



# 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  $\mu$ V)
- Low total harmonic distortion (0.003%)
- High ripple rejection ratio (70 dB)
- Excellent audio fidelity

### Specifications

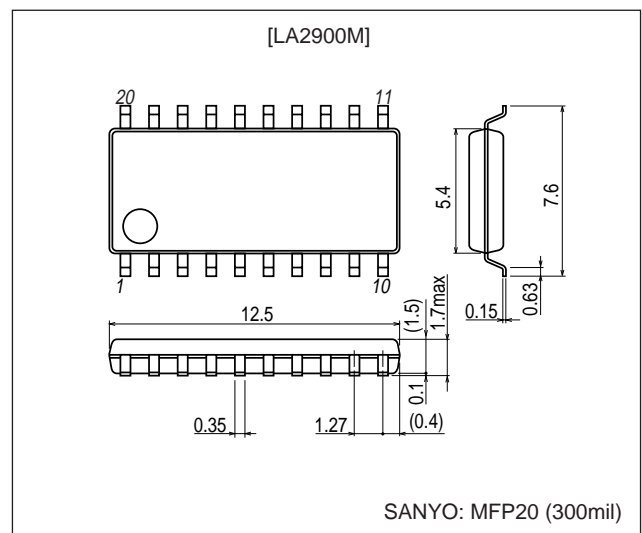
#### Maximum Ratings at $T_a = 25^\circ\text{C}$

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 <sup>3</sup> , 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 $T_a = 25^\circ\text{C}$

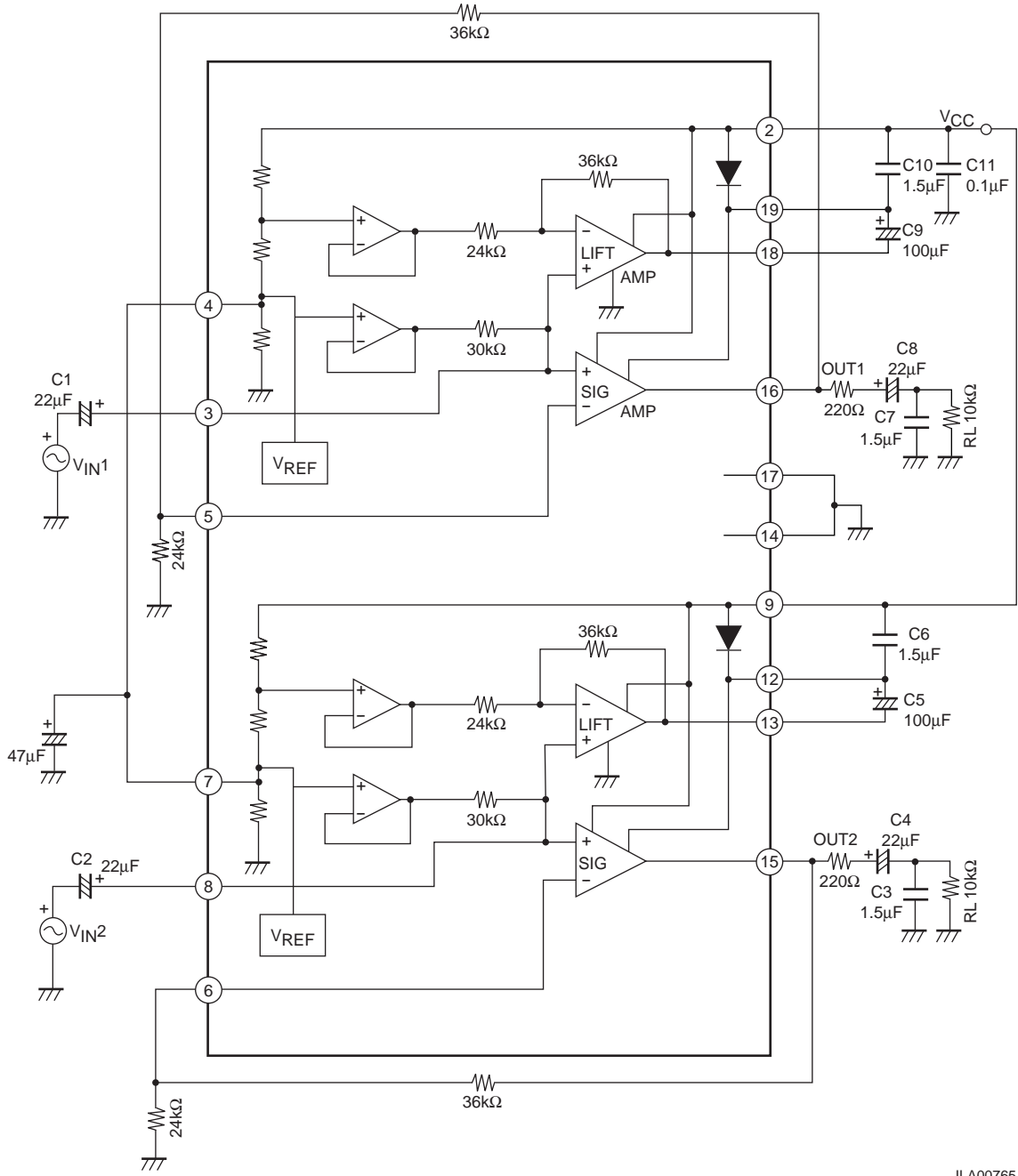
Parameter	Symbol	Conditions	Ratings	Unit
Recommended operating voltage	$V_{CC}$		9	V
Allowable operating supply voltage range	$V_{CCOP}$		6 to 12	V
Recommended load resistance	$R_{LOP}$		10	$k\Omega$

### 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 <sub>rms</sub>
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	$\mu\text{V}_{rms}$
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	$k\Omega$

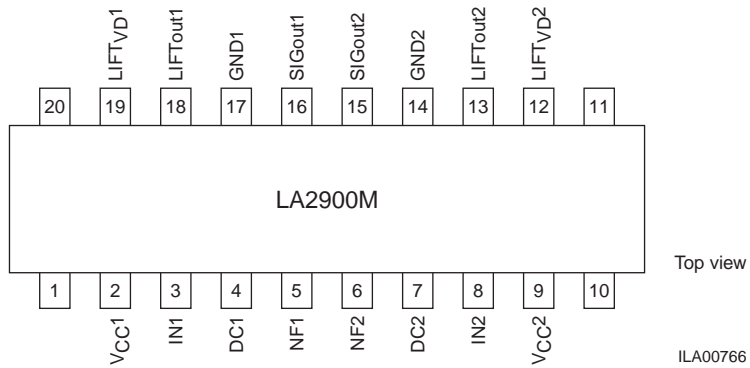
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## Block Diagram

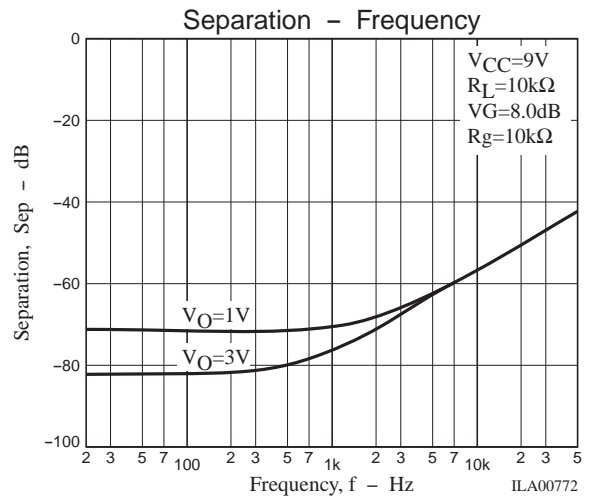
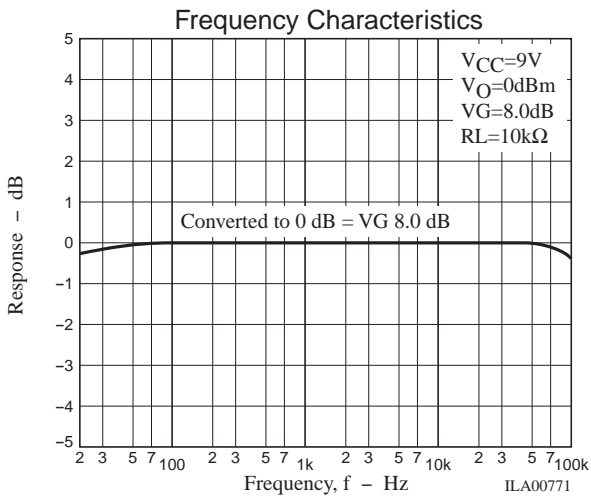
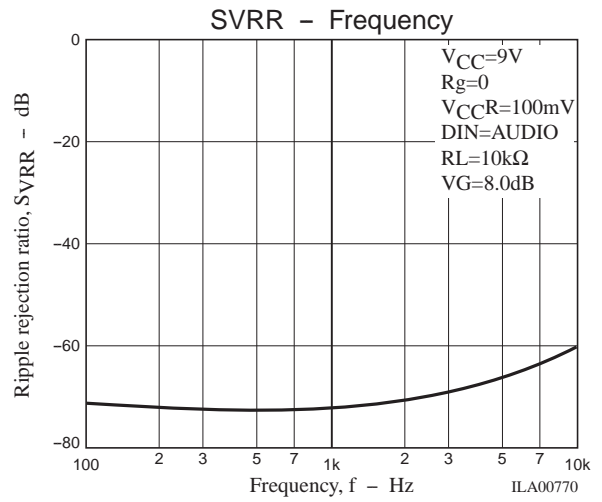
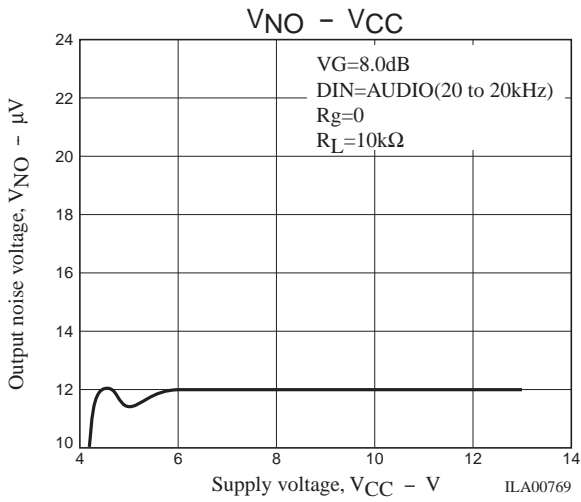
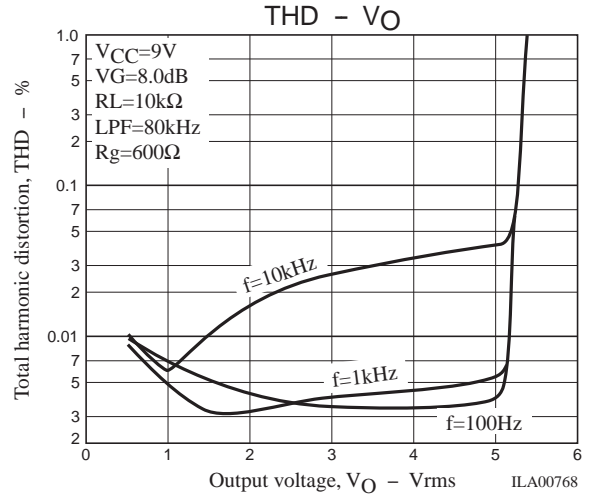
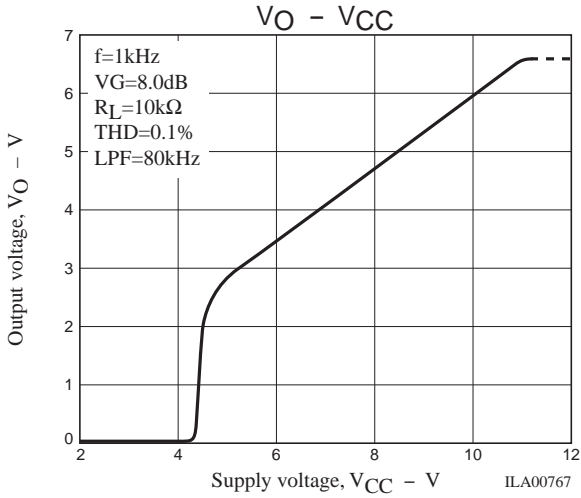


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## Pin Assignment



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