

NTE1710 Integrated Circuit Record/Playback Circuit for VCR

Description:

The NTE1710 is an integrated circuit in a 22-Lead DIP type package designed for tape recorder and VCR audio recording and playback. This device has built-in electronic switches for recording and playback which include the ones for a noise reduction circuit.

Features:

- Electronic Switches for REC/PLAY Operation Included (Noise-Reduction Switches also Possible)
- Low Noise (Noise Voltage Referred to Input = $0.95\mu\text{V P.B.}$, $R_g = 2.2\text{k}\Omega$, 20Hz to 20kHz)
- Almost All Functions Necessary for REC/PLAY operation and AGC Circuit Included
- Low Current Consumption
- Muting Possible Externally

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

Supply Voltage, V_{CC} 14.4V
Power Dissipation, P_D 700mW
Operating Temperature Range, T_{opr} -20° to $+70^\circ\text{C}$
Storage Temperature Range, T_{stg} -55° to $+150^\circ\text{C}$

Electrical Characteristics: ($V_{CC} = 9\text{V}$, $T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Closed Loop Output Voltage On Playback Mode	$V_{O(PB)}$	P.B., Line Out, $V_i = 1\text{kHz}$, 0.158mV	420	500	594	mV
On Record Mode	$V_{O(REC)}$	Rec., Rec Out, AGC: OFF, $V_i = 1\text{kHz}$, 0.315mV	315	445	628	mV
Total Harmonic Distortion	THD	P.B., Line Out, $V_i = 1\text{kHz}$, 1.58mV	–	0.06	0.1	%
Maximum Output Voltage Line Output	$V_{O(max)}$	P.B., $f = 1\text{kHz}$, THD = 1%	1.7	2.2	–	V_{rms}
Recording Output		Rec., $f = 1\text{kHz}$, THD = 1%	1.7	2.2	–	V_{rms}
Output Noise Voltage Playback Head Input	V_{no}	P.B., $R_g = 2.2\text{k}\Omega$, $f = 20\text{Hz}$ to 20kHz	–	3.0	5.5	mV
Record MIC Input		Rec., $R_g = 2.2\text{k}\Omega$, $f = 20\text{Hz}$ to 20kHz	–	1.5	2.5	mV
Record Line Input		Rec., $R_g = 0$, $f = 20\text{Hz}$ to 20kHz	–	0.14	0.3	mV
Playback Head Input		P.B., $R_g = 0$, $f = 20\text{Hz}$ to 20kHz	–	1.7	3.0	mV

Note 1. A capacitor of $10\mu\text{F}$ or over must be used between Pin11 and GND for the purpose of preventing the AGC circuit oscillation when it is actually used.

Electrical Characteristics (Cont'd): ($V_{CC} = 9V$, $T_A = +25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
AGC Output Voltage	$V_{O(AGC)}$	Rec., AGC: ON, Rec. Out, $V_i = 1kHz$, $0.315mV$	315	445	570	mV
		Rec., AGC: ON, Rec. Out, $V_i = 1kHz$, $31.5mV$	700	825	950	mV
AGC Distortion	THD-A		–	0.15	0.3	%
R/P–SW Leakage Voltage	$V_{Leak(P/R)}$	Rec., Rec Out, V_i (PB Input) $1kHz$ $16mV$, Rec. Input Shorted	–	1.0	6.0	mV
		P.B., Line Out, V_i (MIC Input) $1kHz$ $31.5mV$, P.B. Input Shorted	–	1.8	10	mV
Muting ON Leakage Voltage	$V_{Leak(Mute)}$	Rec., Rec Out, V_i (MIC Input) $1kHz$ $0.5mV$, P.B. Input Shorted	–	50	100	μV
Total Supply Current	I_{tot}	P.B., Mute: OFF	5.5	9.0	12.5	mA
Mode handling Voltage Playback Mode	V_{18-P}		0	–	0.7	V
Record Mode	V_{18-R}		3.5	–	7.0	V
Muting Holding Voltage OFF Mode	V_{17-OFF}		0	–	0.9	V
ON Mode	V_{17-ON}		2.4	–	4.0	V

Note 1. A capacitor of $10\mu F$ or over must be used between Pin11 and GND for the purpose of preventing the AGC circuit oscillation when it is actually used.

Pin Connection Diagram



