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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°C unless otherwise specified)

Maximum Supply Voltage, V_{10}max, V_{20}max 14V
Allowable Power Dissipation ($T_A \le$ +65°C), $P_D$max 780mW
Operating Temperature Range, T_{opr} . . . . . –20° to +85°C
Storage Temperature Range, T_{stg} . . . . . –55° to +125°C

Recommended Operating Conditions: (T_A = +25°C unless otherwise specified)

Operating Voltage Range, V_{10}opr, V_{20}opr . . . . . 9.0V to 13.5V

Recommended Supply Voltage, V_{10}, V_{20} 12V

Electrical Characteristics: (T_A = +25°C, $V_{CC}10$ = $V_{CC}20$ = 12V unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Current Dissipation	I_{10}	$V_{CC}10$	12	–	30	mA
	I_{20}	$V_{CC}20$	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	fv	f_V center 55Hz	50	–	60	Hz
	Δf_{Vv}	V_{20} = 12V ±1V	–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° to +60°C	–0.028	–	0.028	Hz/°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} = 12V ±1V	–50	–	50	Hz
Characteristic od Horizontal Frequency with Temperature Characteristic of Horizontal Frequency		15.735kHz at 12V, T_A = –10° to +60°C	–2.9	–	2.9	Hz/°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