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NTE1858 Integrated Circuit Vertical Deflection Circuit

Description:

The NTE1858 is a full performance and very efficient vertical deflection circuit in an 11-Lead SIP type package intended for direct drive of a TV picture tube in Color and B & W television as well as in Monitor and Data Displays.

Features:

- Ramp Generator
- Independent Amplitude Adjustment
- Buffer Stage
- Power Amplifier
- Flyback Generator
- Internal Reference Voltage
- Thermal Protection

Absolute Maximum Ratings: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Supply Voltage, V_S	35V
Flyback Peak Voltage, V_1, V_2	65V
Trigger Input Voltage, V_3	20V
Amplifier Input Voltage, V_9	GND to V_S V
Output Peak to Peak Current, I_O	
Non-Repetitive, $t = 2\text{ms}$	6A
$t > 10\mu\text{s}$	4A
Pin11 DC Current ($V_1 < V_{10}$), I_{11}	100mA
Pin11 Peak-to-Peak Current ($t_{8y} < 1.5\text{ms}$)	3A
Total Power Dissipation ($T_A = +60^\circ\text{C}$), P_{tot}	30W
Junction Temperature Range, T_j	0° to $+150^\circ\text{C}$
Ambient Temperature Range, T_A	0° to $+70^\circ\text{C}$
Storage Temperature Range, T_{stg}	-40° to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Tab, $R_{\text{th}(j-\text{tab})}$	3°C/W
Thermal Resistance, Junction-to-Ambient, $R_{\text{th}(j-\text{amb})}$	40°C/W

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

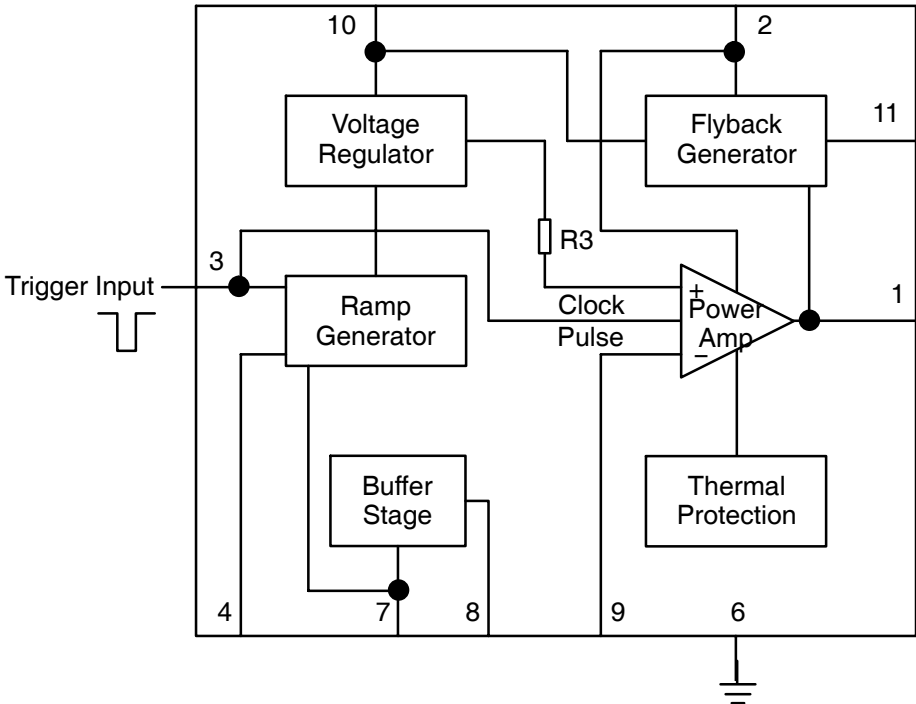
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Current (Pin2)	I_2	$I_1 = 0$, $I_{11} = 0$	–	16	36	mA
Quiescent Current (Pin10)	I_{10}	$I_1 = 0$, $I_{11} = 0$	–	15	30	mA
Ramp Generator Bias Current	$-I_7$	$V_7 = 0$	–	–	0.6	μA
Ramp Generator Current	$-I_7$	$V_7 = 0$, $-I_4 = 20\mu A$	18.6	20	21.6	μA
Ramp Generator Linearity	dI_7/I_7	$V_6 = 0$ to $15V$, $-I_4 = 20\mu A$	–	0.2	1	%
Quiescent Output Voltage	V_1	$R_a = 30k$, $R_b = 10k$, $V_S = 35V$	17.0	17.8	18.6	V
		$R_a = 6.8k$, $R_b = 10k$, $V_S = 15V$	7.2	7.6	7.8	V
Out Saturation Voltage to GND	V_{1L}	$I_1 = 0.5A$	–	0.5	1	V
		$I_1 = 1.2A$	–	1	1.4	V
Out Saturation Voltage to V_S	V_{1H}	$-I_1 = 0.5A$	–	1.1	1.6	V
		$-I_1 = 1.2A$	–	1.6	2.2	V
Reference Voltage	V_4	$-I_4 = 20\mu A$	6.3	6.6	6.9	V
Reference Voltage Drift versus V_S	dV_4/dV_S	$V_S = 10V$ to $35V$	–	1	2	mV/V
Reference Voltage Drift versus I_4	dV_4/dI_4	$I_4 = 10\mu A$ to $30\mu A$	–	1.5	2	mV/ μA
Internal Reference Voltage	V_r		4.26	4.40	4.54	V
Diode Forward Voltage	V_{D11-10}	$I_O = 1.2A$	–	2.2	3.0	V
Diode Forward Voltage	V_{D1-2}	$I_O = 1.2A$	–	2.2	3.0	V
Output Stage Open Loop Gain	G_V	$f = 100Hz$	–	60	–	dB
Saturation Voltage (V_{10-11})	V_{IS}	$-I_{11} = 1.2A$	–	1.5	2.5	V
Scanning Voltage (Pin11)	V_{11}	$I_{11} = 20mA$	–	1.7	3.0	V
Trigger Input Threshold	V_3	Note 1	2.6	3.0	3.4	V
Trigger Input Bias Current	I_3	$V_{IN} = V_3 \bullet 0.2V$	–	–	30	μA
Trigger Input Width	t_3	Note 2	20	60	Th	μs

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

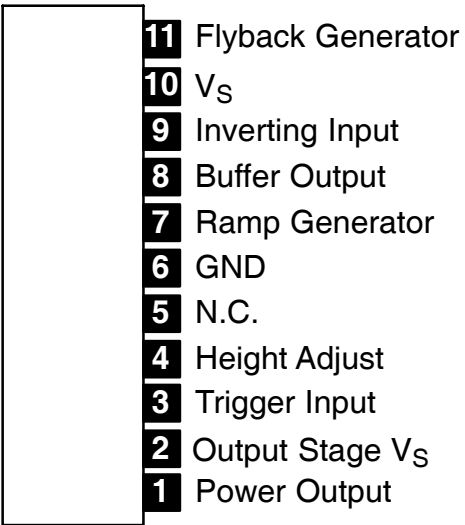
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Operating Supply Range	V_S		10	–	30	V
Peak-to-Peak Operating Current Range	I_I		0.4	–	2.5	A
Supply Current	I_S	$I_y = 2.4A_{PP}$	–	31.5	–	mA
Flyback Voltage	V_1	$I_y = 2.4A_{PP}$	–	51	–	V
Sawtooth Pedestal Voltage	V_8		–	1.85	–	V
Junction Temperature for Thermal Shutdown	T_{js}		–	145	–	$^\circ C$

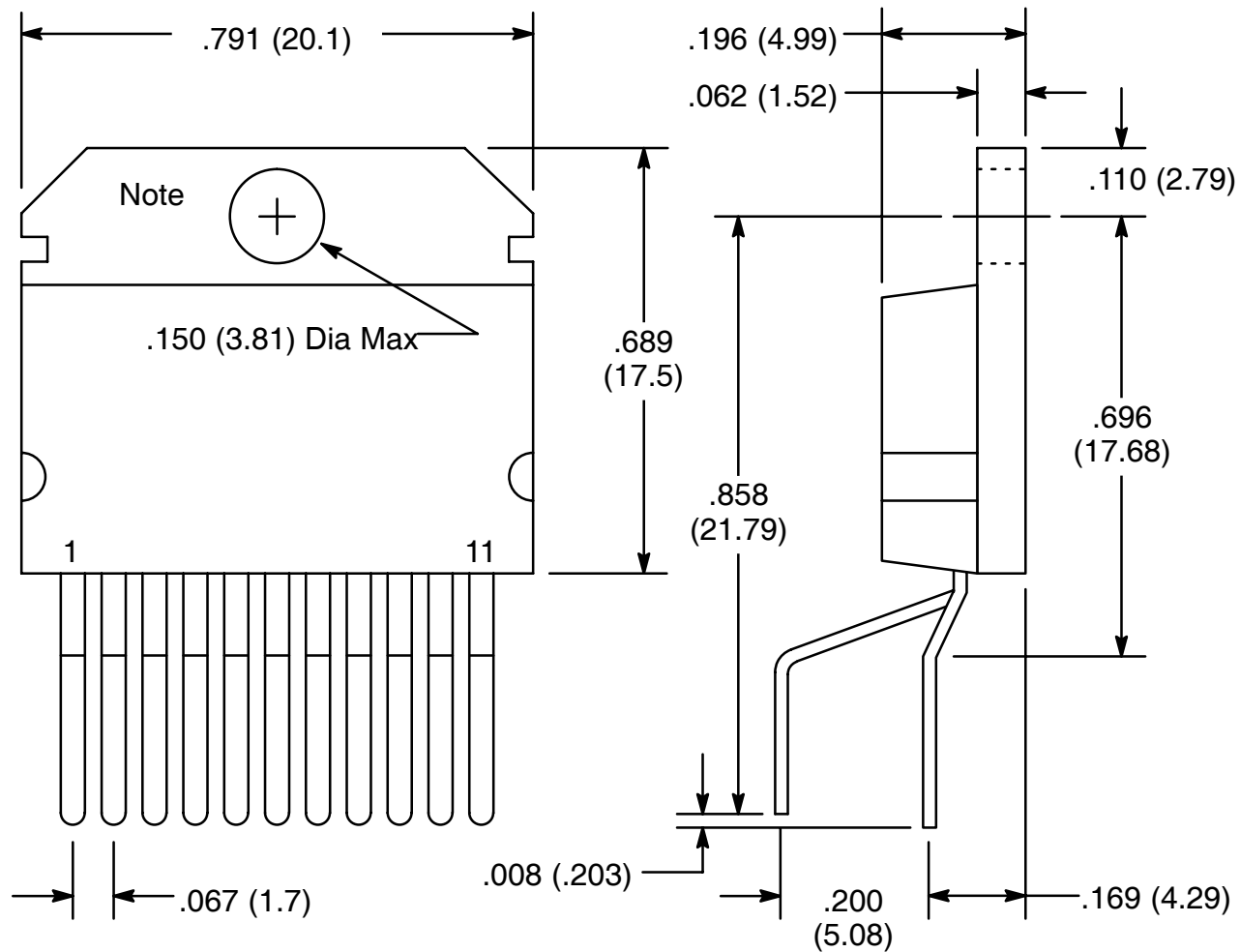
Note 1: The trigger input circuit can accept, optionally, positive and negative going input pulses.

Block Diagram



Pin Connection Diagram (Front View)





NOTE: Tab connected o Pin6