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NTE7183
Integrated Circuit
Vertical Deflection Output Circuit for TV and Monitors

Description:

The NTE7183 is a monolithic integrated circuit in a 10–Lead SIP type package. This device is a full performance and very efficient vertical deflection circuit intended for direct drive of a TV picture tube in color and back & white televisions 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°C unless otherwise specified)

Supply Voltage, V_S . . . 30V
Flyback Peak Voltage, V_1, V_2 . . . 65V
Trigger Input Voltage, V_3 . . . 20V
Amplifier Input Voltage, V_8 . . . GND to V_S V
Output Peak–to–Peak Current, I_O
(Non Repetitive, t = 2ms) . . . 6A
(t > 10μs) . . . 4A
Pin 10 DC Current ($V_1 < V_{9)}$, I_{10} . . . 100mA
Pin 10 Peak to Peak Current (t_{fly} < 1.5ms), I_{10} . . . 3A
Total Power Dissipation (T_A = +60°C), P_{tot} . . . 9W
Storage Temperature Range, T_{stg} . . . –40° to +150°C
Operating Junction Temperature Range, T_J . . . –40° to +150°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . 10°C/W
Thermal Resistance, Junction–to–Ambient, R_{thJA} . . . 70°C/W

Electrical Characteristics: (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
DC (V_S = 30V)						
Pin2 Quiescent Current	I_2	$I_1 = 0$, $I_{10} = 0$	–	16	36	mA
Pin9 Quiescent Current	I_9	$I_1 = 0$, $I_{10} = 0$	–	15	30	mA
Ramp Generator Bias Current	$-I_6$	$V_6 = 0$	–	–	0.5	µA
Ramp Generator Current	$-I_6$	$V_6 = 0$, $-I_4 = 20\mu A$	18.5	20.0	21.5	µA
Ramp Generator Linearity	dI_6/I_6	V_6 = 0 to 15V, $-I_4 = 20\mu A$	–	0.2	1.0	%
Quiescent Output Voltage	V_1	$R_a = 30k\Omega$, $R_b = 10k\Omega$, $V_S = 30V$	17.0	17.8	18.6	V
		$R_a = 6.8k\Omega$, $R_b = 10k\Omega$, $V_S = 15V$	7.2	7.5	7.8	V
Out Saturation Voltage to GND	V_{1L}	$I_1 = 0.5A$	–	0.5	1.0	V
		$I_1 = 1.2A$	–	1.0	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/V_S	V_S = 10V to 30V	–	1	2	mV/V
Reference Voltage Drift Versus I_4	dV_4/d_{I4}	$I_4 = 10\mu A$ to $30\mu A$	–	1.5	2.0	mV/µA
Internal Reference Voltage	V_r		4.26	4.40	4.54	V
Output Stage Open Loop Gain	G_V	f = 100Hz	–	60	–	dB
$V_9 - V_{10}$ Saturation Voltage	V_{fs}	$-I_{10} = 1.2A$	–	1.5	2.5	V
Pin10 Scanning Voltage	V_{10}	$I_{10} = 20mA$	–	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	$V_{IN} = V_3 - 0.2V$	–	–	30	µA
Trigger Input Width	t_3	Note 2	20	60	th	µA
DC (V_S = 24V)						
Operating Supply Voltage Range	V_S		10	–	30	V
Peak–to–Peak Operating Current Range	I_1		0.4	–	2.5	A
Supply Current	I_S	$I_Y = 2.4A_{PP}$	–	315	–	mA
Flyback Voltage	V_1	$I_Y = 2.4A_{PP}$	–	51	–	V
Sawtooth Pedestall Voltage	V_7		–	1.85	–	V
Junction Temp. for Thermal Shutdown	T_{JS}		–	145	–	°C

Note 1. The trigger input circuit can accept, with a metal option, positive and negative going input pulses.

Note 2. $th = \frac{1.2 \bullet t_s}{V_{PP}}$ where t_s is the vertical period and V_{PP} is ramp amplitude at Pin6.

Pin Connection Diagram
(Front View)