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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 encapsualated 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°C unless otherwise specified)

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

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

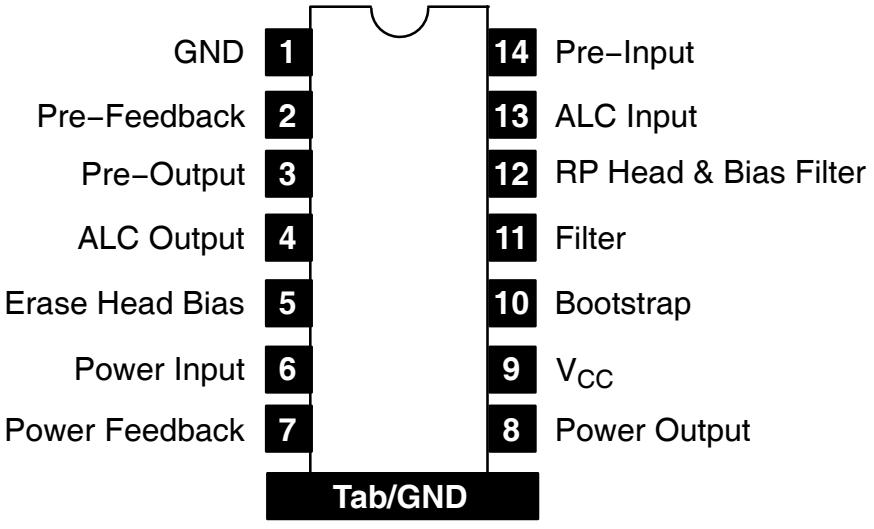
Recommended Conditions: (T_A = +25°C unless otherwise specified)

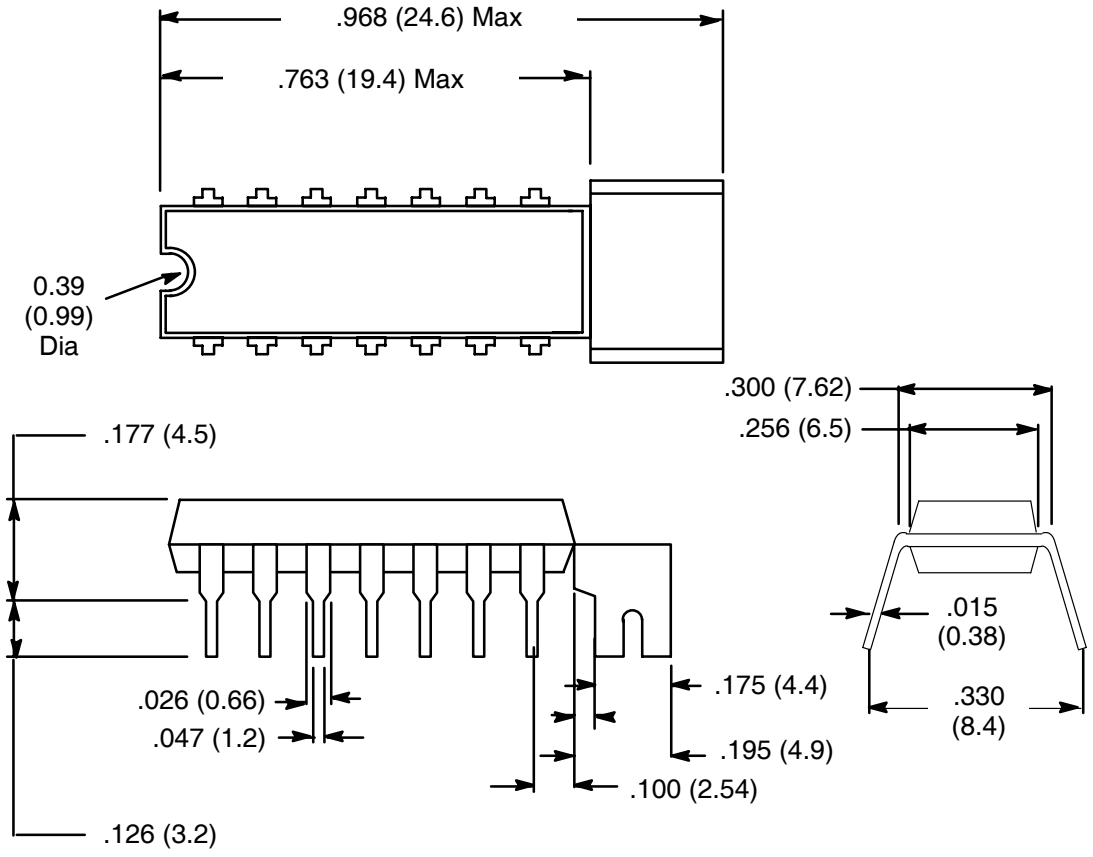
Operating Supply Voltage 6V
Supply Voltage Range . . . . . 3.5 to 10V

Electrical Characteristics: (T_A = +25°C, V_{CC} = 6V, f = 1kHz, NAB, R_L (pre) = 10k^2, R_L(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 – Max., THD = 10%	400	450	–	mW
Total Harmonic Distortion	T.H.D.	V_R – Max, P_O = 50mW	–	0.8	2.0	%
Output Noise Level	NL_1	Using P. Head as an R_G, V_R – Max.	–	10	23	mV_{rms}
ALC Characteristics	ALC_1	V_i = –70 – 40dBm, 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(pre) = 10k^2, V_O = 0.3V_{rms}	55	65	–	dB
Voltage Gain	A_v2	NAB V_O = 0.3V_{rms}	–	30.8	–	dB
Maximum Output Voltage	V_{OM}	R_L(pre) = 10k^2, THD = 1%	–	0.8	–	V_{rms}
Input Impedance	R_{i1}		20	–	–	k^2
Power Amplifier Stage						
Open Loop Voltage Gain	A_vo2	P_O = 50mW	70	81	–	dB
Voltage Gain	A_{V2}	P_O = 50mW	–	46.8	–	dB
Output Noise Level	NL_2	V_R –MIN. (R_G = 0)	–	0.4	2.0	mV_{rms}
Input Impedance	R_i2		20	28	–	k^2

Pin Connection Diagram




.968 (24.6) Max
.763 (19.4) Max
0.39
(0.99)
Dia
.300 (7.62)
.256 (6.5)
.177 (4.5)
.015
(0.38)
.330
(8.4)
.026 (0.66)
.047 (1.2)
.175 (4.4)
.195 (4.9)
.100 (2.54)
.126 (3.2)