

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. I₆, I₇, and I₈ 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_{Jmax}	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 limited by thermal protection: switching temperature point at $T_J = +150^{\circ}\text{C} \pm 8^{\circ}\text{C}$.

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

Electrical Characteristics: (All voltages are measured to V_{GND} (Pin8), $T_A = +25^{\circ}\text{C}$, $V_P = +23\text{V}$ 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}	$V_{10} = 25\text{V}$, $V_5 = 3\text{V}$ without load	—	12	—	mA
Supply Current	I_6	$V_6 = 25\text{V}$, $V_5 = 1\text{V}$ without load	—	20	—	mA
Supply Current	I_6	$V_6 = 25\text{V}$, $V_5 = 3\text{V}$ withput load	—	5	—	mA
Minimum Output Voltage	V_7	$I_7 = 1\text{A}$	—	1.40	1.65	V
Maximum Output Voltage	V_7	$I_7 = 1\text{A}$	$V_6 - 2.3$	$V_6 - 2.0$	—	V
Output Voltage During Flyback	V_9	$I_9 = -1\text{A}$	—	$V_{10} - 2.2$	—	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}	$R = 100\Omega$, $C = 10\text{pF}$ (Pin12)	640	680	730	μs
Output Voltage Ramp Generator	V_{11}		0.3	—	20	V
Output Current Ramp Generator	I_{11}		-2	—	15×10^3	μA
Output Voltage Frequency Detec- tor	V_{13}	Lower Frequency $I_{13} = 1\text{mA}$	—	—	1.0	V
Leakage Current Frequency Detector	I_{13}	Higher Frequency $V_{13} = 50\text{V}$	—	—	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 x 10 ⁴	-	K ⁻¹
Synchronizing Ratio	f _O / f _{sync}		1:2.9	1:3	-	

Pin Connection Diagram
(Front View)

