

TDA2522

PAL TV CHROMA DEMODULATOR COMBINATION FAIRCHILD LINEAR INTEGRATED CIRCUIT

GENERAL DESCRIPTION— The TDA2522 is a monolithic integrated circuit designed as a synchronous demodulator for PAL color television receivers. It includes an 8.8 MHz oscillator and divider to generate two 4.4 MHz reference signals and provides color difference outputs.

The TDA2522 is intended to interface directly with the TDA2560 with a minimum of external components. The TDA2530 may be added if RGB drive is required. The TDA2522 is constructed using the Fairchild Planar* process.

- 8.8 MHz CHROMA SUBCARRIER OSCILLATOR AND DIVIDER TO GENERATE TWO 4.4 MHz REFERENCE SIGNALS
- KEYED BURST PHASE COMPARATOR FOR OPTIMUM NOISE PERFORMANCE
- ACC DETECTOR AND AMPLIFIER
- COLOR KILLER
- B-Y AND R-Y SYNCHRONOUS DEMODULATORS AND G-Y MATRIX
- TEMPERATURE COMPENSATED EMITTER FOLLOWER OUTPUTS
- PAL SWITCH AND FLIP-FLOP WITH INTERNAL IDENTIFICATION
- ON-CHIP CAPACITORS TO REDUCE CARRIER RESIDUE

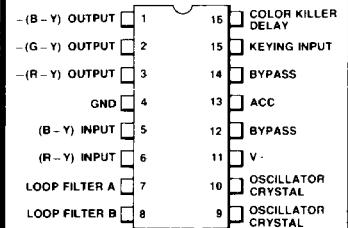
ABSOLUTE MAXIMUM RATINGS

Supply Voltage	14 V
Internal Power Dissipation	600 mW
Operating Temperature Range	-20°C to +60°C
Storage Temperature Range	-20°C to +125°C
Pin Temperature (Soldering 10 s)	260°C

*Planar is a patented Fairchild process.

CONNECTION DIAGRAM 16-PIN DIP (TOP VIEW)

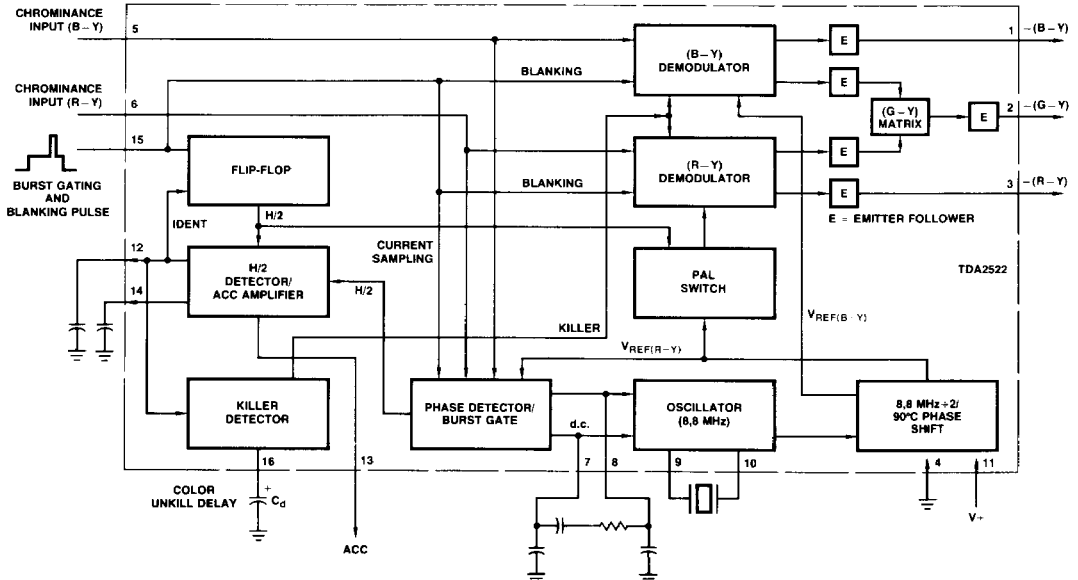
PACKAGE OUTLINE 9B



ORDER INFORMATION

TYPE	PART NO.
2522	TDA2522

BLOCK DIAGRAM



ELECTRICAL CHARACTERISTICS: $V_+ = 12\text{ V}$, $T_A = 25^\circ\text{C}$, unless otherwise specified

CHARACTERISTICS	CONDITIONS	MIN	TYP	MAX	UNITS
Supply Current (I_{11})			40		mA
DEMODULATOR SECTION					
Ratio of Demodulated Signals B-Y/R-Y G-Y Channel	$V_5 = V_6 = 50\text{ mV}_{pk-pk}$		1.78 Note 1		
Color Difference DC Output Voltage R-Y Output (V_3) G-Y Output (V_2) B-Y Output (V_1)			5.6 5.6 5.6		V V V
Color Difference Output Voltage R-Y Output (V_{3pk-pk}) G-Y Output (V_{2pk-pk}) B-Y Output (V_{1pk-pk})	Note 2	2.4 1.35 3.0			V_{pk-pk} V_{pk-pk} V_{pk-pk}
Chroma Input Signal (Including Burst) R-Y Input (V_{6pk-pk}) B-Y Input (V_{5pk-pk})	Note 3		500 350		mV mV
H/2 Ripple Voltage at R-Y Output (V_{3pk-pk})				10	mV_{pk-pk}
Input Resistance of Chroma Inputs (R5, R6) Input Capacitance of Chroma Inputs (C5, C6)		800		10	Ω pF
Output Resistance of Color Difference Terminals (R1, R2, R3)			250		Ω
REFERENCE SECTION					
Static Phase Error for $\pm 400\text{ Hz}$ Deviation between f Burst and f Oscillator		-5		+5	degrees
Holding Range using a Typical Crystal			± 500		Hz
Burst Signal Input with Keying Pulse Width of $4\ \mu\text{s}$	Note 4		.25		V_{pk-pk}
ACC Control Output Voltage (V_{14}) With Zero Burst With Correct Phase Burst Signal	$0.25\ V_{pk-pk}$ Burst		7.0 5.5		V V
ACC Reference Output Voltage (V_{12})			7.0		V
ACC Amplifier Output I_{13}	$V_{13} = 0.5\text{ to }5.0\text{ V}$	-200		+200	μA
Color Killer (V_{14} or V_{16}) OFF (V_{14}) ON (V_{14}) OFF (V_{16}) ON (V_{16})		6.0 7.0		5.6 5.0	V V V V
Color Killer Turn-On Delay	C_V Varied on Pin 16		20		ms/ μF
Keying Pulse Levels from Horizontal Combination TDA2590 (V_{15}) Burst Keying (ON) Burst Keying (OFF) Blanking (ON) Blanking (OFF)		7.5 2.0		6.5 1.0	V V V V
Oscillator Input Resistance (R9)			270		Ω
Oscillator Output Resistance (R10)			200		Ω

NOTES:

1. G-Y output is typically equal to $-0.51\text{ (R-Y)} - 0.19\text{ (B-Y)}$.
2. Increase $V_{IN} = V_5 = V_6$ until gain is equal to 0.7 of small signal gain.
3. Color bar with 75% saturation.
4. Burst amplitude is kept constant by ACC but varies linearly with keying pulse width.

EQUIVALENT CIRCUIT

