



LA2900M

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

Overview

The LA2900M is a 2-channel high-output line amplifier IC developed for use in car audio systems. It can provide significant improvements in the signal-to-noise ratio when used to drive an external power amplifier due to its significantly increased output voltage as compared to that of earlier preamplifiers.

The high output of the LA2900M allows it to achieve a high signal-to-noise ratio and excellent fidelity in audio systems in which the main unit is connected to an external amplifier, and can improve the performance of the power amplifier in such systems.

Functions and Features

- High output level (5.3 V rms)
- Low output noise voltage (12 μ V)
- Low total harmonic distortion (0.003%)
- High ripple rejection ratio (70 dB)
- Excellent audio fidelity

Specifications

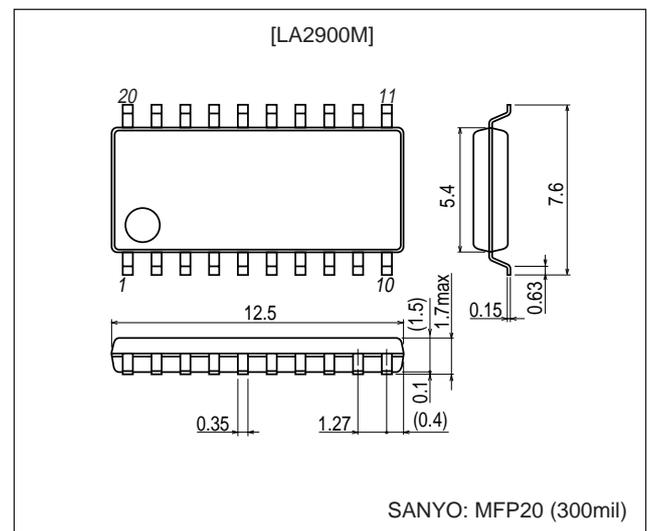
Maximum Ratings at $T_a = 25^\circ\text{C}$

| Parameter | Symbol | Conditions | Ratings | Unit |
|-----------------------------|----------------------|---|-------------|------------------|
| Maximum supply voltage | $V_{CC \text{ max}}$ | With no input signal | 12 | V |
| Allowable power dissipation | $P_d \text{ max}$ | $T_a = 85^\circ\text{C}$, Mounted on a printed circuit board (114.3 \times 76.1 \times 1.6 mm ³ , glass epoxy) | 400 | mW |
| Operating temperature | T_{opr} | | -40 to +85 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | | -40 to +150 | $^\circ\text{C}$ |

Package Dimensions

unit: mm

3036C-MFP20



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Recommended Operating Conditions at $T_a = 25^\circ\text{C}$

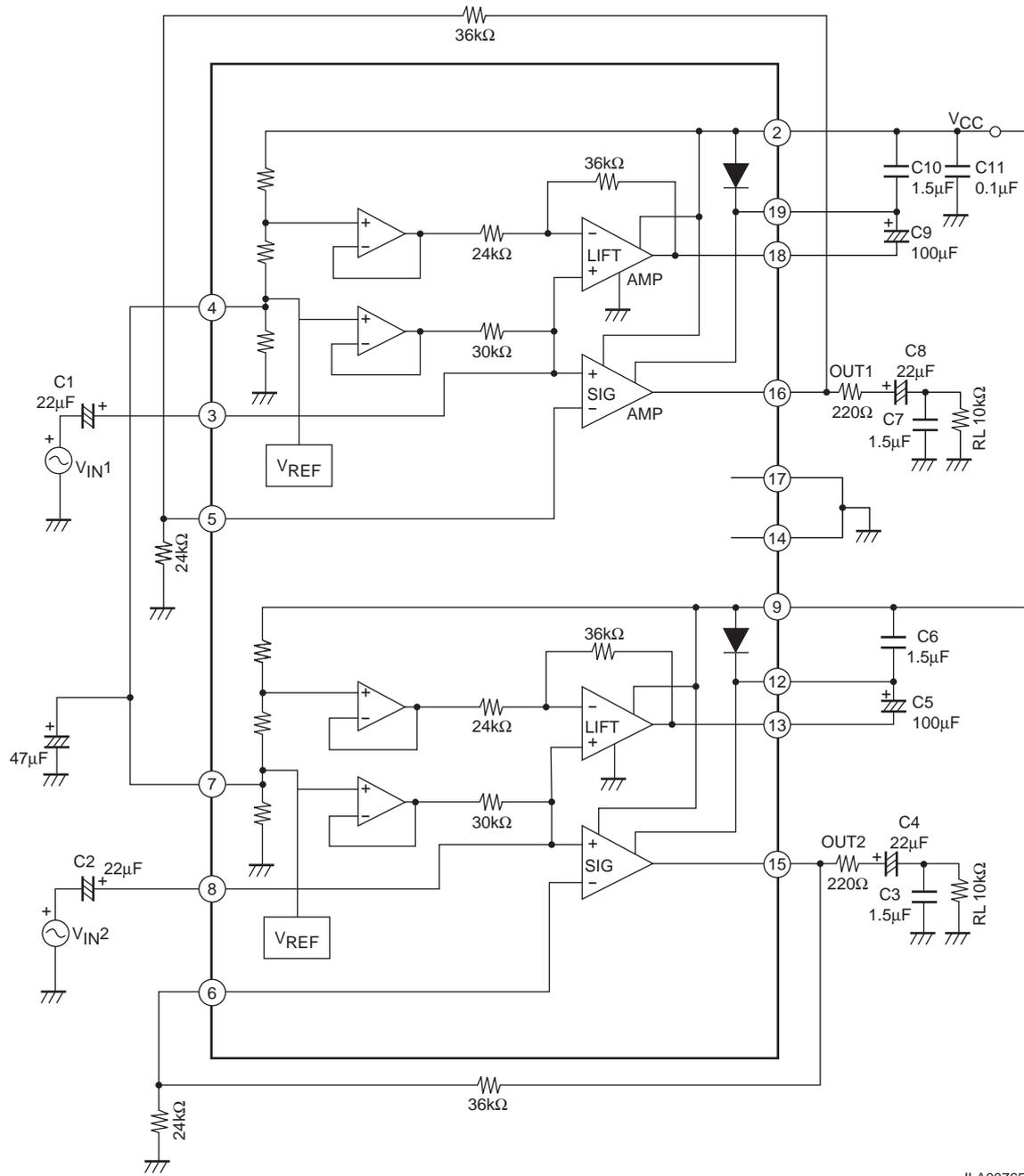
| Parameter | Symbol | Conditions | Ratings | Unit |
|--|------------|------------|---------|-----------|
| Recommended operating voltage | V_{CC} | | 9 | V |
| Allowable operating supply voltage range | V_{CCOP} | | 6 to 12 | V |
| Recommended load resistance | R_{LOP} | | 10 | $k\Omega$ |

Electrical Characteristics at $T_a = 25^\circ\text{C}$, $V_{CC} = 9\text{ V}$, $R_L = 10\text{ k}\Omega$, $f = 1\text{ kHz}$, $R_g = 600\Omega$

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---------------------------|------------|---|---------|-------|------|---------------------|
| | | | min | typ | max | |
| Quiescent current | I_{CCO} | $R_g = 0$ | 7 | 11 | 15 | mA |
| Voltage gain | V_G | $V_O = 0\text{ dBm}$ | 7.5 | 8 | 8.5 | dB |
| Output voltage | V_O | THD = 0.1% | 5.0 | 5.3 | | V _{rms} |
| Total harmonic distortion | THD | $V_O = 3\text{ V}$, LPF = 80 kHz | | 0.003 | 0.01 | % |
| Output noise voltage | V_{NO} | $R_g = 0$, BPF = 20 Hz to 20 kHz | | 12 | 17 | μV_{rms} |
| Ripple rejection ratio | SVRR | $R_g = 0$, $f_R = 1\text{ kHz}$, $V_{CCR} = 100\text{ mV}$, BPF = 20 Hz to 20 kHz | 60 | 70 | | dB |
| Channel separation | CH_{sep} | $R_g = 10\text{ k}\Omega$, $V_O = 1\text{ V}_{rms}$ | 60 | 70 | | dB |
| Input resistance | R_i | | 20 | 30 | 39 | $k\Omega$ |

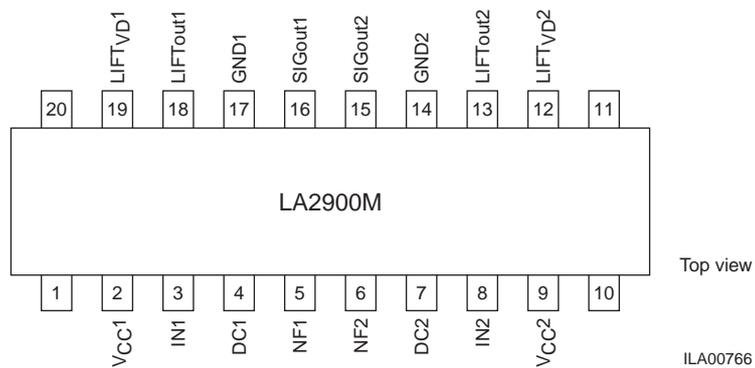
LA2900M

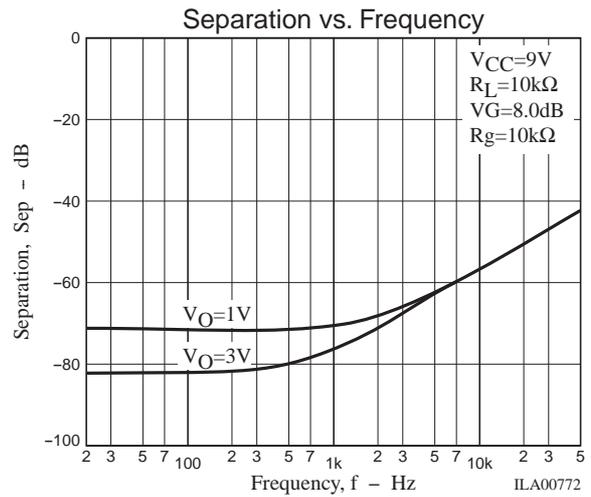
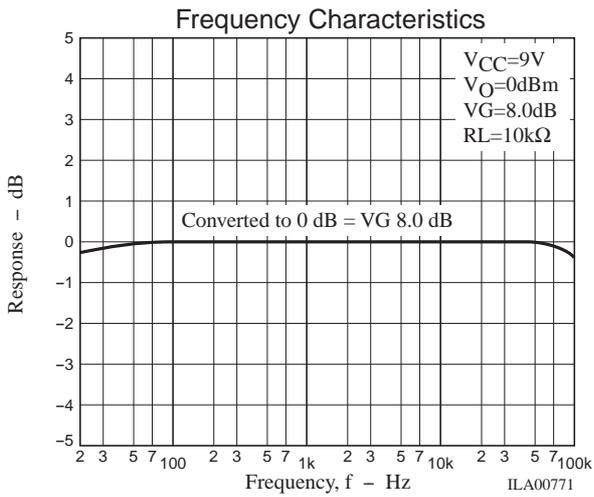
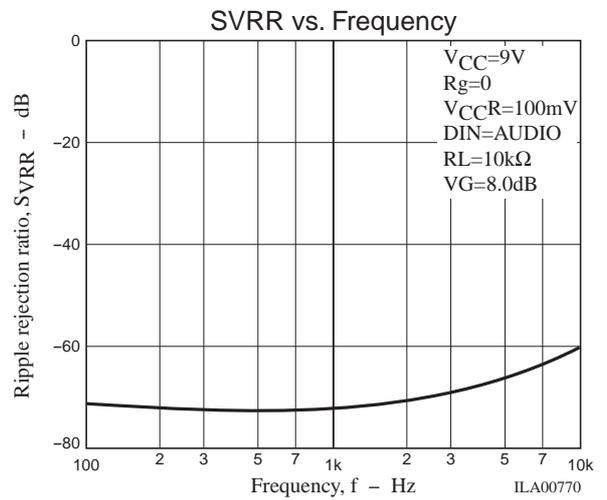
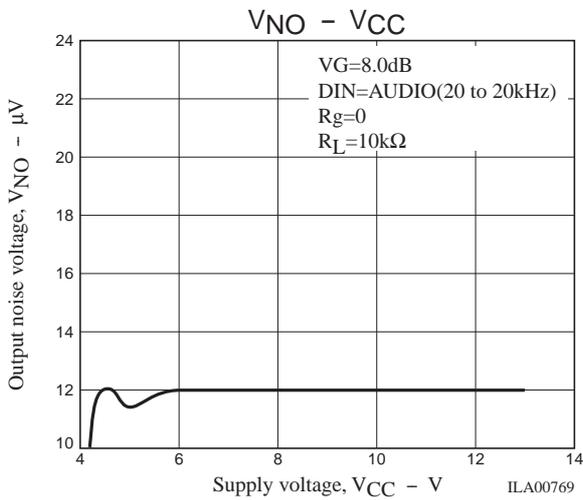
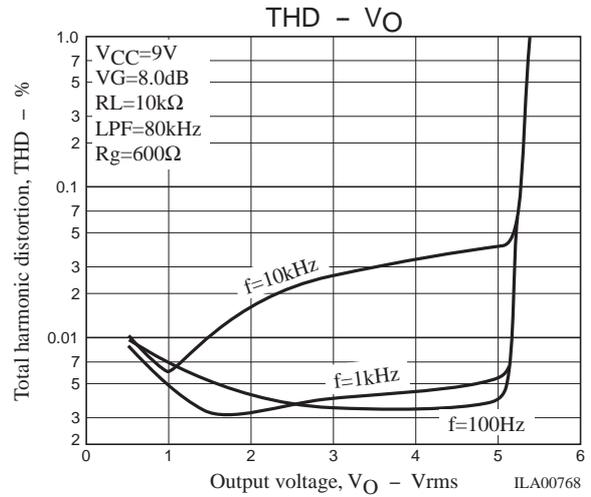
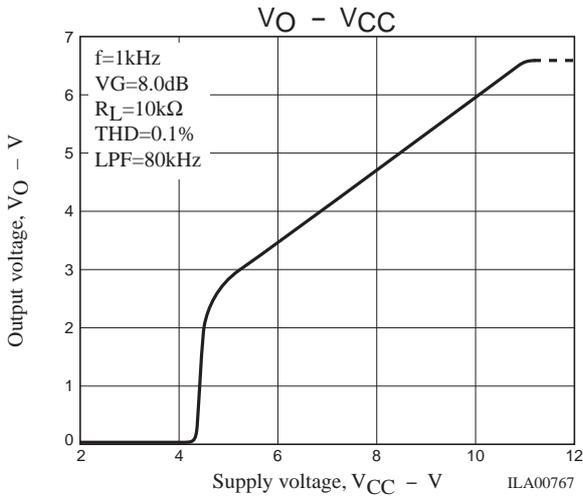
Block Diagram



ILA00765

Pin Assignment





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