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NTE705A Integrated Circuit Chroma Demodulator

Description:

The NTE705A is a monolithic chroma demodulator constructed using the planar epitaxial process. This device demodulates the chroma subcarrier information contained in a color television video signal and provides color-difference signals at the outputs. The low voltage drift of the DC output insures excellent performance in direct-coupled chrominance output circuitry.

Features:

- Low Output Voltage Drift with Temperature
- Doubly Balanced Demodulation
- Internal Color-Difference Matrix for NTSC Color TV
- 10V Peak-to-Peak E_B - E_Y Output

Absolute Maximum Ratings:

Supply Voltage,	28V
Minimum Load Resistance	3k Ω
Peak-to-Peak Reference Input Voltage	5V
Peak-to-Peak Chroma Input Voltage	5V
Internal Power Dissipation	500mW
Operating Temperature Range, T_{opr}	0° to +70°C
Storage Temperature Range, T_{stg}	-65° to +150°C
Lead Temperature (Soldering, 60 seconds)	300°C

Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $V_+ = 24\text{V}$, unless otherwise specified)

Parameter	Test Conditions	Min	Typ	Max	Unit
Supply Current	$e_C = 0, R_L = 1\text{M}\Omega$	5.5	9.0	12.5	mA
	$e_C = 0, R_L = 1\text{M}\Omega, T_A = +70^\circ\text{C}$	-	9.0	13.0	mA
	$e_C = 0$	16.5	22	25.5	mA
	$e_C = 0, T_A = +70^\circ\text{C}$	-	22	-	mA
Internal Power Dissipation	$e_C = 0$	-	340	430	mW
	$e_C = 0, T_A = +70^\circ\text{C}$	-	340	445	mW
DC Voltage at any Output Terminal	$e_C = 0$	13.2	14.5	15.8	V
	$e_C = 0, T_A = +70^\circ\text{C}$	13.0	14.5	16.0	V
Temp. Coefficient of DC Voltage at any Output Terminal	$e_C = 0$	-5.0	-0.3	+5.0	mV/°C
Absolute Value of DC Difference Voltage between any Two Outputs	$e_C = 0$	-	0.15	0.6	V
DC Voltage at either Reference Terminal	$e_A = e_B = e_C = 0$	-	5.8	-	V

Electrical Characteristics (Cont'd): ($T_A = +25^\circ\text{C}$, $V_+ = 24\text{V}$, unless otherwise specified)

Parameter	Test Conditions	Min	Typ	Max	Unit
DC Voltage at either Chroma Terminal	$e_C = 0$	-	3.2	-	V
Reference Input Resistance	$e_C = 0$	-	1.7	-	k Ω
Reference Input Capacitance	$e_C = 0$	-	6.0	-	pF
Chroma Input Resistance		-	0.8	-	k Ω
Chroma Input Capacitance		-	5.0	-	pF
Peak-to-Peak Chroma Input Voltage	$E_B - E_Y = 5V_{p-p}$	-	0.4	0.7	V
Peak-to-Peak $E_R - E_Y$ Output Voltage	$E_B - E_Y = 5V_{p-p}$	3.5	3.8	4.2	V
Peak-to-Peak $E_G - E_Y$ Output Voltage	$E_B - E_Y = 5V_{p-p}$	0.75	1.0	1.25	V
Max. Peak-to-Peak $E_B - E_Y$ Output Voltage	$e_C = 1.5V_{p-p}$	8.0	10	-	V
$E_B - E_Y$ Demodulation Angle	$E_B - E_Y = 5V_{p-p}$	-	3	-	Degrees
$E_R - E_Y$ Demodulation Angle	$E_B - E_Y = 5V_{p-p}$	-	109	-	Degrees
$E_G - E_Y$ Demodulation Angle	$E_B - E_Y = 5V_{p-p}$	-	259	-	Degrees
$E_R - E_Y$ Demodulation Angle relative to $E_B - E_Y$ Demodulation Angle	$E_B - E_Y = 5V_{p-p}$	101	106	111	Degrees
$E_B - E_Y$ Demodulation Angle relative to $E_G - E_Y$ Demodulation Angle	$E_B - E_Y = 5V_{p-p}$	96	104	112	Degrees
Highest AC Unbalance Voltage at any Output Terminal	$e_C = 0$	-	0.3	0.8	V_{p-p}

Pin Connection Diagram

(Top View)

