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NTE855
Integrated Circuit
Color TV Video Monitor

Description:

The NTE855 is an integrated circuit in a 14–Lead DIP type package used to generate an RF TV signal from baseband color–difference and luminance signals. This device contains a chroma subcarrier oscillator, a lead and lag network, a quasi–quadrature suppressed carrier DSB chroma modulator, an RF oscillator and modulator, and an LSTTL compatible clock driver with adjustable duty cycle. The NTE855 may be used as a general–purpose modulator with a variety of video signal generating devices such as video games, test equipment, video tape recorders, etc.

Features:

- Single 5V Supply Operation for NMOS and TTL Compatibility
- Minimal External Components
- Sound Carrier Addition Capability
- Modulates Channel 3 or 4 Carrier with Encoded Video Signal
- Low Power Dissipation
- Linear Chroma Modulators for High Versatility
- Composite Video Signal Generation Capability
- GND–Referenced Video Prevents Overmodulation

Absolute Maximum Ratings: (T_A = +25°C unless otherwise specified)

Supply Voltage, V_{CC} 8V
Power Dissipation, P_D 1.25W
Derate Above 25°C . . . . . 13mW/°C
Operating Junction Temperature, T_J . . . . . +150°C
Operating Ambient Temperature Range, T_{opr} . . . . . 0° to +70°C
Storage Temperature Range, T_{stg} . . . . . –65° to +150°C

Recommended Operating Conditions:

Supply Voltage, V_{CC} 5V
Luma Input Voltage, Sync Tip 1V
Luma Input Voltage, Peak White 350mV
Color Reference Voltage 1.5V
Color A, B Input Voltage range . . . . . 1V to 2V

Electrical Characteristics: (V_{CC} = 5V, T_A = +25°C unless otherwise specified)

Parameter	Test Conditions	Min	Typ	Max	Unit
Operating Supply Voltage		4.75	5.00	5.25	V
Supply Current		–	25	–	mA
Chroma Oscillator/Clock Driver (Measured at Pin1 unless otherwise specified)					
Output Voltage, LOW		–	–	0.4	V
Output Voltage, HIGH		2.4	–	–	V
Rise Time	V1 = 0.4V to 2.4V	–	–	50	ns
Fall Time	V1 = 2.4V to 0.4V	–	–	50	ns
Duty Cycle Adjustment Range	V3 = 5V, Measured at V1 = 1.4V	70	–	30	%
Inherent Duty Cycle	No connection to Pin3	–	50	–	%
Chroma Modulator (V5 = V6 = V7 = 1.5V unless otherwise specified)					
Input Common–Mode Voltage Range	Pin5, Pin6, Pin7	0.8	–	2.3	V
Oscillator Feedthrough	Measured at Pin8	–	15	31	$mV_{(p-p)}$
Modulation Angle	(V7 =2V) – (V5 = 2V)	85	100	115	deg
Conversion Gain	V8/(V7 – V6); V8/(V5 – V6)	–	0.6	–	$V_{(p-p)}/V$
Input Current	Pin5, Pin6, Pin7	–	–	–20	µA
Input Resistance	Pin5, Pin6, Pin7	100	–	–	kΩ
Input Capacitance	Pin5, Pin6, Pin7	–	–	5	pF
Chroma Modulator Linearity	V5 = 1V to 2V, V7 = 1V to 2V	–	40	–	%
RF Modulator					
Luma Input Dynamic Range	Pin9	0	–	1.5	V
RF Output Voltage	f = 67.25MHz, V9 = 1V	–	15	–	mV_{rms}
Luma Conversion Gain	V9 = 0.1V to 1.oV	–	0.8	–	V/V
Chroma Conversion Gain	V10 = $1.5V_{p-p}$, V9 = 1V	–	0.95	–	V/V
Chroma Linearity	Pin12, V10 = $1.5V_{p-p}$	–	1	–	%
Luma Linearity	Pin12, V9 = 0 to $1.5V_{p-p}$	–	2	–	%
Input Current	Pin9	–	–	–20	µA
Input Resistance	Pin9	–	800	–	Ω
	Pin10	100	–	–	kΩ
Input Capacitance	Pin9, Pin10	–	–	5	pF
Residual 920kHz	Measured at Pin12, Note 1	–	50	–	dB
Output Current	Pin12, V9 = 0	–	1	–	mA
Temperature Characteristics (V_{CC} = 5V, T_A = 0° to +70°C, IC only)					
Chroma Oscillator Deviation	f_o = 3.579545MHz	–	±50	–	Hz
RF Oscillator Deviation	f_o = 67.25MHz	–	±250	–	kHz
Clock Drive Duty Stability		±5	–	–	%

Note 1. V9 = 1V, V_C = $300mV_{p-p}$ @ 3.58MHz, V_S = $250mV_{p-p}$ @ 4.5MHz, Source Impedance = 75Ω.

Pin Connection Diagram