

# 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.

### 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

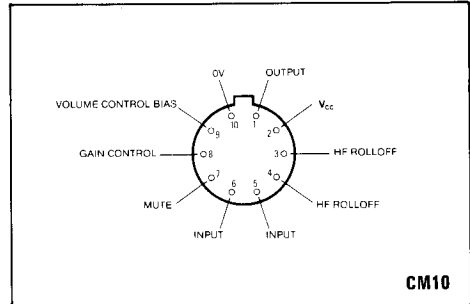


Fig. 1 Pin connections (bottom view)

### ABSOLUTE MAXIMUM RATINGS

Supply voltage: 15V

Storage temperature: -55°C to +125°C

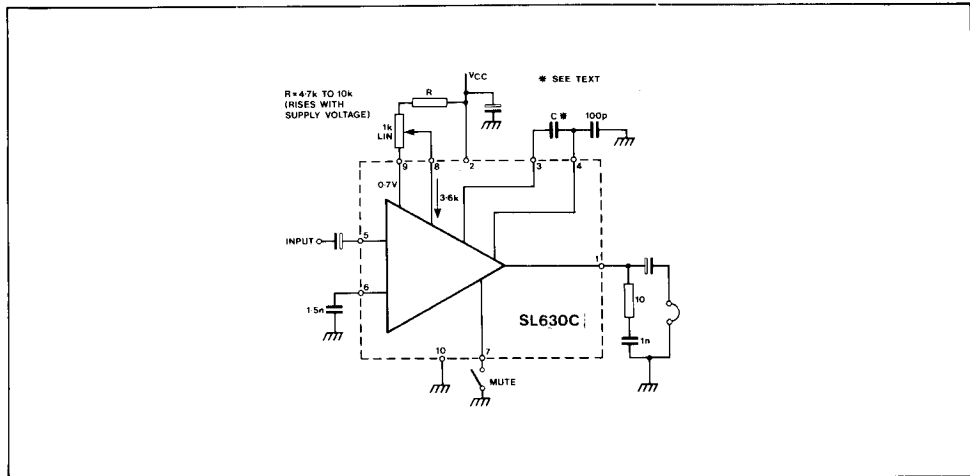


Fig. 2 Block diagram

**ELECTRICAL CHARACTERISTICS**

**Test conditions (unless otherwise stated):**

Supply voltage  $V_{CC}$  : 12V  
 Ambient temperature:  $-30^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$   
 Test frequency: 1kHz

Characteristic	Value			Units	Conditions
	Min.	Typ.	Max.		
Quiescent supply current			6.5 15	mA mA	$V_{CC}=6\text{V}$ $V_{CC}=12\text{V}$
Voltage gain (single ended)	43	46	49	dB	Input 1mV rms pin 5
Cut-off frequency ( $-3\text{dB}$ )		0.5		MHz	$C=0$
Input impedance (single ended)		1.0	1.8	k $\Omega$	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	$R_L=47\Omega$
Output impedance		1.5	3.0	$\Omega$	
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:

$$\text{Roll-off frequency} = \frac{10^6}{2\pi C} \text{ Hz (C in pF)}$$

**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.

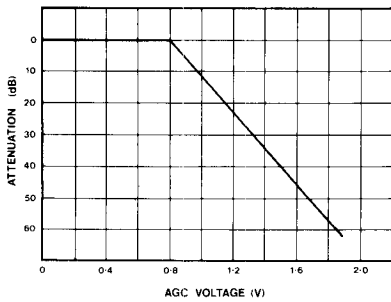


Fig. 3 Typical gain control

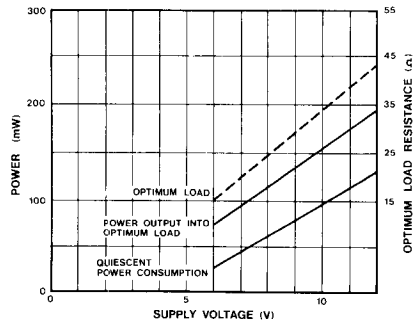


Fig. 4 Power characteristics (typical)