ELECTRONICS, INC.
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NTE1810
Integrated Circuit
Color TV Video System

Description:

The NTE1810 is an integrated circuit in a 28–Lead DIP ype package designed for color TV and VCR IF and audio IF processing circuits.

Features:

- PLL True Synchronous Detector Incorporates VCO
- Quadrature Sound FM Detector
- Frequency Characteristics Compensation Terminal (Pin20), VCR Switch Terminal (Pin5)
- Sound Output Level Adjustment Terminal (Pin25)

Absolute Maximum Ratings: (T_A = +25°C unless otherwise specified)

Supply Voltage, V_{CC} 13.8V

Circuit Voltage

$V_{5–1,14,21}$ . . . . . $V_{4,12–1,14,21}$ to 0V

$V_{6–1,14,21}$ . . . . . $V_{4,12–1,14,21}$ to 0V

$V_{7–1, 14,21}$ . . . . . $V_{4,12–1,14,21}$ to 0V

$V_{10–1,14,21}$ . . . . . $V_{4,12–1,14,21}$ to 0V

$V_{18–1,14,21}$ . . . . . $V_{4,12–1,14,21}$ to 0V

$V_{25–1,14,21}$ . . . . . 8.0V to 0V

Circuit Current

I_{17} . . . . . –7mA to +0.5mA

I_{19} . . . . . –7mA to +0.5mA

I_{26} . . . . . –5mA to +0.5mA

Power Dissipation (T_A = +70°C), P_D 1300mW

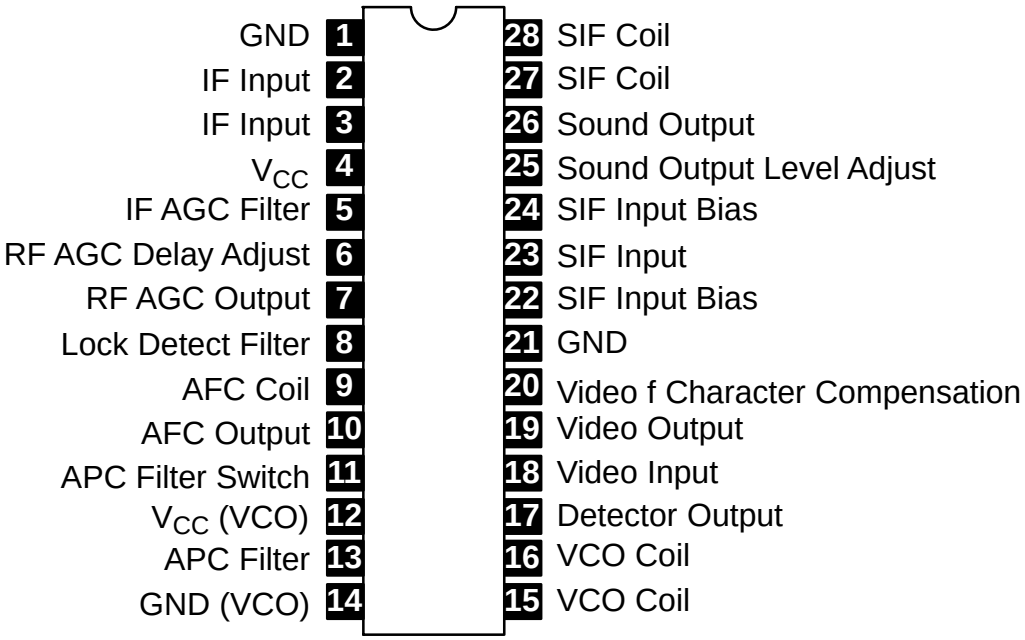
Operating Ambient Temperature Range, T_{opr} . . . . . –20° to +70°C

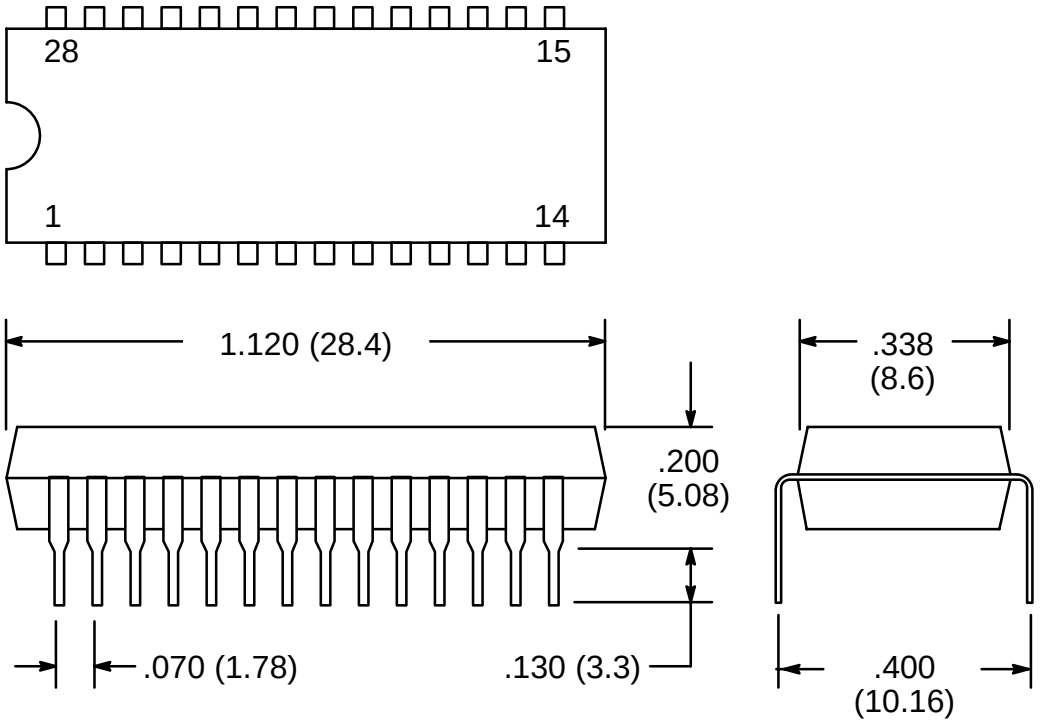
Storage Temperature Range, T_{stg} . . . . . –55° to +150°C

Electrical Characteristics: (V_{CC} = 12V, T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
IF Amplifier • Detection • AGC • AFC Circuit						
Video Detector Output	V_O	f = 58.75MHz, V_i = 80dBμ, m = 87.5%	1.9	2.2	2.5	V_{p-p}
Input Sensitivity	$S_{(IN)}$	V_O = –3dB	49	53	57	dBμ
Max. Allowable Input	$V_{I(max)}$		103	108	–	dBμ
Differential Gain	DG	f = 58.75MHz, V_i = 80dBμ, m 87.5%	–	2	6	%
Differential Phase	DP	f = 58.75MHz, V_i = 80dBμ, m = 87.5%	–	2	5	deg
Frequency Characteristics	f_c	V_o = –3dB	4.5	5	6	MHz
RF AGC Gain	G_{RFAGC}	f = 10kHz, V_i = 10mV	40	44	48	dB
AFC Phase Det. Sensitivity	μ	R_L = 68Ω/82kΩ	30	40	60	mV/kHz
AFC Center Voltage	V_{10}	R_L = 68kΩ/82kΩ	4.2	6.5	8.2	V
VCO APC Circuit						
VCO Max. Variable Range	$\Delta f_{V(1)}$	V_{13} = 2V	+0.85	+1.5	+2.5	MHz
	$\Delta f_{V(2)}$	V_{13} = 3V	–4.0	–2.4	–1.4	MHz
VCO Control Sensitivity	β		3	4.5	6	kHz/mV
APC Pull–In Range	$f_{APC(1)}$		+0.85	+1.5	+2.5	MHz
	$f_{APC(2)}$		–3.5	–2.5	–1.6	MHz
SIF Circuit						
Total Detector Output	V_O	f_o = 4.5MHz, f_m = 400Hz, Δf = ±25kHz, V_i = 100V_{ms}	400	500	650	mV_{rms}
Input Limiting Voltage	$V_{i(lim)}$	f_o = 4.5MHz, f_m = 400Hz	–	36	40	dBμ
DC Characteristics						
Circuit Current	I_4+I_{12}		50	70	90	mA

Pin Connection Diagram




28
15
1
14
1.120 (28.4)
.200
(5.08)
.338
(8.6)
.070 (1.78)
.130 (3.3)
.400
(10.16)