

1. General

2. Operating condition

No.	Item	Specification
2-1	Rated voltage	3.0V DC
2-2	Operating voltage	2.8-3.3V DC
2-3	Rotation	C.W/C.C.W (clockwise or counter clockwise)
2-4	Motor position	All direction
2-5	Operating environment	-10~60℃, 10%RH~90% RH No coagulation of moisture
2-6	Storage environment	-30~70℃, 5%RH~95% RH No coagulation of moisture

3. Measuring condition

No.	Item	Specification
3-1	Temperature	20±2℃
3-2	Humidity	63%RH~67% RH
3-3	Motor position	Motor shaft horizontal.(Lock the motor in a test fixture)

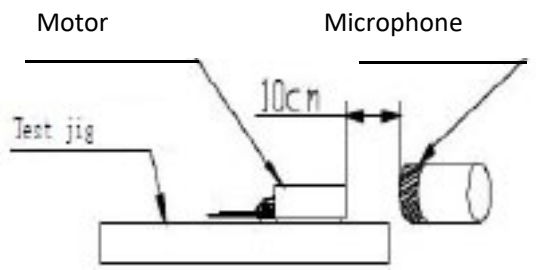
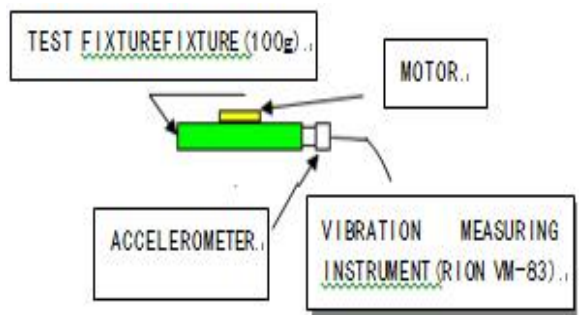
The measurement at 20℃ & 65%RH is standard. If the judgment is not questionable, recognize measurement at 5℃ to 35℃ & relative humidity 45%RH to 85%RH. Direction of motor is shaft horizontal.

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4. Performance and characteristics

No.	Item	Specification
4-1	Rated speed	11000±2000 rpm
4-2	Rated current	90 mA Max
4-3	Starting voltage	2.3V DC Max, At rated load any position of rotor.
4-4	Insulation resistance	10MΩ Min, At DC 100V between Terminal and case.
4-5	Terminal resistance	30Ω ±20% 《AT 20℃》

5. Mechanical properties

No.	Item	Specification	Measuring condiction/Remark
5-1	Mechanical noise	50dB(A)Max	See below
	At rated voltage and scene noise as 28dB(A)Max, the shaft is horizontally fastened to the test jig(100g).The Microphone faces the plane of motor along the shaft. The distance is 10cm. 		
5-2	Vibration quantity	RMS 4.5G Min EQ p-p 13G Min	METHOD:See below
	The motor is fixed on the test fixture with double-sided adhesive and rotated normally at rated voltage of 3.0V. 		

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No.	Item	Specification	Remark
5-3	Shaft output	$\geq 500\text{gf}$	
5-4	Bottom deflection	$\geq 500\text{gf}$	

6. Reliability

/No.	Item	Specification
6-1	Cycle life test no/off test	Under normal temperature and humidity, the motor is connected to the rated voltage 3.0V, turned on for 2 seconds, and turned off for 1 second, which is a rotation cycle, with a total cycle of 50,000 times.
6-2	Low temperature storage test	Temperature: $-30\pm 2^{\circ}\text{C}$ Time: 72h
6-3	High temperature storage test	Temperature: $70\pm 2^{\circ}\text{C}$ Time: 72h
6-4	Humidity exposure	Temperature: $40\pm 2^{\circ}\text{C}$ Humidity: 90RH~95% RHExposure time: 72h
6-5	Drop test	The motor is placed in a mobile phone model (100g). The six sides of the mobile phone model land freely 3 times from a height of 1.5 meters.

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/No.	Item	Specification
6-6	Judgement standard	1、After 2h exposure in the ordinary temperature and humidity, the motor's performance should accord with below requirements: 1) Rated speed、Rated current: Changing rate of measured data must be within $\pm 30\%$ of initial value; 2) Terminal resistance: Changing rate of measured data must be within $\pm 10\%$ of initial value; 3) Starting voltage: 2.3V DC Max 2、There should be no deformation, cracking and breakage of parts when tested with the naked eye visual inspection.

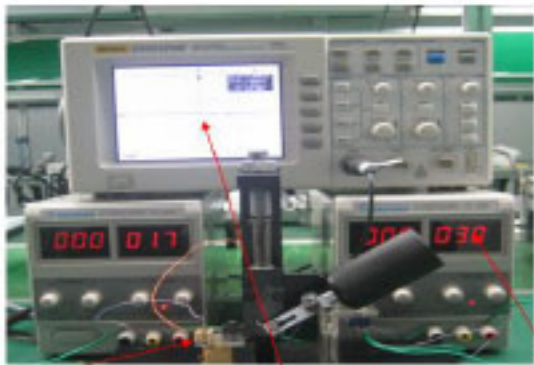
7.Matters needing attention

No.	Item
7-1	The motor is a small and precise product. In the course of transportation, the impact of landing force and force above 0.5 KGF should be prevented. In addition, if the outer package needs to be replaced in case of accident, electrical characteristics of the motor should be kept unchanged.
7-2	Please pay attention to moisture-proof.
7-3	Avoid use in the following situations: 1、 High temperature and humidity; 2、 Corrosive gases, such as H₂S、 SO₂、 NO₂、 CL₂,etc.
7-4	Long-term operation or preservation at high temperature may reduce insulation performance, and precautions should be taken.

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No.	Item
7-5	Please do not store or work near instruments and equipment with strong magnetic field or strong magnetic field.
7-6	Motor housing leakage magnetic field. The use of attention.
7-7	In the work process, fine electrical noise may occur between the electric brush and the commutator.
7-8	Packaging method: determined by the user
7-9	Change or Increase the content specification, implementation and consultation by both parties.

8. Electrical characteristics test

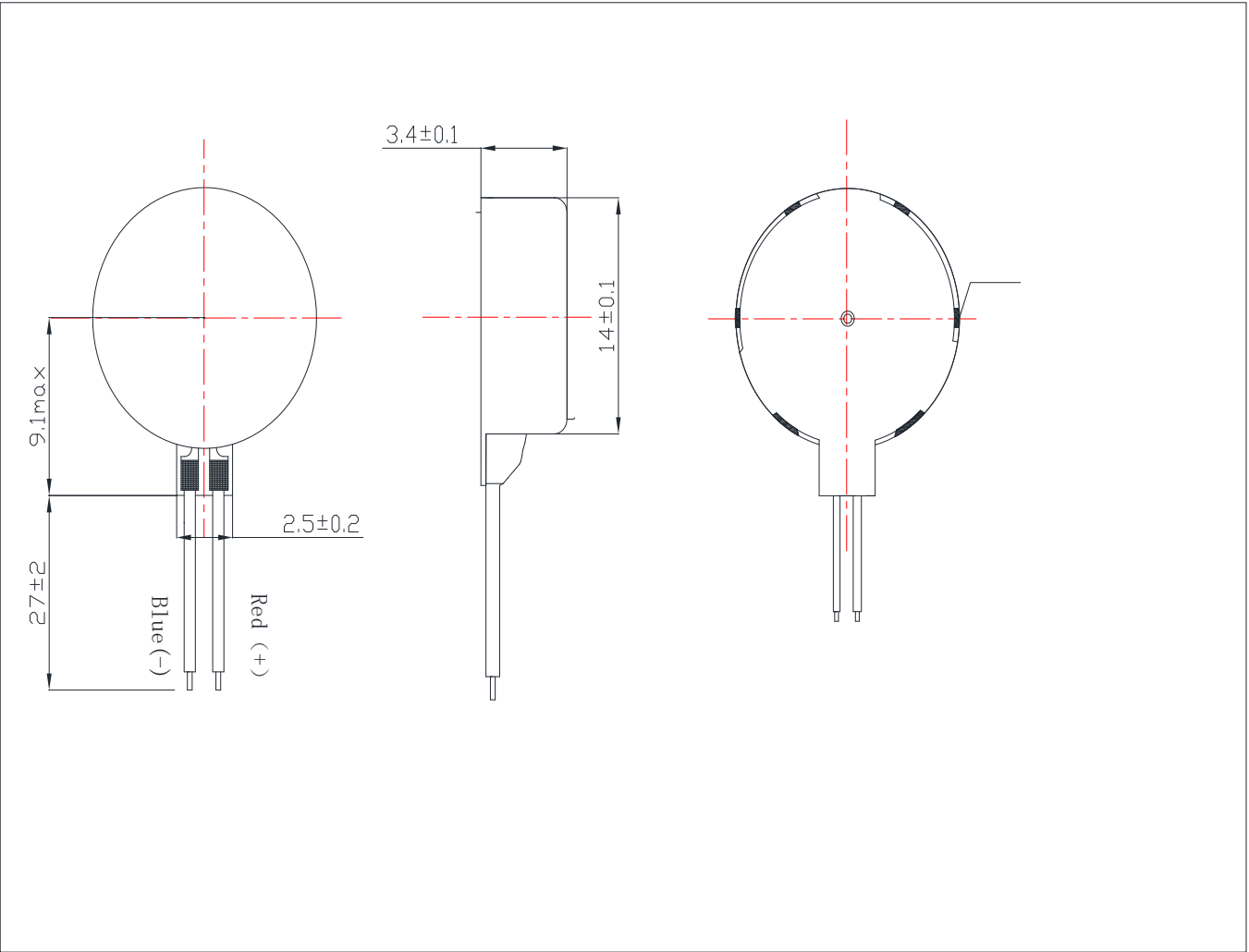
No.	Item																					
8-1	Motor electrical characteristic curve <table><tr><th></th><th>2.4</th><th>2.6</th><th>2.8</th><th>3</th><th>3.2</th><th>3.4</th></tr><tr><td>●</td><td>9000</td><td>9500</td><td>10000</td><td>10500</td><td>11000</td><td>11500</td></tr><tr><td>●</td><td>35</td><td>43</td><td>45</td><td>50</td><td>55</td><td>60</td></tr></table>		2.4	2.6	2.8	3	3.2	3.4	●	9000	9500	10000	10500	11000	11500	●	35	43	45	50	55	60
	2.4	2.6	2.8	3	3.2	3.4																
●	9000	9500	10000	10500	11000	11500																
●	35	43	45	50	55	60																
8-2	Standard test method 																					

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No.	Item
8-3	Measurement circuit diagram The diagram illustrates a measurement circuit. It features two DC voltage sources, one labeled 30V and the other 15V. These sources are connected in series with a switch labeled KS. The circuit then passes through a resistor and an ammeter (indicated by a circle with an 'A'). A voltmeter (indicated by a circle with a 'V') is connected in parallel across the motor, which is represented by a circle with a cross inside. The entire circuit is enclosed in a rectangular frame.

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9. Outline drawing



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