



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

NTE1289 Integrated Circuit TV Vertical Deflection System

Description:

The NTE1289 is a monolithic integrated circuit in a 12-Lead quad in-line package designed for use in black and white and color TV receivers.

Features:

- Synchronization Circuit
- Oscillator and Ramp Generator
- High Power Gain Amplifier
- Flyback Generator
- Voltage Regulator

Absolute Maximum Ratings:

Supply Voltage (Pin2), V_S	35V
Flyback Peak Voltage, V_4, V_5	60V
Power Amplifier Input Voltage, V_{10}	+10, -0.5V
Output Peak Current (Non-Repetitive, $t = 2\text{msec}$), I_O	2A
Output Peak Current, I_O	
($f = 50\text{Hz}$, $t \leq 10\mu\text{s}$)	2.5A
($f = 50\text{Hz}$, $t > 10\mu\text{s}$)	1.5A
Pin3 DC Current ($V_4 < V_2$), I_3	100mA
Pin3 Peak-to-Peak Flyback Current ($f = 50\text{Hz}$, $t_{\text{fly}} \leq 1.5\text{msec}$), I_3	1.8A
Pin8 Current, I_8	$\pm 20\text{mA}$
Power Dissipation, P_{tot}	
$T_A = +80^\circ\text{C}$	1W
$T_{\text{tab}} = +90^\circ\text{C}$	5W
Operating Junction Temperature Range, T_J	-40° to $+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-40° to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Tab, $R_{\text{thJ-TAB}}$	12°C/W
Thermal Resistance, Junction-to-Ambient (Note 1), R_{thJA}	70°C/W

Note 1. Obtained with tabs soldered to printed circuit with minimized copper area.

DC Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $V_S = 35\text{V}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Pin2 Quiescent Current	I_2	$I_3 = 0$	–	7	14	mA
Pin5 Quiescent Current	I_5	$I_4 = 0$	–	8	15	mA
Oscillator Bias Current	$-I_9$	$V_9 = 1\text{V}$	–	0.1	1.0	μA
Amplifier Input Bias Current	$-I_{10}$	$V_{10} = 1\text{V}$	–	0.1	1.0	μA
Ramp Generator Bias Current	$-I_{12}$	$V_{12} = 0$	–	0.02	0.3	μA
Ramp Generator Current	$-I_{12}$	$I_7 = 20\mu\text{A}$, $V_{12} = 0$	19	20	24	μA
Ramp Generator Non-Linearity	$\Delta I_{12}/I_{12}$	$\Delta I_{12} = 0\text{V to } 12\text{V}$, $I_7 = 20\mu\text{A}$	–	0.2	1.0	%
Supply Voltage Range	V_S		10	–	36	V
Pin1 Saturation Voltage to GND	V_1	$I_1 = 1\text{mA}$	–	1	14	V
Pin3 Saturation Voltage to GND	V_3	$I_3 = 10\text{mA}$	–	1.7	2.6	V
Quiescent Output Voltage	V_4	$V_S = 10\text{V}$, $R_1 = 10\text{k}\Omega$, $R_2 = 10\text{k}\Omega$	4.17	4.40	4.63	V
		$V_S = 35\text{V}$, $R_1 = 30\text{k}\Omega$, $R_2 = 10\text{k}\Omega$	8.35	8.80	9.25	V
Output Saturation Voltage to GND	V_{4L}	$-I_4 = 100\text{mA}$	–	0.9	1.2	V
		$-I_4 = 800\text{mA}$	–	1.9	2.3	V
Output Saturation Voltage to V_S	V_{4H}	$I_4 = 100\text{mA}$	–	1.4	2.1	V
		$I_4 = 800\text{mA}$	–	2.8	3.2	V
Regulated Voltage at Pin6	V_6		6.1	6.5	6.9	V
Regulated Voltage at Pin7	V_7	$I_7 = 20\mu\text{A}$	6.2	6.6	7.0	V
Regulated Voltage Drift with V_S		$\Delta V_S = 10\text{V to } 35\text{V}$	–	1	–	mV/V
Amplifier Input Reference Voltage	V_{10}		2.07	2.20	2.30	V
Pin8 Input Resistance	R_8	$V_8 \leq 400\text{mV}$	1	–	–	$\text{M}\Omega$

AC Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $V_S = 25\text{V}$, $f = 50\text{Hz}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Current	I_S	$I_y = 1A_{P-P}$	–	140	–	mA
Sync. Input Current (Positive or Negative)	I_8		500	–	–	μA
Flyback Voltage	V_4	$I_y = 1A_{P-P}$	–	51	–	V
Peak-to-Peak Oscillator Sawtooth Voltage	V_9		–	2.4	–	V
Flyback Time	t_{fly}	$I_y = 1A_{P-P}$	–	0.7	–	ms
Free Running Time	f_o	$(P_1 + R_1) = 300\text{k}\Omega$, $C_2 = 100\text{nF}$	–	44	–	Hz
		$(P_1 + R_1) = 260\text{k}\Omega$, $C_2 = 100\text{nF}$	–	52	–	Hz
Synchronization Range	Δf	$I_8 = 0.5\text{mA}$	14	–	–	Hz
Frequency Drift with V_S	$\Delta f/\Delta V_S$	$V_S = 10\text{V to } 35\text{V}$	–	0.005	–	Hz/V
Frequency Drift with T_{tab}	$\Delta f/\Delta T_{tab}$	$T_{tab} = +40^\circ \text{ to } +120^\circ\text{C}$	–	0.01	–	Hz/ $^\circ\text{C}$

Pin Connection Diagram

