

SL 1430

TV IF PREAMPLIFIER

The SL1430 is a fixed gain IF preamplifier for television with an output optimised for driving Plessey second generation low capacitance surface acoustic wave (SAW) filters. The addition of one external capacitor allows the amplifier to drive normal capacitance SAW filters from Plessey or from other manufacturers.

The device features on chip decoupling and differential output, requiring a minimal number of external components to be used.

FEATURES

- Low cost
- Low noise
- Low external component count
- Low distortion
- Direct 12V operation
- Can be used with different types of SAW filters

QUICK REFERENCE DATA

- 22dB gain at 40MHz
- 12V supply at 25mA
- 120mV rms. input handling

ELECTRICAL CHARACTERISTICS

Test conditions (unless otherwise stated):

$T_{amb} = +25^{\circ}\text{C}$

Supply voltage = +12V

Frequency = 40MHz

Output load = 7.5 pF (Pins 2 and 3)

Measurements made using test circuit Fig. 2.

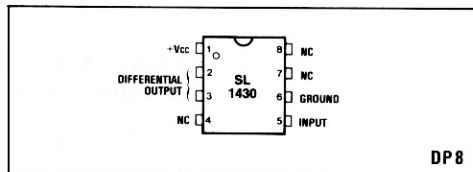


Fig. 1 Pin connections - top view

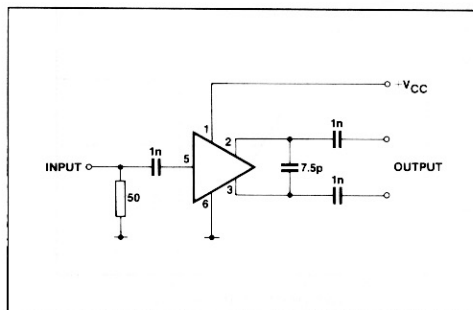


Fig. 2 Test circuit

| Characteristic | Pin | Value | | | Units | Conditions |
|---|--------|-------|-----------------|------|-------|--|
| | | Min | Typ | Max | | |
| Supply voltage | 1 | 7 | 12 | 13.5 | V | |
| Quiescent current | 1 | 22 | 33 | 40 | mA | Pins 2, 30/C |
| Cut-off frequency (-3dB) | 5, 2/3 | 60 | 110 | | MHz | |
| Voltage gain | | 18 | 22 | 26 | dB | |
| Input signal for 46dB intermodulation | 5 | | 120 | | mV | Red colour bar |
| Input signal for 1% crossmodulation | 5 | | 75 | | mV | (wanted level 20mV unwanted modulation 65%) rms. |
| Input signal for 1dB sync tip compression | 5 | 130 | | | mV | |
| Noise figure | 5 | | 4 | | dB | |
| Input impedance | 5 | | 300Ω// 4.2pF | | | |

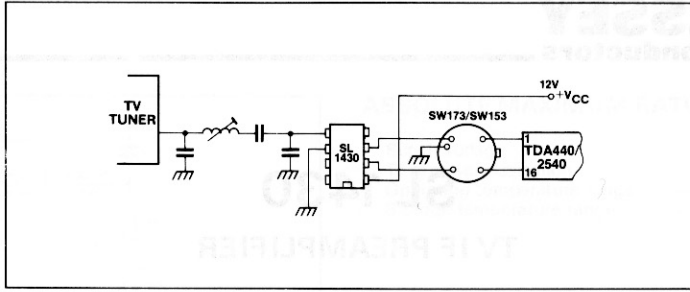


Fig. 3 Typical applications

SL1430 TYPICAL CHARACTERISTICS AT 12V, +25°C, WITH SW173 AS LOAD (7.5pF)
(FIGS. 5 TO 10) Unwanted signal with 65% amplitude modulation at 10KHz

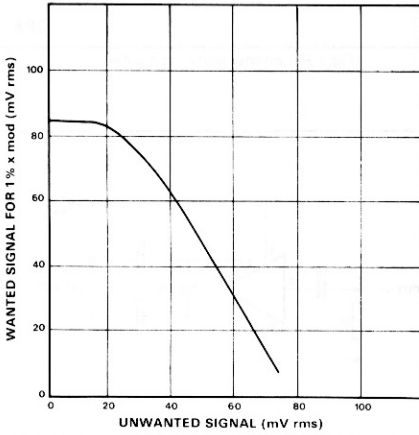


Fig. 4 Cross modulation performance (see note 1)

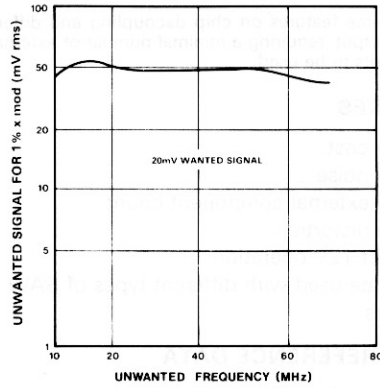


Fig. 6 Cross modulation performance V frequency of unwanted signal (see note 1)

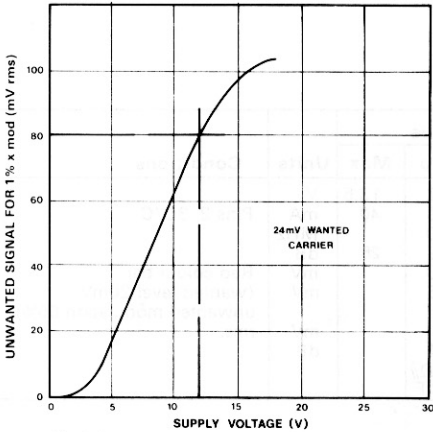


Fig. 5 Cross modulation performance V supply voltage (see note 1)

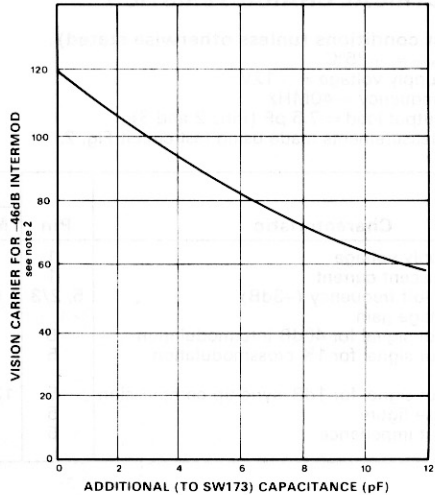


Fig. 7 Intermodulation performance v. load capacitance

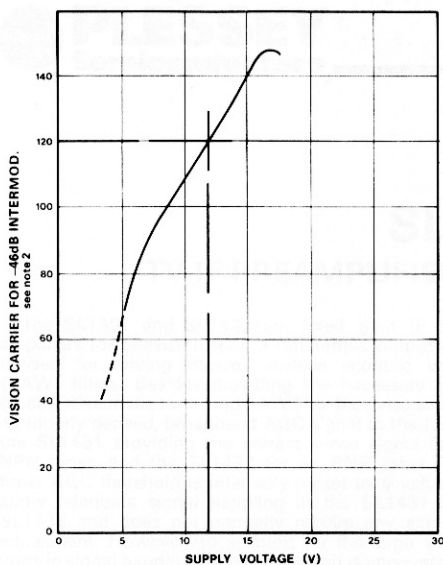


Fig. 8 Intermodulation performance v. supply voltage

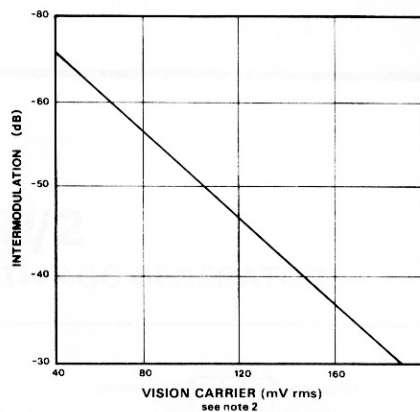


Fig. 9 Intermodulation performance (see note 2)

NOTE 1. Signal level refers to peak rms. i.e. The effective sync. tip level of a composite video signal.

NOTE 2. The test signal employed corresponds to the red bar of a transmitted colour bar and consists of the following elements related to the sync. tip level, the vision carrier at 38.9MHz-6dB, the colour carrier at 34.5MHz-18dB, and the sound carrier at 33.4MHz-7dB.

ABSOLUTE MAXIMUM RATINGS

| | |
|-----------------------------|-----------------|
| Supply voltage | -0.5V to +25V |
| Operating temperature range | -10°C to +65°C |
| Storage temperature range | -55°C to +125°C |