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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 = $0.95\mu\text{V P.B.}$, $R_g = 2.2\text{k}\Omega$, 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 otherwise 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



