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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 = 2msec), I_O 2A
Output Peak Current, I_O
(f = 50Hz, t ≤ 10μs) 2.5A
(f = 50Hz, t > 10μs) 1.5A
Pin3 DC Current ($V_4 < V_2$), I_3 . . . . . 100mA
Pin3 Peak–to–Peak Flyback Current (f = 50Hz, $t_{fly} \leq 1.5$msec), I_3 . . . . . 1.8A
Pin8 Current, I_8 . . . . . ±20mA
Power Dissipation, P_{tot}
T_A = +80°C 1W
T_{tab} = +90°C 5W
Operating Junction Temperature Range, T_J . . . . . –40° to +150°C
Storage Temperature Range, T_{stg} . . . . . –40° to +150°C
Thermal Resistance, Junction–to–Tab, $R_{thJ–TAB}$ . . . . . 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 Elecrtrical Characteristics: (T_A = +25°C, V_S = 35V 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 = 1V	–	0.1	1.0	µA
Amplifier Input Bias Current	$-I_{10}$	V_{10} = 1V	–	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 = 20µA, V_{12} = 0	19	20	24	µA
Ramp Generator Non–Linearity	$\Delta I_{12}/I_{12}$	ΔI_{12} = 0V to 12V, I_7 = 20µA	–	0.2	1.0	%
Supply Voltage Range	V_S		10	–	36	V
Pin1 Saturation Voltage to GND	V_1	I_1 = 1mA	–	1	14	V
Pin3 Saturation Voltage to GND	V_3	I_3 = 10mA	–	1.7	2.6	V
Quiescent Output Voltage	V_4	V_S = 10V, R_1 = 10kΩ, R_2 = 10kΩ	4.17	4.40	4.63	V
		V_S = 35V, R_1 = 30kΩ, R_2 = 10kΩ	8.35	8.80	9.25	V
Output Saturation Voltage to GND	V_{4L}	$-I_4$ = 100mA	–	0.9	1.2	V
		$-I_4$ = 800mA	–	1.9	2.3	V
Output Saturation Voltage to V_S	V_{4H}	I_4 = 100mA	–	1.4	2.1	V
		I_4 = 800mA	–	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 = 20µA	6.2	6.6	7.0	V
Regulated Voltage Drift with V_S		ΔV_S = 10V to 35V	–	1	–	mV/V
Amplifier Input Reference Voltage	V_{10}		2.07	2.20	2.30	V
Pin8 Input Resistance	R_8	$V_8 \leq$ 400mV	1	–	–	MΩ

AC Elecrtrical Characteristics: (T_A = +25°C, V_S = 25V, f = 50Hz 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	$(P_1 + R_1)$ = 300kΩ, C_2 = 100nF	–	44	–	Hz
		$(P_1 + R_1)$ = 260kΩ, C_2 = 100nF	–	52	–	Hz
Synchronization Range	Δf	I_8 = 0.5mA	14	–	–	Hz
Frequency Drift with V_S	$\Delta f/\Delta V_S$	V_S = 10V to 35V	–	0.005	–	Hz/V
Frequency Drift with T_{tab}	$\Delta f/\Delta T_{tab}$	T_{tab} = +40° to +120°C	–	0.01	–	Hz/°C

Pin Connection Diagram