



ELECTRONICS, INC.

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## 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, $T_{opg}$ .....	$-20^\circ$ to $+85^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-55^\circ$ 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	$\mu\text{s}$
Horizontal Output Drive Current			4.9	–	8.3	mA

### Pin Connection Diagram

