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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°C unless otherwise specified)

Horizontal Supply Current, $I_{CC}15$ 40mA
Horizontal Output Current, $I_{04}60$ . . . . . mAp
Horizontal Output Operating, $I_{04}opr$ 30mA
Composite Signal Input Voltage, BV_{16} . . . . . $5V_{p–p}$
AFC Input Voltage, BV_1 . . . . . $8V_{P–P}$
Vertical Supply Voltage, $V_{CC}11$ 15V
Vertical Sync Input Voltage, BV_{12} . . . . . $5V_{P–P}$
Vertical Output Current, I_{07} . . . . . –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°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	–	–	MΩ
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