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NTE791
Integrated Circuit
TV Chroma Amplifier Demodulator

Description:

Compromised 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°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°C, V_{CC} = 24V, 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
		$V_1 – V_{14}$ = 100mV (ACC Max Gain)	–	13	–	V
		$V_{14} – V_1$ = 100mV (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 = 3V	–	1.8	–	V_{rms}
10% Gain	11	V_6 = 21V	–	0.2	–	V_{rms}
Killer	11	$V_1 – V_{14}$ = 100mV Adj to Kill	–	–	500	mV_{rms}
		$V_1 – V_{14}$ = 85mV Output Must Recover	2.5	–	–	

Note 2. ACC inputs biased from 11V thru 62kΩ
Note 3. B–Y Reference Injection = $1V_{pp}$ < 106°C

Pin Connection Diagram