PLESSEY
Semiconductors

SL630C

HEADPHONE AMPLIFIER

THIS CIRCUIT IS FOR MAINTENANCE PURPOSES ONLY AND IS NOT RECOMMENDED FOR NEW DESIGNS

The SL630C is an audio power amplifier designed for use with low impedance headphones. With power supplies of between 6V and 12V the output power is 100mW to 200mW. A gain control facility allows remote logarithmic volume control with a linear potentiometer.

For applications not requiring the gain control facility the SL6310C should be used.

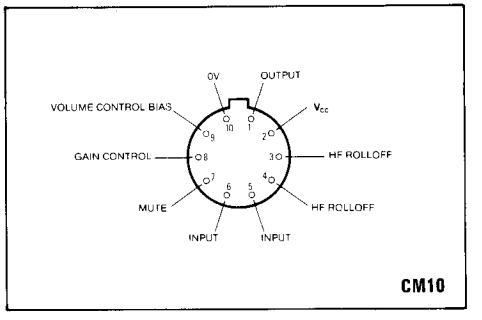

Fig. 1 Pin connections (bottom view)

FEATURES

- Wide Gain Control Range: over 60dB
- Easy Interfacing
- Mute Facility

APPLICATIONS

- Audio Amplifiers
- Headphone Amplifiers

QUICK REFERENCE DATA

- Supply Voltage: 6V to 12V
- Output Power: 100mW to 200mW

ABSOLUTE MAXIMUM RATINGS

Supply voltage: 15V

Storage temperature: −55°C to +125°C

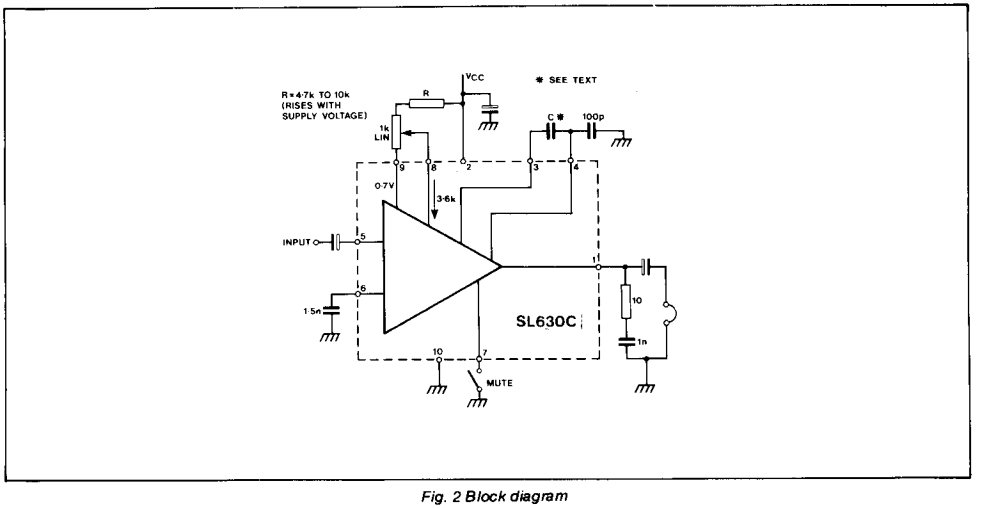

Fig. 2 Block diagram

ELECTRICAL CHARACTERISTICS

Test conditions (unless otherwise stated):

Supply voltage V_{CC} : 12V
Ambient temperature: −30°C to +85°C
Test frequency: 1kHz

Characteristic	Value			Units	Conditions
	Min.	Typ.	Max.		
Quiescent supply current			6.5 15	mA mA	V_{CC}=6V V_{CC}=12V
Voltage gain (single ended)	43	46	49	dB	Input 1mV rms pin 5
Cut-off frequency (−3dB)		0.5		MHz	C=0
Input impedance (single ended)		1.0	1.8	kΩ	Pin 5
Max. input signal		50		mV rms	Pin 5
Gain control range	60			dB	Pin 8 at 3V
Max. output voltage	2.5	2.8		V rms	R_L=47Ω
Output impedance		1.5	3.0	Ω	
Short circuit output current		110	200	mA	

APPLICATION NOTES

Frequency response

The value of capacitor C between pins 3 and 4 can be calculated from the formula:

$$\text{Roll-off frequency} = \frac{10^8}{2\pi C}\ \text{Hz (C in pF)}$$

Muting

This is achieved by switching pin 7 to 0V.

Gain control

Fig. 3 shows the relationship between voltage gain (or attenuation) and the DC voltage on pin 8. Pin 9 provides a suitable bias to remove the 'dead zone' between 0V and 0.8V. The gain control is temperature dependant.

Output power

Fig. 4 illustrates the power output and optimum load impedance for supply voltages between 6V and 12V.

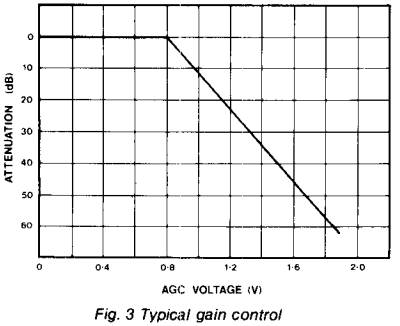

Fig. 3 Typical gain control

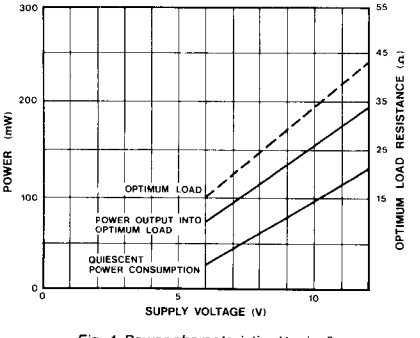

Fig. 4 Power characteristics (typical)