

SPECIFICATIONS

FR0840M01/02 3¼" paper cone fullranges, 4/8 ohm

The 3¼" transducers FR0840M01 (4 ohm) and FR0840M02 (8 ohm) were designed especially for high quality multimedia and lifestyle speakers, where sound reproduction without compromises is required while still keeping size small.

FEATURES

- FEA optimized suspension for perfect symmetry, reducing even order harmonic distortion
- Copper cap on center pole to reduce voice coil inductance and to minimize variations in voice coil inductance as a function of voice coil position
- Rigid paper cone to ensure piston motion even at high levels
- True full range extension to 20 kHz
- Vented polymer chassis for lower air flow speed reducing audible distortion
- Vented voice coil former and magnet center pole for reduced distortion and compression
- Heavy-duty black fiber glass voice coil bobbin to reduce mechanical losses resulting in better dynamic performance and low-level details
- Large motor with 22 mm voice coil diameter for better control and power handling
- Low-loss suspension (high Qm) for better reproduction of details and dynamics
- Black motor parts for better heat transfer to the surrounding air
- New damper (spider) woven of a mix of polymers and natural fibers for improved durability
- Gold plated terminals to ensure long-term trouble free connection
- Delivered with foam gasket attached for hassle-free mounting and secure cabinet sealing



NOMINAL SPECIFICATIONS

Notes	Parameter	FR0840M01		FR0840M02		Unit
		Before burn-in	After burn-in	Before burn-in	After burn-in	
	Nominal size	3¼		3¼		[inch.]
	Nominal impedance	4		8		[ohm]
	Recommended max. upper frequency limit	full range		full range		[kHz]
1, 4	Sensitivity, 2.83V/1m (average SPL in range 200 - 20,000 Hz)	88		85		[dB]
2, 4	Power handling, short term, IEC 268-5, no additional filtering	70		70		[W]
2, 4	Power handling, long term, IEC 268-5, no additional filtering	25		25		[W]
2, 4	Power handling, continuous, IEC 268-5, no additional filtering	10		10		[W]
	Effective radiating area, Sd	36		36		[cm ²]
3, 4, 6	Resonance frequency (free air, no baffle), F _s	115		117		[Hz]
	Moving mass, incl. air (free air, no baffle), M _{ms}	3.25		3.15		[g]
3, 4	Force factor, B _{xl}	2.75		2.40		[N/A]
3, 4, 6	Suspension compliance, C _{ms}	0.59		0.59		[mm/N]
3, 4, 6	Equivalent air volume, V _{as}	1.08		1.08		[lit.]
3, 4, 6	Mechanical resistance, R _{ms}	0.25		0.25		[Ns/m]
3, 4, 6	Mechanical Q, Q _{ms}	9.4		9.2		[-]
3, 4, 6	Electrical Q, Q _{es}	1.02		1.20		[-]
3, 4, 6	Total Q, Q _{ts}	0.92		1.06		[-]
4	Voice coil resistance, R _{DC}	3.3		6.0		[ohm]
5	Voice coil inductance, L _e (measured at 10 kHz)	0.068		0.11		[mH]
	Voice coil inside diameter	22		22		[mm]
	Voice coil winding height	7.5		7.5		[mm]
	Air gap height	3		3		[mm]
	Theoretical linear motor stroke, X _{max}	±2.25		±2.25		[mm]
	Magnet weight					[g]
	Total unit net weight excl. packaging					[kg]
3, 4, 5	K _{rm}	8.5		15		[mohm]
3, 4, 5	E _{rm}	0.49		0.47		[-]
3, 4, 5	K _{xm}	16		27		[mH]
3, 4, 5	E _{xm}	0.43		0.42		[-]

Note 1 Measured in infinite baffle.

Note 2 Tested in free air (no cabinet).

Note 3 Measured using a semi-constant current source, nominal level 2 mA.

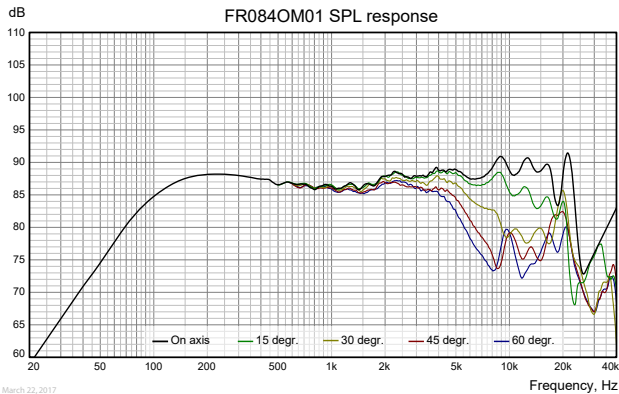
Note 4 Measured at 25 deg. C

Note 5 It is generally a rough simplification to assume that loudspeaker transducer voice coils exhibit the characteristics of an inductor. Instead it is a far more accurate approach to use the more advanced model often referred to as the "Wright empirical model", also used in LEAP-4 as the TSL model (www.linearx.com), involving parameters K_{rm}, E_{rm}, K_{xm}, and E_{xm}. This more accurate transducer model is described in a technical paper [here at our web site](#).


Note 6 After burn-in specifications are measured 12 hours after exciting the transducer by a 20 Hz sine wave for 2 hours at level 4.0/5.65 VRMS (4/8 ohm version). The unit is not burned in before shipping.

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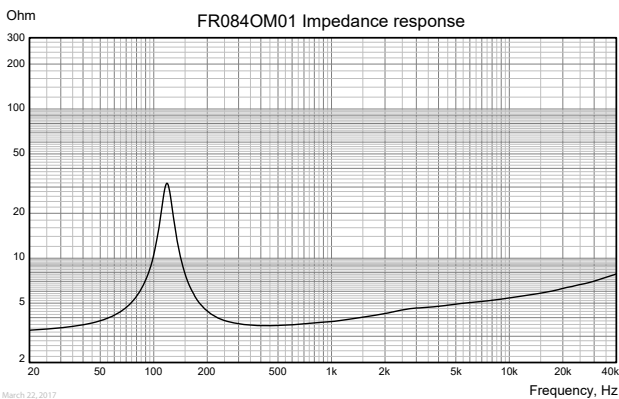
FR084OM01/02 3¼" paper cone fullranges, 4/8 ohm




Important!
Please observe that graphs on the left side of this page and the below text files for download are actual measurements of the drivers measured in infinite baffle and without any enclosure. Measuring the drivers in a finite baffle (like the baffle of most speaker cabinets) and in any size of enclosure will lead to different response curves.

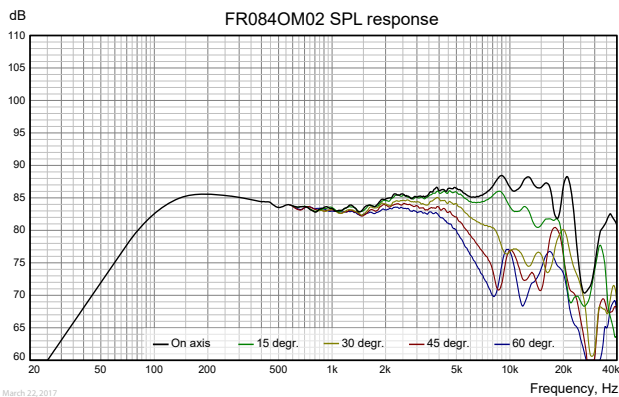
 Download FR084OM01 on-axis SPL response as .txt file


Measuring conditions, SPL
Driver mounting: Flush in infinite baffle, back side open (no cabinet)
Microphone distance: 1.0 m
Input signal: 2.83 V_{RMS} stepped sine wave
Smoothing: 1/6 oct.



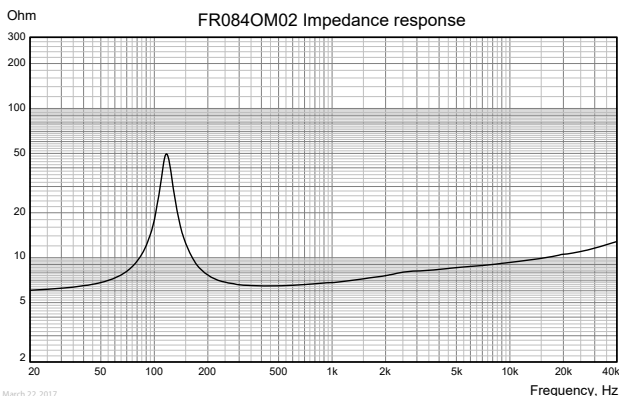
 Download FR084OM01 Impedance response as .txt file


Measuring conditions, impedance
Driver mounting: Free air, no baffle, back side open (no cabinet)
Input signal: Stepped sine wave, semi-current-drive, nominal current 2 mA
Smoothing: None



 Download FR084OM02 on-axis SPL response as .txt file

Measuring conditions, SPL
Driver mounting: Flush in infinite baffle, back side open (no cabinet)
Microphone distance: 1.0 m
Input signal: 2.83 V_{RMS} stepped sine wave
Smoothing: 1/6 oct.



 Download FR084OM02 Impedance response as .txt file

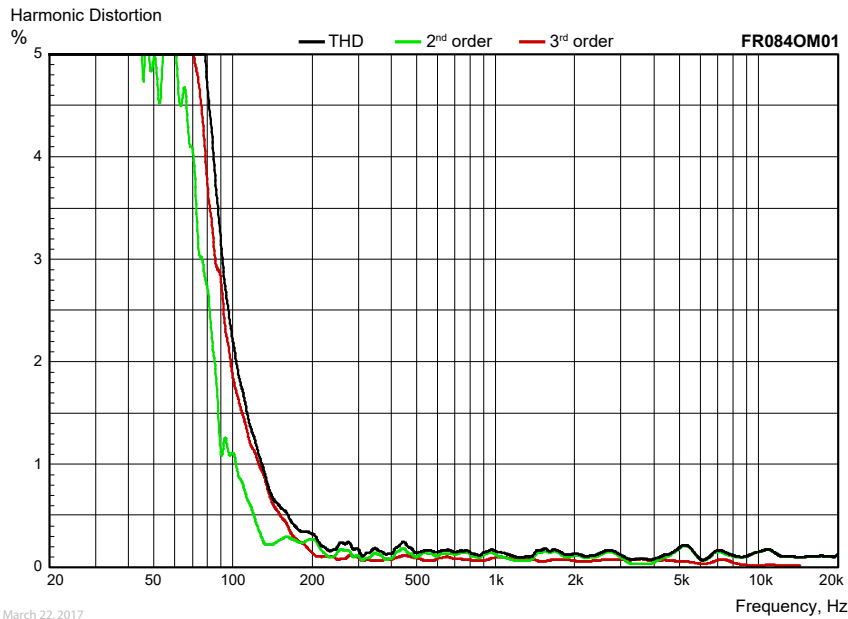
Measuring conditions, impedance
Driver mounting: Free air, no baffle, back side open (no cabinet)
Input signal: Stepped sine wave, semi-current-drive, nominal current 2 mA
Smoothing: None

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HARMONIC DISTORTION



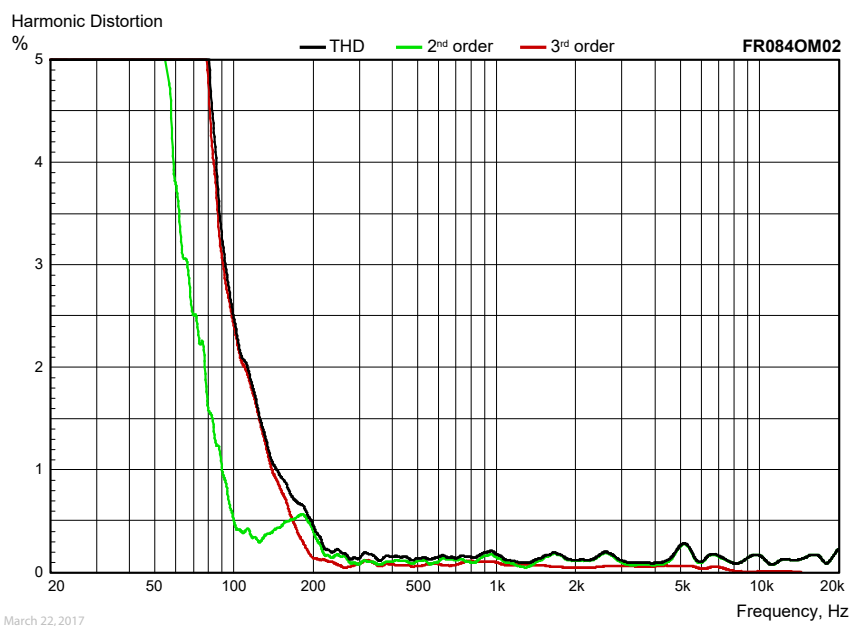
Measuring conditions, Harmonic Distortion

Driver mounting: In sealed, heavily stuffed enclosure, internal volume 1.0 lit., baffle dimensions 112 mm x 112 mm

Microphone distance: 0.5 m

Input signal: Stepped sine wave, 2.0 VRMS (FR084OM01) / 2.83 VRMS (FR084OM02)

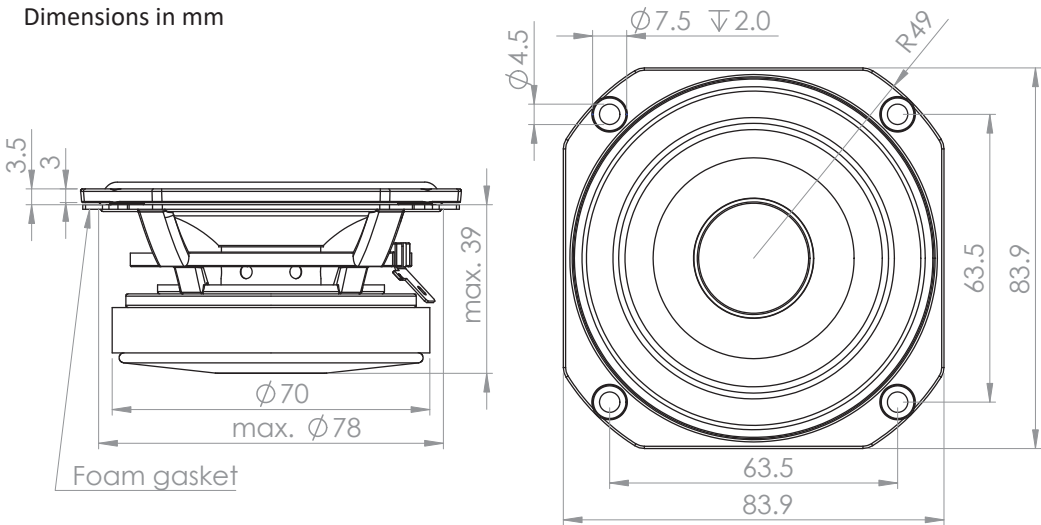
Smoothing: 1/6 oct.



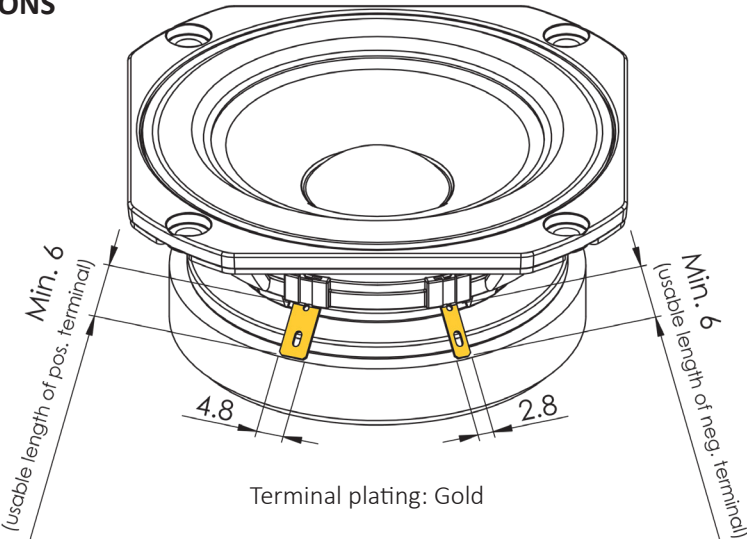
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OUTLINE DRAWING (nominal dimensions)



CONNECTIONS



PACKAGING AND ORDERING INFORMATION

Part no. FR084OM01-01	4 ohm version, packed in bulk (industrial) packaging
Part no. FR084OM02-01	8 ohm version, packed in bulk (industrial) packaging

Latest update: March 1, 2024