



LA2902V

Four-Channel High-Output Line Amplifier
for Car Audio Systems

Overview

The LA2902V is a high output level 4-channel line amplifier designed for car audio systems. This line amplifier provides an output signal with a significantly higher amplitude than the output signal provided by earlier preamplifiers. This higher amplitude significantly improves the signal-to-noise ratio in the connection from the main unit to the external power amplifier, and results in improved power amplifier performance.

The LA2902V also significantly reduces the required mounting area by cutting in half the number of external capacitors required for boosting the signal-system supply voltage and is available in SSOP miniature package.

Functions and Features

- High output level (5.3 Vrms)
- Low output noise voltage (17 μ V)
- Low total harmonic distortion (0.004%)
- High ripple rejection ratio (65 dB)
- Fewer external parts required
- Excellent audio fidelity

Specifications

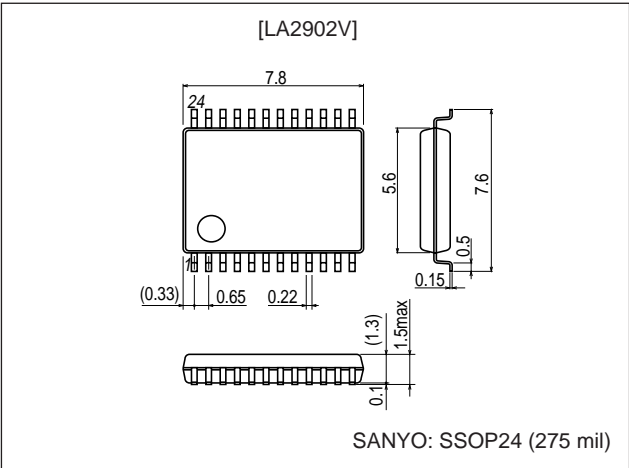
Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	VCC max	With no input signal	13	V
Allowable power dissipation	Pd max	Ta \leq 85°C, Mounted on a printed circuit board (114.3 \times 76.1 \times 1.6 mm ³ , glass epoxy)	400	mW
Operating temperature	Topr		-40 to +85	°C
Storage temperature	Tstg		-40 to +150	°C

Package Dimensions

unit: mm

3175B-SSOP24 (275 mil)



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LA2902V

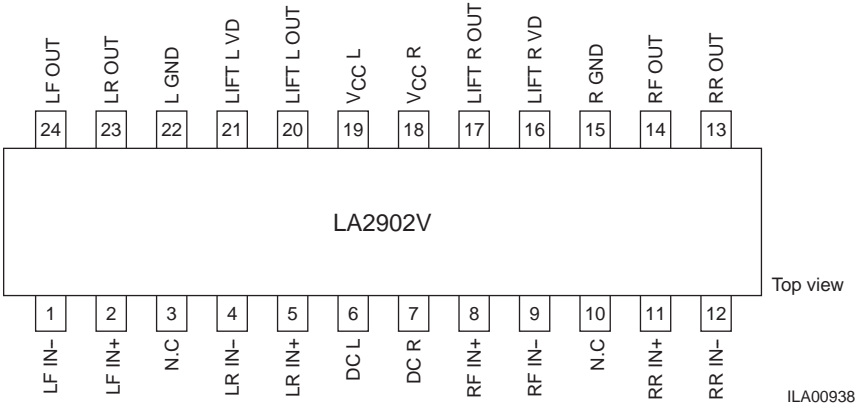
Recommended Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended operating voltage	VCC		9	V
Allowable operating supply voltage range	VCCOP		6 to 12	V
Recommended load resistance	RL _{OP}		10	kΩ

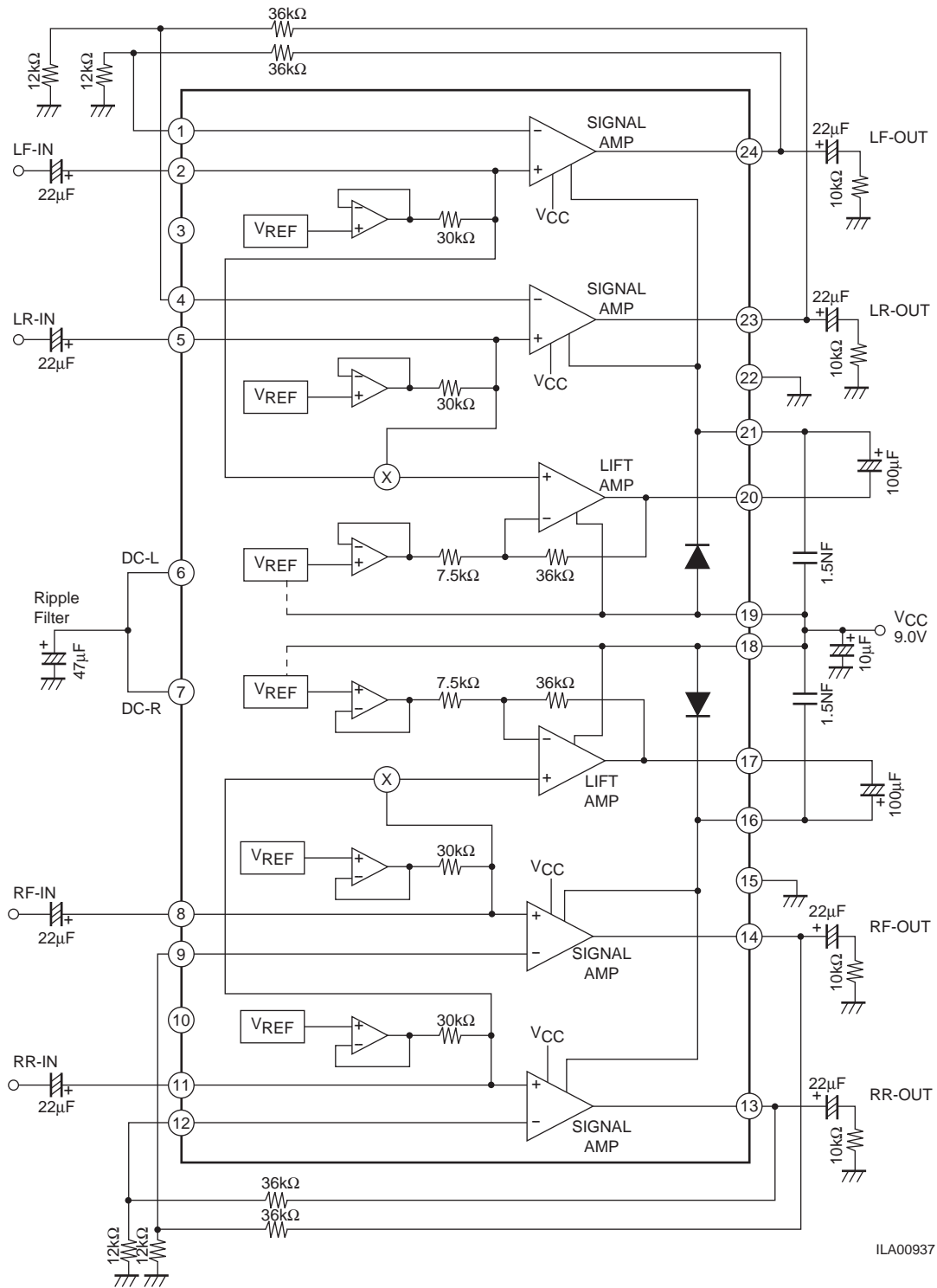
Electrical Characteristics at Ta = 25°C, VCC = 9 V, RL = 10 kΩ, f = 1 kHz, Rg = 600Ω

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent current	I _{CCO}	Rg = 0	10	16	22	mA
Voltage gain	V _G	V _O = 0 dBm	11.5	12	12.5	dB
Output voltage	V _O	THD = 0.1%	5.0	5.3		V _{rms}
Total harmonic distortion	THD	V _O = 3 V _{rms} , LPF = 80 kHz		0.004	0.01	%
Output noise voltage	V _{NO}	Rg = 0, BPF = 20 Hz to 20 kHz		17	24	μV _{rms}
Ripple rejection ratio	SVRR	Rg = 0, fr = 100 Hz, Vr = 100 mV _{rms} , BPF = 20 Hz to 20 kHz	55	65		dB
Channel separation	CH _{sep}	Rg = 10 kΩ, V _O = 1 V _{rms}	60	70		dB
Input resistance	R _i		21	30	39	kΩ

Pin Assignment

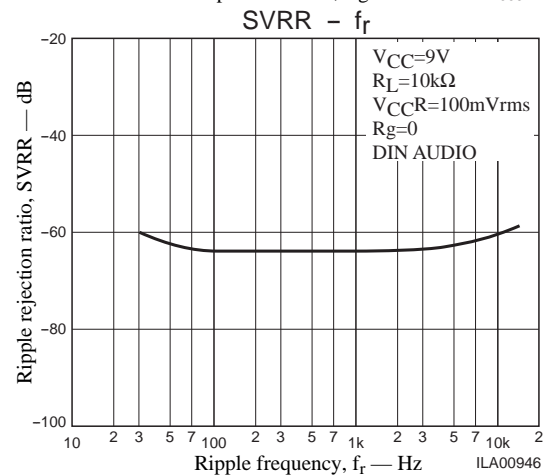
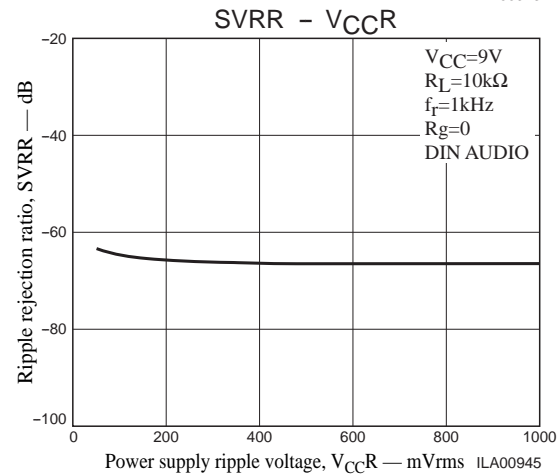
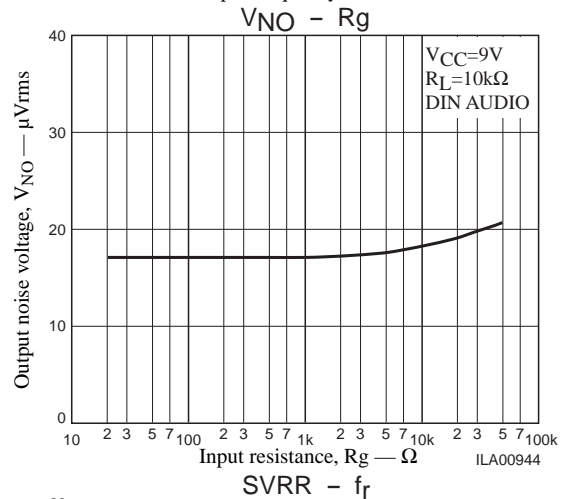
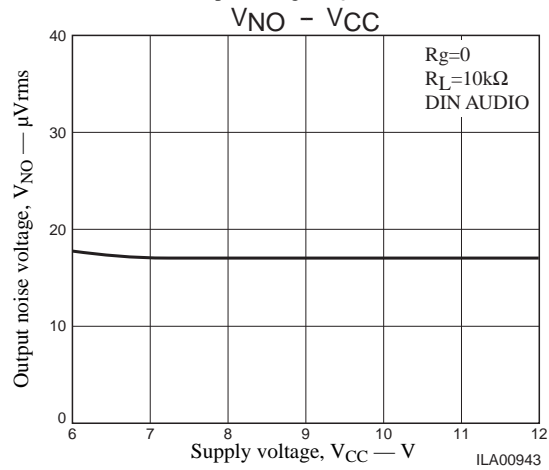
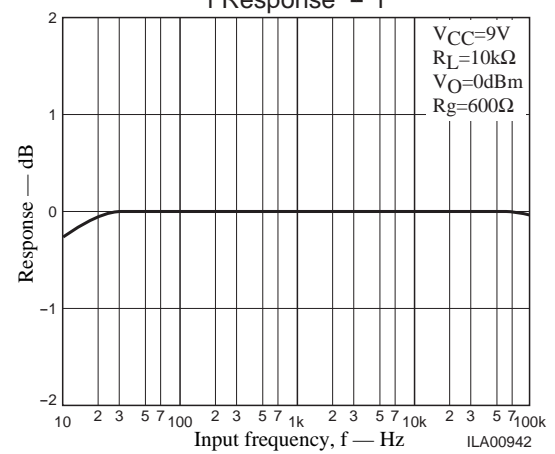
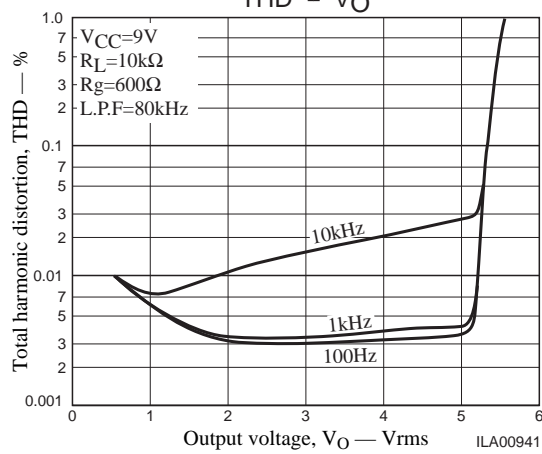
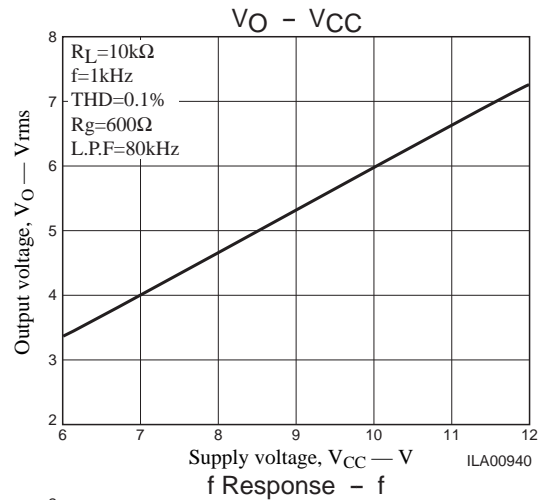
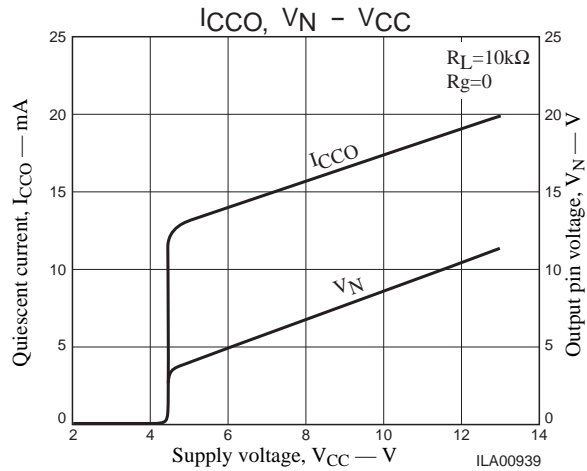


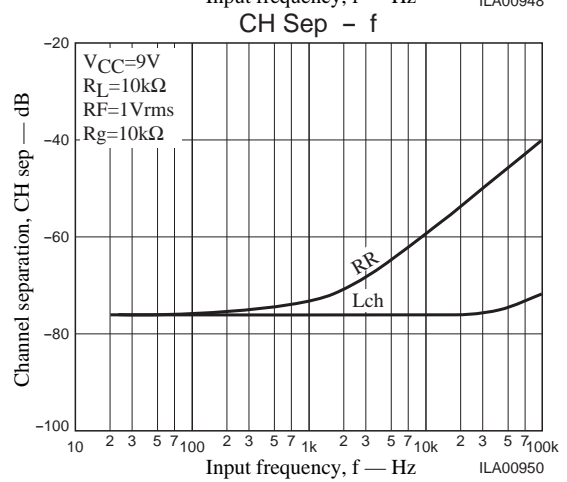
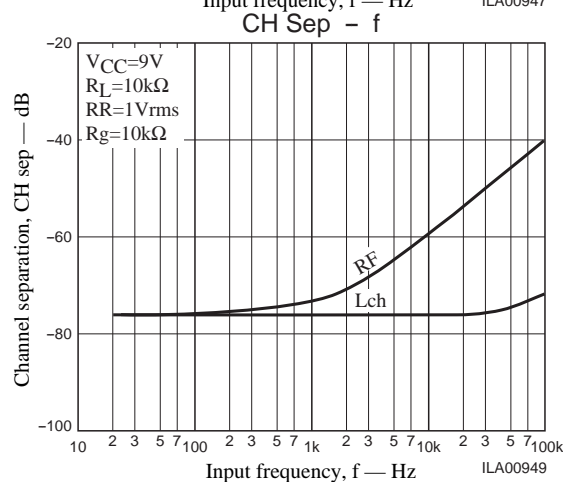
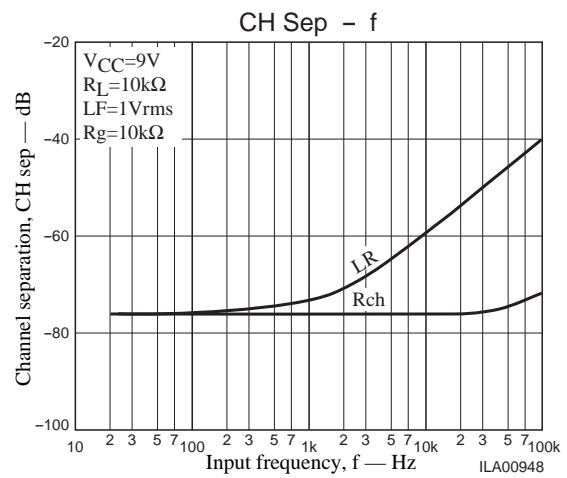
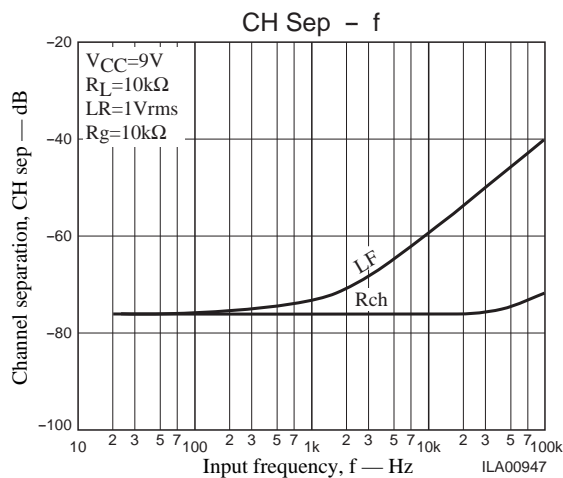
Sample Application Circuit and Block Diagram



ILA00937

Note: We recommend using resistors with tolerances of 1% or better for the 12 kΩ and 36 kΩ feedback resistors.





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