ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748–5089

NTE7083
Integrated Circuit
Vertical Deflection Circuit for Monitor Applications

Description:

The NTE7083 is an integrated circuit in a 13–Lead Staggered SIP type package designed for vertical deflection primarily in monitors and TV receivers.

Features:

- Fully Integrated, Few External Components
- RC Oscillator with Wide Sync Range
- Guard Circuit for Screen Protection
- Synchronization by Positive or Negative Going Sync Pulse
- Preamplifier
- Flyback Generator
- Internal Voltage Stabilizer
- Dual Frequency Criterion for Automatic Amplitude Switch–Over

Absolute Maximum Ratings:

Parameter	Symbol	Test Conditions	Min	Max	Unit
Voltages	V_2		0	6	V
	V_{11}		0	24	V
	V_{12}		0	6	V
	V_{13}		0	50	V
Supply Voltages (V_P)	V_{10}		0	50	V
	V_9		0	50	V
	V_7		0	60	V
	V_6		0	60	V
	V_5		0	6	V
	V_4		0	24	V
	V_3		–0.7	6	V
Currents	I_1		0	–1	mA
	I_3		+3	–10	mA
	I_4		0	–5	mA
	I_6, I_7, I_8	Note 1			
	I_9		–1.5	+1.5	A
	I_{11}		–0.1	+3.0	mA

Note 1. I_6, I_7, and I_8 are limited by SOAR protection circuit that ensures that a short–circuit between the output Pin7 and supply voltage or GND does not destroy the output stage. A short circuit may be soldered into the printed circuit board or may sometimes (non–periodically) occur in the applied circuit.

Absolute Maximum Ratings (Cont'd):

Parameter	Symbol	Test Conditions	Min	Max	Unit
Storage Temperature Range	T_{stg}		–25	+150	°C
Operating Ambient Temperature Range	T_A	Note 2	–20	+70	°C
Maximum Junction Temperature	$T_J$max	Note 3	–	+150	°C
Total Power Dissipation	P_{tot}	Note 2	–	–	W
ESO Stability	V_{ESO}	Note 4	–2000	+2000	V
Thermal Resistance, Junction–to–Ambient	R_{thJA}		–	20	K/W
Thermal Resistance, Junction–to–Mounting Base	R_{thJMB}		–	5	K/W

Note 2. The maximum value to the operating ambient temperature range and the power dissipation depends on the heatsink.

Note 3. Internally liminted by thermal protection: switching temperature point at T_J = +150°C ±8°C.

Note 4. Human body model: 1.5kΩ, 100pF, 5 pulses.

Electrical Characteristics: (All voltages are measured to V_{GND} (Pin8), T_A = +25°C, V_P = +23V unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage Range (Pin10)	V_P		10	–	45	V
Supply Voltage Range (Pin6)	V_P		10	–	30	V
Supply Current	I_{10}	V_{10} = 25V, V_5 = 3V without load	–	12	–	mA
Supply Current	I_6	V_6 = 25V, V_5 = 1V without load	–	20	–	mA
Supply Current	I_6	V_6 = 25V, V_5 = 3V withput load	–	5	–	mA
Minimum Output Voltage	V_7	I_7 = 1A	–	1.40	1.65	V
Maximum Output Voltage	V_7	I_7 = 1A	V_6 –2.3	V_6 –2.0	–	V
Output Voltage During Flyback	V_9	I_9 = –1A	–	V_{10} –2.2	–	V
Output Current	I_7		–	–	±1.3	A
Output Current	I_8		–	–	±1.3	A
Preamplifier Input Current	I_5		–	–0.1	–	µA
Stabilized Voltage	V_1		6.1	6.8	7.3	V
Blanking Pulse Output Voltage	V_3		–	5.7	–	V
Blanking Pulse Output Resistance	R_3		–	300	–	Ω
Blanking Pulse Output Current	I_3		0	–	–3	mA
Blanking Pulse Duration	t_{bl}	R = 100Ω, C = 10pF (Pin12)	640	680	730	µs
Output Voltage Ramp Generator	V_{11}		0.3	–	20	V
Output Current Ramp Generator	I_{11}		–2	–	15 x 10^3	µA
Output Voltage Frequency Detector	V_{13}	Lower Frequency I_{13} = 1mA	–	–	1.0	V
Leakage Current Frequency Detector	I_{13}	Higher Frequency V_{13} = 50V	–	–	1.0	µA
Output Voltage Buffer Stage	V_4		0	–	20	V
Output Current Buffer Stage	I_4		–	–	–4.0	mA
Synchronizing Input Voltage	V_3	Positive Sync	1.0	–	6.0	V
Synchronizing Input Voltage	V_3	Negative Sync	–0.5	–	–0.7	V

Electrical Characteristics (Cont'd): (All voltages are measured to V_{GND} (Pin8), T_A = +25°C, V_P = +23V unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Tolerance of Free Running Oscillator		Without Sync	–3.0	–	+3.0	%
Oscillator Temperature Dependency	$\Delta f/f / \Delta T_C$	T_A = +20° to +100°C	–	10^{-4}	–	K^{-1}
Oscillator Voltage Dependency	$\Delta f/f / \Delta V_P$	V_P = 10V to 30V	–	4×10^{4}	–	K^{-1}
Synchronizing Ratio	f_O / f_{sync}		1:2.9	1:3	–	

Pin Connection Diagram
(Front View)