

**SANYO Semiconductors****DATA SHEET****LA2902V**

Monolithic Linear IC

For Car Audio Systems

4-Channel High-Output Line Amplifier**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

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

Specifications**Maximum Ratings** at Ta = 25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|-----------------------------|---------------------|---|-------------|------|
| Maximum supply voltage | V _{CC} max | With no input signal | 13 | V |
| Allowable power dissipation | Pd max | Ta \leq 85°C, Mounted on the specified board. | 400 | mW |
| Operating temperature | Topr | | -40 to +85 | °C |
| Storage temperature | Tstg | | -40 to +150 | °C |

* Specified board: 114.3mm \times 76.1mm \times 1.6mm, glass epoxy board.

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Recommended Operating Conditions at Ta = 25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|--|--------------------|------------|---------|------|
| Recommended operating voltage | V _{CC} | | 9 | V |
| Allowable operating supply voltage range | V _{CC op} | | 6 to 12 | V |
| Recommended load resistance | R _{L op} | | 10 | kΩ |

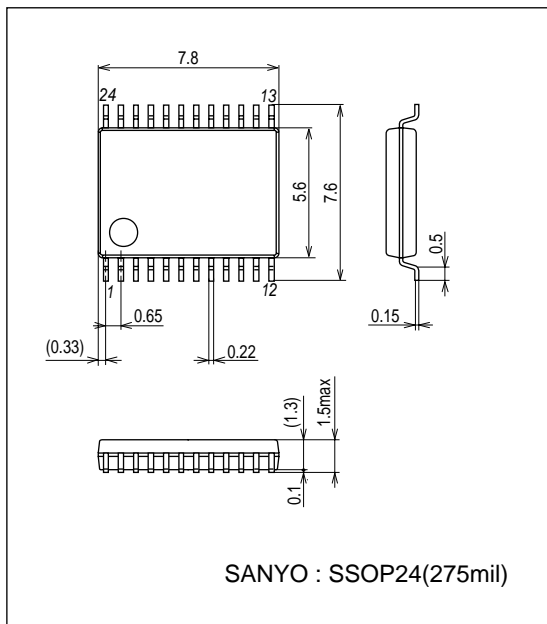
Electrical Characteristics at Ta = 25°C, V_{CC} = 9V, R_L = 10kΩ, f = 1kHz, R_g = 600Ω

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

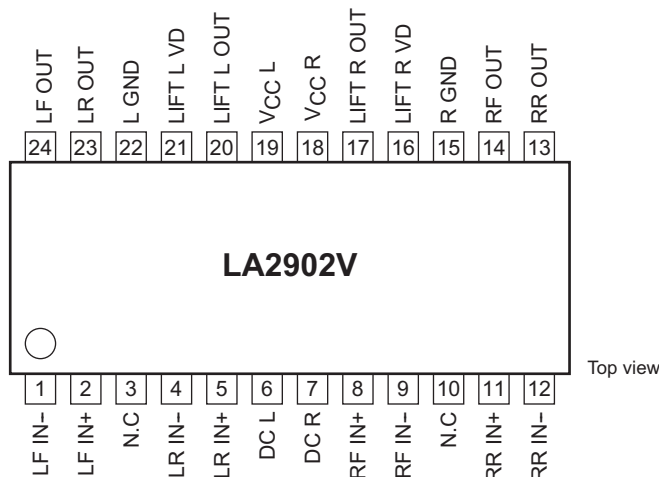
Package Dimensions

unit : mm (typ)

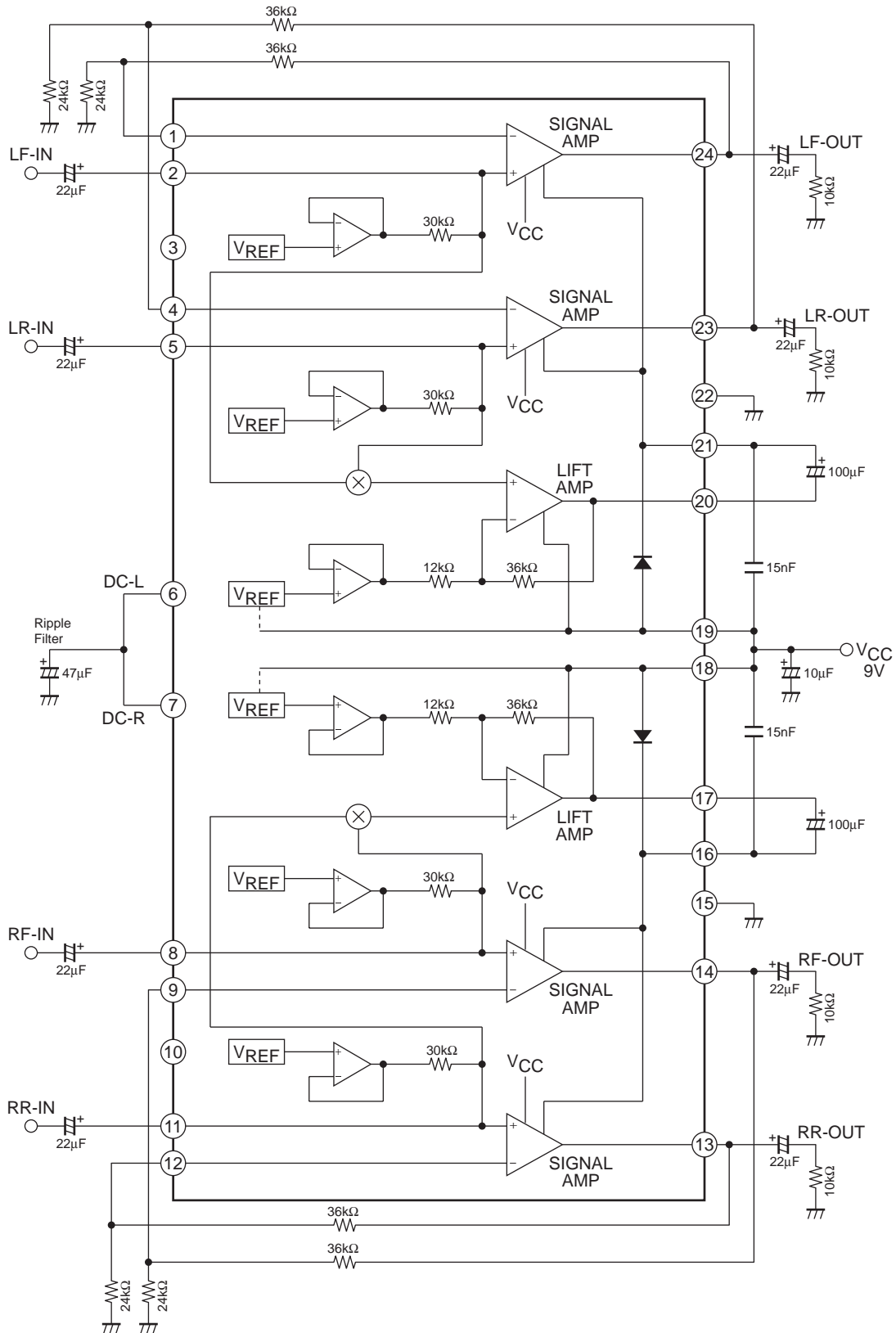
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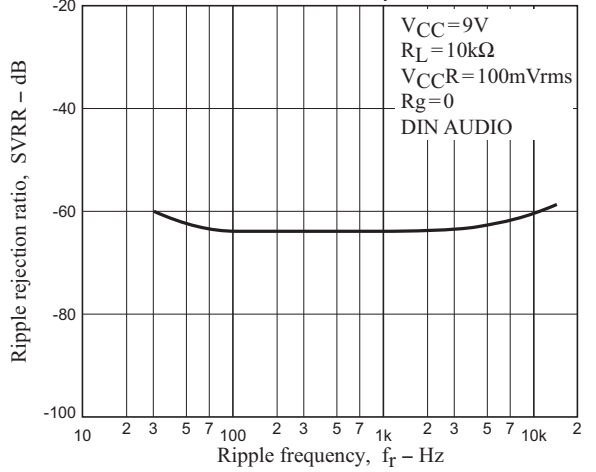
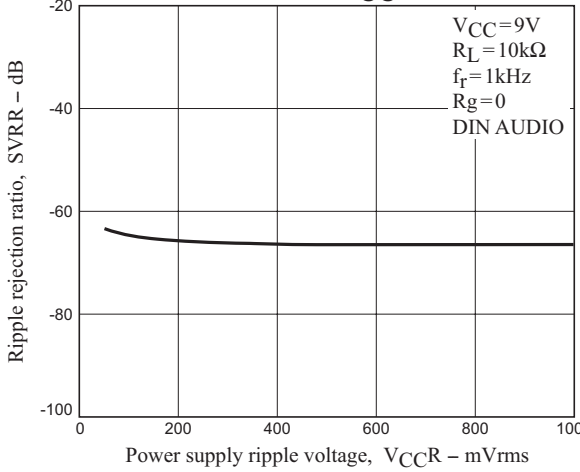
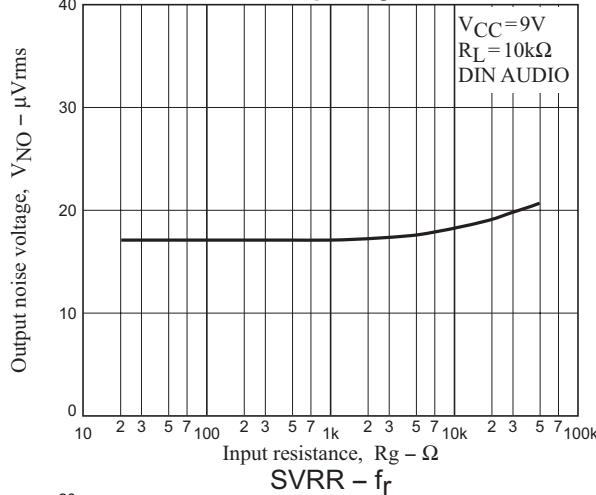
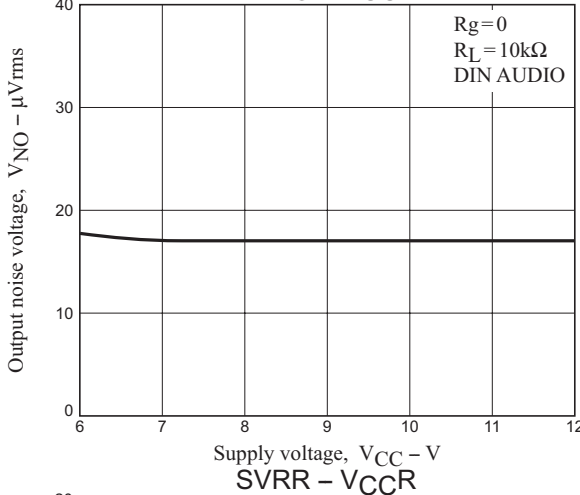
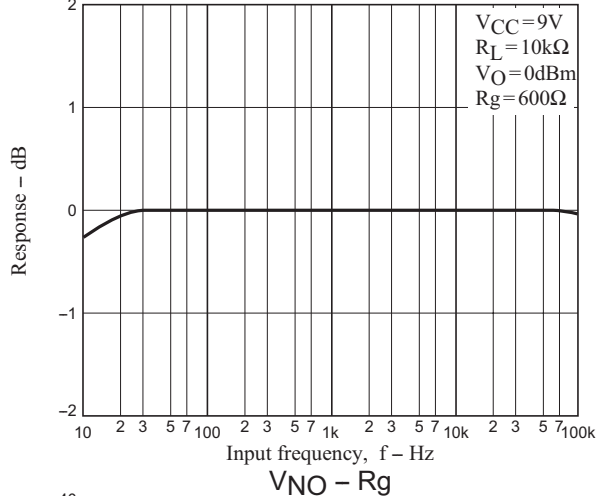
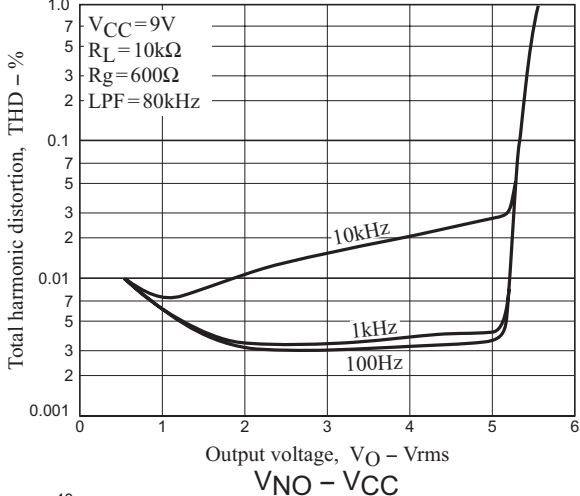
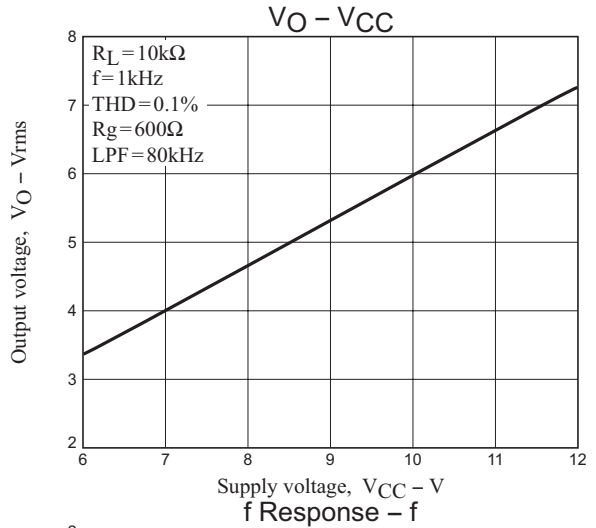
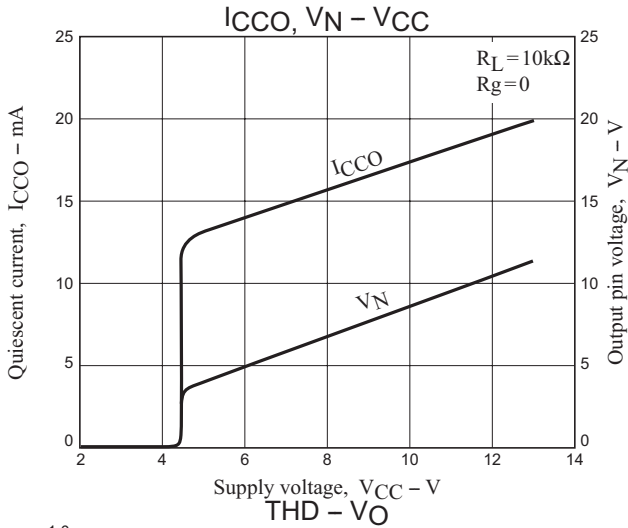
Pin Assignment

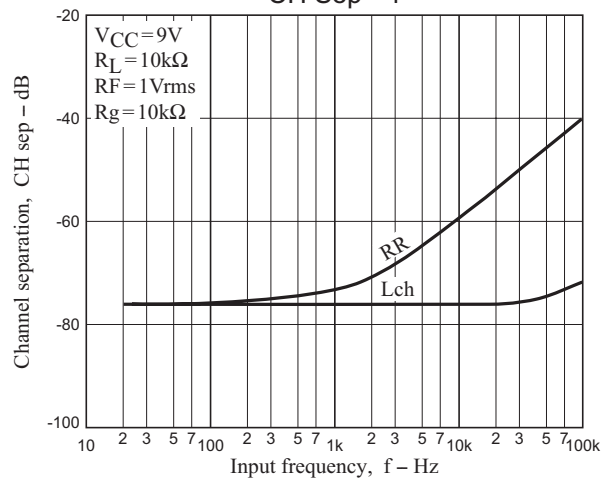
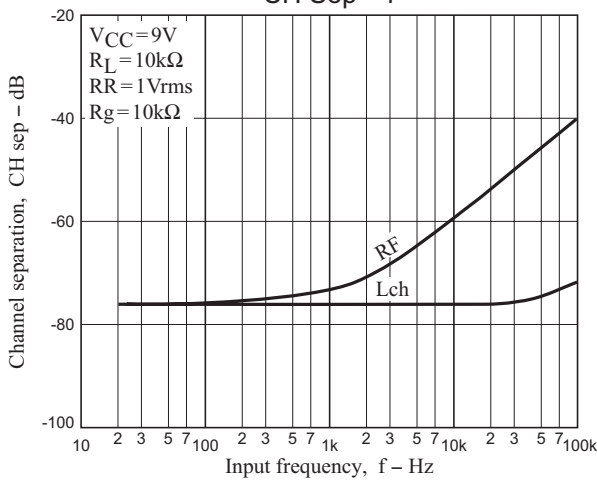
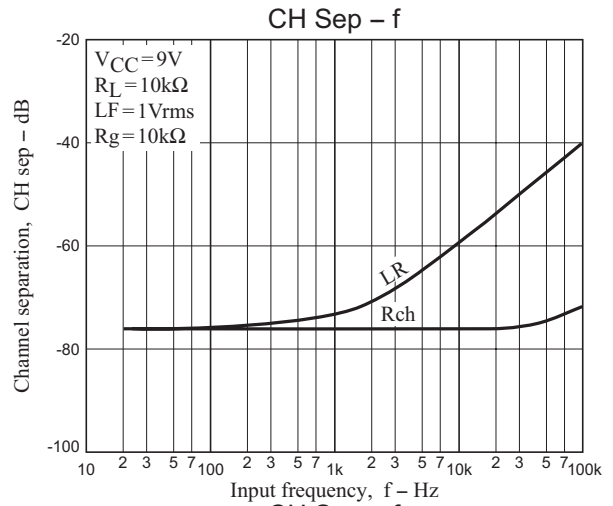
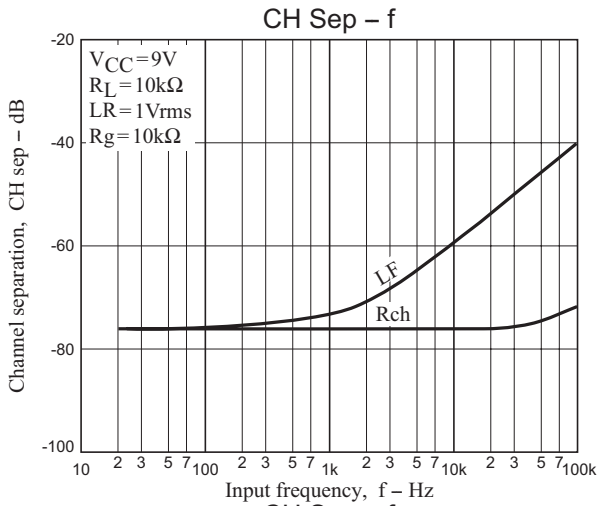


Block Diagram



Note: We recommend using resistors with tolerances of 1% or better for the 24kΩ and 36kΩ feedback resistors.





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