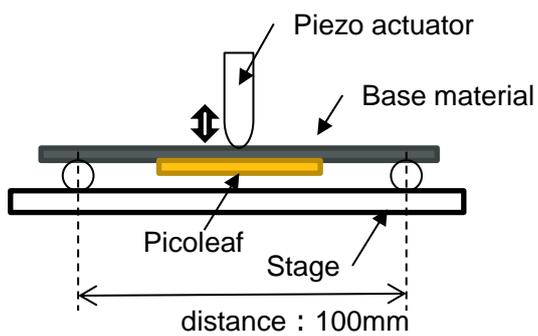
10. Measurement data

10.1 DUT: Picoleaf sensor sample kit

Sensor element **Evaluation kit**
(FPC Line, AMP circuit, cable)



10.2 Evaluation condition



Test condition
Base material: SUS or ABS
Amplitude:20um
Frequency :5Hz
Pre-Load:5N

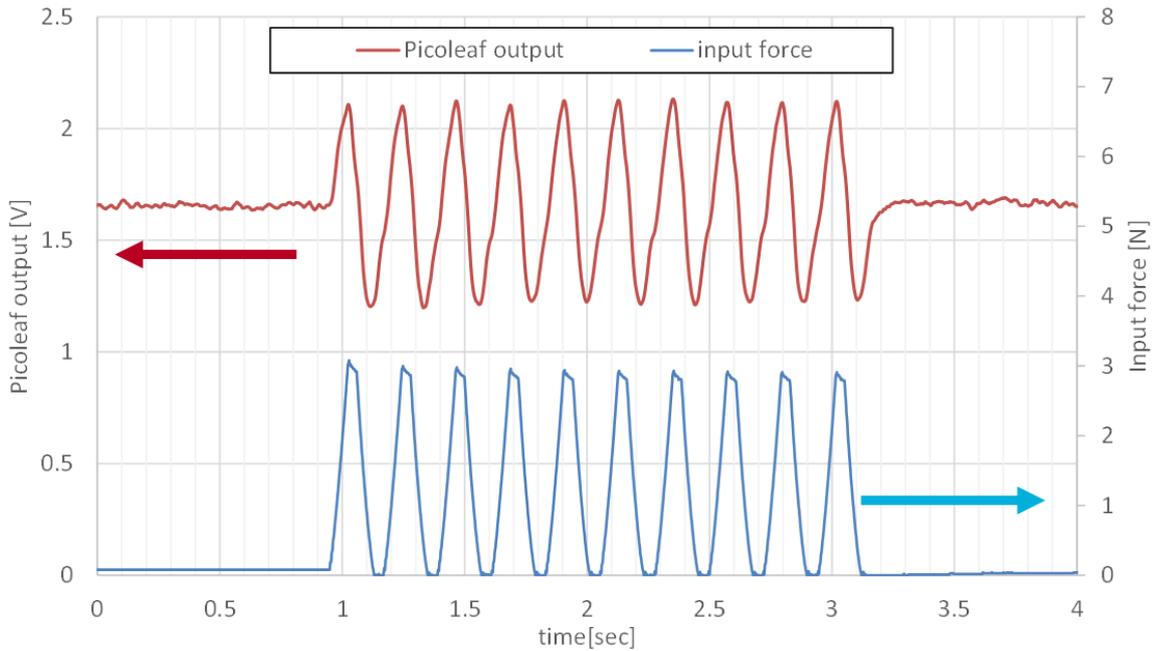
10.3 Evaluation result

Below figure shows Picoleaf Output signal. 1.65 is base output which is defined by $V_{dd}/2$.

Picoleaf output value is changed depend on displacement direction.

Press timing: positive from 1.65V

Release timing: negative from 1.65V



Below table shows Output characteristics according to base material.

Base material	Vout_pp [Vpp]
SUS	0.7
ABS	1.25

Picoleaf output performance is different based on attachment condition and base material. Output value is defined by displacement of Picoleaf sensor area.

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