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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: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

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

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: ($V_{CC} = 5V$, $T_A = +25^{\circ}C$ 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	–	–	$k\Omega$
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 $1.0V$	–	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	–	–	$k\Omega$
Input Capacitance	Pin9, Pin10	–	–	5	pF
Residual 920kHz	Measured at Pin12, Note 1	–	50	–	dB
Output Current	Pin12, $V9 = 0$	–	1	–	mA
Temperature Characteristics ($V_{CC} = 5V$, $T_A = 0^{\circ}$ to $+70^{\circ}C$, 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

