Legatia™ L3

The Legatia™ L3 is a very unique driver, satisfying the need in the high-end car audio community for a high-end, small diameter, wide-bandwidth midrange driver that can be mounted virtually anywhere in the mobile environment. The L3 has won numerous national- and world-championships in its short tenure on the market, and has already established itself as the best small-diameter midrange on the planet. And with the size of the L3, you can now put high-quality midrange ANYWHERE in your car!

The Legatia L3 has an outstanding extended frequency response; the usable frequency range of this driver exceeds six full octaves. With proper filtering, installation techniques, and tuning, this driver will effectively reproduce music tones from as low as 140 Hz to as high as 10,000 Hz at comfortable listening levels. Literally all that is needed to compliment this driver is a pair of small diameter soft dome tweeters, such as the Legatia L1V2 or Legatia L1 Pro, and a capable midbass driver, such as the Legatia L6 or Legatia L8, for the ultimate three-way front stage system.

Figure 1: L3 midrange, shown larger than actual size for detail

Legatia L3 in more detail

The Legatia L3 is a 74mm (2.91-inch) diameter wide-bandwidth midrange; the cone is an untreated pressed paper with extremely low moving mass that provides for very good, extended linear response and exceptional transient response. The cone design offers a wide dispersion pattern to make for flexible installation and speaker location, with multiple options for both on- and off-axis use, and the phase linearity of the wide-bandwidth design ensures coherent imaging and staging cues in the car audiophile system. The “point source” design ensures stable stereo imaging across the fundamental frequencies which define image placement and definition. The paper cone is critical to tame unwanted cone modes, resonances, and classic "cone breakup" associated with composite and other “hard” cones, but still be rigid enough for upper midbass and lower midrange authority.

The paper cone is mated with an untreated pressed paper dust cup to ensure desired operation into the upper midrange and lower/mid treble frequencies. Rounding out the face of the driver is an inverted high-loss rubber surround that, in concert with the spider, provides the compliance needed

for this small-format midrange to play upper midbass and lower midrange frequencies. You'll also know a Hybrid Audio midrange and midbass design by its inverted surround; this design feature allows for the use of a smaller height grille, and more flexibility in mounting options.

The motor of the design is conventional dynamic, utilizing a 1-inch voice coil, ferrite magnet, and a T-yoke to improve the speaker's power handling.

Figure 2: L3 midrange T-yoke

The basket is a high-quality cast aluminum design, and contains a 93mm wide flange providing for the mounting of the driver via four screw holes; the use of 3mm cap head screws is ideal. The overall dimension of the L3 is very amenable for use in the car audio environment, boasting a depth of just 46mm for the ultimate in mounting flexibility. The terminations are standard spade terminals which have been gold plated to optimize contact and reduce resistance, and give the end user flexibility in low-temperature soldered options and crimp terminations.

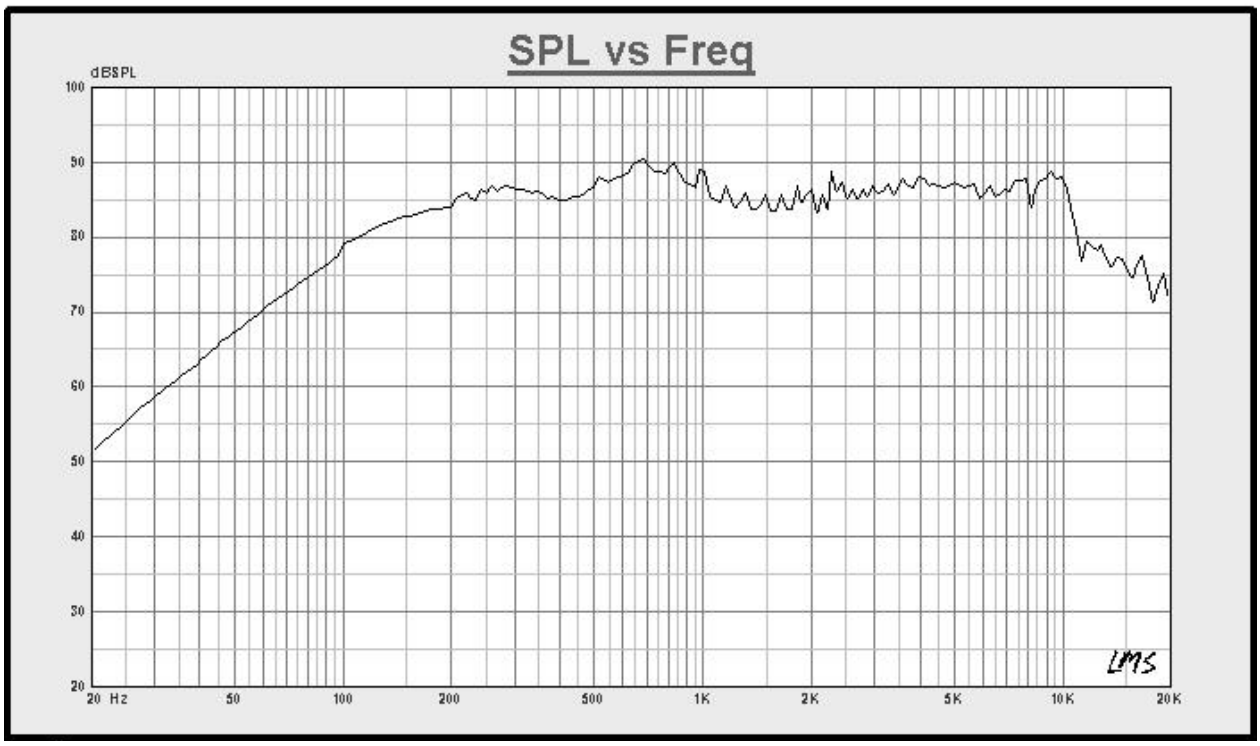
Mechanical and electrical parameters are amenable to a variety of different installations and speaker locations. The high Qts and low Mms of the driver will allow it to be used in a purely infinite baffle configuration. Hybrid Audio Technologies and select Team Hybrids competitors have also had great success using this driver in a dipole configuration, a.k.a. completely "free-air", in larger vented enclosures, arrays, and in folded horns and transmission lines. It is important to note that sealed enclosures are not required; in fact, the L3 works optimally in areas where a large volume of area is available, such as in kick panel, floor boards, or foot wells, underneath dashboards, etc. You do not have to build enclosures for the L3 to perform as intended; a simple, yet solid baffle attached to the car’s chassis with available airspace at the rear of the baffle is all that is required; this driver quickly solves the universal installation quandary of having to build enclosures for car stereo speakers. Finally, the size of the L3 allows it to be mounted in locations previously unheard of with other speakers. This driver can be mounted on a-pillars, in dashboards or kick panels, or anywhere your imagination takes you, as long as there is adequate airspace behind the driver to allow it to maintain proper damping and acoustic suspension. For more information, please download the Legatia L3 User’s Manual.

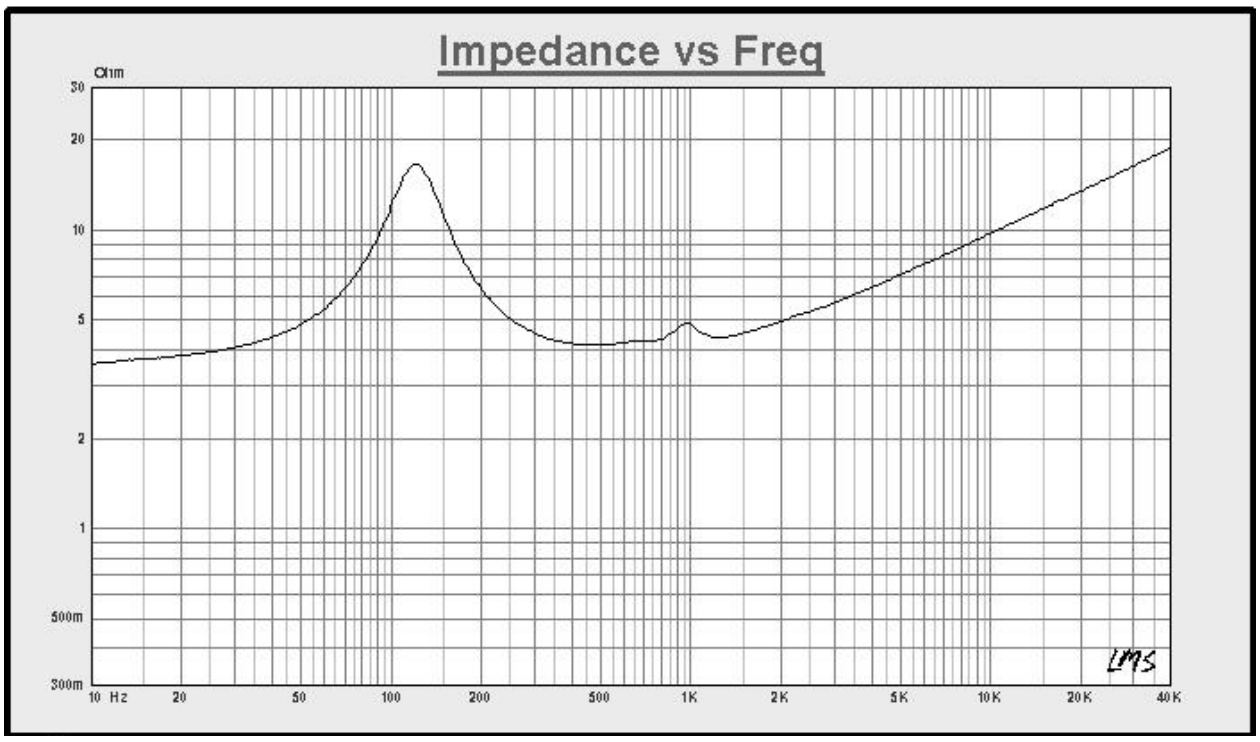
Legatia L3 Thiele-Small Parameters

Overall Diameter	ϕ93 mm (3.7-inch)
Mounting Depth	46 mm
Bolt Circle Diameter	ϕ85 mm
Mounting Hole	ϕ74 mm
Recommended Minimum Crossover Frequency	200 Hz at 24 dB/octave highpass
P_{nom} Rated Power Input (No Crossover)	25 watts (AES Standard)
P_{max} Rated Power Input (No Crossover)	50 watts (AES Standard)
P_{max} (With Recommended Minimum Crossover)	125 watts
Frequency Range	129 Hz - 10,000 Hz, +/- 3 dB
Sensitivity	85 dB at 1 watt/1meter
Mms	2.274 g
Cms	640 um/N
BL	2.961 T*m
Voice Coil Diameter	25.5 mm (1-inch)
Impedance	4 Ω
DC Resistance	3.4 Ω
Fs	129 Hz (free air)
Qms	3.468
Qes	0.717
Qts	0.594
Xmax	2.6 mm (one way)
Vas	0.63 L
Sd	2733 mm^2

Product Parameters and Specifications
Model: Legatia L3 Midrange

Legatia™ L3 Impedance and SPL Verses Frequency Plots





Note: specifications are subject to change without notice