NEED-FOR-POWER MOTOR™

Model No.

NFP-E408S

1. Application

This specification is provided by NFP which designs, produces and inspects cylinder type DC coreless vibration motor used in mobile phone. The characteristics and parameters of this specification refer to the standardization of our corporation NFP800.01-2004

2. Motor Type Code and Sort

KEY FEATURES	DATA
NFP	"NFP" stands for Need For Power vibration motor
4	"4" stands for diameter for 4mm
8	"8" stands for length of body between 8.0~9.0mm
S	"S" stands for spring and lead

3. Standard Operating Conditions

No.	Item	Operating condition
3.1	Rated Voltage:	1.5V DC
3.2	Operating Voltage Range:	1.3~1.8V DC
3.3	Rated Load:	Eccentric weight (as specified in outline drawing)
3.4	Direction:	CW/CCW-FROM THE COUNTER WEIGHT
3.5	Operating Environment Range:	10°C ~ 40°C ≤ 90%RH
3.6	Storage Environment Range:	0°C ~ 50°C ≤ 90%RH

4. Environmental Test Conditions

No.	Item	Environmental condition
4.1	Temperature:	25±3°C
4.2	Humidity:	60±7% RH
4.3	Motor Position:	Shaft Horizontal
4.4	Power Supply:	DC 1.5V±2%
NOTE : All data shall be based on the measurement under the temperature 25±3°C and humidity 60±7% RH, however the range of temperature 5~35°C and humidity 45~85% RH if there is no doubt about the judgment.		

5. Mechanical Characteristic

No.	Item	Specifications	Test condition
5.1	Dimensions:	As specified in outline drawing	
5.2	Appearance:	No mechanical trauma or corrosion	Visual examination
5.3	End Play:	0.3mm Max	
5.4	Weight:	1.0g(About)	Plate balance(0.1g)
5.5	Vibration strength:	≥1.0G	Motor be fixed at rated voltage DC 1.5V
5.6	Pull-out strength of eccentric weight:	30N(3Kgf)	Destructive test, push-pull the tensionmeter(0.5N) holding strength of eccentric weight
5.7	Mechanica l Noise	50dB(A)Max	At rated voltage, Back ground noise:23 dB(A) Max, Fix the motor in a test jig (Shaft Horizontal). Microphone is faced to the flat of motor and recedes by 10cm

6. Electrical Characteristic

No.	Item	Specifications	Remark
6.1	Rated current:	120 mA Max	At rated voltage and rated load (Eccentric weight)
6.2	Rated speed:	10000±3000 rpm	
6.3	Locked current:	150 mA Max	At rated voltage and shaft locked
6.4	Starting voltage:	1.3V DC Max	At step voltage and any position of rotor
6.5	Terminal resistance:	10±20%(Ω)	Measured between terminal
6.6	Insulation resistance:	10MΩ Min	By megohm meter (100V), measured between terminal and case

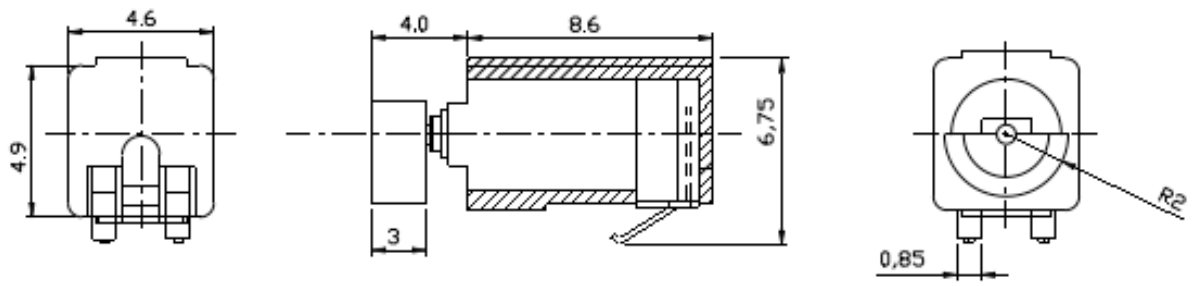
7. Reliability Test

No.	Item	Test Condition	Judgment
7.1	Life test:	Condition of temperature: Normal temperature and humidity Test state: Fix the motor in a test jig (keep the body of the motor horizontal) Voltage: 1.5V DC One circle: 4sec On/2sec Off Life circle: 20,000 times	After the test, the motor should conform to the requirements of the ite -ms 8.1
7.2	Low temperature storage:	Temperature: -20°C±2°C Time: 96h	24 hours after the test, in the condition of the normal temperature and normal humidity, the motor should conform to the require -ements of the items 8.2.
7.3	High temperature storage:	Temperature: 60°C±2°C Time: 96h	
7.4	Humidity test:	Temperature: 40°C±2°C Humidity: 90%~95%RH Time: 96h	
7.5	Thermal Shock test:	Temperature: -30°C~ 70°C Time: 2h Circle cycle: 20times	
7.6	Vibration test:	Displacement(P-P): 3mm Frequency: 10~55~10Hz/min Direction: x、y、z Time: Each 30 min	After having finished the test, the motor should conform to the requirements of the items 8.2
7.7	Drop test:	Direction: x, y, z High: 1.5m Time: 3 times each Test state: The motor is set into the box approximately weight 100g and fall free on the concrete floor	

8. Requirement After Reliable Test

No.	Requirements
8.1	1) Rated speed: initial data ±50% 2) Rated current: initial data +50% Max 3) Starting voltage: 1.3V Max
8.2	1)Rated speed: initial data +50% Max 2) Rated current: initial data +50% Max 3) Starting voltage: 1.3V Max

9. Outline Drawing



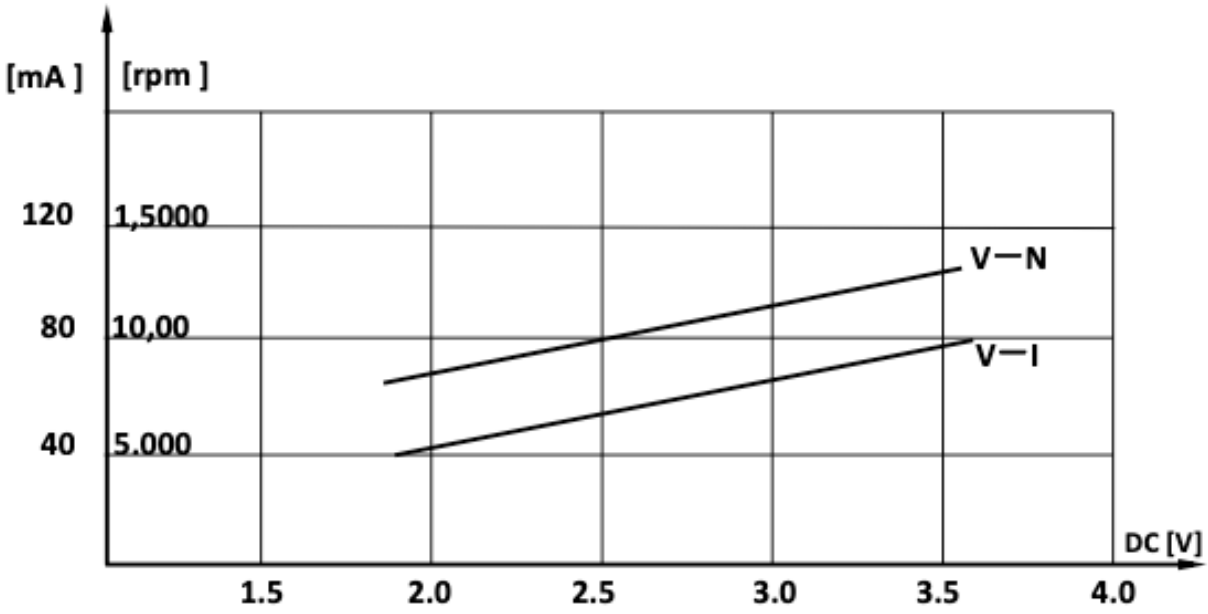
10. Packing

KEY FEATURES		DATA
Standard packing	Tray:	100PCS 218×170×10
	In packing:	10 traies (cover an empty tray)
	Out box:	1 in packings 310×220×50
	Out box:	10 in boxes (430×370×260)

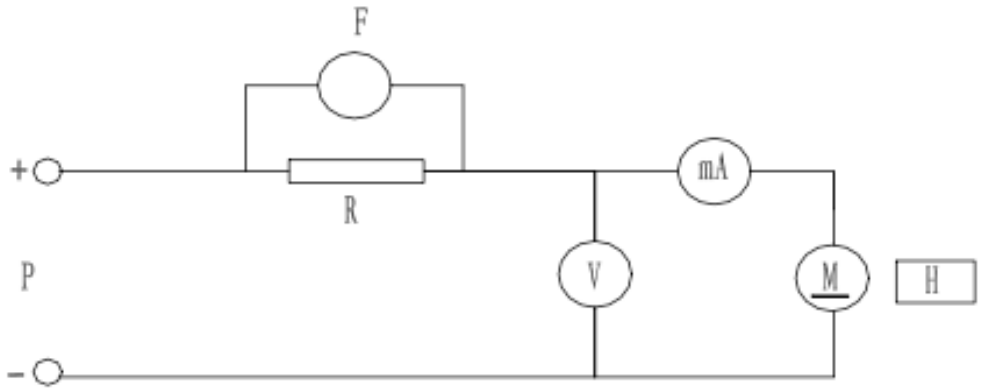
11. Cautions

No.	Requirements
11.1	Please lay the motors carefully in transportation to avoid any damage to the motor body or its electric function because of collision.
11.2	Do not deposited and use under the following conditions: -At high (low) temperature or high humidity; -Near gases which cause erosion, such as H_2S, SO_2, NO_2, Cl_2; -Around substances which produce toxic gases.
11.3	Please do not operate or store the motor near magnet or magnetic devices.
11.4	The motor may cause slight electronic noise due to the contact between brush and commutator.
11.5	Please don't lock the motor shaft when the electric power is supplied.
11.6	It is allowable to have a little rust spots on the surface or edge of case.

12. Typical Electrical Characteristics



13. State of standard measurement



P--- Tranquilization DC power supply(voltage fluctuate≤±2%，voltage veins wave≤±2%)

V--- DC Amperemeter(0.5 grade)

mA- DC Voltameter(0.5 grade)

F--- Oscillograph

R--- Resistance

H--- Flash speed indicator(0.5 grade)