ELECTRONICS, INC.
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NTE739
Integrated Circuit
Dual Doubly Balanced Chroma Demodulator with RGB Matrix and Chroma Driver Stages

Features:
- Luminance Input Provided
- Good Chroma Sensitivity–0.36$V_{p–p}$ Input for 5$V_{p–p}$ Output
- Low Differential Output DC Offset Voltage–0.6V Max
- DC Temperature Stability –3mV/°C Typ
- Negligible Change in Output Voltage Swing and Varying 3.58MHz Reference Input Signal
- High Ripple Rejection Achieved with MOS Filter Capacitors
- High Blue Output Voltage Swing–10$V_{(p–p)}$ Typ
- Blanking Input Provided
- Short–Circuit Protected Outputs

Absolute Maximum Ratings:

Power Supply Voltage 30V
Chroma Signal Input Voltage . . . . . 5.0$V_{(pk)}$
Reference Signal Input Voltage . . . . . 5.0$V_{(pk)}$
Minimum Load Resistance 2.2kΩ
Luminance Input Voltage . . . . . 12$V_{(p–p)}$
Blanking Input Voltage . . . . . 7.0$V_{(p–p)}$
Power Dissipation (Package Limitation), P_D 625mW
Derate Above T_A = +25°C . . . . . 5.0mW/°C
Operating Temperature Range (Ambient), T_{opr} . . . . . 0° to +75°C
Storage Temperature Range, T_{stg} . . . . . –65° to +150°C

Electrical Characteristics: (V_{CC} = 24V, V_{ref} = 1.0$V_{(p–p)}$, R_L = 3.3kΩ, T_A = +25°C unless otherwise specified)

Parameter	Test Conditions	Min	Typ	Max	Unit
Static Characteristics					
Quiescent Output Voltage		14.3	15.0	16.3	V
Quiescent Output Current	R_L = ∞	–	6.0	–	mA
	R_L = 3.3kΩ	19.0	25.5	–	mA
Reference Input DC Voltage		–	6.8	–	V
Chroma Input DC Voltage		–	3.6	–	V
Differential Output Voltage		–	0.3	0.6	V
Output Temperature Coefficient		–	3.0	–	mV/°C

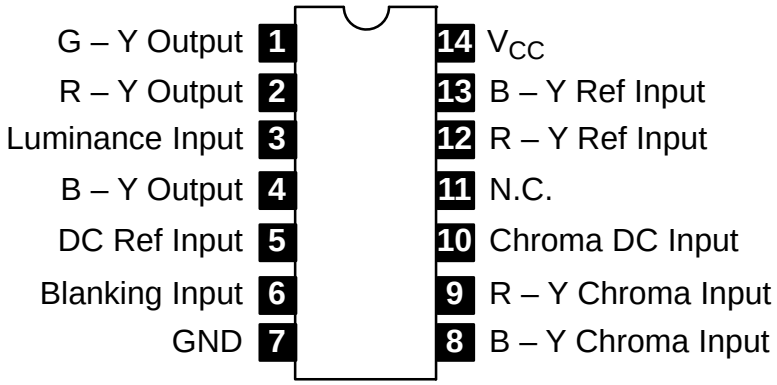
Electrical Characteristics (Cont'd): (V_{CC} = 24V, V_{ref} = 1.0$V_{(p-p)}$, R_L = 3.3kΩ, T_A = +25°C unless otherwise specified)

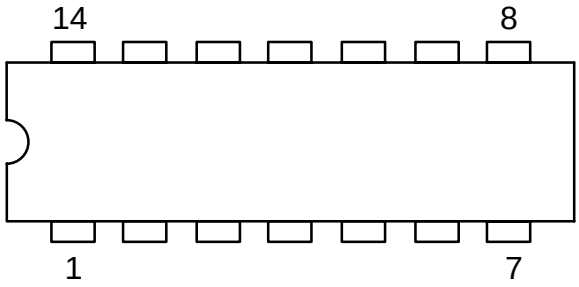
Parameter	Test Conditions	Min	Typ	Max	Unit
Dynamic Characteristics					
Detected Output Voltage + (B–Y)	Note 1	4.0	5.0	–	$V_{(pk)}$
– (B–Y)		4.0	5.0	–	$V_{(pk)}$
Chroma Input Voltage	B–Y Output = 5V_{P-P}, Note 1	–	0.36	0.7	V_{P-P}
Luminance Input Resistance		100	–	–	kΩ
Luminance Gain from Pin3 to Outputs	At DC	–	0.95	–	
	At 5MHz	–	0.5	–	
Blanking Input Resistance	1Vdc	–	1.1	–	kΩ
	0Vdc	–	7.5	–	kΩ
Detected Output Voltage G–Y Output	Adjust B–Y Output to 5V_{P-P}, Luminance Voltage = 23V	0.75	1.0	1.25	V_{P-P}
R–Y Output		3.5	3.8	4.2	V_{P-P}
Relative Output Phase B–Y to R–Y Output	B–Y Output = 5V_{P-P}, Luminance Voltage = 23V	101	106	111	deg
B–Y to G–Y Output		248	256	264	deg
Demodulator Unbalance Voltage	No Chroma Input Voltage and Nominal Reference Signal Input Voltage	–	100	500	V_{P-P}
Residual Carrier and Harmonics Output Voltage	With Input Signal Voltage, Nominal Reference Signal Voltage, and B–Y Output = 5V_{P-P}	–	–	1.0	V_{P-P}
Reference Input Resistance		–	2.0	–	kΩ
Reference Input Capacitance		–	6.0	–	pF
Chroma Input Resistance		–	2.0	–	kΩ
Chroma Input Capacitance		–	2.0	–	pF

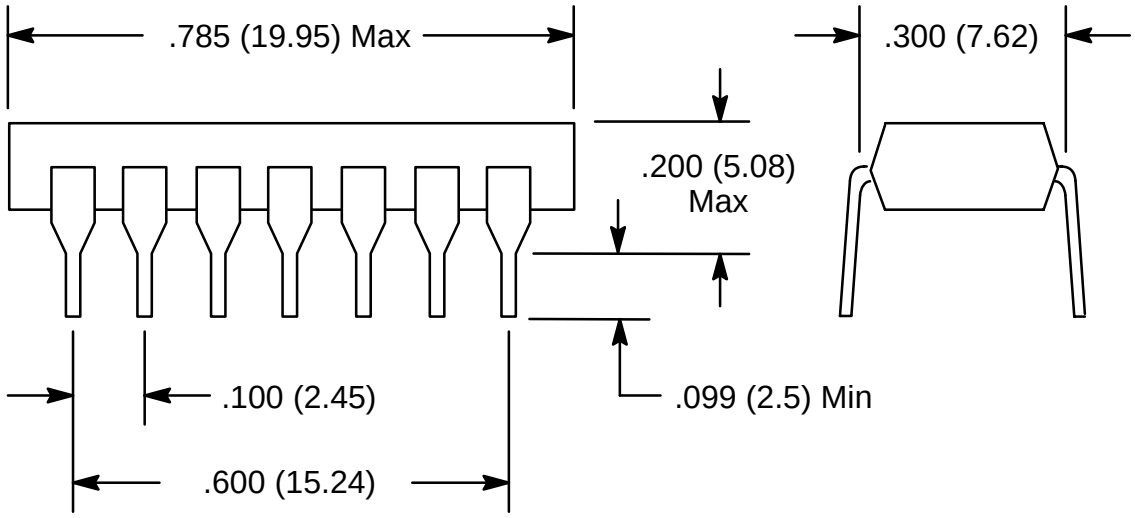
Note 1. With Normal Reference Input Signal Voltage, Adjust Chroma Input Signal Voltage to 1.2$V_{(p-p)}$.

Note 2. With Normal Reference Input Signal Voltage, Adjust Chroma Input Signal Voltage Until the Blue Output Voltage = 5$V_{(p-p)}$. The Chroma Input Voltage at this point should be equal to or less than 0.7$V_{(p-p)}$.

Pin Connection Diagram




14
8
1
7


.785 (19.95) Max
.300 (7.62)
.200 (5.08)
Max
.100 (2.45)
.099 (2.5) Min
.600 (15.24)