National Semiconductor

TDA2522/TDA2523 Color Demodulation Combinations

General Description

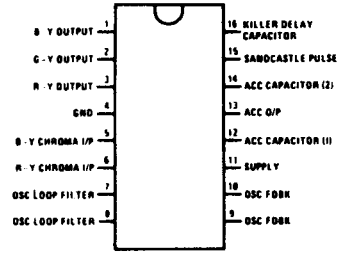
The TDA2522/TDA2523 are integrated synchronous demodulator combinations for colour television receivers incorporating the following features.

Features

- 8.8 MHz oscillator followed by a divider giving two 4.4 MHz signals used as reference signals
- Keyed burst phase comparison for optimum noise behavior
- ACC detector and amplifier
- A color killer
- Two synchronous demodulators for the (B-Y) and (R-Y) signals
- Temperature compensated emitter follower outputs
- PAL switch and PAL flip-flop with internal identification
- Integrated capacitors in the symmetrical demodulators reduce unwanted carrier-signals at the outputs

Connection Diagram

Dual-In-Line Package



TOP VIEW

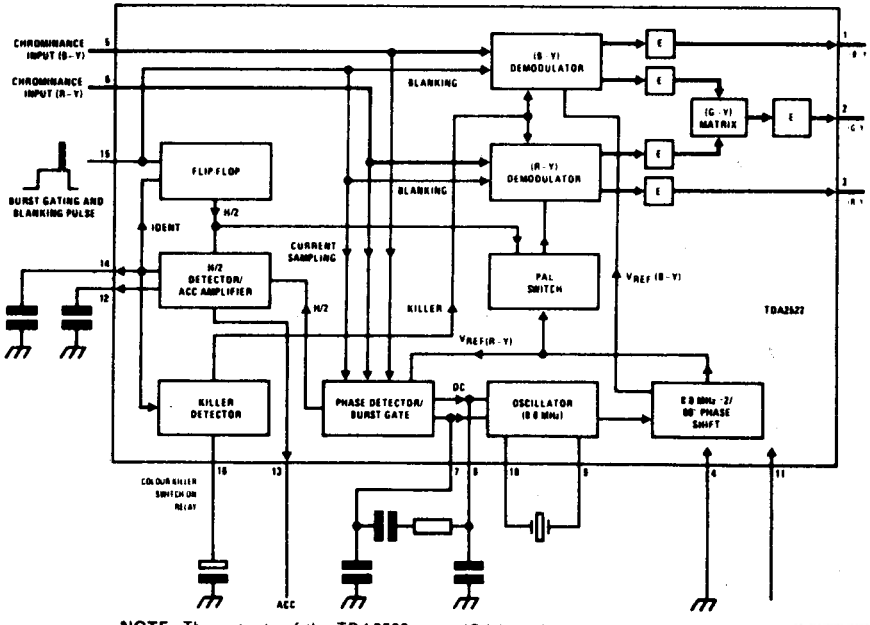
Dual-In-Line Package, Order Number TDA2522
See NS Package N16A

Quad-In-Line Package, Order Number TDA2522Q
See NS Package N16C

Dual-In-Line Package, Order Number TDA2523
See NS Package N16A

Quad-In-Line Package, Order Number TDA2523Q
See NS Package N16C

Block Diagram



NOTE: The outputs of the TDA2522 are −(B-Y), −(R-Y) and −(G-Y).
The outputs of the TDA2523 are (B-Y), (R-Y) and (G-Y).

Absolute Maximum Ratings

V_{11-4}, Supply Voltage	14V
P_{TOT}, Total Power Dissipation (Note 3)	600 mW
T_{STG}, Storage Temperature	−20°C to +125°C
T_A, Operating Ambient Temperature	−20°C to +60°C

Electrical Characteristics V_{11-4} = 12V, T_A = 25°C

	PARAMETER	MIN	TYP	MAX	UNITS
	Supply Current		40		mA
	Demodulator Section				
	Ratio of Demodulator Signals				
B-Y/R-Y, $\frac{V1-4}{V3-4}$			1.78		
G-Y/R-Y, $\frac{V2-4}{V3-4}$	(Note 1)		0.85		
G-Y/R-Y, $\frac{V2-4}{V3-4}$	(Note 2)		0.17		
	Color Difference Output Signals, Peak-to-Peak Values				
R-Y, V3−4 (p-p)		2.40			V
G-Y, V2−4 (p-p)		1.35			V
B-Y, V1−4 (p-p)		3.00			V
	Impedance of Color Difference Signal Outputs				
|Z3−4|			250		Ω
|Z2−4|			250		Ω
|Z1−4|			250		Ω
	H/2 Ripple at R-Y Output (Peak-to-Peak Value)			10	mV
V_{15-4}	Burst Keying Pulse (Positive-Going)	1.5			V
	Chrominance Input Signal (Including Burst) Peak-to-Peak Value				
R-Y, V6−4			500		mV
B-Y, V5−4			350		mV
	Reference Section				
	Phase Difference Between Reference Burst Signals for ±400 Hz Deviation of Crystal Frequency	−5		5	Deg.
	Holding Range with Typical Crystal		±500		Hz
V_{12-4}	ACC Reference Voltage		7		V
	ACC Voltage with 0.5V Peak-to-Peak Burst				
V_{14-4}	At Correct Phase		5.5		V
V_{14-4}	With Zero Burst		7.0		V
V_{13-4}	ACC Amplifier Output with 0.5V Peak-to-Peak Burst of Correct Phase			1.5	V
R_{G-F}	Oscillator Input Resistance		270		Ω
R_{H-F}	Oscillator Output Resistance		200		Ω

Note 1: The demodulators are driven by a chrominance signal of equal amplitude for the (R-Y) and the (B-Y) components. The phase of the (R-Y) chrominance signal equals the phase of the (R-Y) reference signal. The same holds for the (B-Y) signals.

Note 2: As under note 1, but the phase of the (R-Y) reference signal reversed.

Note 3: For operation in ambient temperatures above 25°C, the device must be derated based on a 150°C maximum junction temperature and a thermal resistance of 175°C/W junction to ambient.