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## 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 = 0.95µV P.B.,  $R_g = 2.2k\Omega$ , 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 otherwise specified)

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

**Electrical Characteristics:** ( $V_{CC} = 9V$ ,  $T_A = +25^\circ\text{C}$  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., $R_g = 2.2k\Omega$ , $f = 20\text{Hz}$ to 20kHz	-	3.0	5.5	mV
Record MIC Input		Rec., $R_g = 2.2k\Omega$ , $f = 20\text{Hz}$ 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 10µF 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	$\mu V$
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**



