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NTE791 Integrated Circuit TV Chroma Amplifier Demodulator

Description:

Comprised of an independent 2-stage chroma amplifier, chroma demodulators, resistor matrix, and color difference amplifiers. The NTE791 monolithic silicon integrated circuit is one of two blocks required for a complete color television receiver chroma system.

The chroma amplifiers contain the necessary circuitry for automatic chroma control and color-killer sensing and control. The demodulators and resistor matrix reconstruct the G-Y color chain to bypass unwanted harmonics. The high-level emitter follower outputs are current limited for short-circuit protection.

Features:

- DC Chroma Gain Control
- Improved Filtering for Harmonic Reduction
- Output Short-Circuit Current Limiting
- Self-Contained Bias Regulator
- Low Thermal Drift, Typically 1mV/°C
- Doubly Balanced Demodulation

Absolute Maximum Ratings:

Operating Temperature Range, T_A -40° to +85°C
 Storage Temperature Range, T_{stg} -65° to +150°C
 Maximum Voltage and Current Ratings ($T_A = +25^\circ\text{C}$) See Table

Pin #	Voltage Range in Volts	Current in mA	
		Input	Output
1	0 to +16	-	-
2	-	2.0	-
3	0 to V_{CC}	1.0	10
4	-	2.0	-
5	reference	1.0	50
6	0 to V_{CC}	-	-
7	0 to +15	-	-
8	0 to +15	-	-
9	0 to V_{CC}	0	Note 1
10	0 to V_{CC}	0	Note 1
11	0 to V_{CC}	0	Note 1
12	0 to +30	50	1.0
13	0 to +10	-	-
14	0 to V_{CC}	-	-
15	0 to +16	-	-
16	0 to +16	-	-

Note 1. Maximum continuous current output is 20mA and is limited by package power dissipation. Short circuit current is typically 50mA.

Static Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $V_{CC} = 24\text{V}$, Note 2 unless otherwise specified)

Parameter	Pins	Test Conditions	Min	Typ	Max	Unit
Supply Current	12		–	40	50	mA
Input D–C Voltage Chroma Demod	13		–	5.5	–	V
R–Y Inj.	8		–	6.1	–	V
B–Y Inj.	7		–	6.1	–	V
Amplifier No. 1	2		–	1.6	–	V
Amplifier No. 2	4		–	1.6	–	V
Output DC Voltage Amplifier No. 1	3	$V_1 = V_{14}$ (ACC at 1/2 Max. Gain)	–	18	–	V
		$V_1 - V_{14} = 100\text{mV}$ (ACC Max Gain)	–	13	–	V
		$V_{14} - V_1 = 100\text{mV}$ (ACC Min Gain)	–	23	–	V
Demodulator	9,10,11	Reference Injection = $1V_{pp}$	13.3	14.3	15.3	V
Output Differential Voltage for any two outputs	9,10,11	Reference Injection = $1V_{pp}$	–	200	600	mV
Output Tracking Temperature Coefficient	9,10,11		–	–1.0	–	mV/°C
Amplifier No. 1 Sensitivity	2	B–Y = $2 V_{rms}$	6.3	10	15	mV _{rms}
Amplifier No. 2 Sensitivity	4	B–Y = $2 V_{rms}$	35	50	80	mV _{rms}
Relative Output Voltage R–Y	10	B–Y = $2 V_{rms}$	1.4	1.52	1.68	V _{rms}
Relative Output Voltage G–Y	9	B–Y = $2 V_{rms}$	300	400	500	mV _{rms}
Demodulator A–C Unbalanced	9,10,11	Chroma Input = 0	–	–	200	mV _{rms}
90% Gain	11	$V_6 = 3\text{V}$	–	1.8	–	V _{rms}
10% Gain	11	$V_6 = 21\text{V}$	–	0.2	–	V _{rms}
Killer	11	$V_1 - V_{14} = 100\text{mV}$ Adj to Kill	–	–	500	mV _{rms}
		$V_1 - V_{14} = 85\text{mV}$ Output Must Recover	2.5	–	–	

Note 2. ACC inputs biased from 11V thru 62k Ω

Note 3. B–Y Reference Injection = $1V_{pp} < 106^\circ\text{C}$

Pin Connection Diagram

