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NTE1661 Integrated Circuit Synchronization Signal Processor For B/W TV and Small-Sized Color TV

Description:

This device is a bipolar analog integrated circuit designed for mono-chrome TV and small size color TV. It contains synchronous signal separator, vertical deflection signal generator, vertical power stage, and horizontal deflection signal generator in a molded 16 pins dial in-line package.

The vertical stage reduces the power consumption remarkably by the built-in voltage booster circuit. The horizontal signal part can take the working power from any voltage power supply higher than 8 volts, as it equips shunt type power regulator itself. So, it can take the power even from 110 volt power line through only one resistor.

Features:

- Built-in vertical power stage remarkably low power vertical deflection realized by the built-in voltage booster.
- Vertical fly-back pulse width is freely adjustable by the exclusive
- Any supply voltage is available for the horizontal part, as it equips shunt type power regulator itself.

Absolute Maximum Ratings: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Power Supply Voltage for Vertical Part, V_4	15V
Power Supply Current for Horizontal Part, I_{10}	30mA
Video Input Voltage, V_{15}	V_4 V
Synch Output Current, I_{16}	-10 to +10mA
Voltage Booster Charge Voltage, V_{11}	V_4 V
Booster Output Current, I_5	-500 to +150mA peak
Deflection Current, I_8	-500 to +150mA peak
Vertical Feedback Voltage, V_6	V_4 V
AFC Input Voltage, V_{14}	V_{10} V
Horizontal Output Current (Pulse), I_9	-5 to +5mA
Power Dissipation, P_D	1.3 ($T_{\text{tab}} = 98^\circ\text{C}$)W
Thermal Resistance (J-tab) $R_{\text{th}(j-\text{tab})}$	40 ($T_{\text{tab}} = 25^\circ\text{C}$) $^\circ\text{C}/\text{W}$
Thermal Resistance, (J-a) $R_{\text{th}(j-a)}$	70 ($T_A = 25^\circ\text{C}$) $^\circ\text{C}/\text{W}$
Operating Temperature Range, T_{opt}	-20 to +75 $^\circ\text{C}$
Storage Temperature Range, T_{stg}	-40 to +150 $^\circ\text{C}$

Recommended Operating Conditions:

(Mark (+) of current expresses that the current is flowing into the terminal)

(Mark (-) of current expresses the the current is flowing out from the terminal)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Power Supply Voltage for the Vertical Part	V_4		9.6	12	14.4	V
Deflection Current	I_{DEF}		400	500	600	mA_{p-p}
Power Supply Current for Horizontal Part	I_{10}		6.5	12	18	mA
Electrical Characteristics: ($T_A = 25^\circ\text{C}$, $V_4 = 12\text{V}$, $I_{DEF} = 500\text{mA}_{p-p}$, $I_{10} = 12\text{mA}$)						
Power Supply Current for Vertical Part	$I_{4(1)}$	standard circuit	-	85	100	mA
Vertical Free-running Frequency	f_{VO}		46	50	54	Hz
Drift of Vertical Free-running Frequency	$\Delta f_{VO}(V_{CC})$	$(\Delta f_{VO}(V_{CC}) = (f_{VO}(9.6\text{V}) - f_{VO}(14.4\text{V}))$	-	0.8	2.0	Hz
Vertical Synchronizing Capture Frequency	f_{PV}	$f_{V(in)} = 60\text{Hz}$	47	50	-	Hz
Middle Voltage of Vertical Output	V_{MID}	Standard Circuit	5.3	5.8	6.3	V
Flyback Pulse Peak Voltage	RPV	Standard Circuit	20	23	26	V
Flyback Pulse Width	RPW	Standard Circuit	790	850	910	μs
Deflection Current	I_{DEF}	Standard Circuit	450	500	550	mA_{p-p}
Horizontal Free-running freq.	f_{HO}	Standard Circuit	15.0	15.75	16.5	kHz
Drift of Horizontal Free-running frequency	$\Delta f_{HO}(T_A)$	$\Delta f_{HO}(T_A) = (f_{HO}(-20^\circ\text{C}) - f_{HO}(+75^\circ\text{C}))$	-	190	250	Hz
Horizontal Output Pulse Width	PWH	Standard Circuit	23	25	27	μs
Horizontal Output Current	I_9	Standard Circuit	0.8	1.3	2.0	mA
Horizontal Synchronizing Capture Freq.	f_{PH}	Standard Circuit	± 650	± 900	± 1150	Hz
Horizontal AFC Output Current	I_{13}	Standard Circuit	0.28	0.45	0.74	mA
Gain of AFC Detector	μ	Standard Circuit	89	143	236	$\mu\text{A}/\text{rad}$
Efficiency of Horizontal Oscillation Control	β	Standard Circuit	66	72	78	$\text{Hz}/\mu\text{A}$

Pin Connection Diagram

