

TDA2530 R-G-B Matrix Preamplifier With Clamps

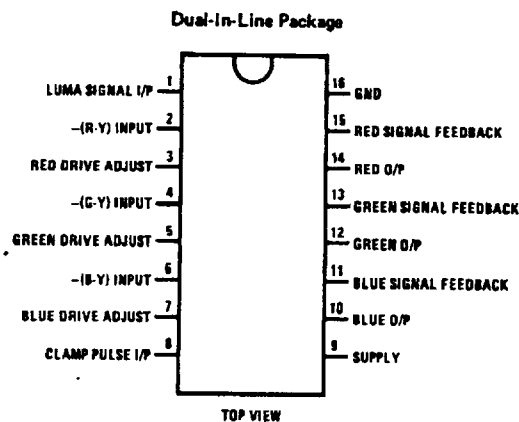
General Description

The TDA2530 is an integrated R-G-B matrix preamplifier for color television receivers, incorporating a matrix preamplifier for R-G-B cathode drive of the picture tube with clamping circuits. The TDA2530 has a base driver amplifier. Also, each channel follows an identical layout to ensure equal frequency behavior of the 3 channels.

This integrated circuit has been designed to be driven from the TDA2522 synchronous demodulator and oscillator integrated circuit.

The device is also available in a zig-zag quad-in-line package, this version being denoted by the suffix Q, i.e., TDA2530Q.

Connection Diagram



Dual-In-Line Package, Order Number TDA2530
See NS Package N16A

Quad-In-Line Package, Order Number TDA2530Q
See NS Package N16C

Reference Data

Supply Voltage (Nominal)	12V
Operating Ambient Temperature Range	-25°C to +60°C
Gain of Luminance and Color-Difference Channels (Typical)	100

Absolute Maximum Ratings

Supply Voltage (V ₈₋₆ Maximum)	13.2V
Storage Temperature, T _{STG}	-25°C to +125°C
Operating Ambient Temperature, T _A	-25°C to +60°C

Electrical Characteristics

V₈₋₆ = 12V, V₁₋₁₆ = 1.5V, T_A = 25°C

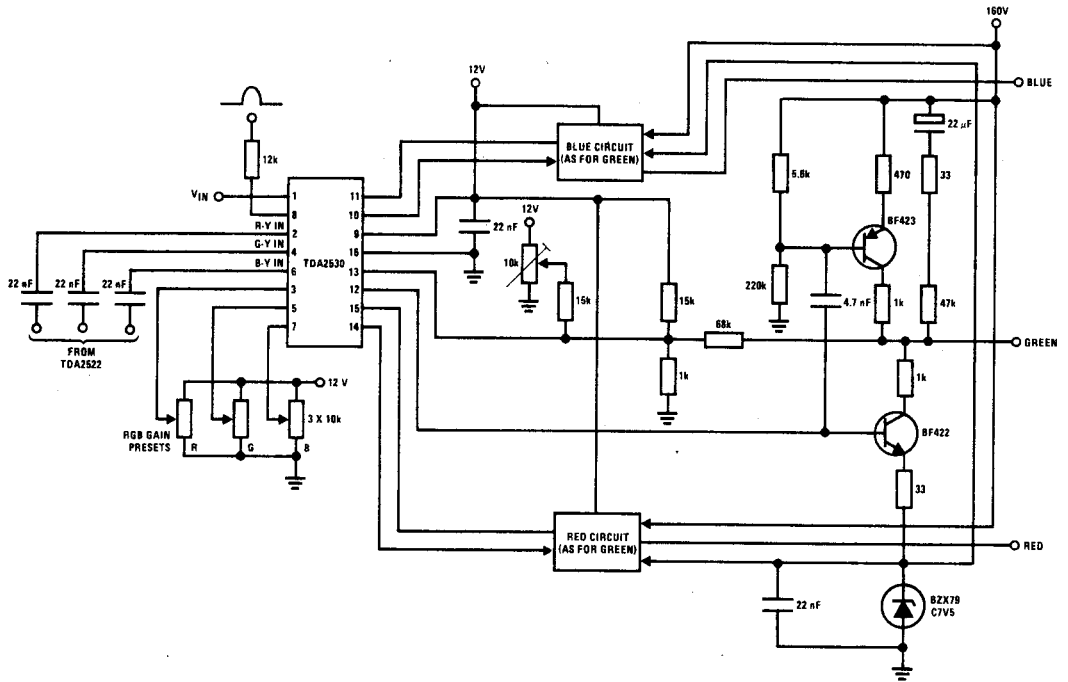
PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Gain of Color Channels (B-Y; G-Y; R-Y) at f = 0.5 MHz (Note 1)	G2-16		100		
	G4-16		100		
	G6-16		100		
Ratio of Gain of Luminance Amplifier to Color Amplifiers		0.9		1.1	
Input Resistance of Color Difference Amplifiers at f = 1 kHz	R2-6	100			kΩ
	R3-6	100			kΩ
	R4-6	100			kΩ
Input Resistance of Luminance Amplifier at f = 1 kHz	R5-6	100			kΩ

Note 1: G is defined as the voltage ratio between the input signals at the pins 2, 4 and 6 and the output signals at the collectors of the output transistors.

Pin Function Description

- Luminance signal input.** A 1V black to white positive-going luminance input signal is required. Blanking level should be at 1.5V and black level at 1.7V.
- (R-Y) input signal.** The input signal is required to be AC coupled from a low impedance source such as the TDA2522. The coupling capacitor also acts as a clamp capacitor for the TDA2530 red output. As the color difference input impedance is at least 100 kΩ, low value coupling capacitors may be used.
- Red drive adjustment.** A gain variation of the red channel of at least ±3 dB about the typical, is obtained as the DC potential at this pin is varied by ±5V about the typical of 5V. If no connection is made to a gain controlling pin the channel concerned assumes the typical gain.
- (G-Y) input signal (see pin 2).**
- Green drive adjustment (see pin 3).**
- (B-Y) input signal (see pin 2).**
- Blue drive adjustment (see pin 3).**
- Clamp pulse input.** A positive-going line pulse input is required and the pulse should exceed a threshold DC level set by the TDA2530 of 7V. An input current of about 1 mA is required.
- Positive 12V supply.**
- Blue signal output.** The TDA2530 blue signal output has polarity appropriate for base drive of typical video output stages.
- Blue signal feedback.** The signal gain of both the video output stages and IC amplifier are stabilized by the feedback circuits. DC clamping is achieved by sampling of the feedback level during blanking. The black level potentials at the collectors of the video output stages may be varied independently by adjustable DC current sources applied to the feedback input pins. The DC levels at these pins are such that the feedback resistor and a resistor network between the 12V supply and earth provide a potential of 6V during blanking.
- Green signal output (see pin 10).**
- Green signal feedback (see pin 11).**
- Red signal output (see pin 10).**
- Red signal feedback (see pin 11).**
- Negative supply (earth).**

Application Information (Peripheral Circuitry)



Note 1: Attention should be given to earth paths, avoiding common impedances between the input (decoder) side and the output stages.

Note 2: Printed track area connected to the feedback pins should be kept to a minimum.

Note 3: To ensure a matched performance of the video output stages, a symmetrical layout of the 3 stages should be employed.