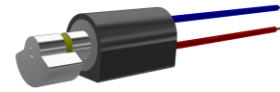# PUIaudio

Data Sheet	HD-EM1204-LW20-R

PUI Audio's 12.4mm long by 3.8mm wide and high **HD-EM1204-LW20-R** is an eccentric rotating mass vibration haptic motor. Originally designed for use in pagers/beepers, this device is great for use in wearables for haptic feedback.
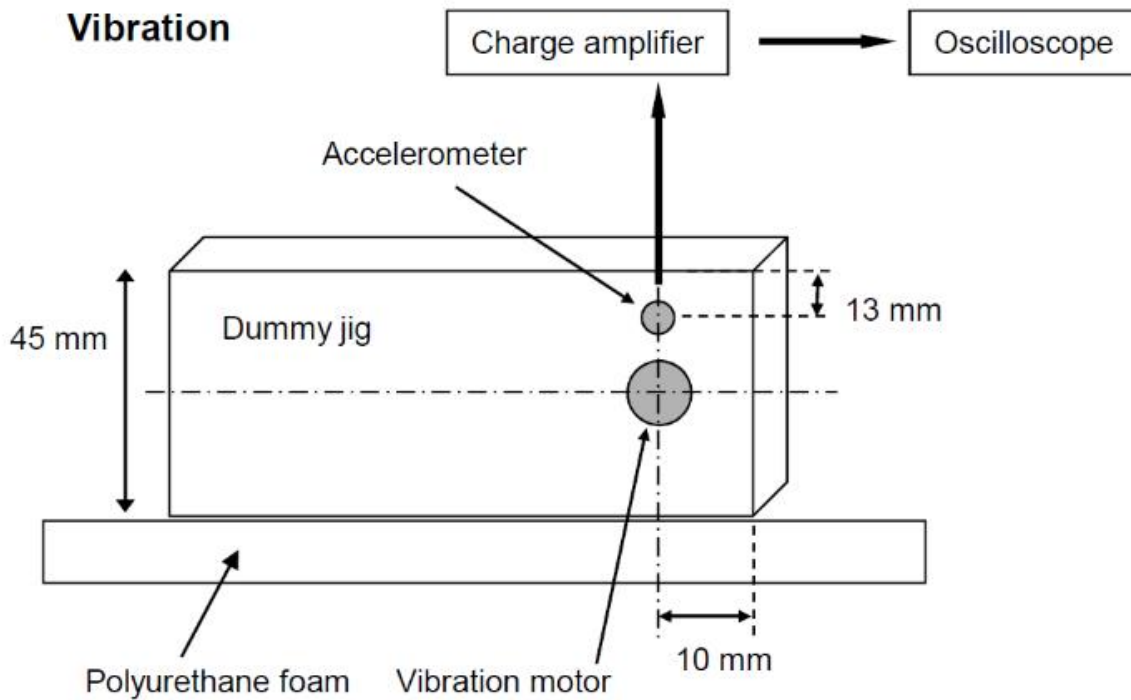
Features:
- Driven with positive or negative DC for clockwise or counterclockwise movement
- Convenient 20mm lead wires for simple electrical connection
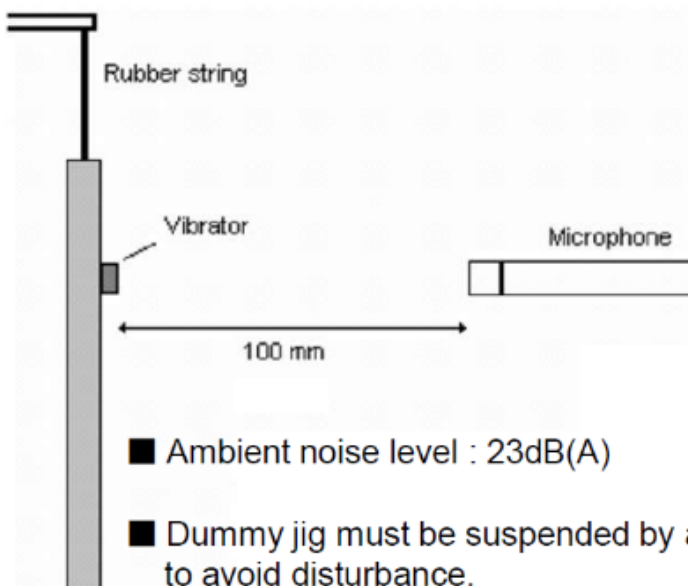- 13,000 RPMs with 3 VDC input

Specifications

Parameters	Values	Units
Rated Voltage	3	VDC
Operating Voltage Range	2.4 ~ 3.6	VDC
Terminal Resistance	30 ±20%	Ohms
Rated Speed (at 3 VDC)	13,000 ±3,000	RPMs
Current Draw (at 3 VDC)	90	mA
Stall Current Draw	120	mA
Insulation Resistance	1	MOhms
Acoustic Noise (Max)	45	dBA
Housing Material	SPC	-
Acceptable Soldering Methods	Hand Solder	-
Environmental Compliances	RoHS/REACH	-
Weight	1	Grams
Storage Temperature	-40 ~ +80	°C
Operating Temperature	-30 ~ +70	°C

Measurement Methods

Vibration

- ■ Specification of the dummy Jig
  - • Size : 45mm x 105mm x 15mm
  - • Weight : 100gr
  - • Material : Bakelite
  - • Vibration motor should be attached by using a double-sided tape

Acoustic noise

- ■ Ambient noise level : 23dB(A)

- ■ Dummy jig must be suspended by a rubber string to avoid disturbance.

Reliability Testing

Type of Test	Test Specifications
High Temperature Test	96 hours at 80°C
Low Temperature Test	96 hours at -40°C
H2S Corrosion Resistance Test	Concentration: 3 ±1 PPM Test Environment: 40°C, humidity 80% RH Test Duration Time: 240 hours
Temperature Cycle Testing	Temperature: -40°C to +80°C Test Duration: 30 minutes Test Cycles: 15 cycles
Vibration Test	3mm deflection at 1000 cycles per minute, for 10 minutes in each axis (X, Y, Z).
Drop Test	Weight: Set the linear vibration motor to the around 100g (include the linear vibration motor) weight of block. Drop Height: 150cm Floor Material: Steel Direction: ±X, ±Y, ±Z; total 6 faces Number of Times: Each face 3 Times
Load Test	200,000 operating cycles in room temperature Cycle test condition: 2 seconds on, 1 second off

Acceleration, resistance, rated current and noise must meet specifications after allowing the device to rest for 4 hours after test.

Dimensions