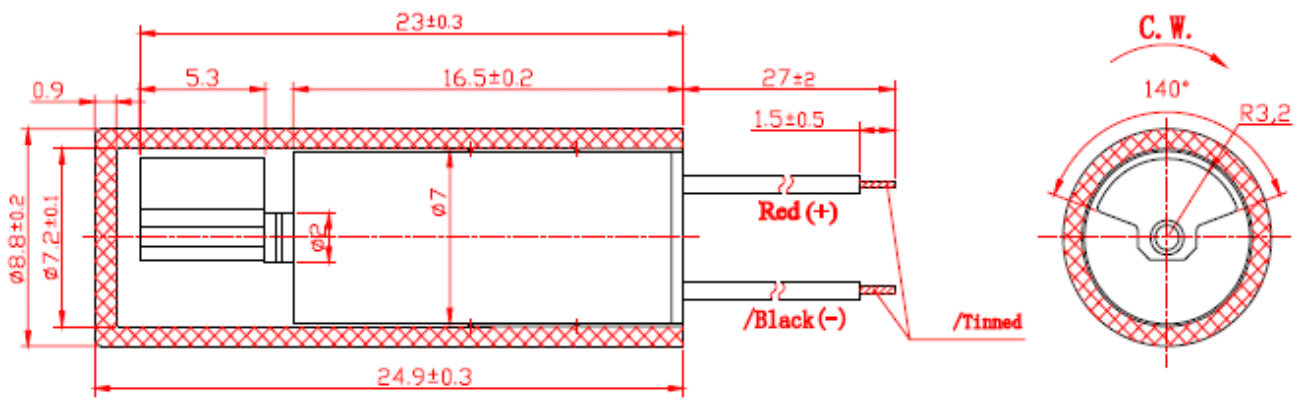




## Part No. **Z7AL2A1692081**

### Technical requirement

1. Rated voltage:1.3V
2. Rated current:70mA Max
3. Rated speed:5,500±2,000rpm
4. Terminal resistance:9.5Ω(±20%)
5. Starting voltage:0.75V Max
6. Shaft end play:0.1~0.3mm
7. Lead wire spec: AWG30 UL1571
8. Overall length is measured after counterweight being pressed against body in direction A.(Shaft end play is not included.)
9. Unmarked tolerance:±0.1mm



## 1. General scope

1-1 The specifications apply to the coreless cylindrical permanent magnetic micro vibration motor DC model **Z7AL2A1692081**.

## 2. Operating conditions

Items	Specifications	Condition & Remarks	
2-1	Rated voltage	1.3V DC	
2-2	Rated load	Counter weight	As specified in 10. Outline Drawing.
2-3	Rotation	C.W. / C.C.W.  (clockwise or counter clockwise)	
2-4	Motor position	All positions	
2-5	Operating voltage	0.9~ 1.6V DC	
2-7	Operating conditions	-30 ~ 70°C, ordinary humidity  Ordinary Humidity: 65± 20%RH	No condensation of moisture.
2-8	Storage conditions	-40 ~ 80°C, ordinary humidity  Ordinary Humidity: 65± 20%RH	No condensation of moisture.

### 3. Measuring conditions

Items		Specifications	Condition & Remarks
3-1	Temperature	20±2°C	
3-2	Humidity	(63% ~ 67%) RH	
3-3	Motor position	Motor shaft horizontal	Lock the motor in a test fixture.

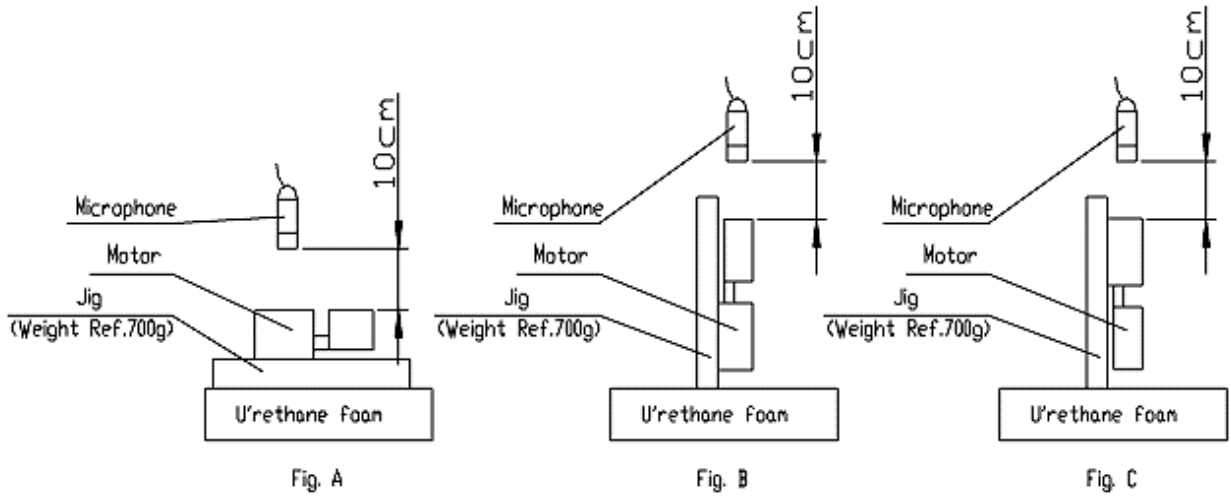
The measurement at 20°C & 65%RH is standard. If the judgment is not questionable, recognize measurement at 5°C to 35°C & relative humidity 45% to 85%. Direction of motor is shaft horizontal.

### 4. Mechanical specifications

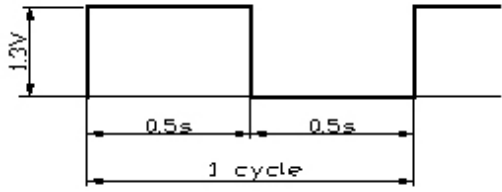
Items		Specifications	Condition & Remarks
4-1	Configuration	As specified in 10. Outline Drawing	Outline drawing No: <b>Z7AL2A1692081</b> .
4-2	Appearance	There shall be no evidence of mechanical damage and shall not have inadequate corrosion and so on.	Visual examination (allowable extent is based on boundary sample)
4-3	Shaft end play	0.05 ~ 0.2mm	
4-4	Holding strength of vibration weight	49N (5kgf)	

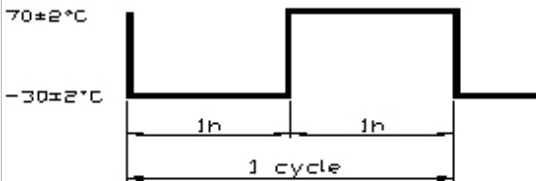
### 5. Performance and characteristics

Items		Specifications	Condition & Remarks
5-1	Rated speed	5,500±2000rpm	At rated voltage and rated load (Counterweight).
5-2	Rated current	70mA Max	
5-3	Starting voltage	0.75V DC max	At rated load (Counterweight) any position of rotor.
5-4	Insulation resistance	1M• min	At DC 100V between Terminal and case.
5-5	Terminal resistance	9.6• (± 20%)	At 20°C.
	Mechanical noise	50db (A) max	
5-6	<p>At rated voltage and rated load (Counterweight).            Background noise: 28db (A) max.            Measuring instruments: B &amp; K.            The weight of jig: 700g.</p>		



**6. Reliability Test**

Items	Standard test conditions	Condition & Remarks												
6-1 Life test	 <table border="1" data-bbox="336 1243 1294 1321"> <thead> <tr> <th>Position</th> <th>Voltage</th> <th>Load</th> <th>Temperature</th> <th>Humidity</th> <th>Life</th> </tr> </thead> <tbody> <tr> <td>Horizontal</td> <td>Rated</td> <td>Weight</td> <td>20 °C</td> <td>65 %</td> <td>200,000 cycles</td> </tr> </tbody> </table>	Position	Voltage	Load	Temperature	Humidity	Life	Horizontal	Rated	Weight	20 °C	65 %	200,000 cycles	After 2 hours exposure in ordinary Motors shall be approved as specified in item 7-1.
Position	Voltage	Load	Temperature	Humidity	Life									
Horizontal	Rated	Weight	20 °C	65 %	200,000 cycles									
6-2 Low temp exposure	Temperature: $-40 \pm 2^{\circ}\text{C}$ Time: 96hrs	After the test motors shall be approved as specified in item 7-2.												
6-3 High temp exposure	Temperature: $60 \pm 2^{\circ}\text{C}$ Time: 96hrs													
6-4 Humidity exposure	Temperature: $40 \pm 2^{\circ}\text{C}$ Humidity: 90 ~ 95% RH Exposure time: 96hrs No condensation of moisture													

6-5	Vibration	<p>Displacement: 1.5mm (p-p)</p> <p>Frequency: 10 ~ 55Hz</p> <p>Acceleration: 22m/s<sup>2</sup></p> <p>Period: 20 Mins log sweep (10 ~ 55 ~ 10Hz)</p> <p>Direction: x, y, z</p> <p>Time: Every 2 hours</p>	After the test motors shall be approved as specified in item 7-2.
6-6	Free Fall	<p>Set the motor to the approximately 75 g (include the motor) weight of block drop the motor on the concrete floor.</p> <p>Height: 1.5 meters</p> <p>Direction: ±x, ±y, ±z</p> <p>Times: Twice 2 each</p>	After the test motors shall be approved as specified in item 7-2.
6-7	Heat stock test	<p>Test cycle: 20 cycles</p> 	After the test motors shall be approved as specified in item 7-2.

## 7. Post environmental

Items	Requirements
7-1 Table A	<p>1) Rated speed: Initial data -30% min./ +60% max.</p> <p>2) Rated current: Initial data -30% min./ +60% max.</p> <p>3) Starting voltage: 1.1V DC max</p>
7-2 Table B	<p>1) Rated speed: Initial data -30% min./ +30% max.</p> <p>2) Rated current: Initial data -30% min./ +30% max.</p> <p>3) Starting voltage: 1.1V DC max</p>

## 8. Matters to be paid attention to when using motor

8-1 (Please lay the motors carefully in transportation to avoid any serious damage to the motor body or its electric function because of collision.)

8-2 (Please use and storage motors according to N0.2 item (Operating Conditions) in specification, or else motor characteristics would be affected.)

8-3 (Make arrangement to limit the storage period to 6 months or less. Condensation of atmosphere must be avoided in motor usage or opening the packaging of the motor.)

8-4 (For proper operation, storage and operating environment must not contain corrosive gases. For example H<sub>2</sub>S, SO<sub>2</sub>, NO<sub>2</sub>, Cl<sub>2</sub>, etc. In addition storage environment must not have materials that emit corrosive gases especially from silicon, cyanic, formalin and phenol group. In the mechanism or the set, existence of corrosive gases may cause no rotation in motor.)

8-5 (Please don't stall the shaft for a long time after powering, and not to touch the weight when motor is rotating.)

8-6 (There should be no sundries (such as grain, fibre, hair, small tape, glue etc.) in the shaft end play.)

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