



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

NTE7086 **Integrated Circuit** **Sync Deflection Circuit for CRT Display**

Description:

The NTE7086 is a sync•deflection circuit IC in a 20-Lead DIP type package dedicated to CRT display use. This device can be connected to the NTE1773/NTE1797 (for vertical output use) to form a sync•deflection circuit that meets every requirement for CRT display use.

So far, IC's for color TV use have been applied to the sync•deflection circuit for CRT display use and general-purpose IC's such as one-shot multivibrators, inverters, and a lot of transistors have been used to form the peripherals such as the sync input interface and horizontal phase shifter.

The NTE7086 contains these peripherals on chip and adopts a stable circuit for horizontal oscillation from 15kHz to 100kHz aiming at improving the characteristics required for CRT display use.

Features:

- The Horizontal Oscillation Frequency can be Adjusted Stably from 15kHz to 100kHz.
- The Horizontal Display can be Shifted Right/Left.
- The Horizontal/Vertical Sync Input can be used intact Regardless of the Difference in Pulse Polarity and Pulse Width.
- The AFC Feedback Sawtooth Wave can be Obtained by Simply Applying a Flyback Pulse to the IC as a Trigger Pulse.
- Any Duty of the Horizontal Pulse Can be Set.
- Good Linearity because DC Bias at Vertical Output Stage is Subjected to Sampling Control within Retrace Time.

On-Chip Functions:

Horizontal Block

- AFC
- Horizontal OSC
- X-Ray Protector
- Horizontal Phase Shifter
- AFC Sawtooth Wave Generator
- Horizontal Pulse Duty Setting

Vertical Block

- Vertical OSC
- Vertical Sawtooth Wave Generator
- Sampling Type DC Voltage Control

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

| | |
|---|-------------------------------------|
| Maximum Supply Voltage, $V_{10\text{max}}, V_{20\text{max}}$ | 14V |
| Allowable Power Dissipation ($T_A \leq +65^\circ\text{C}$), $P_{D\text{max}}$ | 780mW |
| Operating Temperature Range, T_{opr} | -20° to $+85^\circ\text{C}$ |
| Storage Temperature Range, T_{stg} | -55° to $+125^\circ\text{C}$ |

Recommended Operating Conditions: ($T_A = +25^\circ\text{C}$ unless otherwise specified)Operating Voltage Range, V_{10opr} , V_{20opr} 9.0V to 13.5VRecommended Supply Voltage, V_{10} , V_{20} 12V**Electrical Characteristics:** ($T_A = +25^\circ\text{C}$, $V_{CC10} = V_{CC20} = 12\text{V}$ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--|-----------------|---|-----------|-----|-----------|----------------------|
| Current Dissipation | I_{10} | V_{CC10} | 12 | – | 30 | mA |
| | I_{20} | V_{CC20} | 5 | – | 12 | mA |
| Vertical Frequency Pull-In Range | V_{p-in} | Vertical Sync 60Hz | 10 | – | 12 | Hz |
| Vertical Free-Running Frequency with Increased/Reduced Voltage | f_V | f_V center 55Hz | 50 | – | 60 | Hz |
| | Δf_{VV} | $V_{20} = 12\text{V} \pm 1\text{V}$ | –0.5 | – | 0.5 | Hz |
| Characteristic of Vertical Frequency Middle-Point Voltage Control | | 55Hz at 12V | 3.8 | – | 4.4 | V |
| Threshold Level | | | | | | |
| Vertical OSC Start Voltage | | | – | – | 4.0 | V |
| Temperature Coefficient of Amplitude Frequency | | $T_A = -10^\circ$ to $+60^\circ\text{C}$ | –0.028 | – | 0.028 | Hz/ $^\circ\text{C}$ |
| | | | 12 | – | 18 | dB |
| Vertical Driver Amplification Factor (V_{GV}) with Horizontal AFC Loop Current | I_{AFC} | | ± 1.0 | – | ± 1.9 | mA |
| Horizontal Free-Running Frequency | f_H | f_H center 15.734kHz | –750 | – | 750 | Hz |
| Horizontal OSC Start Voltage with Increased/Reduced Voltage | | | – | – | 4 | V |
| | Δf_{HV} | $V_{10} = 12\text{V} \pm 1\text{V}$ | –50 | – | 50 | Hz |
| Characteristic of Horizontal Frequency with Temperature Characteristic of Horizontal Frequency | | 15.735kHz at 12V, $T_A = -10^\circ$ to $+60^\circ\text{C}$ | –2.9 | – | 2.9 | Hz/ $^\circ\text{C}$ |
| Comparison Wave Generation Input | V_4 | | 0.6 | – | 0.9 | V |
| Operating Voltage | | | | | | |
| Holddown Operation Start Voltage | V_{13} | | 0.5 | – | 0.8 | V |
| Horizontal Drive Current | I_{12} | | 6.0 | – | 12.0 | mA |

Pin Connection Diagram

