

NTE1664 Integrated Circuit TV Horizontal/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: ($T_A = +25^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 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 ($T_A = +75^{\circ}\text{C}$), P_D	600mW
Operating Temperature Range, T_{opr}	-20° to $+75^{\circ}\text{C}$
Storage Temperature Range, T_{stg}	-40° to $+125^{\circ}\text{C}$

Recommended Operating Conditions: ($T_A = +25^{\circ}\text{C}$ unless otherwise specified)

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

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Vertical Power Supply Current	I_{21}	$V_{21} = 12\text{V}$	10.5	14.0	17.5	mA
Horizontal Power Supply Voltage	V_{11}	$I_{11} = 15\text{mA}$	12.0	13.0	14.5	V
Vertical Free-Running Frequency	f_{v0}	$C_{18} = 1\mu\text{F}$, $R_{17} = 33\text{k}\Omega$	48	50	53	Hz
Vertical Free-Running Frequency Drift	$\Delta f_{v0}(V_{CC})$	$\Delta f_{v0}(V_{CC}) = f_{v0}(9.6\text{V}) - f_{v0}(14.4\text{V}) $	0	0.8	1.0	Hz
	$\Delta f_{v0}(T_A)$	$\Delta f_{v0}(T_A) = f_{v0}(-20^{\circ}\text{C}) - f_{v0}(+75^{\circ}\text{C}) $	0	0.6	1.0	Hz
Vertical Synchronizing Capture Frequency	f_{pv}		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) = V_{MID}(-20^{\circ}\text{C}) - V_{MID}(+75^{\circ}\text{C}) $	0	–	1.0	V
Retrace Pulse Width	RPW (1)	$C_{13} = 0.047\mu\text{F}$, $R_{13} = 30.75\text{k}\Omega$	0.95	1.0	1.05	ms
	RPW (2)	$C_{13} = 0.1\mu\text{F}$, $R_{13} = 28.5\text{k}\Omega$	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) = \Delta V_{11}(-20^{\circ}\text{C}) - \Delta V_{11}(+75^{\circ}\text{C}) $	–	–	130	mV
Horizontal Synchronizing Capture Frequency	f_{PH}	$C_5 = 5600\text{pF}$	± 500	± 700	± 900	Hz
Efficiency of Horizontal Oscillation Control	β		38	40	45	Hz/ μA
AFC Detector Gain	μ		190	300	420	$\mu\text{A/rad}$
Horizontal Free-Running Frequency	f_{HO}	$C_5 = 5600\text{pF}$, $R_5 = 14.5\text{k}\Omega$	15.00	15.75	16.50	kHz
Horizontal Free-Running Frequency Drift	$\Delta f_{HO}(I_{11})$	$\Delta f_{HO}(I_{11}) = f_{HO}(15\text{mA}) - f_{HO}(9\text{mA}) $	0	–	50	Hz
	$\Delta f_{HO}(T_A)$	$\Delta f_{HO}(T_A) = f_{HO}(-20^{\circ}\text{C}) - f_{HO}(+75^{\circ}\text{C}) $	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	$V_7 = 6.2\text{V}$	–0.1	–	+0.1	V

Pin Connection Diagram



