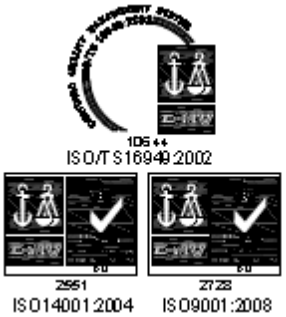
Specification of SF15M-001

Air Flow Sensor



Postcode : 261031
E- Mail : goermicro@goermicro.com
Website : http://www.goermicro.com
Address : Goermicro Co. LTD.102 Ronghua Road.High-tech Zone.Weifang city.Shandong Province

Restricted

1. Security warning

The information contained in this document is the exclusive property of Goermicro and should not be disclosed to any third party without the written consent of Goermicro

2. Publication history

Version	Date	Description	Author	Approved
1.0	2020.11.28	New design	Peter	Ted
1.1	2021.01.10	Add the Land Pattern Recommendation	Peter	Ted
1.2	2021.01.29	Add the Output Enable time Update the Application Circuit Recommendation	Peter	Ted
1.3	2021.03.10	Update the component orientation	Peter	Ted
1.4	2022.01.06	Update Top-max and watermark	Daisy	Worden
1.5	2022.08.31	Update the Application Circuit	Daisy	Worden
1.6	2022.10.12	Add Reliability Test Report	Daisy	Worden
1.7	2022.11.02	Update electrical characteristics	Daisy	Worden
1.8	2023.02.24	Update Reliability Test Report	Daisy	Worden

Index of Contents

1. Introduction

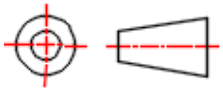
Exclusive ASIC design, the ASIC works stably as a switch in the e-cigarette. Simple circuit with less passive components.

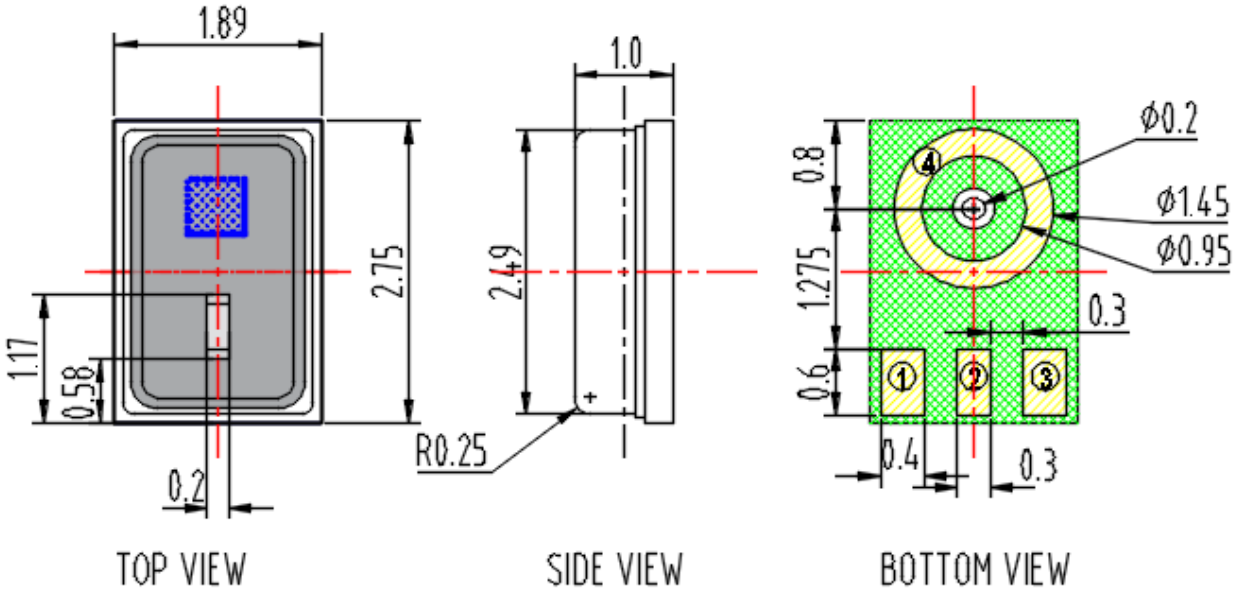
2. Function description

- Low standby current（＜5μA）
- Standby mode, output is low level , output is high level when working
- When blowing, it does not work
- The maximum output time is 14 seconds
- Chip Air Flow Sensor, Automatic SMT

3. Product application

3.1 External dimension





Tolerance: ±0.1mm

3.2 Pin description

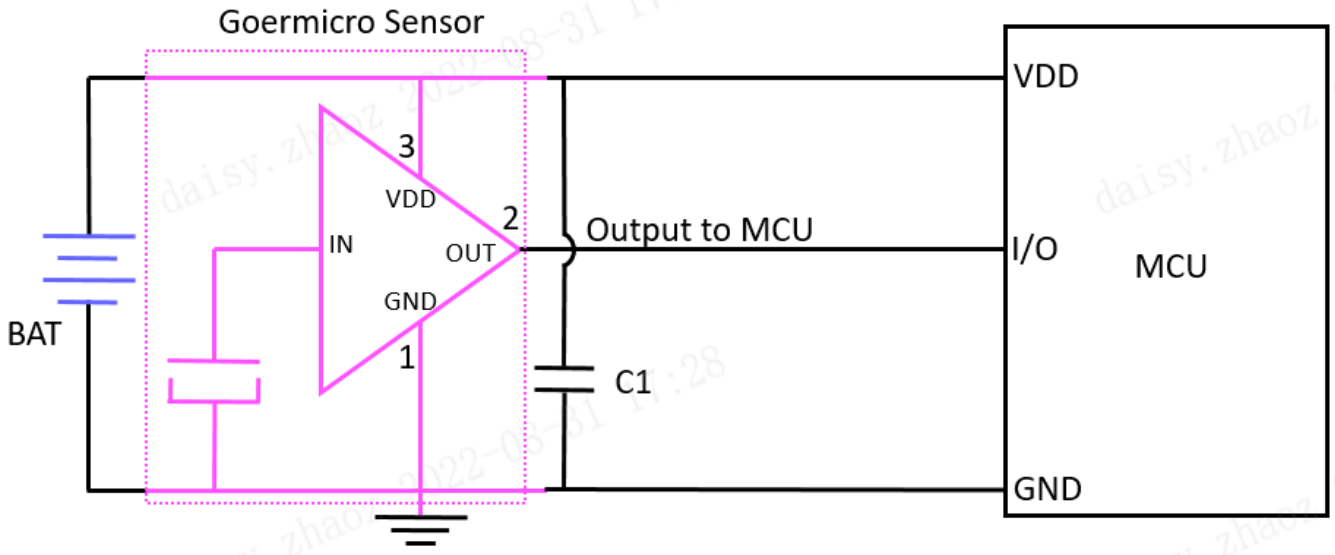
Serial No.	Symbol	Function
①	GND	Negative Terminal
②	OUT	Output Terminal
③	VDD	Positive Terminal
④	GND	Negative Terminal

3.3 Electrical characteristics

Conditions: VDD=3.7V,T=25℃(unless otherwise specified)

Symbol	Parameter	Min	Typ	Max	Unit
V_{DD}	Supply voltage	2.5	3.7	4.5	V
Tt	Trigger threshold	-100	/	-300	Pa
Vout	Output voltage	/	=Vdd	/	V
I_Q	Quiescent current	/	2	5	uA
T-EN	Output Enable time	/	30	100	mS
Top-max	Maximum output time protection	12	14	16	S
TopR	Operating temperature	-20	/	85	℃
F_{OSC}	Frequency	/	33	/	KHz

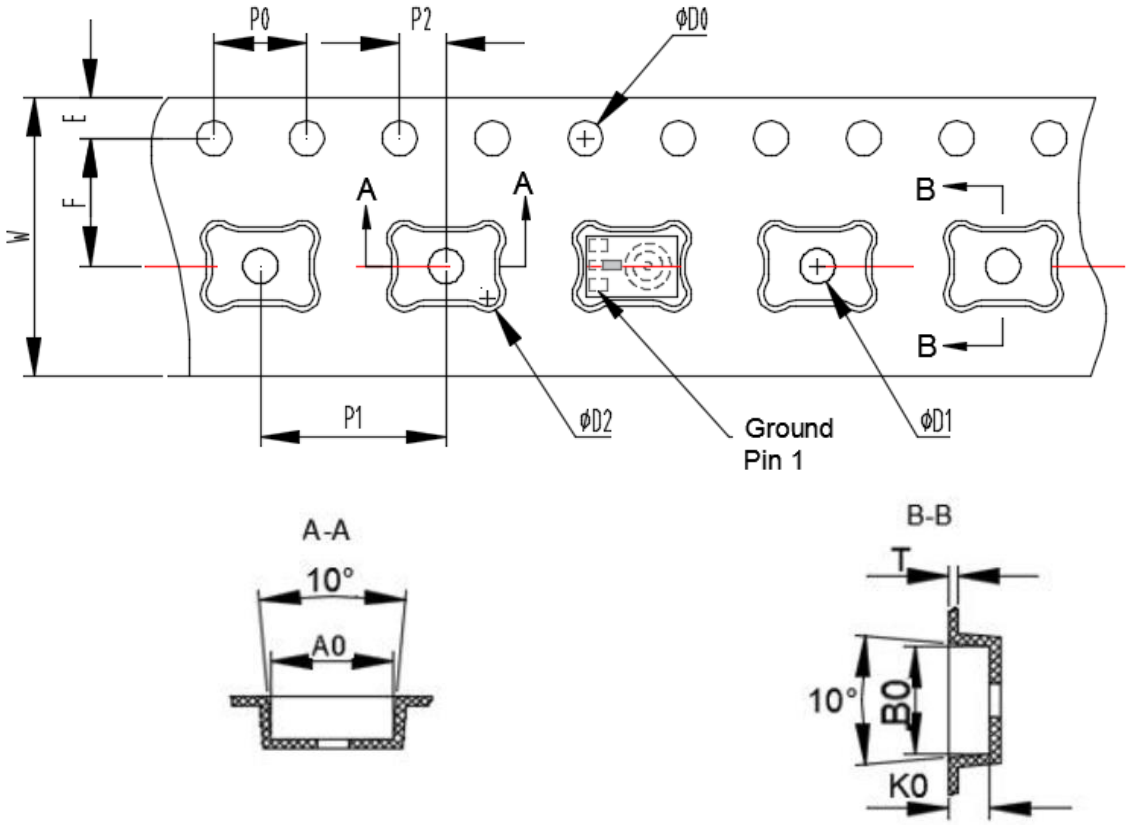
3.4 Application Circuit



Note: Recommend capacitance of C1 is 1 μF and put C1 as near sensor as possible.

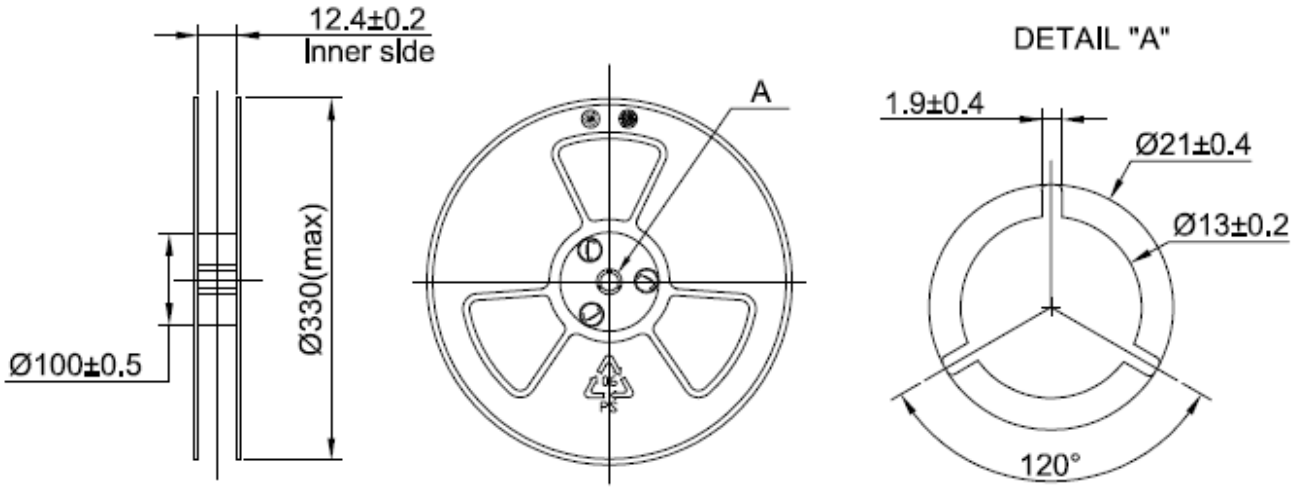
4. Packing

4.1 Tape Specification

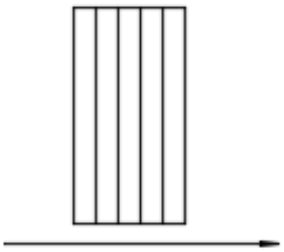


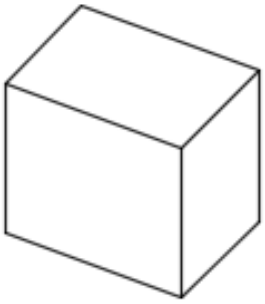
4.2 The Dimensions as Follows:

ITEM	W	E	F	ØD0	ØD1
DIM(mm)	12.0±0.30	1.75±0.10	5.5±0.05	$1.50^{+0.10}_{0}$	$1.00^{+0.10}_{0}$
ITEM	P0	10P0	P1	A0	B0
DIM(mm)	4.00±0.10	40.00±0.20	8.00±0.10	3.00±0.05	2.05±0.05
ITEM	K0	P2	T	ØD2	
DIM(mm)	1.10±0.10	2.00±0.05	0.30±0.05	0.50±0.10	

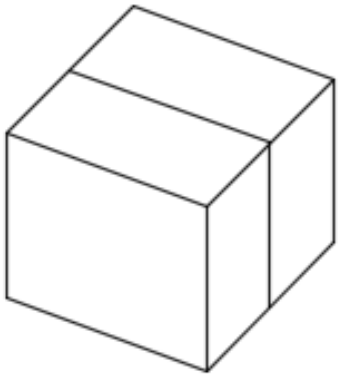


Packing (5,000PCS)

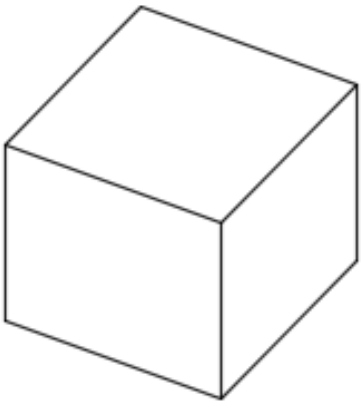




Inner Box(25000PCS)
(340mm×135mm×355mm)



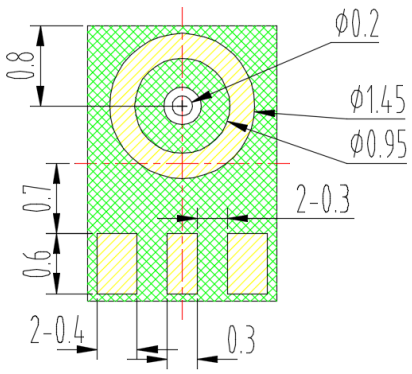
Two Inner Box(50,000PCS)



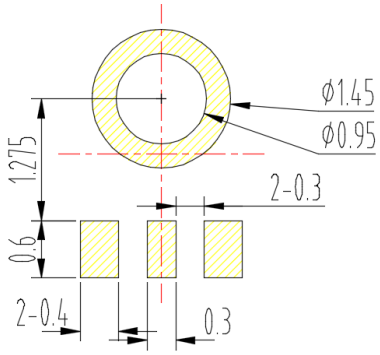
Outer Box(50,000PCS)
(370mm×300mm×390mm)

5 Land Pattern Recommendation

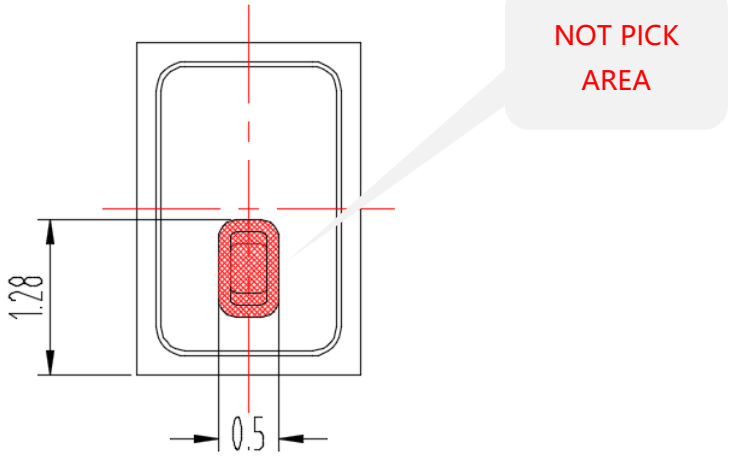
5.1 The Pattern of Sensor Pad (unit: mm)



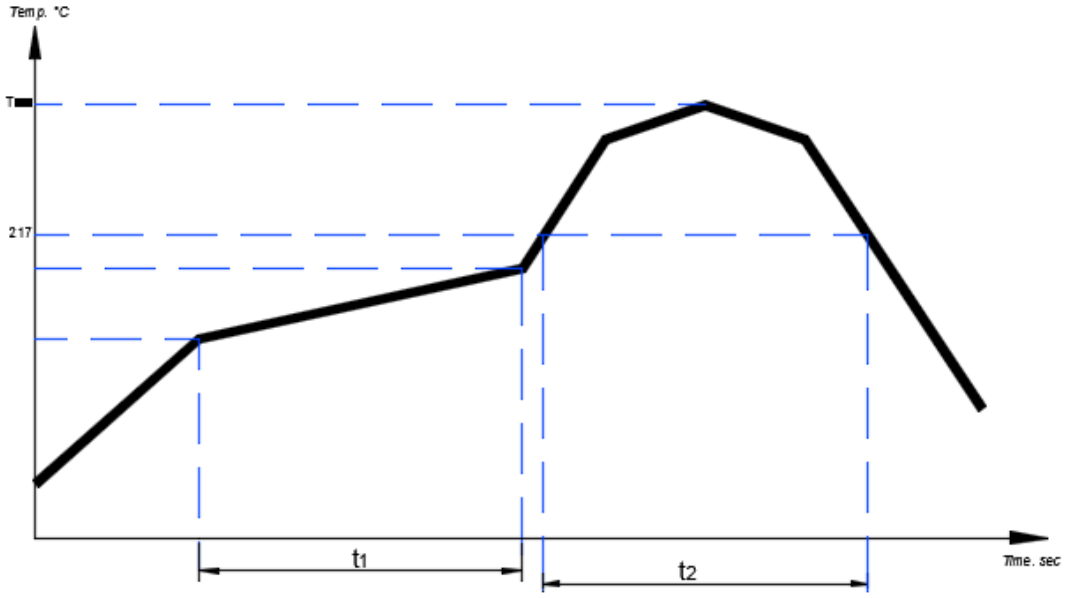
5.2 Recommended Soldering Surface Land Pattern (Unit: mm)



5.3 Not Pick Area



6. Reflow profile



Parameter	Reference	Specification
Soaking Zone (150~180℃)	t_1	60-120s
Time Above 217℃	t_2	60~120s
Peak Temperature	T_{peak}	255℃
Temperature Gradient In Riseing	---	Max 3℃/s
Temperature Gradient In Cooling	---	Max 5℃/s

7. Storage and Transportation

7.1 Keep the sensor in warehouse with less than 75% humidity and without sudden temperature change, acid air, any other harmful air or strong magnetic field. Recommend storage period no more than 1 year and floor life(out of bag) at factory no more than 4 weeks.

7.2 The sensor with normal pack can be transported by ordinary conveyances. Please protect products against moist, shock, sunburn and pressure during transportation.

7.3 Storage Temperature Range：-40℃～+70℃

7.4 Operating Temperature Range：-40℃～+100℃

8. Reliability Test Report

NO.	Testing Item	Test Condition	Standard
1	Vibration Test	From20 to 2000Hz peak acceleration 20g, X/Y/Z axis total 48 minutes	IEC 60068-2-6:2007
2	Mechanical shock Test	3000g,0.3ms, 6axes*3times	IEC 60068-2-27:2008
3	Drop Test	1.5m，2.5cm steel plate （6 sides+4 horns）*2	IEC 60068-2-31:2008
4	High Temperature Test	125℃,200 hours	IEC 60068-2-2:2007
5	Low Temperature Test	-40℃， 200 hours	IEC 6008-2-1:2007
6	Humidity Test	85℃, 85%R.H., 200 hours, with power supply application.（3.7V)	IEC 60068-2-78:2012
7	Temperature Shock test	-40℃/0.5 hours →125℃/0.5 hours, 200 cycles.'	IEC 60068-2-14:2009
8	Multiple Reflow	260℃(Max),3 cycles	Refer to customer ‘s request
9	Salt spray test	35℃ 5%NaCl PH6.5-7.2 8h	IEC 60068-2-52:2017
10	ESD-IEC	Air: ±8KV / Contact：±2Kv， without ground for all pads,10 times	IEC 61000 2-4:2008