signetics

CHROMA DEMODULATOR 5072

LINEAR INTEGRATED CIRCUITS

DESCRIPTION

The 5072 has two sets of synchronous detectors with matrix circuits to achieve the R-Y, G-Y, and B-Y color difference output signals. The chroma input signal is applied to terminal Nos. 3 and 4 while the oscillator injection signal is applied to terminal Nos. 6 and 7. The color difference signals, after matrix, have a fixed relationship of amplitude and phase nominally equal dc voltage levels. The outputs of the 5072 are suitable to driving high level color difference or R, G, B output amplifiers. Emitter-follower output stages used to drive the high level color amplifiers have short-circuit protection.

FEATURES

- **SYNCHRONOUS DETECTOR WITH COLOR DIFFERENCE MATRIX**
- **EMITTER-FOLLOWER OUTPUT AMPLIFIERS WITH SHORT-CIRCUIT PROTECTION**

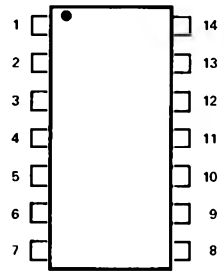
ABSOLUTE MAXIMUM RATINGS

(Values at $T_A = 25^\circ C$)

DC Supply Voltage (Terminal 8 to Terminal 14)	27V
Reference Input Voltage	$5V_{p-p}$
Chroma Input Voltage	$5V_{p-p}$
Device Dissipation:	
Up to $T_A = +70^\circ C$	530mW
Above $T_A = +70^\circ C$	Derate Linearly at 6.7 mW/°C
Ambient Temperature Range:	
Operating	-40 to +85°C
Storage	-65 to +150°C
Lead Temperature (During Soldering):	
At distance 1/32 in (3.17 mm) from seating plane for 10s max.	+165°C

PIN CONFIGURATION

A PACKAGE
(Top View)



1. NC
2. NC
3. Chroma (-)
4. Chroma (+)
5. NC
6. Ref "B"
7. Ref "A"
8. V^+
9. $E_G - E_Y$
10. NC
11. $E_R - E_Y$
12. NC
13. $E_B - E_Y$
14. GND

ORDER PART NO. N5072A

MAXIMUM VOLTAGE & CURRENT RATINGS

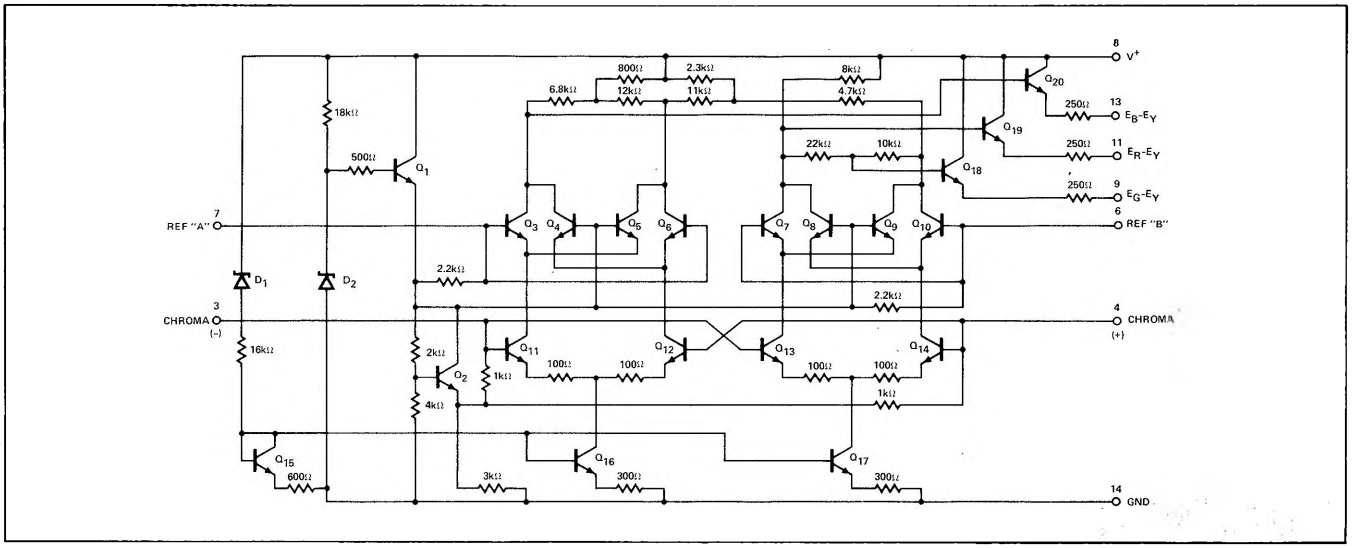
$T_A = 25^\circ C$ **VOLTAGE (Note 1)** **CURRENT**

Terminal No.	MIN. VOLTS	MAX. VOLTS	Terminal No.	I_I mA	I_O mA
3	0	+5	3	-	-
4	0	+5	4	-	-
6	0	+12	6	-	-
7	0	+12	7	-	-
8	0	+27	8	-	-
9	0	-20	9	10	20
11	0	+20	11	10	20
13	0	+20	13	10	20

NOTE:

1. With reference to terminal No. 14 and with the voltage between terminal No. 8 and terminal No. 14 at +24 V except as given in rating for terminal No. 8.

SCHEMATIC DIAGRAM



ELECTRICAL CHARACTERISTICS (T_A = 25°C and V^+ = +24V unless otherwise specified)

PARAMETERS	TEST CONDITIONS	LIMITS MIN	LIMITS TYP	LIMITS MAX	UNITS
STATIC CHARACTERISTICS					
Supply Current With Output Loads	S_1 Closed	16.5		26.5	mA
With No Output Loads	S_1 Open		9		mA
G-Y, R-Y, B-Y Outputs	S_1 Closed	13.2	14.7	15.8	V
Chroma Inputs	S_1 Open		3.3		V
Reference Subcarrier	S_1 Open		6.2		V
DYNAMIC CHARACTERISTICS					
Demodulator Unbalance	$V_3 = V_4 = 0$			0.8	
Maximum Color Difference Output Voltage	$V_3 = V_4 = 0.6$ Vp-p	8.0			Vp-p
		5.5			Vp-p
		1.2			Vp-p
Chroma Input Sensitivity	Adjust e_c for 5.0 Vp-o @ term		0.2	0.35	Vp-p
Relative R-Y Output	No. 13 (B-Y)	3.5		4.2	Vp-p
Relative G-Y Output		0.75		1.25	Vp-p
V_{DC} Difference Between any two Output Terminals	$e_c = 0$			0.6	V
Input Impedance Reference Subcarrier Inputs			1.7		kΩ
			6		pF
Input Impedance at Chroma Inputs			0.95		kΩ
			6		pF
Output Resistance			180		Ω

FUNCTIONAL DIAGRAM