



ELECTRONICS, INC.  
 44 FARRAND STREET  
 BLOOMFIELD, NJ 07003  
 (973) 748-5089  
<http://www.nteinc.com>

## 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, $T_{\text{opt}}$ .....	-20 to +75 $^\circ\text{C}$
Storage Temperature Range, $T_{\text{stg}}$ .....	-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	$\text{mA}_{p-p}$
Power Supply Current for Horizontal Part	$I_{10}$		6.5	12	18	mA
<b>Electrical Characteristics:</b> ( $T_A = 25^\circ\text{C}$ , $V_4 = 12\text{V}$ , $I_{DEF} = 500\text{mA}_{p-p}$ , $I_{10} = 12\text{mA}$ )						
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	$\mu\text{s}$
Deflection Current	$I_{DEF}$	Standard Circuit	450	500	550	$\text{mA}_{p-p}$
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	$\mu\text{s}$
Horizontal Output Current	$I_9$	Standard Circuit	0.8	1.3	2.0	mA
Horizontal Synchronizing Capture Freq.	$f_{PH}$	Standard Circuit	$\pm 650$	$\pm 900$	$\pm 1150$	Hz
Horizontal AFC Output Current	$I_{13}$	Standard Circuit	0.28	0.45	0.74	mA
Gain of AFC Detector	$\mu$	Standard Circuit	89	143	236	$\mu\text{A}/\text{rad}$
Efficiency of Horizontal Oscillation Control	$\beta$	Standard Circuit	66	72	78	$\text{Hz}/\mu\text{A}$

### Pin Connection Diagram

