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NTE1530

Integrated Circuit

Audio Power Amp ^w/ALC, 450mW

Description:

The NTE1530 is a silicon monolithic integrated circuit designed for audio power amplifier applications at a 6 volt power supply.

This device contains a high gain low noise preamplifier, an automatic level control (ALC) and a high gain low distortion power amplifier which makes this device the perfect audio circuit for use in cassette tape recorders.

Features:

- All functions of a preamplifier, an ALC circuit and a power amplifier are encapsulated in a 14-Lead DIP package with heat sink TAB.
- Low noise, especially low pulsive noise
- Power amplifier stage has high gain, high output power and low distortion characteristics.
- Preamplifier stage has high gain and low distortion characteristics.
- Wide ALC range: output voltage change 1.8V TYP., ALC range 60dB TYP.
- Low spurious radiation when driven to output clipping level.

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

Supply Voltage (DC), V_{CC1}	12V
Supply Voltage (AC), V_{CC2}	10V
Circuit Current, $I_{CC(\text{peak})}$	500mA
Package Dissipation (Note 1), P_D	2.4W
Operating Temperature Range, T_{opt}	-20° to $+75^{\circ}\text{C}$
Storage Temperature Range, T_{stg}	-40° to $+125^{\circ}\text{C}$

Note 1. Mounted and soldered on a 50mm x 50mm copper foil of a printed circuit board (XXX3 grade).

Recommended Conditions: ($T_A = +25^{\circ}\text{C}$ unless otherwise specified)

Operating Supply Voltage	6V
Supply Voltage Range	3.5 to 10V

Electrical Characteristics: ($T_A = +25^{\circ}\text{C}$, $V_{CC} = 6\text{V}$, $f = 1\text{kHz}$, NAB, $R_L(\text{pre}) = 10\text{k}^2$, $R_L(\text{power}) = 8^2$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Overall Characteristics						
Circuit Current	I_{CC}	No Signal	10	20	33	mA
Output Power	P_O	$V_R - \text{Max.}$, THD = 10%	400	450	–	mW
Total Harmonic Distortion	T.H.D.	$V_R - \text{Max}$, $P_O = 50\text{mW}$	–	0.8	2.0	%
Output Noise Level	NL_1	Using P. Head as an R_G , $V_R - \text{Max.}$	–	10	23	mV_{rms}
ALC Characteristics	ALC_1	$V_i = -70 - 40\text{dBm}$, $RL' = 56^2$	–	1.8	9	dB
ALC Range	ALC_2	THD 3%, $R_L' = 56^2$	–	60	–	dB
Preamplifier Stage						
Open Loop Voltage Gain	A_{v01}	$R_L(\text{pre}) = 10\text{k}^2$, $V_O = 0.3V_{\text{rms}}$	55	65	–	dB
Voltage Gain	A_{v2}	NAB $V_O = 0.3V_{\text{rms}}$	–	30.8	–	dB
Maximum Output Voltage	V_{OM}	$R_L(\text{pre}) = 10\text{k}^2$, THD = 1%	–	0.8	–	V_{rms}
Input Impedance	R_{i1}		20	–	–	k^2
Power Amplifier Stage						
Open Loop Voltage Gain	A_{v02}	$P_O = 50\text{mW}$	70	81	–	dB
Voltage Gain	A_{v2}	$P_O = 50\text{mW}$	–	46.8	–	dB
Output Noise Level	NL_2	$V_R - \text{MIN.}$ ($R_G = 0$)	–	0.4	2.0	mV_{rms}
Input Impedance	R_{i2}		20	28	–	k^2

Pin Connection Diagram



