



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

NTE1496 Integrated Circuit Vertical/Horizontal OSC & X-Ray Circuit

Description:

The NTE1496 is an integrated circuit in a 16-Lead DIP type package designed for horizontal and vertical deflection circuits of color and monochrome television receivers.

Functions:

Horizontal Section:

- Sync Separator
- Saw Tooth Wave Type AFC
- $2f_H$ Horizontal Oscillator
- Flip-Flop
- SCR Type X-Ray Protector
- Horizontal Pre-Driver
- Internal Zener Diode Regulated Supply

Vertical Section:

- Vertical Sync Amplifier
- Vertical Oscillator
- Ramp Wave Shaper
- Vertical Pre-Driver

Features:

Horizontal Section:

- Excellent Temperature Stability of Oscillator Frequency
- Exact 50% Duty Cycle Output Due to 315kHz Oscillator and Flip-Flop

Vertical Section:

- Excellent Inter-Race

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

| | |
|---|-------------------|
| Horizontal Supply Current, I_{CC15} | 40mA |
| Horizontal Output Current, I_{O460} | mA _p |
| Horizontal Output Operating, I_{O4opr} | 30mA |
| Composite Signal Input Voltage, BV_{16} | 5V _{p-p} |
| AFC Input Voltage, BV_1 | 8V _{p-p} |
| Vertical Supply Voltage, V_{CC11} | 15V |
| Vertical Sync Input Voltage, BV_{12} | 5V _{p-p} |
| Vertical Output Current, I_{O7} | -5mA |
| Power Dissipation, P_D | 800mW |
| Derate Above 25°C | 6.4mW/°C |
| Operating Temperature Range, T_{opr} | -20° to +65°C |
| Storage Temperature Range, T_{stg} | -55° to +150°C |

Electrical Characteristics: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|-------------------|-----------------------------------|-------|------------|-------|------------------|
| Zener Regulating Voltage | V_{CC15} | | 8.9 | 9.8 | 10.9 | V |
| Recommended Supply Current | I_{CC15} | | 20 | 25 | 30 | mA |
| Sync Sep Sensitivity | I_{IN16} | | – | 13 | 56 | μA |
| Sync Bottom Output Voltage | V_{OL14} | | – | 0.2 | 0.5 | V |
| Sync Sep Delay Time (1) | t_{pdr} | | – | – | 100 | nsec |
| Sync Sep Delay Time (2) | t_{pdf} | | – | – | 100 | nsec |
| H-Free Run Frequency | f_H | | 15234 | 15734 | 16234 | Hz |
| AFC Output Current | I_{O1} | | 2.15 | 3.08 | 4.42 | mA |
| Horizontal Output Residual Output Voltage | V_{OL4} | | – | 0.08 | 0.3 | V |
| Horizontal Output Pulse Width | t_{04} | | 30.78 | 31.78 | 32.78 | μsec |
| Sensitivity of Phase Det | μ | | – | 0.16 | – | V/sec |
| Sensitivity of Oscillator | β | | – | 1170 | – | Hz/V |
| Loop Gain | f_C | | – | 187 | – | – |
| Frequency Pull-In Range | Δf_{PLL} | | – | ± 600 | – | Hz |
| Frequency Hold-In Range | Δf_{HOLD} | | – | ± 1000 | – | Hz |
| X-Ray Prot. Sensitivity | V_{IN3} | | 0.77 | 0.91 | 1.04 | V |
| X-Ray Protector Input Impedance | R_{IN3} | | 0.2 | – | – | $\text{M}\Omega$ |
| Characteristic of Horizontal Free Run Frequency | Δf_{HT} | -20° to 60°C | 0 | –100 | –350 | Hz |
| Horizontal 8V Supply Current | I_{15} | | 8.4 | 12.5 | 16 | mA |
| Recommended Supply Voltage | V_{CC} | | 10.8 | 12 | 13.2 | V |
| Supply Current | I_{CC} | | 3.4 | 4.4 | 6.1 | mA |
| Vertical Frequency | f_V | | 57 | 60 | 64.1 | H_z |
| Vertical Sync Input Impedance | R_{IN12} | | 400 | 500 | 600 | Ω |
| Vertical Sync Operating Voltage | V_{IN12} | | 0.64 | 0.72 | 0.80 | V |
| Pin 9 Maximum Output Voltage | V_{09} | | 7.6 | 8.1 | 8.6 | V |
| Pin 9 Output Current | I_{09} | | 12.0 | 18.2 | 35.7 | mA |
| Pin 8 Available Minimum Voltage | V_{L8} | | – | 2.86 | 3.7 | V |
| Pin 9 Input Current | I_{9LEAK} | | 0.25 | 0.98 | 4.50 | μA |
| Pin 8 Input Current | I_{8LEAK} | | 0.18 | 0.94 | 6.21 | μA |
| Vertical Output Maximum Available Voltage | V_{OH7} | | 5.67 | 6.30 | 7.13 | V |
| Vertical Output Minimum Voltage | V_{OI7} | | – | – | 0.3 | V |

Pin Connection Diagram

