



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

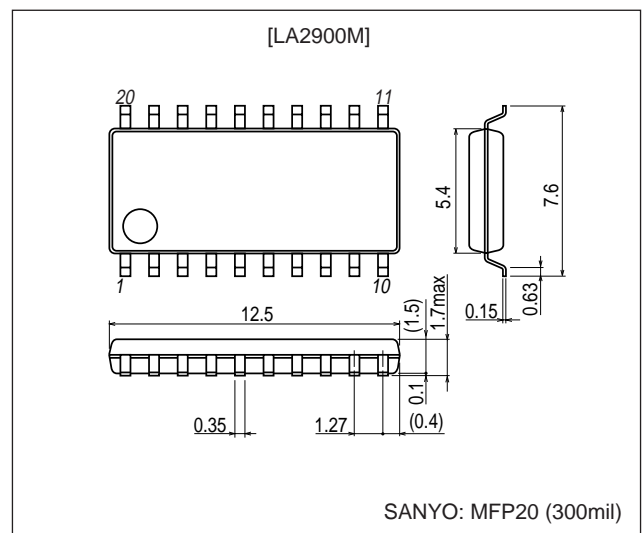
Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC \text{ max}}$	With no input signal	12	V
Allowable power dissipation	$P_d \text{ max}$	$T_a \leq 85^\circ\text{C}$, 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 $T_a = 25^\circ\text{C}$

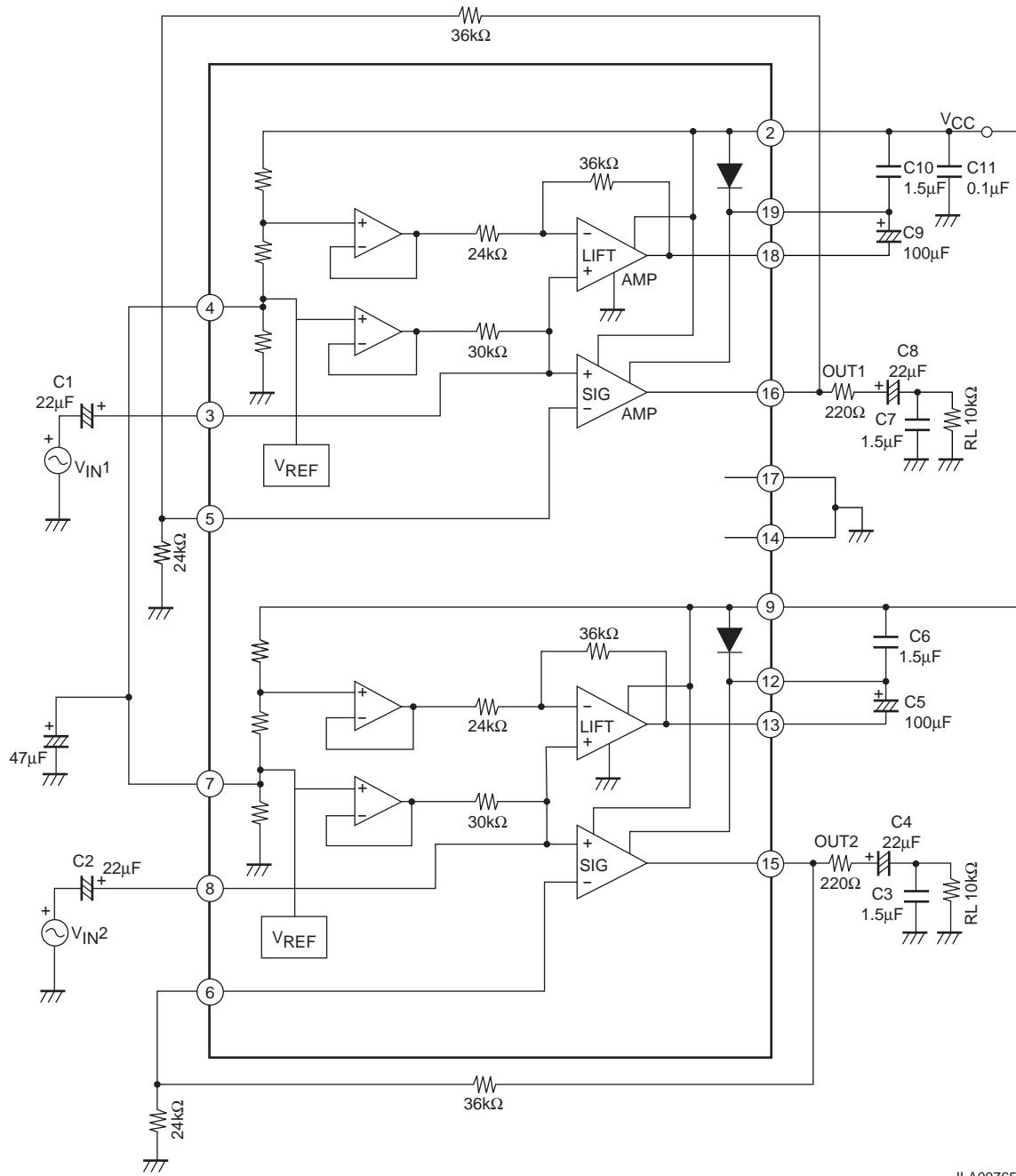
Parameter	Symbol	Conditions	Ratings	Unit
Recommended operating voltage	V_{CC}		9	V
Allowable operating supply voltage range	V_{CCOP}		6 to 12	V
Recommended load resistance	R_{LOP}		10	$k\Omega$

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	$V_O = 3\text{ V}_{rms}$, 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	$k\Omega$

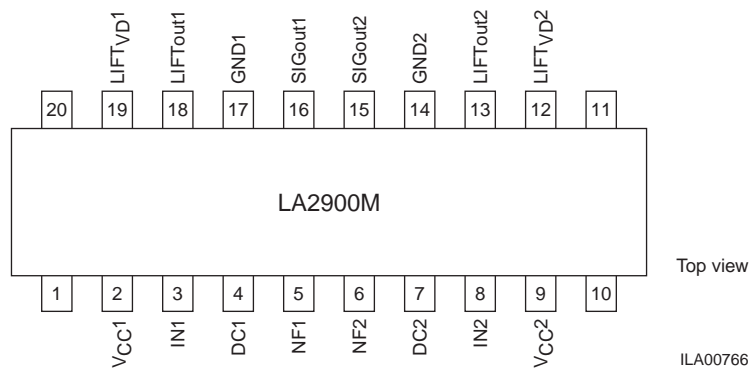
LA2900M

Block Diagram



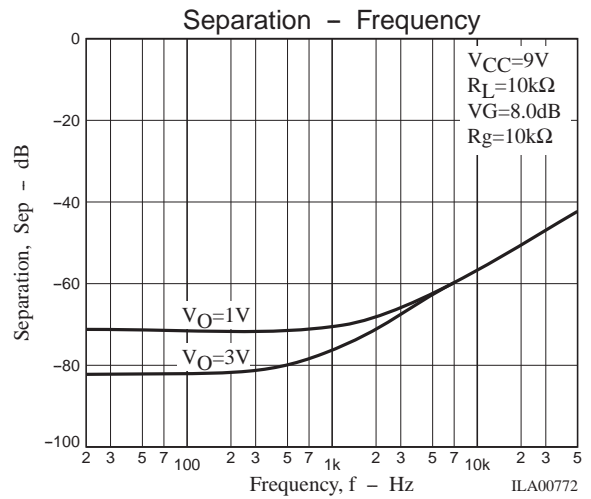
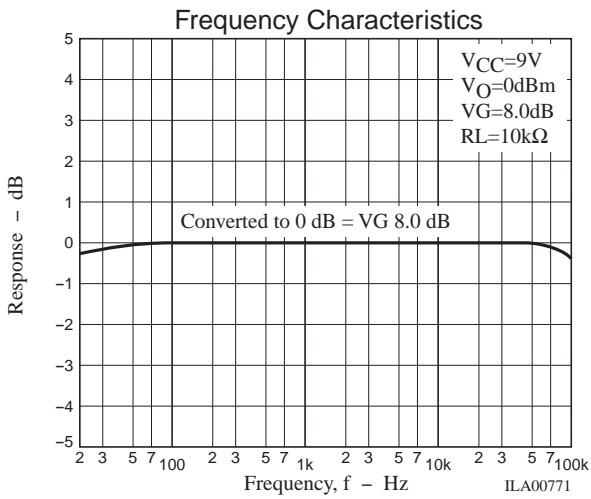
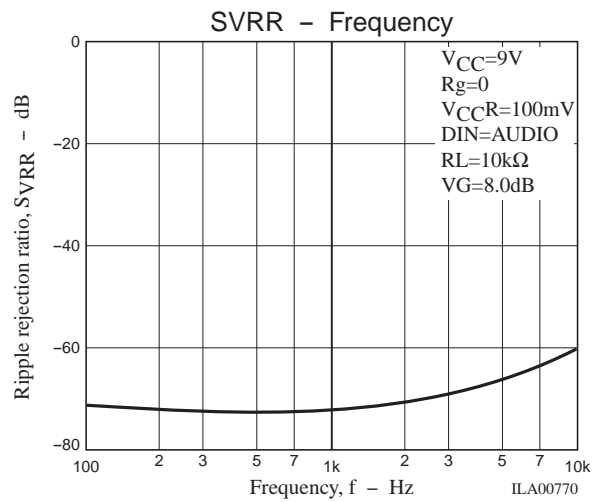
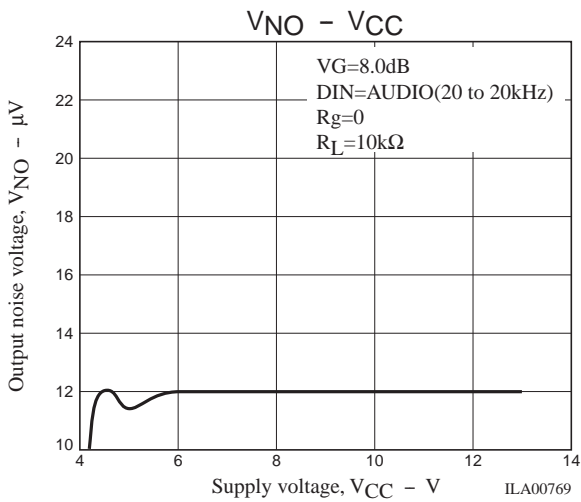
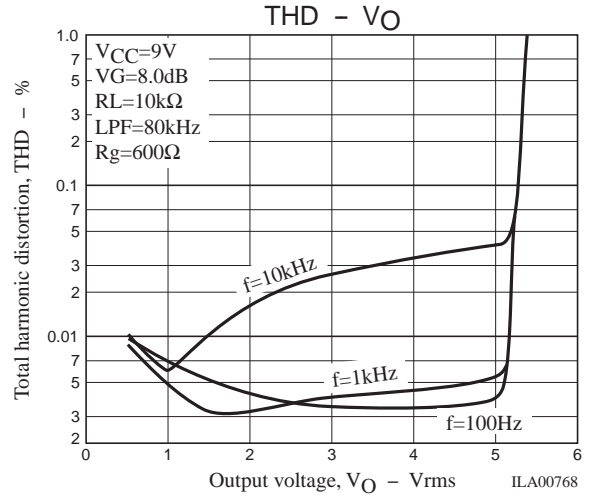
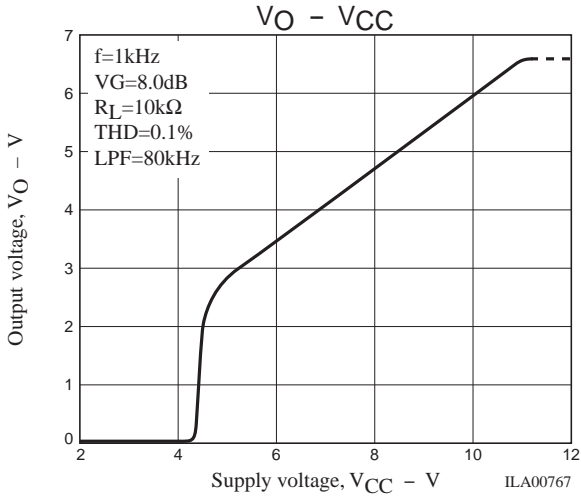
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Pin Assignment



Top view

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