

**LA4700N**

## 2-Channel 12W AF Power Amplifier for Car Stereos

### Functions

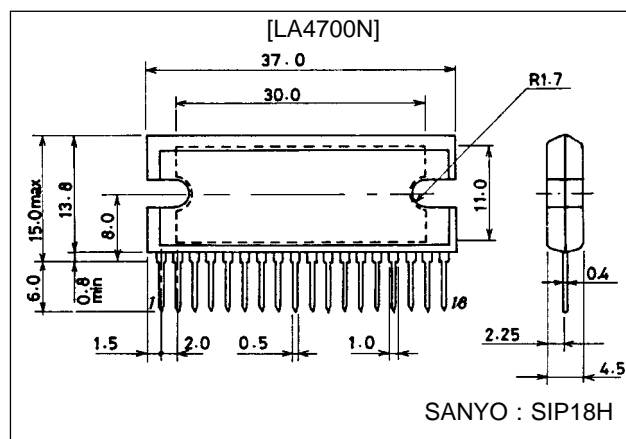
- Standby switch function built in
- Pop noise suppressor built in
- Thermal shutdown circuit built in
- Overvoltage/surge protector built in
- Output pin-to-GND short protector built in
- Output pin-to-V<sub>CC</sub> short protector built in
- Load short protector built in

### Features

- Low pop noise at the time of power supply ON/OFF
- Excellent oscillation stability

### Package Dimensions

unit : mm

**3109-SIP18H**

### Specifications

#### Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V <sub>CC</sub> max1	Quiescent t = 30 s	26	V
	V <sub>CC</sub> max2	Quiescent	18	V
	V <sub>CC</sub> max3	Operating	16	V
Surge supply voltage	V <sub>CC</sub> surge	t = 200 ms rise time 1 ms	50	V
Maximum output current	I <sub>o</sub> peak	Per channel	4	A
Allowable power dissipation	P <sub>d</sub> max	*Note	37.5	W
Operating temperature	T <sub>opr</sub>		-30 to +75	°C
Storage temperature	T <sub>stg</sub>		-40 to +150	°C

#### Operating Conditions at Ta = 25°C

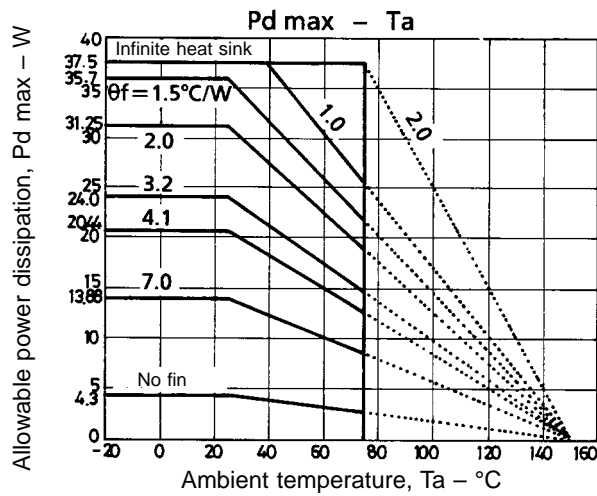
Parameter	Symbol	Conditions	Ratings	Unit
Recommended operating voltage	V <sub>CC</sub>		13.2	V
Operating voltage range	V <sub>CC</sub> op		10 to 16	V
Recommended load resistance	R <sub>L</sub>	BTL/2ch	4 to 8	Ω

\*Note: Use flat head screws for attaching heat sink with tightening torque 39 to 59 N·cm.

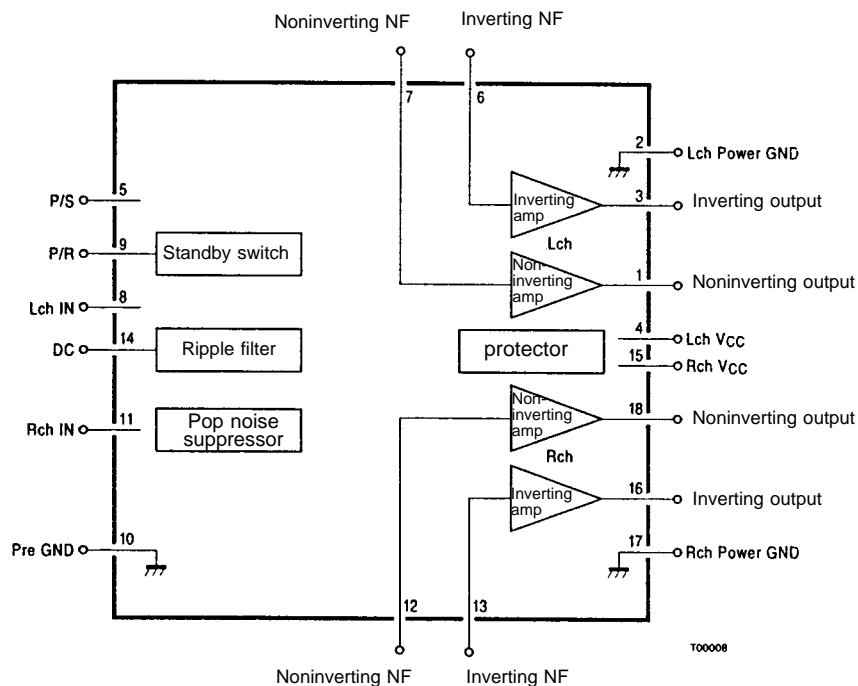
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**Operating Characteristics at  $T_a = 25^\circ\text{C}$ ,  $V_{CC} = 13.2\text{ V}$ ,  $R_L = 4\ \Omega$ ,  $f = 1\text{ kHz}$ ,  $R_g = 600\ \Omega$ ,  
See specified Test Circuit**

Parameter	Symbol	Conditions	min	typ	max	Unit
Quiescent current	$I_{CCO}$		60	140	200	mA
Voltage gain	VG		48	50	52	dB
Voltage gain difference	$\Delta VG$				2	dB
Total harmonic distortion	THD	$P_o = 1\text{ W}$		0.15	0.75	%
Output voltage	$P_o$	THD = 10%	10	12		W
Output noise voltage	$V_{NO}$	$R_g = 0$ , B.P.F. = 20 Hz to 20 kHz		0.2	0.4	mV
Ripple rejection	SVRR	$V_r = 0\text{ dBm}$ , $f_R = 100\text{ Hz}$ , $R_g = 0$	40	55		dB
Channel separation	CHsep	$P_o = 1\text{ W}$ , $R_g = 10\text{ k}\Omega$	50	60		dB
Standby current	1st			10	100	$\mu\text{A}$
Offset voltage	$V_{off}$		-300		300	mV

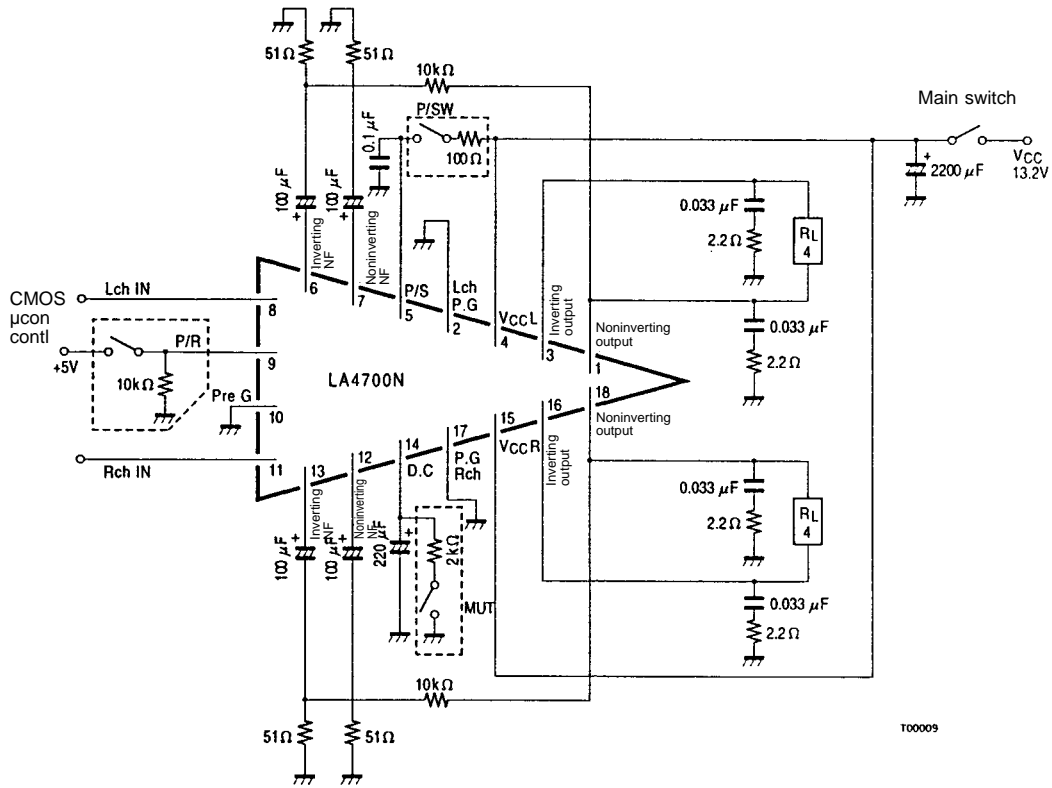


## Equivalent Circuit Block Diagram



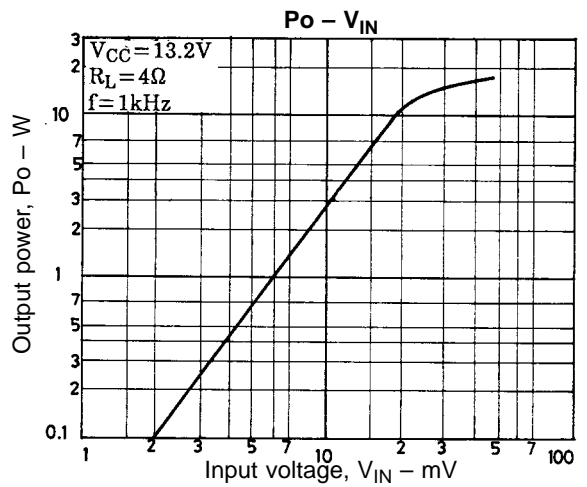
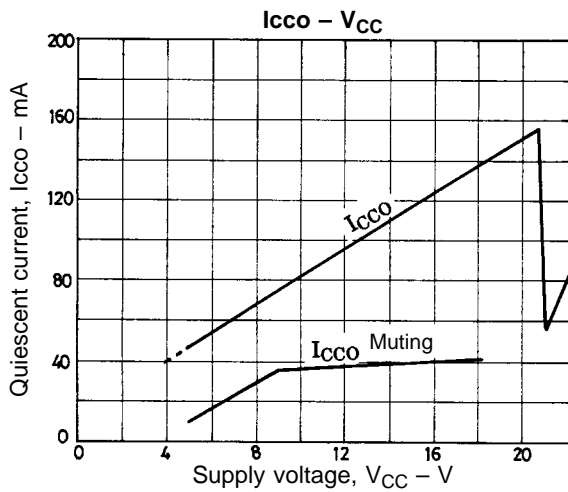
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## Sample Application Circuit

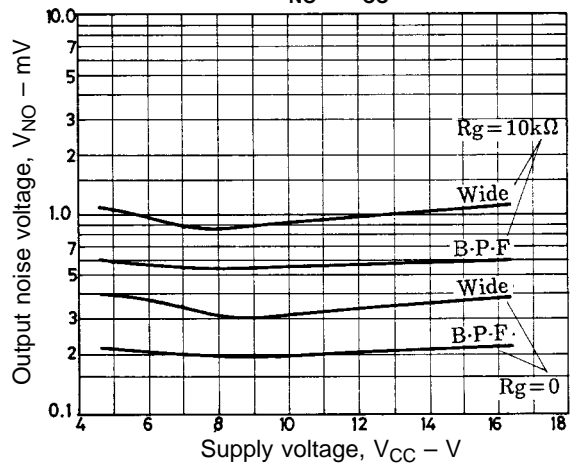
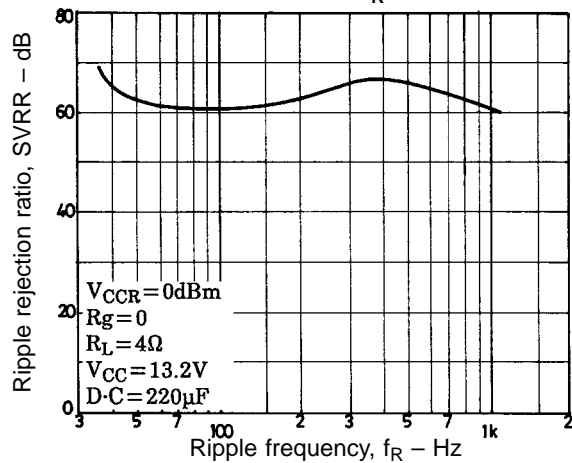
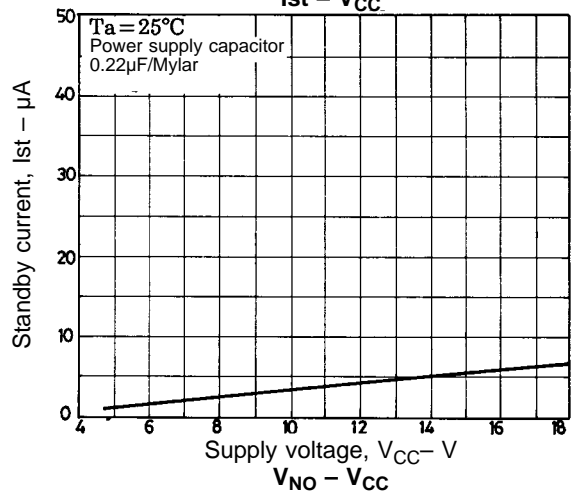
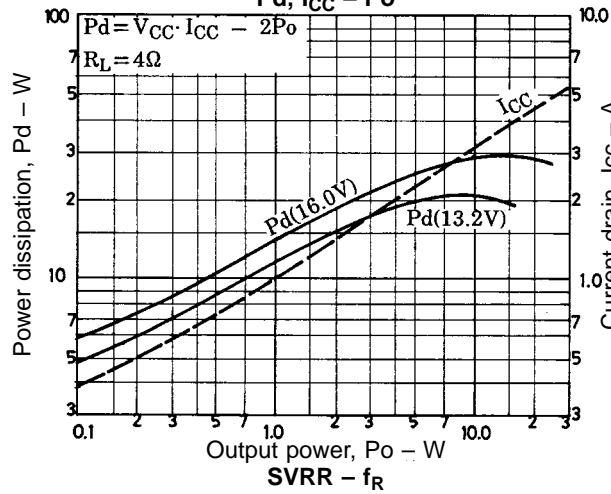
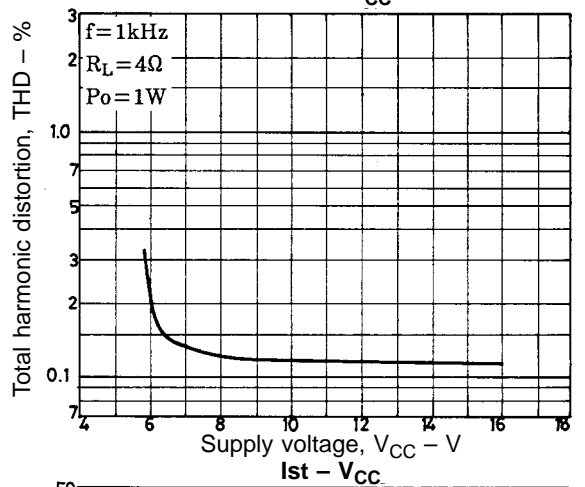
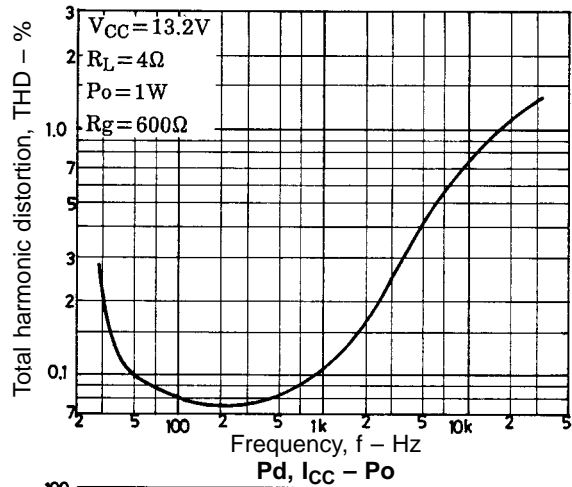
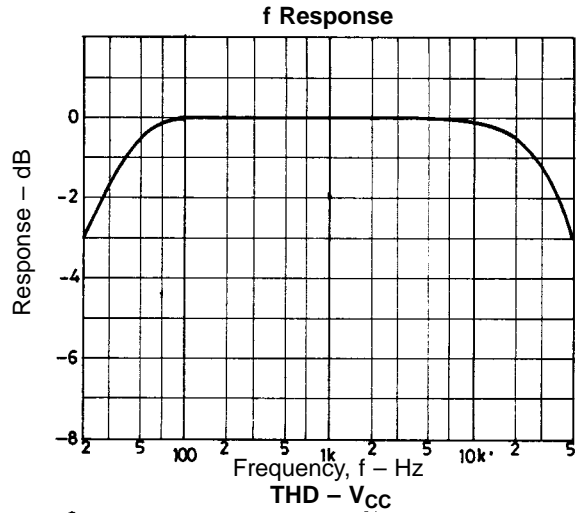
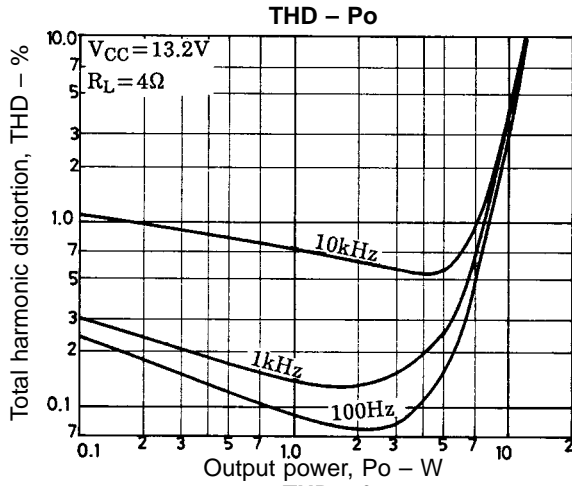


\* Connect the portion bounded by a dotted line according to your intended applications.

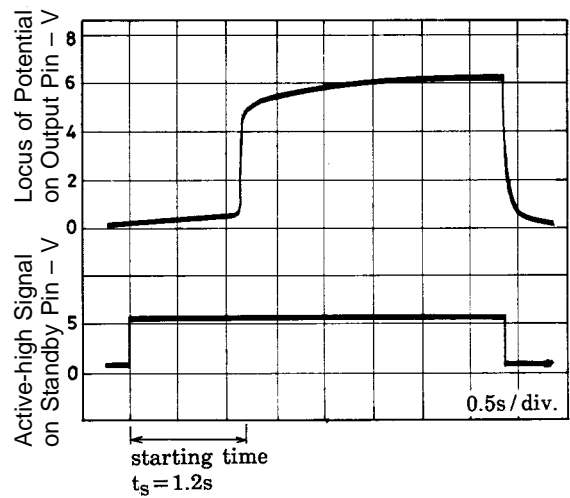
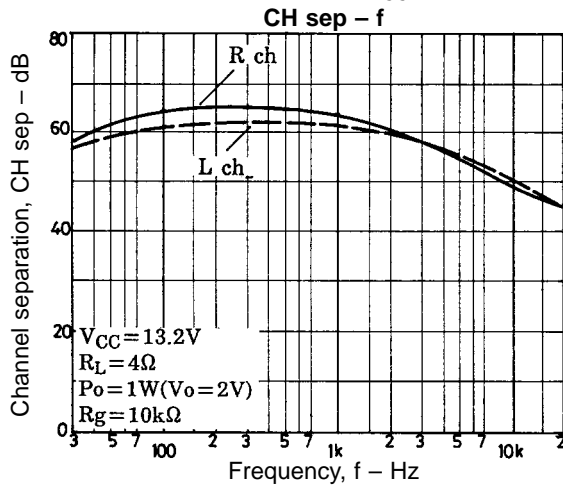
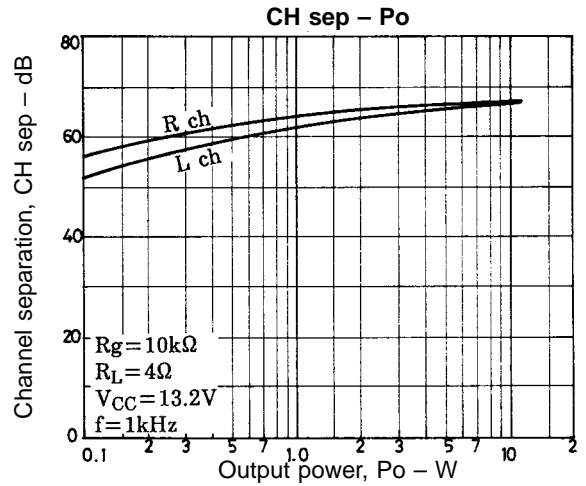
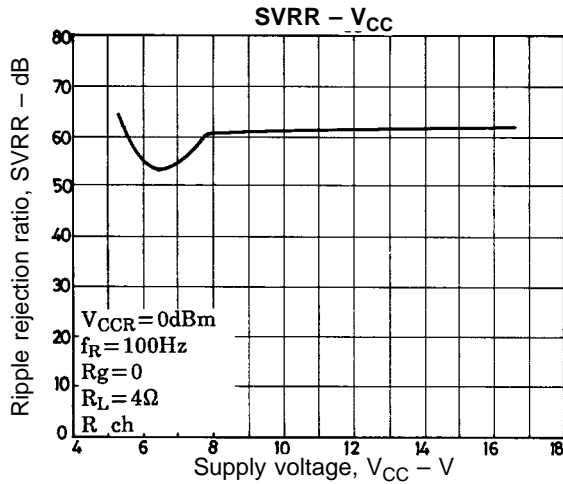
When the power relay is not used, connect pin ⑨ to GND. In this case, the power switch is used to turn ON/OFF the LA4700N or the main switch is used to turn ON/OFF the LA4700N.



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To shorten  $t_s$  in the application herein, the filter capacitor (pin 14) value 220  $\mu\text{F}$  is decreased. Filter capacitor value 100  $\mu\text{F}$  gives  $t_s$  of 0.6 to 0.7 second.

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