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NTE1130 Integrated Circuit Color TV Demodulator

Features:

- Color TV Demodulator (Function)
- Color Difference Signal Amplifier
- Chroma Demodulator
- Color Matrix Circuit
- DC Hue Control
- High Sensitivity:
 Output $V_B - Y = 2.5V_{p-p}$
 Input $0.2V_{p-p}$
- Including MOS Capacitance for Filter
- Hue is controlled by DC Voltage

Absolute Maximum Ratings: ($T_A = +25^\circ C$ unless otherwise specified)

Supply Voltage (V_{13}), V_{CC}	18V
Hue Output terminal Voltage, V_{12}	18V
Hue Control Terminal Voltage, V_9	0 to V_{CC}
Chroma Signal Input, e_C	$4V_{P-P}$
Reference Signal Input Voltage, e_R	$4V_{P-P}$
Sub-Carrier Input Voltage, V_{10} , V_{11}	$4V_{P-P}$
Minimum Load Resistance, R_L	$3k\Omega$
Power Dissipation, P_D	750mW
Derate Above $25^\circ C$	$6.0mW/^\circ C$
Operating Temperature Range, T_{opr}	-20° to $+65^\circ C$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ C$

Electrical Characteristics: ($T_A = +25^\circ C$, $V_{CC} = 15V$, $R_L = 5.6k\Omega$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Operating Supply Voltage	V_{CC}		13.5	15.0	16.5	V
Output Terminal Voltage	$V_{14, 15, 16}$	$R_L = 5.6k\Omega$	8.8	9.8	10.8	V
Supply Current	I_{CC}	$R_L = \infty$	6.0	10.4	15.0	mA
		$R_L = 5.6k\Omega$	11.0	16.8	23.0	mA
Reference Signal Input Terminal Voltage	V_3	$R_L = 5.6k\Omega$	-	5.9	-	V

Electrical Characteristics (Cont'd): ($T_A = +25^\circ\text{C}$, $V_{CC} = 15\text{V}$, $R_L = 5.6\text{k}\Omega$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Chroma Signal Input Terminal Voltage	V_4	$R_L = 5.6\text{k}\Omega$	–	3.8	–	V
Sub-Carrier Signal Input Terminal Voltage	V_{10}	$R_L = 5.6\text{k}\Omega$	–	1.35	–	V
Difference Voltage Between Terminals		$R_L = 5.6\text{k}\Omega$	–	–	0.4	V
Output Voltage Temperature Coefficient		$R_L = 5.6\text{k}\Omega$	–3.0	–	+3.0	mV/°C
Output Difference Voltage Temperature Coefficient		$R_L = 5.6\text{k}\Omega$	–2.0	–	+2.0	mV/°C
Hue Circuit Output Current	I_{12}	Pin9: Open	–	2.1	–	mA
Dynamic Characteristics ($f = 3.58\text{MHz}$)						
R–Y Output Voltage	V_{R-Y}	$V_{B-Y} = 2.5V_{P-P}$, $e_r = 0.5V_{P-P}$	1.9	2.1	2.3	V_{P-P}
G–Y Output Voltage	V_{G-Y}		0.5	0.6	0.7	V_{P-P}
Relative Output Phase R–Y to B–Y Output	θ_R		110	115	120	deg.
G–Y to B–Y Output	θ_G		247	255	263	deg.
B–Y Output Voltage	V_{B-Y}	$e_R = 0.5V_{P-P}$, $e_C = 1.0V_{P-P}$	4.5	6.0	–	V_{P-P}
Chroma Signal Input Voltage	e_C	$V_{B-Y} = 2.5V_{P-P}$, $e_R = 0.5V_{P-P}$	–	200	300	V_{P-P}
Harmonic Output Voltage		$V_{B-Y} = 2.5V_{P-P}$	–	–	0.6	V_{P-P}
Residual Carrier Level		$e_C = 0$, $e_R = 0.5V_{P-P}$	–	50	300	V_{P-P}
Hue Output Regulation		Max/Min	–	–	1.7	
Hue Max. Output Swing		$e_i = 1.0V_{P-P}$	2.0	–	–	V_{P-P}
Hue Phase Shift		Pin9: 0 to 15V	70	100	–	deg.
Sub-Carrier Terminal Input Impedance Parallel Input Resistance	r_{ip}		–	2.1	–	k Ω
Parallel Input Capacitance	C_{ip}		–	4.0	–	pF
Reference Signal Terminal Input Impedance Parallel Input Resistance	r_{ip}	Pin1, Pin2	–	2.0	–	k Ω
Parallel Input Capacitance	C_{ip}		–	4.0	–	pF
Chroma Signal Terminal Input Impedance Parallel Input Resistance	r_{ip}	Pin5, Pin6	–	2.0	–	k Ω
Parallel Input Capacitance	C_{ip}		–	4.0	–	pF
Hue Circuit Terminal Input Impedance Parallel Input Resistance	r_{ip}	Pin12	–	100	–	k Ω
Parallel Input Capacitance	C_{ip}		–	6	–	pF
Hue Circuit Voltage Gain	G_{VH}	$R_L = 1\text{k}\Omega$	5	9	13	dB

Pin Connection Diagram

