



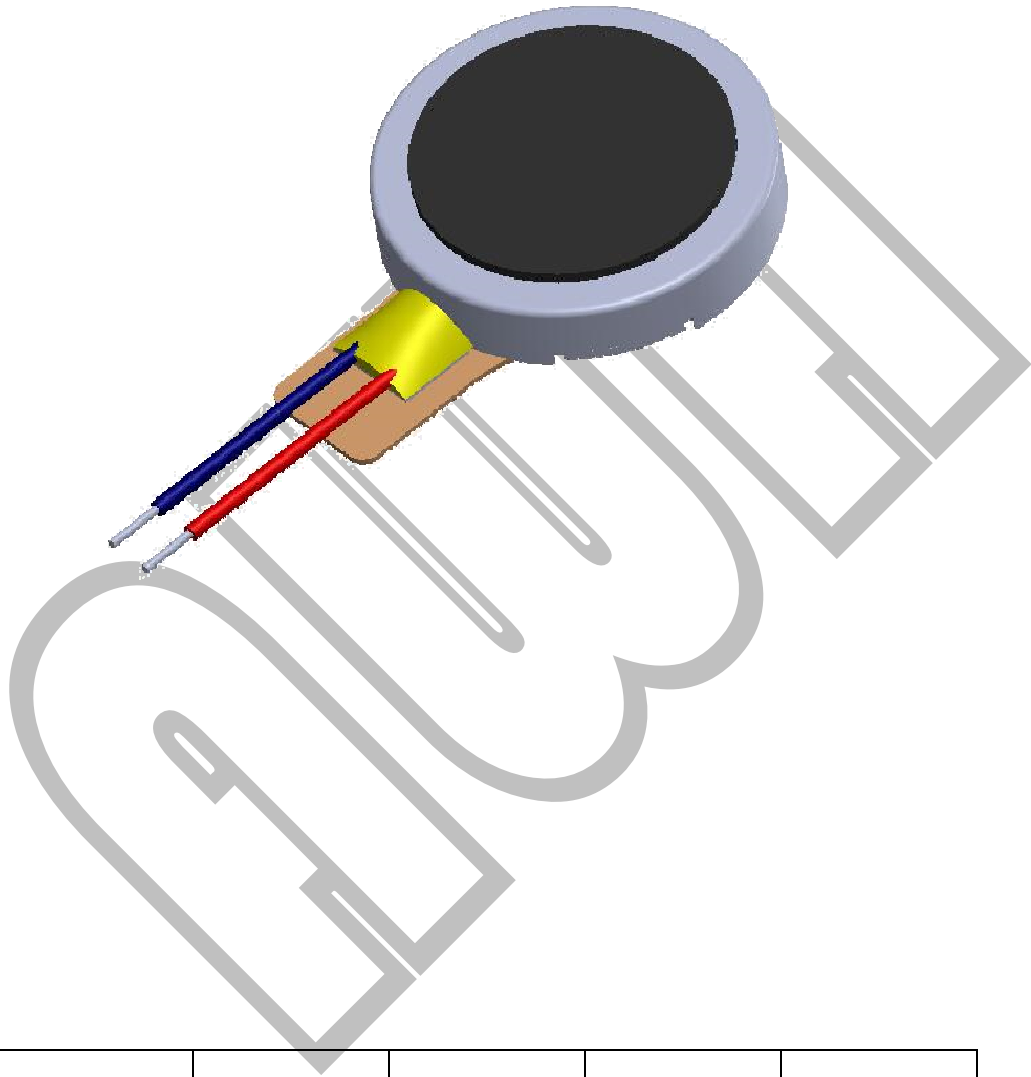
SPECIFICATION



P/N : LC-A11A

Version: 1.0

Model name: LC-A11A

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CUSTOMER ACCEPTANCE	APPROVAL	CHECK	DESIGN	DATE
	 Kaisa. L	 Kevin. J	Jade.D	2020-6-10



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Prolegomenon

1、 Specification receival:

Please return this specification within one month after its publication; otherwise it will be treated as signed and received automatically. If anything need to be adjusted or added for your esteemed company regarding this spec., please kindly contact our business executor.

2、 Specification revises :

The revises of this spec. and its execution will be in our discussion and negotiation.

If our spec. is revised, this spec. will be invalid as soon as you received the revised one.

3、 Special notice:

- (1) Please check its performance advance while you start.
- (2) Special declaration: Some parts of components may be changed in order to modify or improve its capacity.

Revised record

Rev.	Date	Designed	Revised	Page
V1.0	2020.06.10	Jade.D	Preliminary spec. Written	

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1. Applications

This specification provided by AWA is applied to model LC-A11A coin type ($\Phi 10.0 \times H2.1$) DC vibrator which is used for cellular phone and other handy communication tools for alarm vibration or haptics vibration.

2. Operating, storage and shipping conditions

No	Item	Specifications
2-1	Rated voltage	3.0V DC
2-2	Operating voltage range	2.7-3.3V DC
2-3	Vibrator position	All position
2-4	Rotation direction	CW or CCW
2-5	Operating environment	-20°C ~ +60°C (0 ~ 95%RH, No moisture condensation)
2-6	Shipping and storage environment	-30°C ~ +70°C (0 ~ 95%RH, No moisture condensation)
2-7	Expected operating, storage and shipping environment	-5°C ~ +40°C (15 ~ 75%RH, No moisture condensation)
		Sulphur dioxide: below 0.3 mg/m ³
		Sulphuretted hydrogen: below 0.1 mg/m ³
2-8	Maximum storage period	6 months

3. Measuring conditions

No	Item	Specifications
3-1	Normal temperature	25°C ± 3°C
3-2	Normal humidity	65 ± 2%
3-3	Temperature for reference	5°C ~ 35°C
3-4	Humidity for reference	45% ~ 85%
3-5	Vibrator position when testing	Vibrator is horizontal

4. Mechanical characteristics

No	Item	Specifications	Conditions & Remarks
4-1	Appearance	Visual	No scar, rust, stain or dent
4-2	Weight	About 0.75g	
4-3	Dimensions	As shown in the outline drawings	
4-4	Bottom case deflection strength	9.8N (1kgf) Min	Destructive test
4-4	The tensile strength of lead wire	5N min	Destructive test
4-5	Vibration acceleration	1.0Grms min (Simulation test values) ¹	The test method refer to the below figure 1 & 2.
		0.25Grms min (Standard test values) ²	
4-6	Mechanical noise	50dB-A max (Background noise: 25dB-A MAX)	Measure at rated voltage, according to shaft direction the distance between microphone and motor is 10cm. The noise meter using A weighted.

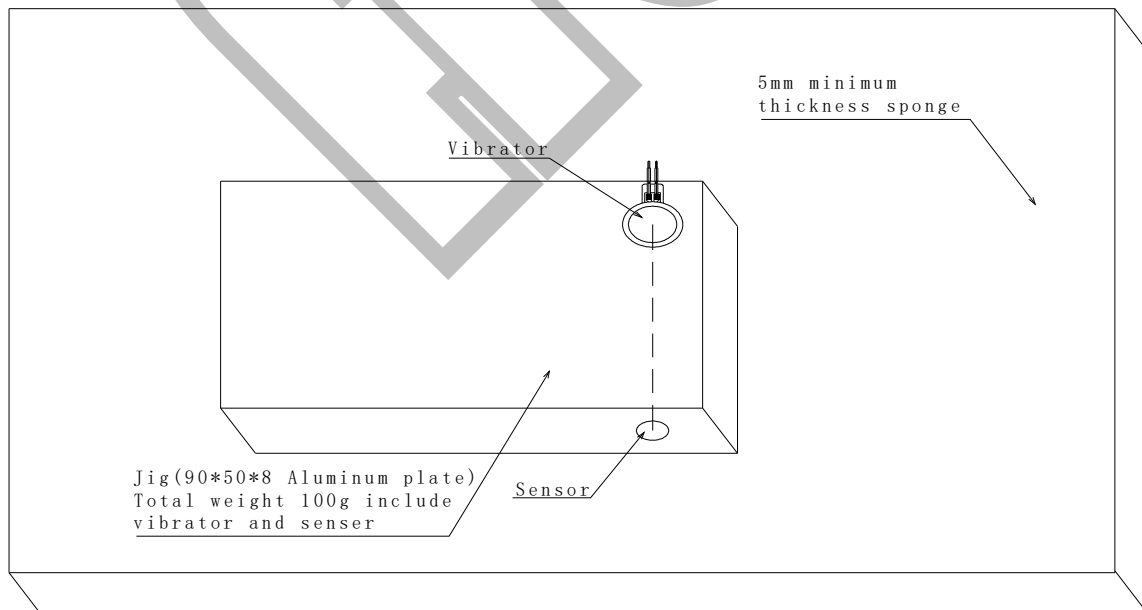
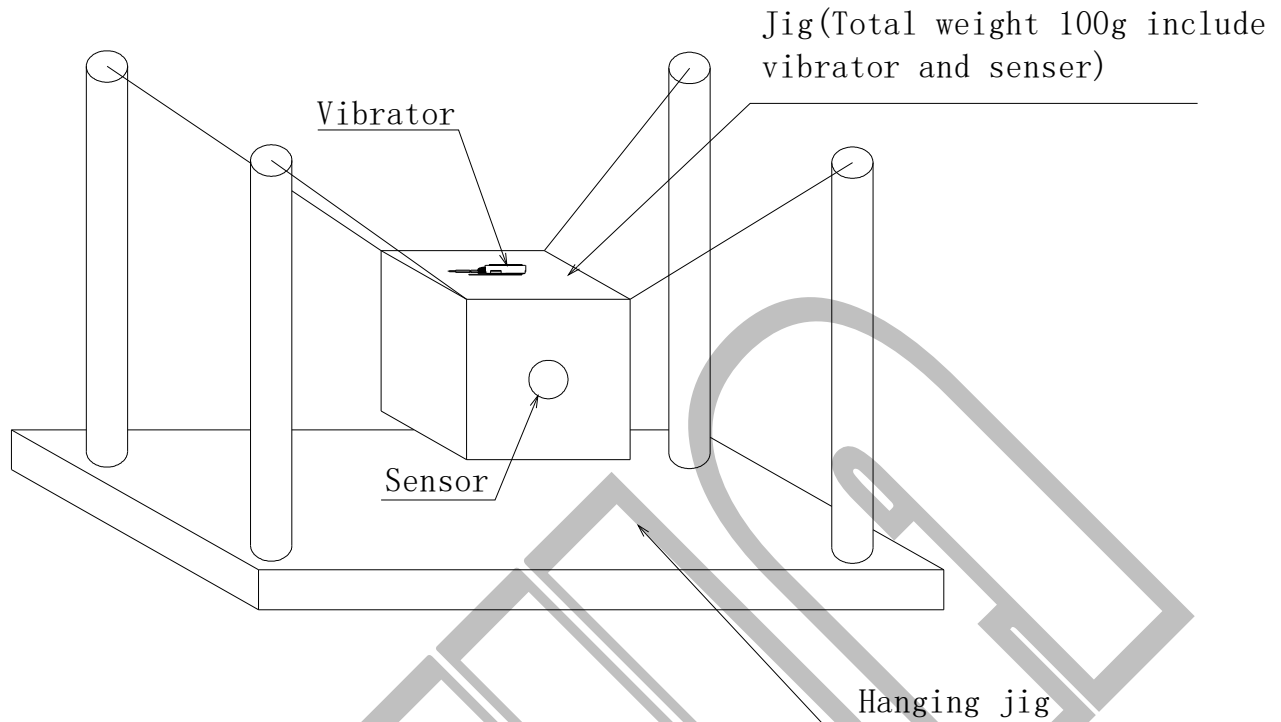


Figure1: Simulation Vibration test method

Figure²: Standard Vibration test method

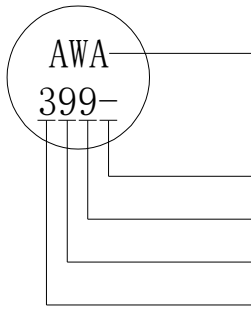
5. Electrical characteristics

No	Item	Specifications
5-1	Rated voltage	DC 3.0 V
5-2	Expected operating voltage range	DC 2.7 V~3.3V
5-3	Operating current at rated voltage	90mA max
5-4	Rotation speed at rated voltage	10000rpm min
5-5	Starting voltage at rated load	2.3V max
5-6	Terminal resistance	32 Ω ± 15% (Phase contact)
		56 Ω ± 15% (Phase series)
		18 Ω ± 15% (Phase parallel)
5-7	Insulation resistance	10M Ω Min Under 100V DC

6. Reliability test

No	Item	Specifications
6-1	High temperature storage test	<p>.Sample quantity:5 pcs</p> <p>.Test condition:80°C for 96hrs</p> <p>.Criterion: RPM and rated current within $\pm 30\%$ of initial value.</p> <p>Other parameters must be within spec defined.</p> <p>The measurement is conducted after 4hours of recovery after test.</p>
6-2	Low temperature storage test	<p>.Sample quantity:5 pcs</p> <p>.Test condition:-40°C for 96hrs</p> <p>.Criterion: RPM and rated current within $\pm 30\%$ of initial value.</p> <p>Other parameters must be within spec defined.</p> <p>The measurement is conducted after 4hours of recovery after test.</p>
6-3	High temperature humidity storage test	<p>.Sample quantity:5 pcs</p> <p>.Test condition:60°C ,90%RH for 96hrs</p> <p>.Criterion: RPM and rated current within $\pm 30\%$ of initial value.</p> <p>Other parameters must be within spec defined.</p> <p>The measurement is conducted after 4hours of recovery after test.</p>
6-4	Thermal shock resistance test	<p>.Sample quantity:5 pcs</p> <p>.Test condition: (-40°C 2hrs<--->85°C 2hrs), transition time less than 20 seconds.</p> <p>.Test cycle:32 cycles</p> <p>.Criterion: RPM and rated current within $\pm 30\%$ of initial value.</p> <p>Other parameters must be within spec defined.</p> <p>The measurement is conducted after 4hours of recovery after test.</p>
6-5	Room temperature life test	<p>.Sample quantity:5 pcs</p> <p>.Test condition: Use the rated voltage to driving the vibrator motor and setting the on/off time to 2.0 sec on/off.</p> <p>.Test environmental: Temperature 25°C/Humidity 50%</p> <p>.Test cycle: 50,000 cycles.</p> <p>.Criterion: After test, RPM within +50%/-30% of initial value, rated current within $\pm 30\%$ of initial value ,other parameters must be within spec defined.</p> <p>The measurement is conducted after 4 hours of recovery after test.</p>
6-6	Tumble test/Repeat random drop test	<p>.Sample quantity:5 pcs</p> <p>.Test condition: Drop from 100cm height with 100g jig to a steel plate</p> <p>Random drop for 300 times.</p> <p>.Criterion: RPM and rated current within $\pm 30\%$ of initial value.</p> <p>Other parameters must be within spec defined.</p> <p>The measurement is conducted after 4hours of recovery after test.</p>
6-7	Random vibration test	<p>.Sample quantity: 5 pcs</p> <p>.Acceleration: Double amplitude 1.5mm (p-p) .</p> <p>.Frequency:10 to 55 Hz.</p> <p>.Cycle: 20min each direction (10 to 55 to 10Hz),</p> <p>.Orientation: x,y,z.</p> <p>.Criterion: RPM and other parameters must be within spec defined.</p>
6-8	Free fall drop test	<p>.Sample quantity: 5 pcs</p> <p>.Test condition: Drop from 150cm height with 100g jig to concrete surface.</p> <p>Each surface twice,total 12 times.</p> <p>.Criterion: RPM and other parameters must be within spec defined.</p>

7. Lot management



Logo

Stands for line: special symbol (before or after the date)

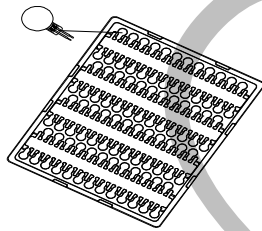
Stands for Day: 1~V

Stands for Month: 1~9,10(X),11(Y),12(Z)

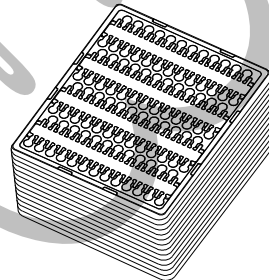
Stands for year: 2013(3), 2014(4)

day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
print	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G
day	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
print	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	

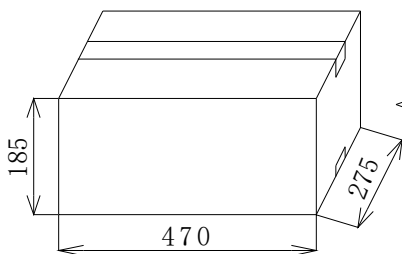
8. Packing



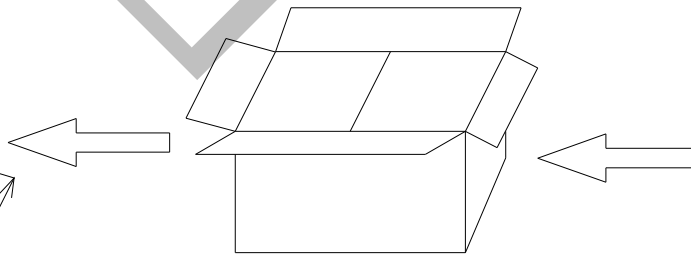
100pcs/plate
(about 80g)



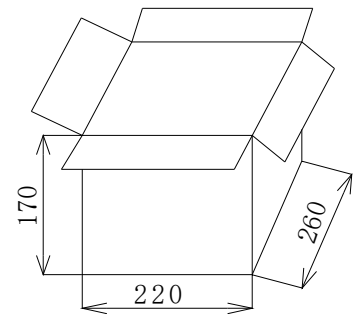
21 layers/bundle
(about 1600g)



4000pcs/master carton
(about 4Kg)



2 inner boxes/master carton



1 bundle/box
(about 1700g)

9. Cautions & Handling

9-1 Whatever item not stated in this specification will not be guaranteed. Storing & using must according to the requirement of the SPEC, the environment of high temperature, high humidity or corrosion gas, may cause the performance of the vibrator falls.

9-2 Do not bring magnetized object near or contact with the surface of vibrator to avoid the performance being deteriorated.

9-3 Please don't exert more than 10N force on the vertical direction, and don't pull the lead wire more than 10N force too, it will cause the deflection of the vibrator.

9-4 Pay attention to the handling and working environment of vibrator, because such objects as iron powder if attracted by the vibrator magnet, will cause noise characteristic deterioration, and then reducing the reliability.

9-5 Verifying sufficiently that adhesives or seals do not volatilize corrosive gases which would be harmful for the vibrator. Cyanoacrylate adhesive or sulfur gases will cause the vibrator failure. Especially, if using an adhesive to install the vibrator, ensure the adhesive does no flow into vibrators.

9-6 Low molecular silicone compound included in silicone products may cause contact disorder. Please be cautious when using a silicone product.

AWA's products follow the low molecular silicone content standard as below diagram:

Oligomer	Content
D3	0 PPM
D4-D6	Each under 10 PPM
D7-D10	Total under 150 PPM
D11-D20	Total under 2500 PPM

9-7 Please use the vibrator within six months, avoid moisture condensation in the use and opened the package

9-8 The product can be compliant with AWA requirement of HSF management completely.

9-9 Out-going test data will be attached ($n \sim 35$) for :

- Load rotation speed (@ Rated voltage & rated load)
- Load current (@ Rated voltage & rated load)
- Starting voltage (@ Rated load)
- Terminal resistance (@ Room temperature 20~25°C)
- Height of the vibrator
- Diameter of the vibrator
- The width & height of the UV glue

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10. Outline drawing

