

NTE990 Integrated Circuit Dual Audio Power Amplifier

Description:

The NTE990 is a monolithic dual power amplifier designed to deliver 2W/channel continuous into 8Ω loads. The NTE990 is designed to operate with a low number of external components, and still provide flexibility for use in stereo phonographs, tape records and AM-FM stereo receivers, etc. Each power amplifier is biased from a common internal regulator to provide high power supply rejection, and output Q point centering. The NTE990 is internally compensated for all gains greater than 10.

Features:

- 2W/channel
- -65 dB Ripple Rejection, Output Referred
- -65 dB Channel Separation, Output Referred
- Wide Supply Range: 6V to 24V
- Very Low Cross-Over Distortion
- Low Audio Band Noise
- AC Short Circuit Protected
- Internal Thermal Shutdown

Applications:

- Multi-Channel Audio Systems
- Stereo Phonographs
- Tape Recorders and Players
- AM-FM Radio Receivers
- Servo Amplifiers
- Intercom Systems
- Automotive Products

Absolute Maximum Ratings:

Supply Voltage, V_{CC}	26V
Input Voltage, V_I	$\pm 0.7V$
Operating Junction Temperature, T_J	+150°C
Operating Temperature Range, T_{opr}	0° to +70°C
Storage Temperature Range, T_{stg}	-65° to +150°C
Lead Temperature (During Soldering, 10sec), T_L	+300°C

Electrical Characteristics: ($V_S = 20V$, $T_A = +25^\circ C$, $R_L = 8\Omega$, $A_V = 50$ (34 dB) unless otherwise specified)

Parameter	Test Conditions		Min	Typ	Max	Unit
Total Supply Current	$P_O = 0W$		–	25	50	mA
Output Power	THD = 10%		2.0	–	–	W/Ch
Total Harmonic Distortion	$f = 1kHz$, $V_S = 14V$	$P_O = 50mW/Ch$	–	0.075	–	%
		$P_O = 500mW/Ch$	–	0.045	–	%
		$P_O = 1W/Ch$	–	0.055	–	%
Output Swing	$R_L = 8\Omega$		–	$V_S - 6$	–	V_{P-P}
Channel Separation	$C_F = 50\mu F$, $C_{IN} = 0.1\mu F$, $f = 1kHz$, Output Referred	$V_S = 20V$, $V_O = 4V_{rms}$	–50	–70	–	dB
		$V_S = 7V$, $V_O = 0.5V_{rms}$	–	–60	–	dB
Power Supply Rejection Ratio	$C_F = 50\mu F$, $C_{IN} = 0.1\mu F$, $f = 120Hz$, Output Referred	$V_S = 20V$, $V_{ripple} = 1V_{rms}$	–50	–65	–	dB
		$V_S = 7V$, $V_{ripple} = 0.5V_{rms}$	–	–40	–	dB
Equivalent Noise Input	$R_S = 0$, $C_{IN} = 0.1\mu F$, BW = 20Hz to 20kHz, Output Noise Wideband		–	2.5	–	μA
	$R_S = 0$, $C_{IN} = 0.1\mu F$, $A_V = 200$		–	0.8	–	mV
Open Loop Gain	$R_S = 0$, $f = 100kHz$, $R_L = 8\Omega$		–	70	–	dB
Input Offset Voltage			–	15	–	mV
Input Bias Current			–	50	–	nA
Input Impedance	Open Loop		–	4	–	$M\Omega$
DC Output Level	$V_S = 20V$		9	10	11	V
Slew Rate			–	2.0	–	$V/\mu s$
Power Bandwidth			–	65	–	kHz
Current Limit			–	1.0	–	A

Note 1 For operation at ambient temperature greater than $+25^\circ C$, the NTE990 must be derated based on a maximum $150^\circ C$ junction temperature using a thermal resistance which depends upon device mounting techniques..

Pin Connection Diagram



