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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°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 3kΩ
Power Dissipation, P_D 750mW
Derate Above 25°C . . . . . 6.0mW/°C
Operating Temprature Range, T_{opr} . . . . . –20° to +65°C
Storage Temperature Range, T_{stg} . . . . . –55° to +150°C

Electrical Characteristics: (T_A = +25°C, V_{CC} = 15V, R_L = 5.6kΩ 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 = 5.6kΩ	8.8	9.8	10.8	V
Supply Current	I_{CC}	R_L = ∞	6.0	10.4	15.0	mA
		R_L = 5.6kΩ	11.0	16.8	23.0	mA
Reference Signal Input Terminal Voltage	V_3	R_L = 5.6kΩ	–	5.9	–	V

Electrical Characteristics (Cont'd): (T_A = +25°C, V_{CC} = 15V, R_L = 5.6kΩ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Chroma Signal Input Terminal Voltage	V_4	R_L = 5.6kΩ	–	3.8	–	V
Sub–Carrier Signal Input Terminal Voltage	V_{10}	R_L = 5.6kΩ	–	1.35	–	V
Difference Voltage Between Terminals		R_L = 5.6kΩ	–	–	0.4	V
Output Voltage Temperature Coefficient		R_L = 5.6kΩ	–3.0	–	+3.0	mV/°C
Output Difference Voltage Temperature Coefficient		R_L = 5.6kΩ	–2.0	–	+2.0	mV/°C
Hue Circuit Output Current	I_{12}	Pin9: Open	–	2.1	–	mA
Dynamic Characteristics (f = 3.58MHz)						
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	–	kΩ
Parallel Input Capacitance	c_{ip}		–	4.0	–	pF
Reference Signal Terminal Input Impedance Parallel Input Resistance	r_{ip}	Pin1, Pin2	–	2.0	–	kΩ
Parallel Input Capacitance	c_{ip}		–	4.0	–	pF
Chroma Signal Terminal Input Impedance Parallel Input Resistance	r_{ip}	Pin5, Pin6	–	2.0	–	kΩ
Parallel Input Capacitance	c_{ip}		–	4.0	–	pF
Hue Circuit Terminal Input Impedance Parallel Input Resistance	r_{ip}	Pin12	–	100	–	kΩ
Parallel Input Capacitance	c_{ip}		–	6	–	pF
Hue Circuit Voltage Gain	G_{VH}	R_L = 1kΩ	5	9	13	dB

Pin Connection Diagram