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NTE982
Integrated Circuit
TV Chroma System

Description

The NTE982 is a monolithic integrated circuit in a 16–Lead DIP type package containing a complete television chroma subcarrier regeneration system. Synchronous detectors are employed to develop the automatic chroma control (ACC) and automatic phase control (APC) voltages. APC and ACC detection is keyed during the horizontal flyback pulse while the subcarrier output is inhibited.

The NTE982 television chroma subcarrier regeneration system features improved circuitry to effect a linear relationship between the hue control voltage and the subcarrier output phase. In addition, biasing improvements minimize static and dynamic detector offsets. A 12–volt shunt regulator assures reliable operation despite primary power voltage fluctuations.

Features

- Linear D–C Hue Control
- Phase Locked Oscillator
- Keyed APC and ACC Detectors
- Internal Shunt Regulator

Absolute Maximum Ratings

Supply Current, I_{REG} 50mA
Package Power Dissipation, P_D 670mW
Derate Above $_A$ = +70°C . . . . . 8.3mW/°C
Operating Ambient Temperature Range, T_A . . . . . –40°C to +85°C
Storage Temperature Range, T_{stg} . . . . . –65°C to +150°C

Electrical Characteristics: (T_A = +25°C unless otherwise specified)

Parameter	Test Conditions	Min	Typ	Max	Unit
Static Characteristics					
Regulator Voltage	S_4 = A, S_6 = C	11.3	–	13.1	V
Oscillator Current	S_4 = A, S_6 = B	4.4	–	8.1	mA
Gate Control Current	S_4 = B, S_6 = B	–	–	6.4	μA
Hue Leakage Current	S_4 = A, S_6 = A	–	–	32	μA
ACC Leakage Current	S_4 = B, S_6 = A	–	–	30	μA
APC Leakage Current		–	–	40	μA

Electrical Characteristics (Cont'd): (T_A = +25°C unless otherwise specified)

Parameter	Test Conditions	Min	Typ	Max	Unit
Static Characteristics (Cont'd)					
ACC Balance	S_4 = B, S_6 = B	–	–	+300	mV
		–	–	–330	mV
APC Balance	S_4 = B, S_6 = B	–	–	±450	mV
Oscillator Balance		–	–	±330	mV
Hue Linearity, 30%	R_2 = 470Ω, R_3 = 201Ω, Note 1	0.22	–	0.47	
Hue Linearity, 70%	R_2 = 201Ω, R_3 = 470Ω, Note 1	0.59	–	0.74	
Hue Switching Voltage	R_2 = 1813Ω, R_3 = 201Ω, V_1 = 0	–	–	350	mV
	R_2 = 470Ω, R_3 = 4230Ω, V_1 = V_{10}	–	–	300	mV
Dynamic Characteristics (e_{in} = 0.4V_{pp}, f_{in} = 3,579,545H_Z, f_o preset to 3,579,545 ±5H_Z by adj. R_{13}, S_1 = A, S_{12} = B, S_{13} = A unless otherwise specified)					
Oscillator Frequency Deviation	e_{in} = 0, S_{12} = A	–	–	±400	Hz
APC Balance	e_{in} = 0, read V_B/V_{10}	0.08	–	0.92	
Oscillator Adjust Range, Positive	e_{in} = 0, S_{13} = B	+500	–	–	Hz
Oscillator Adjust Range, Negative	e_{in} = 0, S_{13} = C	–500	–	–	Hz
Pull–In, High	f_{in} = 3,579,745Hz	Note 2			
Pull–In, Low	f_{in} = 3,579,345Hz	Note 2			
Tint Control, High		+350	–	–	mV
Tint Control, Low	S_1 = B	–350	–	–	mV
ACC Balance	e_{in} = 0	–	–	±50	mV
ACC Control	Note 3	120	–	250	mV
APC Detector Overload	e_{in} = 10V_{PP}	–	–	±100	mV
Oscillator Drift	e_{in} = 0, t = 15 minutes	–	–	±100	mV
Oscillator Temperature Coefficient	T_A = +50°C, t = 15 minutes	–	–	±4	Hz/°C

Note 1. Adjust V_1 for $V_{2–3}$ = 0, read V_1/V_{10}.

Note 2. Oscillator must lock on frequency.

Note 3. ACC Control is defined as $V_{15–15}$ with normal input voltage and frequency minus $V_{15–16}$ with e_{in} = 0 (ACC Balance reading).

Pin Connection Diagram