



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

NTE1539 Integrated Circuit Color TV Sync Deflection Circuit

Description:

The NTE1539 is a multifunctional integrated circuit which is based on the internal circuit of the NTE1538. It incorporates various functions required for synchronization and deflection circuits of color television sets and especially aims at increasing the detection accuracy of the X-ray protection circuit. The ground pins for horizontal and vertical are provided separately to enable the easy layout of the printed circuit board.

The NTE1539 differs from the NTE1538 in the following points:

- The output circuit of synchronizing separation is emitter follower type
- The X-ray protection circuit is differential dual inouts thyristor system
- The ground pins for horizontal and vertical are provided separately.

Functions:

- Synchro Separator
- Horizontal AFC
- Vertical Driver
- Vertical Blanking Pulse Making
- Horizontal Oscillator
- Vertical Oscillator
- X-Ray Protector

Features:

- Multifunctional and Small-Size
- Minimum Number of Parts Required
- Horizontal and Vertical Oscillators being Stable to Variation of Ambient Temperature and Supply Voltage Owing to Small Warming-Up Drift.
- Small Variation of Horizontal Oscillation Frequency
- Good Linearity and Interface Owing to DC Bias at Vertical Output Stage being Sampling Controlled within Retrace Time.
- Vertical Blanking Pulse Width being Freely Set Up According to Peripheral Parts.
- High Detection Accuracy of X-Ray Protection Circuit.

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

Maximum Supply Voltage, V_{14}	14V
Maximum Supply Current, I_{17}	16mA
Allowable Power Dissipation ($T_A = +60^\circ\text{C}$), P_{Dmax}	450mW
Operating Temperature Range, T_{opg}	-20° to $+85^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+125^\circ\text{C}$

Recommended Operating Condition: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Recommended Supply Voltage, V_{14}	12V
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Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $V_{14} = 12\text{V}$, $I_{CC17} = 13\text{mA}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
V_{CC14} Current Dissipation	I_{CC14}		9.0	–	15.0	mA
V_{CC17} Supply Voltage	V_{CC17}		11.8	–	13.2	V
Vertical Frequency Pull-In Range			9.0	–	11.0	Hz
Vert Free Running Frequency	f_v	f_v center 55Hz	50	–	60	Hz
Supply Voltage Dependence of Vertical Frequency		$V_{14} = 12 \pm 1\text{V}$, 55Hz at 12V	–0.5	–	0.5	Hz
Temperature Characteristic of Vertical Frequency		$T_A = -10^\circ$ to $+60^\circ\text{C}$	–0.028	–	0.028	Hz/ $^\circ\text{C}$
Vertical Driver Amplification Factor			4.0	–	7.0	times
Horizontal Free Running Frequency	f_H	f_H center 15.734kHz	–750	–	750	Hz
Supply Voltage Dependence of Horizontal Frequency		$V_Z - V_Z \times 90\%$	–50	–	50	Hz
Temperature Characteristic of Horizontal Frequency		$T_A = -10^\circ$ to $+60^\circ\text{C}$ (I_C only)	–3.4	–	3.4	Hz/ $^\circ\text{C}$
Horizontal Output Pulse Width		$f_H = 15.734\text{kHz}$	21.5	–	26.5	μs
Horizontal Output Drive Current			4.9	–	8.3	mA

Pin Connection Diagram

AFC Output	1	18	Flyback Input
Horiz Hold	2	17	V _{CC} (115V)
Horiz OSC Output	3	16	Video Input
GND	4	15	Sync Separator Output
X-Ray Protect	5	14	V _{CC}
X-Ray Protect	6	13	Vert Blank Output
GND	7	12	Vert Sync Input
Vert Drive Output	8	11	Vert Hold
Vert Height	9	10	Vert Feedback

