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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	
		$I_5 = 100\mu A$	-	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}	$f_o = 50Hz$	$T_j = +75^\circ C$		-	1.4	ms
		$f_o = 60Hz$			-	1.17	ms
Free Running Frequency	f_o	$R_o = 7.5k\Omega$	$C_o = 330nF$, $T_j = +75^\circ C$,		-	43.5	Hz
		$R_o = 6.2k\Omega$			-	52.5	Hz
Synchronization Range	Δf	$I_5 = 100\mu A$, $T_j = +75^\circ C$	-	16	-	Hz	
Junction Temperature for Thermal Shutdown	T_j		-	145	-	$^\circ C$	

Pin Connection Diagram
(Front View)

