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NTE1862 Integrated Circuit TV Vertical Deflection Circuit

Description:

The NTE1862 is a monolithic, full performance, very efficient vertical deflection circuit in a 15-Lead SIP type package intended for direct drive of the yoke of 110° color TV picture tubes. This device offers a wide range of applications such as portable CTVs, BW TVs, monitors, and displays.

Features:

- Synchronization Circuit
- Precision Oscillator and Ramp Generator
- Power Output Amplifier with High Current Capability
- Flyback Generator
- Voltage Regulator
- Precision Blanking Pulse Generator
- Thermal Shutdown Protection
- CRT Screen Protection Circuit which Blanks the Beam Current in the Event of Loss of Vertical Deflection Circuit

Absolute Maximum Ratings:

Supply Voltage (Pin14), V_S	35V
Flyback Peak Voltage, V_1, V_2	60V
Sync. Input Voltage, V_5	20V
Power Amplifier Input Voltage, V_{11}, V_{12}	$V_S - 10V$
Voltage at Pin13, V_{13}	V_S
Non-Repetitive Output Current ($t = 2ms$), I_O	3A
Output Peak Current, I_O	
$f = 50Hz, t > 10\mu s$	2A
$f = 50Hz, t \leq 10\mu s$	3.5A
Pin15 Peak to Peak Flyback Current ($f = 50Hz, t_{fly} \leq 1.5ms$), I_{15}	3A
Pin15 DC Current ($V_1 < V_{14}$), I_{15}	100mA
Maximum Power Dissipation ($T_C \leq +60^\circ C$), P_{tot}	30W
Junction Temperature Range, T_J	-40° to $+150^\circ C$
Storage Temperature Range, T_{stg}	-40° to $+150^\circ C$
Maximum Thermal Resistance, Junction to Case, $R_{\theta JC}$	$+3^\circ C/W$
Maximum Thermal Resistance, Junction to Ambient, $R_{\theta JA}$	$+40^\circ C/W$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Pin2 Quiescent Current	I_2	$I_1 = 0$	–	18	30	mA
Ramp Generator Bias Current	$-I_9$	$V_9 = 0$	–	0.02	1.0	μA
Ramp Generator Current	$-I_9$	$V_9 = 0$, $-I_7 = 20\mu A$	18.5	20.0	21.5	μA
Ramp Generator Non Linearity	$ \frac{\Delta I_9}{I_9} $	$\Delta V_9 = 0$ to $15V$, $-I_7 = 20\mu A$	–	0.2	1.0	%
Pin14 Quiescent Current	I_{14}		–	25	50	mA
Quiescent Output Voltage	V_1	$V_S = 35V$, $R_a = 2.2k\Omega$, $R_b = 1k\Omega$	16.8	17.8	18.6	V
		$V_S = 15V$, $R_a = 390\Omega$, $R_b = 1k\Omega$	7.0	7.5	8.0	V
Output Saturation Voltage to GND	V_{1L}	$I_1 = 1.2A$	–	1.0	1.4	V
Output Saturation Voltage to Supply	V_{1H}	$-I_1 = 1.2A$	–	1.6	2.2	V
Oscillator Virtual Ground	V_4		–	0.45	–	V
Regulated Voltage at Pin7	V_7	$-I_7 = 20\mu A$	6.3	6.6	7.1	V
Regulated Voltage Drift with Supply Voltage	$\frac{\Delta V_7}{\Delta V_S}$	$\Delta V_S = 15$ to $35V$	–	1	–	$\frac{mV}{V}$
Amplifier Input (+) Reference Voltage	V_{11}		4.2	4.4	4.6	V
Blanking Output Saturation Voltage	V_{13}	$I_{13} = 10mA$	–	0.35	–	V
Pin15 Saturation Voltage to GND	V_{15}	$I_{15} = 20mA$	–	1.0	1.3	V

AC Electrical Characteristics: ($V_S = 24V$, $f = 50Hz$, $T_A = +25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Supply Current	I _S	I _y = 2App		–	295	–	mA
Sync Input Current Required to Sync	I ₅			100	–	–	μA
Flyback Voltage	v ₁	I _y = 2App		–	50	–	V
Peak to Peak Oscillator Sawtooth Voltage	v ₃	I ₅ = 0		–	3.6	–	V
		I ₅ = 100μA		–	3.4	–	V
Start Scan Level of the Input Ramp	V _{10thL}			–	1.85	–	V
Flyback Time	t _{fly}	I _y = 2App		–	0.6	–	ms
Blanking Pulse Duration	t _{blank}	f _o = 50Hz	T _j = +75°C	–	1.4	–	ms
		f _o = 60Hz		–	1.17	–	ms
Free Running Frequency	f _o	R _o = 7.5kΩ	C _o = 330nF, T _j = +75°C,	–	43.5	–	Hz
		R _o = 6.2kΩ		–	52.5	–	Hz
Synchronization Range	Δf	I ₅ = 100μA, T _j = +75°C		–	16	–	Hz
Junction Temperature for Thermal Shutdown	T _j			–	145	–	°C

Pin Connection Diagram (Front View)

