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NTE1664
Integrated Circuit
TV Hotizontal/Vertical Sync Signal Processor

Description:

The NTE1664 is a silicon monolithic integrated circuit in a 22–Lead DIP type package designed for use as a horizontal deflection circuit and vertical deflection circuit for color TV sets. This device contains two synchronization signal separators, a vertical oscillator, vertical sawtooth shaper, vertical pre–driver, vertical retrace blanking pulse generator, horizontal AFC, horizontal oscillator, horizontal pre–driver, and an abnormal high voltage prevention circuit.

Features:

- Two Synchronous Signal Separators for Very Stable Synchronization (Horizontal and Vertical Signals are Independent of Each Other)
- Remarkably Improved Interlace Tracking due to Separate Wiring of Horizontal and Vertical Sections
- Wide Range of Vertical Retrace Blanking Time due to Adjust Pin
- Very Low Oscillation Frequency Drift of Vertical and Horizontal Oscillator Against Ambient Temperature

Absolute Maximum Ratings: (T_A = +25°C ±3°C unless otherwise specified)

Vertical Power Supply Voltage, V_{21} 15V
Horizontal Power Supply Current Drain, I_{11} 30mA
Vertical Output Current, I_{14} . . . . . –30mA to +0mA
Horizontal Output Current, I_{10} . . . . . –10mA to +10mA
Power Dissipation (T_A = +75°C), P_D 600mW
Operating Temperature Range, T_{opr} . . . . . –20° to +75°C
Storage Temperature Range, T_{stg} . . . . . –40° to +125°C

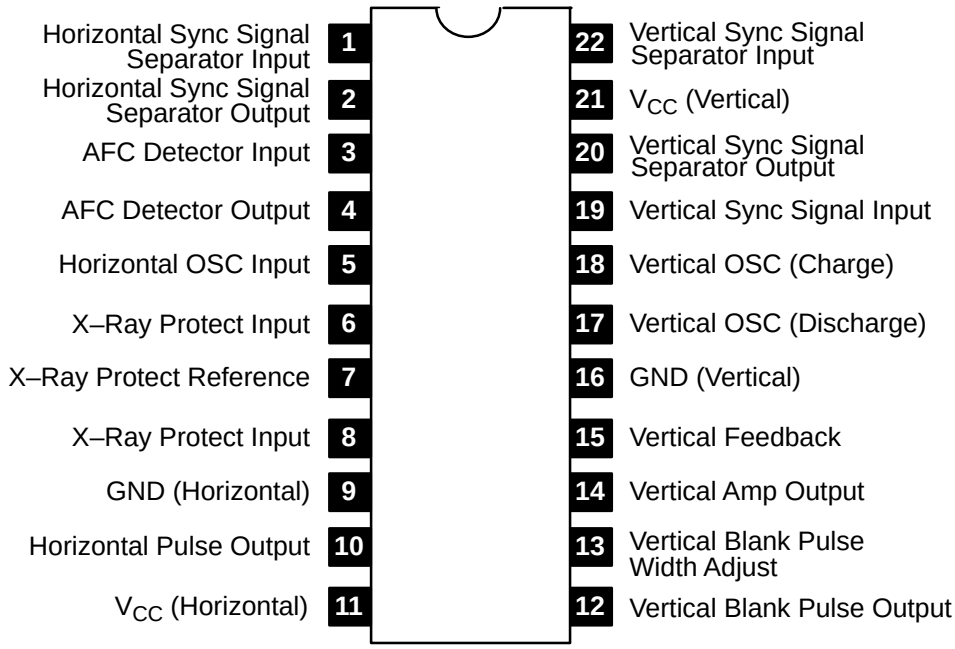
Recommended Operating Conditions: (T_A = +25°C unless otherwise specified)

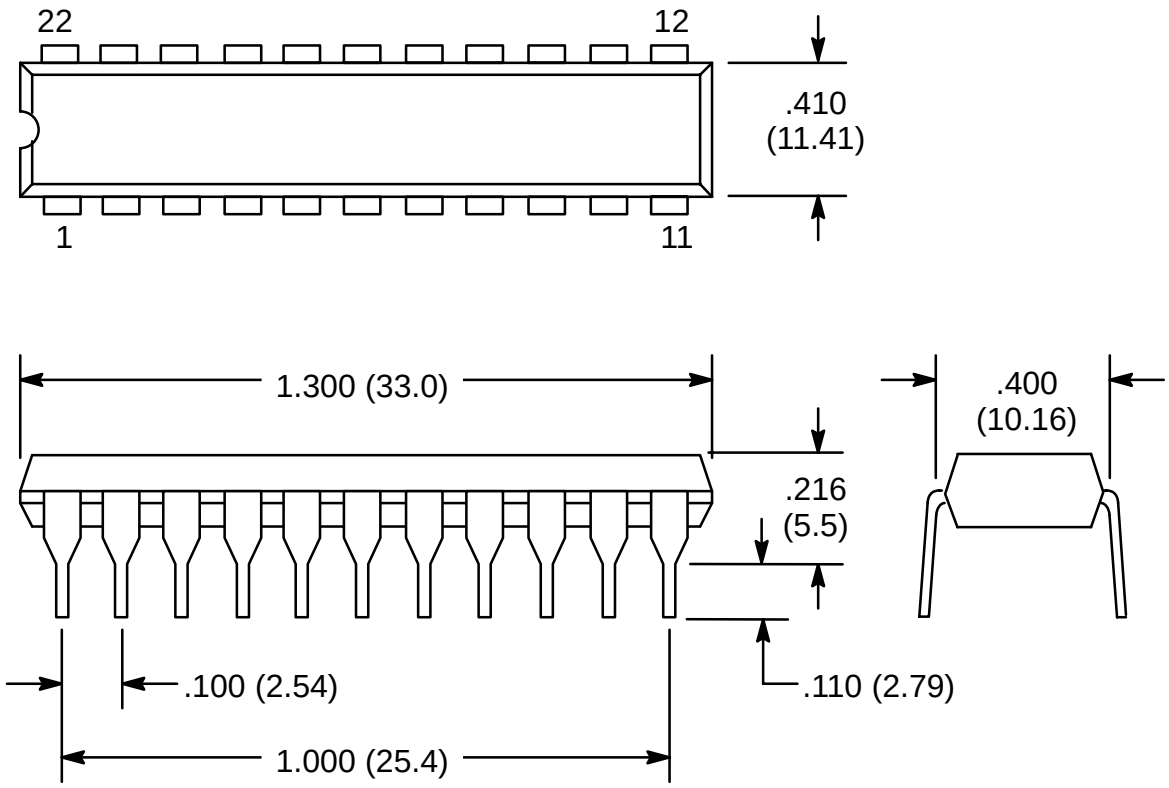
Vertical Power Supply Voltage, V_{21} 12V
Horizontal Power Supply Drain Current, I_{11} 15mA

Electrical Characteristics: (T_A = +25°C, V_{21} = 12V, I_{11} = 15mA unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Vertical Power Supply Current	I_{21}	V_{21} = 12V	10.5	14.0	17.5	mA
Horizontal Power Supply Voltage	V_{11}	I_{11} = 15mA	12.0	13.0	14.5	V
Vertical Free–Running Frequency	$f_{\upsilon o}$	C_{18} = 1μF, R_{17} = 33kΩ	48	50	53	Hz
Vertical Free–Running Frequency Drift	$\Delta f_{\upsilon o}(V_{CC})$	$\Delta f_{\upsilon o}(V_{CC}) = \lvert f_{\upsilon o}(9.6V) - f_{\upsilon o}(14.4V)\rvert$	0	0.8	1.0	Hz
	$\Delta f_{\upsilon o}(T_A)$	$\Delta f_{\upsilon o}(T_A) = \lvert f_{\upsilon o}(–20°C) - f_{\upsilon o}(+75°C)\rvert$	0	0.6	1.0	Hz
Vertical Synchronizing Capture Frequency	$f_{p\upsilon}$		46	48	50	Hz
Output Middle Voltage	V_{MID}	Output Power: NTE1676	12	13	14	V
Output Middle Voltage Drift	$\Delta V_{MID}(T_A)$	$\Delta V_{MID}(T_A) = \lvert V_{MID}(–20°C) - V_{MID}(+75°C)\rvert$	0	–	1.0	V
Retrace Pulse Width	RPW (1)	C_{13} = 0.047μF, R_{13} = 30.75kΩ	0.95	1.0	1.05	ms
	RPW (2)	C_{13} = 0.1μF, R_{13} = 28.5kΩ	1.9	2.0	2.1	ms
Retrace Pulse Voltage	RPV		10	11	–	$V_{P–P}$
Horizontal Power Supply Voltage Drift	$\Delta V_{11}(T_A)$	$\Delta V_{11}(T_A) = \lvert\Delta V_{11}(–20°C) - \Delta V_{11}(+75°C)\rvert$	–	–	130	mV
Horizontal Synchronizing Capture Frequency	f_{PH}	C_5 = 5600pF	±500	±700	±900	Hz
Efficiency of Horizontal Oscillation Control	β		38	40	45	Hz/μA
AFC Detector Gain	μ		190	300	420	μA/rad
Horizontal Free–Running Frequency	f_{HO}	C_5 = 5600pF, R_5 = 14.5kΩ	15.00	15.75	16.50	kHz
Horizontal Free–Running Frequency Drift	$\Delta f_{HO}(I_{11})$	$\Delta f_{HO}(I_{11}) = \lvert f_{HO}(15mA) - f_{HO}(9mA)\rvert$	0	–	50	Hz
	$\Delta f_{HO}(T_A)$	$\Delta f_{HO}(T_A) = \lvert f_{HO}(–20°C) - f_{HO}(+75°C)\rvert$	0	40	100	Hz
Horizontal Output Pulse Width	PWH		24.5	26.0	27.5	μ
Horizontal Output Pulse Voltage	PWV		10	11	–	$V_{P–P}$
Horizontal Output Current	I_{10}		–3.5	–4.5	–6.0	mA
X–Ray Protector Input Voltage	V_6	V_7 = 6.2V	–0.1	–	+0.1	V

Pin Connection Diagram




22
12
.410
(11.41)
1
11
1.300 (33.0)
.400
(10.16)
.216
(5.5)
.100 (2.54)
.110 (2.79)
1.000 (25.4)