

Product Description, Mechanical Drawing

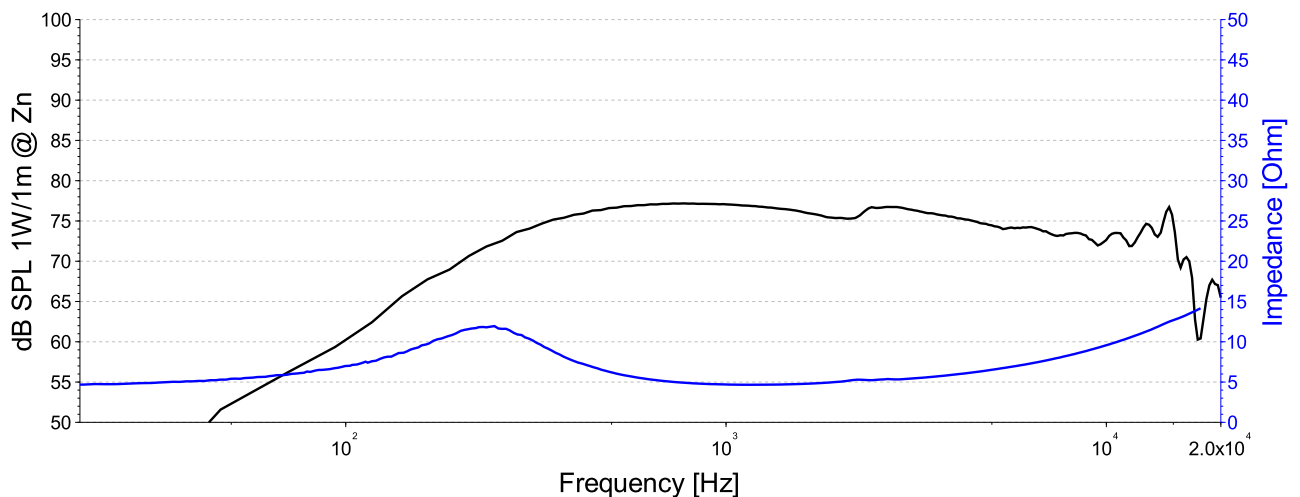
The Twofer™ 19mm is an efficient full bandwidth transducer with the ability to reproduce both high (tweeter) and low (woofer) frequencies from a small diameter (diaphragm diameter=19mm) speaker. The diaphragm of the speaker can communicate through central motor opening to passive radiator, embedded in enclosure to extend loudspeaker system bass performance. Typical applications: pocket-size portable devices, flat panel loudspeaker arrays.



Specifications ¹

Nominal Impedance, Z_n	[Ohm]	6.0	Resonance Frequency, f_s	[Hz]	220
Minimum Impedance, Z_{min}	[Ohm]	4.5	DC Resistance, R_e	[Ohm]	4.4
Long-term maximum power ² , P	[W]	4.0	Inductance, L_e	[mH]	0.1
Nominal Sensitivity ³ , L_{nom}	[dB]	77.5	Moving Mass, M_{ms}	[g]	0.7
Frequency Range (dB SPL -10dB) ⁴	[Hz]	160 – 17000	Suspension Stiffness, K_{ms}	[N/mm]	1.5
Frequency Range (dB SPL +/-3dB) ⁵	[Hz]	300 – 15000	Force Factor, Bl	[N/A]	2.6
Maximum Linear Excursion ⁶ , X_{max10}	[mm]	0.6	Motor Efficiency Factor, $(Bl)^2/R_e$	[N ² /W]	1.6
Maximum Excursion ⁷ , X_{mech}	[mm]	1.7	Mechanical Q factor, Q_{ms}	[-]	1.3
Transducer Height, h	[mm]	9.83	Electrical Q factor, Q_{es}	[-]	0.63
Transducer Diameter, d	[mm]	30.0	Total Q factor, Q_{ts}	[-]	0.42
Transducer Mass, m	[g]	24	Effective Volume, V_{as}	[l]	0.02
Ferrofluid	[-]	Yes	Effective Piston Area, S_D	[cm ²]	4.1

On-Axis Frequency Response ⁸, Impedance



¹ Due to continuing product improvement, the features and the design are subject to change without notice.

² IEC 60268-5:2003 + A1:2007, pink noise $f \geq f_s$, power calculated on nominal impedance, loudspeaker operated in free air.

³ SPL at 1m for 1W @ Z_n based on TS-Parameters

⁴ $f(SPL_{nom} - 10dB)$

⁵ $f(SPL_{nom} + / - 3dB)$

⁶ IEC 62458:2010, harmonic and intermodulation distortion < 10%

⁷ IEC 62458:2010, maximum mechanical voice coil displacement

⁸ Half-space frequency response is based on transducer vibration data