



# LA4728

## 2-Channel BTL Power Amplifier (35 W+35 W) with Standby Switch for Car Stereos

### Preliminary

#### Overview

The LA4728 is a BTL two-channel power IC for car audios developed in pursuit of excellent sound quality. Low-region frequency characteristics have been improved through the use of a new NF capacitorless circuit, and crosstalk which causes “muddy” sound has been reduced by improving both circuit and pattern layout. As a result the LA4728 provides powerful bass and clear treble.

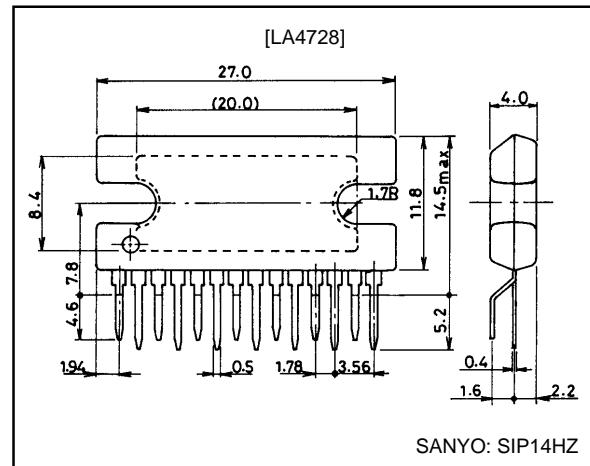
#### Features

- High power: supports total output of 35 W+35 W. [EIAJ power] ( $V_{CC}=14.4\text{ V}$ , THD=30 %,  $R_L=4\ \Omega$ )
- Less pop noise.
- Designed for excellent sound quality. ( $f_L < 10\text{ Hz}$ ,  $f_H = 130\text{ kHz}$ )
- Any rise time settable by an external capacitor.
- Standby switch circuit on chip. (microcontroller supported)
- Various protectors on chip. (output-to-ground short/ output-to- $V_{CC}$  short/ load short/ overvoltage/ thermal shutdown circuit)
- The LA4728 is pin-compatible with the LA4725.

#### Package Dimensions

unit: mm

#### 3113A-SIP14HZ



### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC\text{ max}}$		18	V
Surge supply voltage	$V_{CC\text{ surge}}$	$f \leq 0.2\text{ s}$ , single giant pulse	50	V
Maximum output current	$I_O\text{ peak}$	Per channel	3.5	A
Allowable power dissipation	$P_d\text{ max}$	With arbitrarily large heat sink	32	W
Operating temperature	$T_{op}$		-35 to +85	$^\circ\text{C}$
Storage temperature	$T_{stg}$		-40 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	$V_{CC}$		13.2	V
Operating voltage range	$V_{CC\text{ op}}$	Range where $P_d\text{ max}$ is not exceeded	9 to 16	V
Recommended load resistance	$R_L\text{ op}$		4	$\Omega$

**SANYO Electric Co.,Ltd. Semiconductor Business Headquarters**

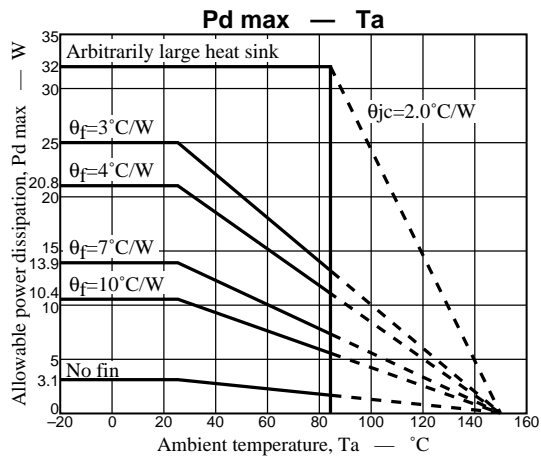
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110 JAPAN

32497RM(KOTO) No.5716-1/3

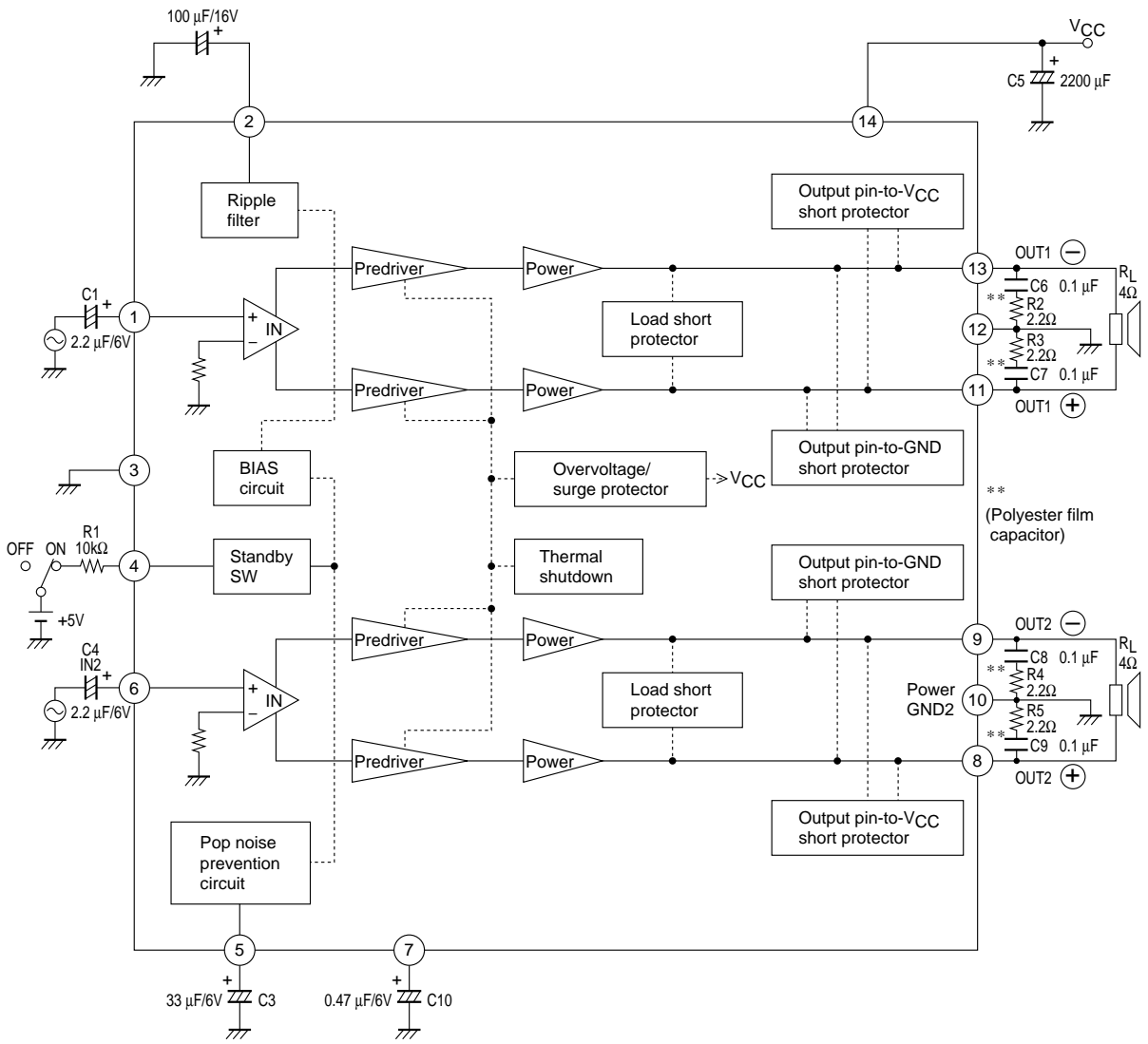
# LA4728

Operating Characteristics  $T_a = 25\text{ }^\circ\text{C}$ ,  $V_{CC} = 13.2\text{ V}$ ,  $R_L = 4\text{ k}\Omega$ ,  $f = 1\text{ kHz}$ ,  $R_g = 600\text{ }\Omega$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent current	$I_{CCO}$	$R_g=0$	70	125	250	mA
Standby current	$I_{ST}$			10	60	$\mu\text{A}$
Voltage gain	VG		38	40	42	dB
Total harmonic distortion	THD	$P_O=1\text{ W}$		0.06	0.2	%
Output power	$P_{O1}$	$R_L=4\text{ }\Omega$ , THD=10%, $V_{CC}=13.2\text{ V}$	16	20		W
	$P_{O2}$	$R_L=4\text{ }\Omega$ , THD=10%, $V_{CC}=14.4\text{ V}$		25		W
	$P_{O3}$	$R_L=4\text{ }\Omega$ , THD=30%, $V_{CC}=14.4\text{ V}$		35		W
Output offset voltage	$V_{N\text{ offset}}$	$R_g=0$	-300		+300	mV
Output noise voltage	$V_{NO}$	$R_g=0$ , B.P.F.=20 Hz to 20 kHz		0.1	0.5	mVrms
Ripple rejection ratio	SVRR	$R_g=0$ , $f_R=100\text{ Hz}$ , $V_R=0\text{ dBm}$	40	50		dB
Channel separation	Chsep	$R_g=10\text{ k}\Omega$ , $V_O=0\text{ dBm}$	50	60		dB
Input resistance	$R_i$		21	30	39	$\text{k}\Omega$
Standby pin applied voltage	$V_{st}$	Amp on, applied through $10\text{ k}\Omega$	2.5		$V_{CC}$	V



Block Diagram and Sample Application Circuit



A07431

- No products described or contained herein are intended for use in surgical implants, life-support systems, aerospace equipment, nuclear power control systems, vehicles, disaster/crime-prevention equipment and the like, the failure of which may directly or indirectly cause injury, death or property loss.
- Anyone purchasing any products described or contained herein for an above-mentioned use shall:
  - ① Accept full responsibility and indemnify and defend SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors and all their officers and employees, jointly and severally, against any and all claims and litigation and all damages, cost and expenses associated with such use:
  - ② Not impose any responsibility for any fault or negligence which may be cited in any such claim or litigation on SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors or any of their officers and employees jointly or severally.
- Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.

This catalog provides information as of March, 1997. Specifications and information herein are subject to change without notice.