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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— $0.36V_{p-p}$  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), $T_{opr}$	$0^\circ$ to $+75^\circ C$
Storage Temperature Range, $T_{stg}$	$-65^\circ$ 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
<b>Static Characteristics</b>					
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
<b>Dynamic Characteristics</b>					
Detected Output Voltage + (B-Y) ----- - (B-Y)	Note 1	4.0	5.0	-	$V_{(pk)}$
		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 ----- R-Y Output	Adjust B-Y Output to $5V_{P-P}$ , Luminance Voltage = 23V	0.75	1.0	1.25	$V_{P-P}$
		3.5	3.8	4.2	$V_{P-P}$
Relative Output Phase B-Y to R-Y Output ----- B-Y to G-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  $0.7V_{(p-p)}$ .



