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NTE1517 Integrated Circuit Dual Audio Preamp w/ ALC

Description:

The NTE1517 is an integrated circuit consisting of a dual preamplifier with ALC. It is designed for use in stereo equipment or radio-cassette recorders. The device consists of two independent high-gain, low-distortion amplifiers and ALC on a single chip. By using an external switch, the NTE1517 can be used as a stereo preamplifier with good channel balance.

Features:

- Low Noise: $V_{NI} = 1\mu\text{Vrms}$ ($R_g = 620\Omega$, $\text{BW} = 20\text{Hz to } 20\text{kHz}$)
- High Gain: $G_{VO} = 80\text{dB typ.}$
- Low Distortion: $\text{THD} = 0.1\% \text{ typ.}$ ($G_{VC} = 46\text{dB}$, $V_O = 0.3\text{Vrms}$)
- Low Supply Current: 6mA typ.
- Built-in Circuit to Reduce Shock-Noise at Switch-On
- Does not require an Input Coupling Capacitor

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

Supply Voltage, V_{CC}	18V
Circuit Current, I_{CC}	27mA
Power Dissipation, P_D	650mW
Thermal Derating ($T_A \geq 25^\circ\text{C}$), $K\theta$	6.5mW/ $^\circ\text{C}$
Operating Temperature Range, T_{opr}	-20° to $+75^\circ\text{C}$
Storage Temperature Range, T_{stg}	-40° to $+125^\circ\text{C}$

Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $f = 1\text{kHz}$, $R_g = 620\Omega$, $V_{CC} = 9\text{V}$, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Circuit Current	I_{CCO}	Quiescent	3	6	10	mA	
Open Loop Voltage Gain	G_{VO}	$V_O = 0.3\text{Vrms}$	$V_{CO} = 5\text{V}$	67	77	-	dB
			$V_{CO} = 9\text{V}$	67	80	-	dB
			$V_{CO} = 12\text{V}$	67	81	-	dB
Total Harmonic Distortion	THD	$V_O = 0.3\text{Vrms}$	-	0.1	0.5	%	
Closed Loop Voltage Gain	G_{VC}		44	46	48	dB	
Input Resistance	R_i		17	27	38	k Ω	
Max. Output Voltage	V_{OM}	THD = 3%	1.3	2.0	-	Vrms	
Output Noise Voltage	N_O	BW = 20Hz to 20kHz	-	210	650	μVrms	
ALC Distortion	THD_{ALC}	$V_i = -40\text{dBv}$	-	0.2	1.2	%	
ALC Balance	ΔV_{ALC}	$V_i = -40\text{dBv}, -10\text{dBv}$	-	0	2.5	dB	
ALC Range	ALC	THD = 10%	40	55	-	dB	

Pin Connection Diagram

