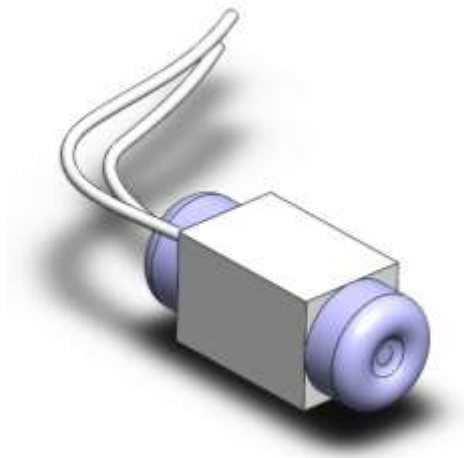


## Haptuator MM1C

MM1C is a new, and smallest version in MMXC family. It designed to fit the growing market requests of small-sized finger tip tactile vibration device. The new product has high acceleration/volume density, comparison wider bandwidth around resonance frequency, meanwhile offers higher acceleration. Therefore, as other products in MMXC series, it provides good efficient vibrotactile. It can be driven as a common loudspeaker and is compatible with most audio amplifiers.



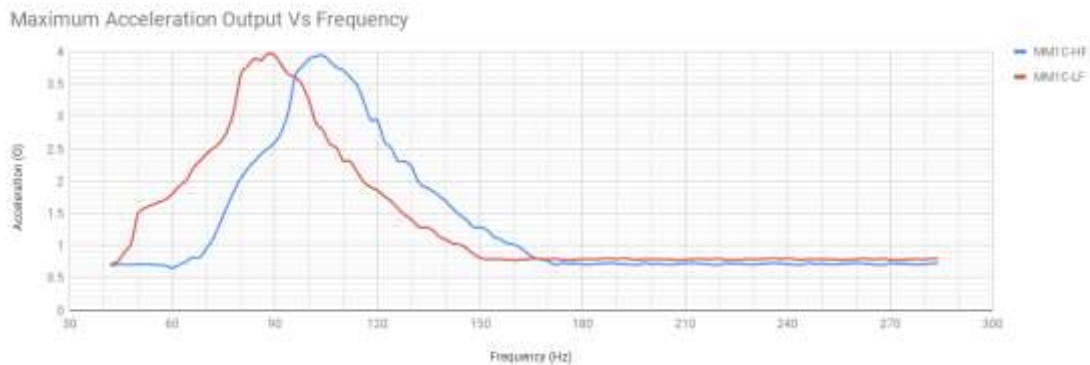
Haptuator MM1C

## Characteristics

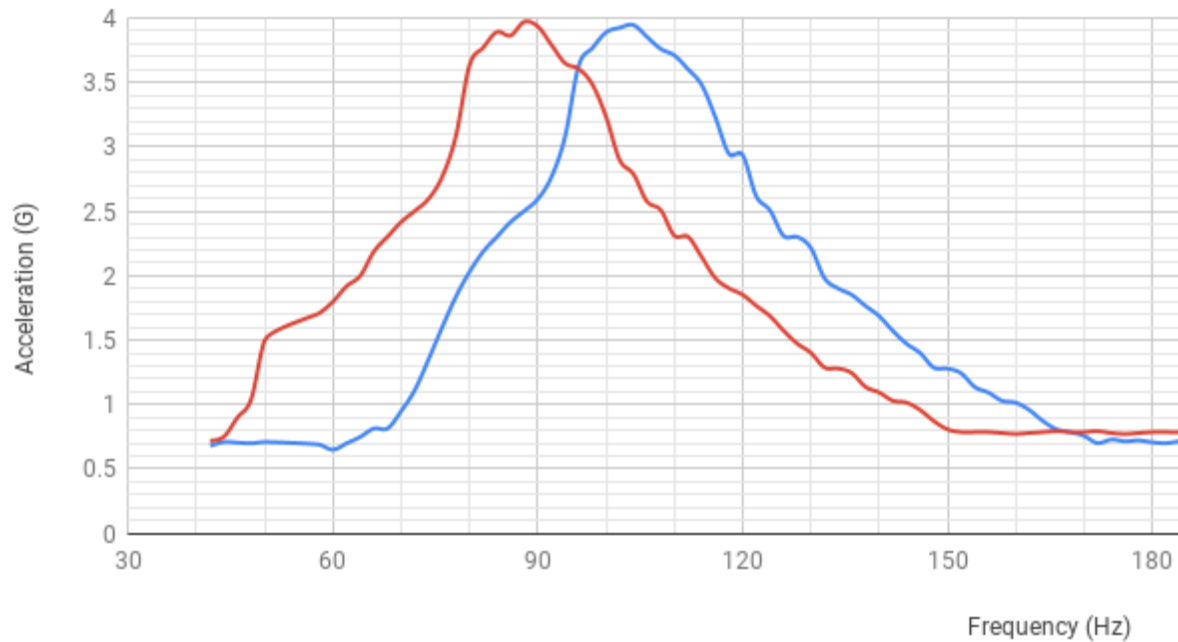
Model	Units	BM1C
Dimensions	mm	23.95x9.5x9.5
Weight	g	5
Resonance frequency	Hz	LF:85; HF:105
Acceleration @ 3V input, @ res. freq.	G	4.0
Rated Bandwidth	Hz	LF: 45-300; HF: 60-300
Typical Impedance	$\Omega$	2.25
Maximum Input Voltage (rms)	Volt	5
Maximum Input Current	Amper	0.5

## Output Acceleration

MM1C Normalized Acceleration at 3v



### Maximum Acceleration Output Vs Frequency



#### MM1C acceleration around resonance

To calculate the output acceleration for a given input voltage of  $V_i$  (rms):

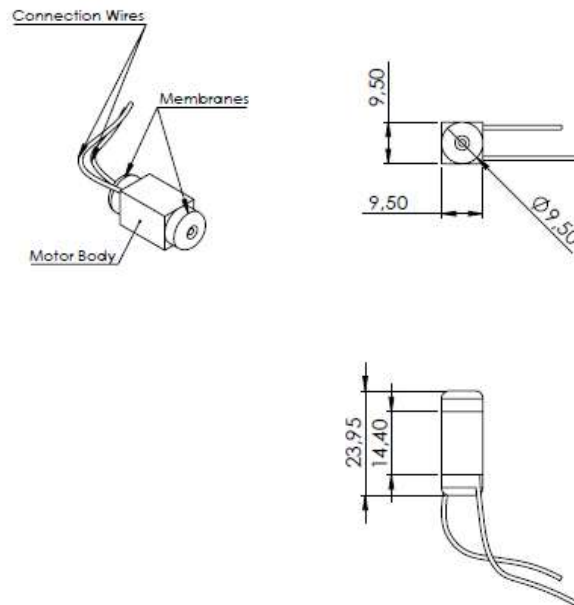
1. For the desired operating frequency, find the normalized acceleration value  $A_n$  from the above figures. For example, at 88 Hz,  $A_n = 4g$ .
2. Perform the following calculation:  $Acceleration(G) = V_i/3 \times A_n$ .

**Notes:**

1. It can be driven as a 2-5  $\Omega$  loudspeaker by most audio amplifiers if the input current and voltage are within the recommended operating conditions. MM1C should be AC-coupled to avoid driving a DC current into the unit.
2. It is not recommended to drive the MM1C under 30Hz: the output acceleration would not be optimal. Driving at a minimum of 10 Hz or above 1000 Hz should not damage the actuator. However, for frequencies above 800 Hz, the signal output becomes audible, hence not as optimal for haptic applications.

**Mechanical Installment and Dimension**

When attach the BMXC to objective, we recommend leave 3mm clearance at both ends of it, for the displacement of axle part. If the unit needs to be fixed to certain dedicated attachments, please use at least one M2 hexagonal headed screw on each end.



MM1C dimensions