ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748–5089

NTE1683
Integrated Circuit
Horizontal/Vertical Processing Circuit

Description:

The NTE1683 is an integrated circuit in an 18–Lead DIP type package designed for color TV deflection signal processing circuits.

Features:

- An auto–synchronized circuit, composed of a phase comparator circuit and a frequency–discriminator circuit
- Vertical and horizontal oscillator circuit operations which are highly stable against changes in supply voltage and temperature
- Built–in high tension protector circuit

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

Supply Voltage
- $V_{7–5, 10}$ 13.8V
- $V_{15–5, 10}$ 13.8V

Circuit Voltage
- $V_{1–5, 10}$ 6V
- $V_{3–5, 10}$ 13.8V
- $V_{4–5, 10}$ 13.8V
- $V_{6–5, 10}$ 13.8V
- $V_{9–5, 10}$ 9V
- $V_{12–5, 10}$ 4.5V
- $V_{13–5, 10}$ 13.8V
- $V_{18–5, 10}$ 13.8V

Circuit Current
- I_1 . . . . . –1/1mA
- I_2 . . . . . –10/10mA
- I_3 . . . . . –3/50mA
- I_4 . . . . . –1/1mA
- I_6 . . . . . 0/500mA
- I_8 . . . . . –2/0mA
- I_9 . . . . . –1/0mA
- I_{11} . . . . . –40/2mA
- I_{12} . . . . . –1/3mA
- I_{13} 0/40mA
- I_{16} . . . . . –3/3mA
- I_{18} 0/1mA

Power Dissipation, P_D 940mW

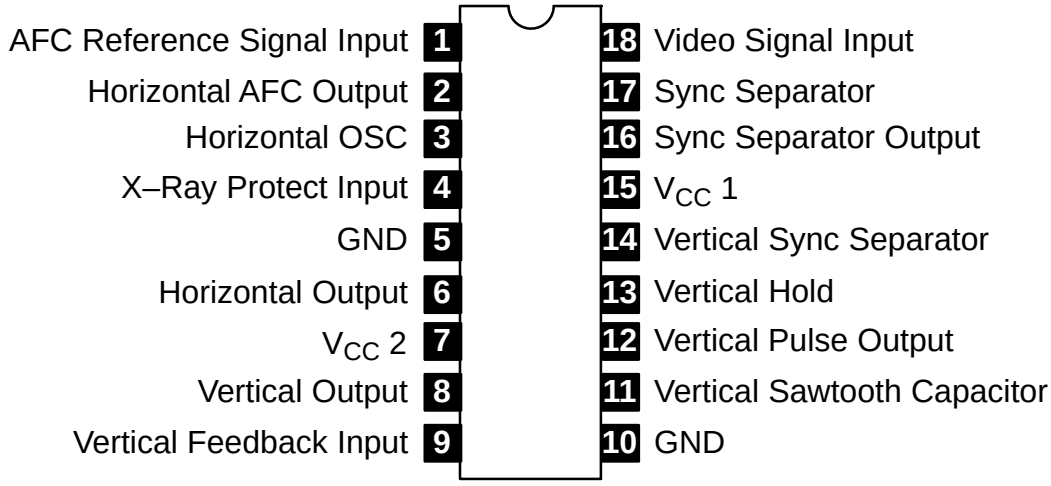
Operating Temperature Range, T_{opr} . . . . . –20° to +70°C

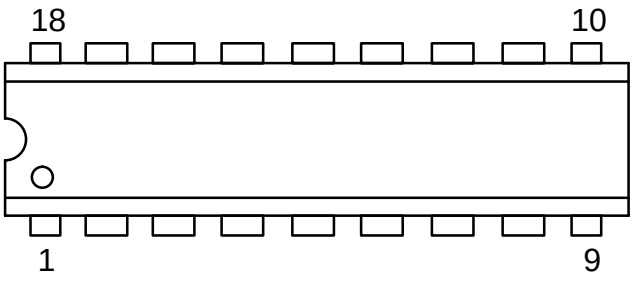
Storage Temperature Range, T_{stg} . . . . . –55° to +150°C

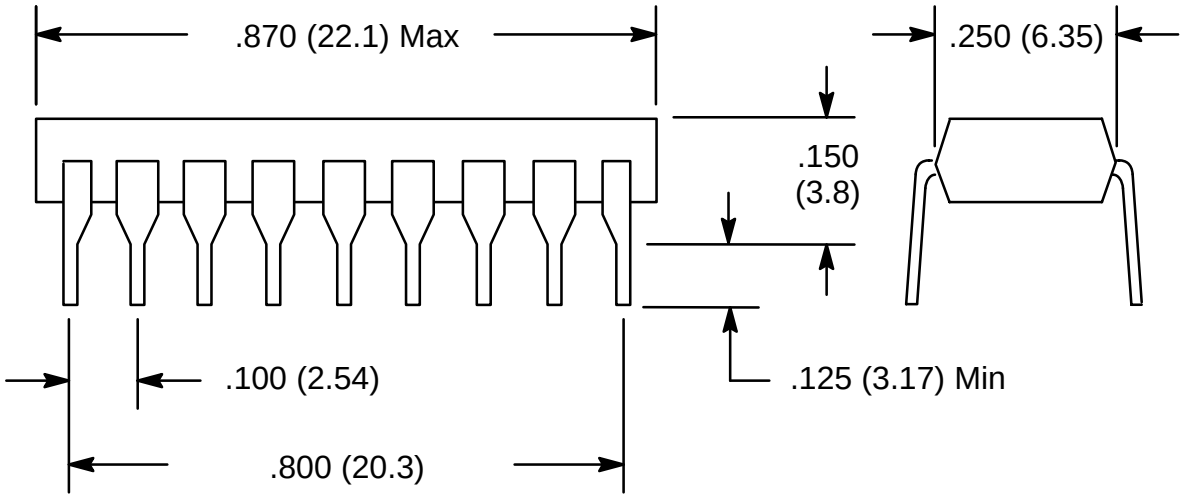
Electrical Characteristics: (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Circuit Current	$I_{7(1)}$		14.6	19.5	24.4	mA
	$I_{7(2)}$		18.7	25.0	31.3	mA
Horizontal Pulse Width	t_{sync}	$V_{CC}1$ = 12V, V_I = $1V_{P–P}$	4.7	5.0	5.3	µs
Vertical Oscillation Starting Voltage	$V_{OSC–S(1)}$	f_{VO} = 40 to 60Hz, $0.7V_{P–P}$	–	–	6.2	V
Vertical Oscillation Frequency	f_{VO}	$V_{CC}1$ = 12V	47	50	53	Hz
Vertical Pulse Width	$\tau_{vo(1)}$	$V_{CC}1$ = 12V	0.5	0.7	0.9	ms
	$\tau_{vo(2)}$		–	0.95	–	ms
Vertical Pull–In Range	f_{vp}	V_{in} = $2.0V_{P–P}$	–	33	38	Hz
Change with Ambient Temperature	$\Delta f_{VO}/T_A$	$V_{CC}1$ = 12V, T_A = –20° to +70°C	0	–	2	Hz
Horizontal Oscillation Starting Voltage	$V_{OSC–S(2)}$	f_{ho} = 10 to 20kHz, $1V_{P–P}$, $V_{CC}2$ = 12V	5.0	–	6.5	V
Horizontal Oscillation Frequency	f_{HO}	$V_{CC}2$ = 12V	15.0	15.75	16.25	V
Pulse Width Duty Ratio (H–Osc)	τ	$V_{CC}2$ = 12V	–	50	–	%
Control Sensitivity	β	I_O = ±100µA	23.5	25.5	27.5	Hz/µA
Protector Operating Voltage	$V_{4–5}$		0.73	–	0.86	V
Change with Ambient Temperature	$\Delta f_{HO}/T_A$	$V_{CC}2$ = 12V, T_A = –20° to +70°C	–200	–	200	Hz
AFC Loop Gain	f_{APC}	μ x β	–	7400	–	kHz/rad

Pin Connection Diagram




18
10
1
9


.870 (22.1) Max
.250 (6.35)
.150
(3.8)
.100 (2.54)
.125 (3.17) Min
.800 (20.3)