

NTE739 Integrated Circuit Dual Doubly Balanced Chroma Demodulator with RGB Matrix and Chroma Driver Stages

Features:

- Luminance Input Provided
- Good Chroma Sensitivity— $0.36V_{p-p}$ Input for $5V_{p-p}$ Output
- Low Differential Output DC Offset Voltage— $0.6V$ Max
- DC Temperature Stability $-3mV/^{\circ}C$ 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— $10V_{(p-p)}$ Typ
- Blanking Input Provided
- Short-Circuit Protected Outputs

Absolute Maximum Ratings:

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

Electrical Characteristics: ($V_{CC} = 24V$, $V_{ref} = 1.0V_{(p-p)}$, $R_L = 3.3k\Omega$, $T_A = +25^{\circ}C$ 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	$R_L = \infty$	—	6.0	—	mA
	$R_L = 3.3k\Omega$	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	—	$mV/^{\circ}C$

Electrical Characteristics (Cont'd): ($V_{CC} = 24V$, $V_{ref} = 1.0V_{(p-p)}$, $R_L = 3.3k\Omega$, $T_A = +25^\circ C$ 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	–	–	$k\Omega$
Luminance Gain from Pin3 to Outputs	At DC	–	0.95	–	
	At 5MHz	–	0.5	–	
Blanking Input Resistance	1Vdc	–	1.1	–	$k\Omega$
	0Vdc	–	7.5	–	$k\Omega$
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
		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	–	$k\Omega$
Reference Input Capacitance		–	6.0	–	pF
Chroma Input Resistance		–	2.0	–	$k\Omega$
Chroma Input Capacitance		–	2.0	–	pF

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

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



