

NTE1830 & NTE1831 Integrated Circuit Dual Audio Power Amplifier, 5.8W (19W BTL)

Description:

The NTE1830 and NTE1831 are dual audio power amplifiers in a 12-Lead DIP type package for use in consumer applications. Designed for high power, low distortion, and low noise, these devices contain various types of protection circuitry making them suitable for high performance car audio power amplifier applications.

Features:

- Two Kinds of Pin Configurations:
Normal (NTE1830)
Reverse (NTE1831)
- Operating Supply Voltage Range: $V_{CC(opr)} = 9V$ to $18V$
- High Power: ($V_{CC} = 13.2V$, $f = 1kHz$, $R_L = 4\Omega$)

BTL	19W (Typ)	THD = 10%
	15W (Typ)	THD = 1%
Dual	5.8W (Typ)	THD = 10%

- Low Distortion: ($V_{CC} = 13.2V$, $f = 1kHz$, $R_L = 4\Omega$)

BTL	0.03% (Typ)	$P_{OUT} = 4W$, $G_V = 40dB$
Dual	0.06% (Typ)	$P_{OUT} = 1W$, $G_V = 52dB$

- Low Noise: ($V_{CC} = 13.2V$, $R_L = 4\Omega$)

BTL	0.14mV _{rms} (Typ)	$G_V = 40dB$, $R_g = 0$, DIN NOISE: DIN 45405
Dual	0.7mV _{rms} (Typ)	$G_V = 52dB$, $R_g = 10k\Omega$, BW = 20Hz to 20kHz

- Protector:
Thermal Shut-Down
Overvoltage Protection
BTL-OCL DC Short Protection

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

Peak Supply Voltage (0.2sec), $V_{CCsurge}$	45V
DC Supply Voltage, V_{CCDC}	25V
Operating Supply Voltage, V_{CCopr}	18V
Peak Output Current, I_{Opeak}	4.5A
Power Dissipation, P_D	25W
Operating Temperature Range, T_{opr}	-30° to $+75^\circ C$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ C$

Electrical Characteristics: ($T_A = +25^{\circ}\text{C}$, $V_{CC} = 13.2\text{V}$, $R_L = 4\Omega$, $R_g = 600\Omega$, $f = 1\text{kHz}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Current	I_{CCQ}	$V_{IN} = 0$	–	80	145	mA
BTL Connection Mode						
Output Power	$P_{OUT} (1)$	THD = 10%	16	19	–	W
	$P_{OUT} (2)$	THD = 1%	12	15	–	W
Total Harmonic Distortion	THD (1)	$P_{OUT} = 4\text{W}$, $G_V = 40\text{dB}$	–	0.03	0.25	%
Output Offset Voltage	V_{OFF}	$V_{IN} = 0$	–	0	0.35	V
Voltage Gain	$G_V (1)$	$V_{OUT} = 0\text{dBm}$	–	40	–	dB
Output Noise Voltage	$V_{NO} (1)$	$R_g = 0$, DIN 45405 Noise Filter	–	0.14	–	mV _{rms}
Ripple Rejection Ratio	RR (1)	$f_{ripple} = 100\text{Hz}$, $V_{ripple} = 0\text{dBm}$	–	–52	–40	dB
Dual Mode						
Output Power	$P_{OUT} (3)$	THD = 10%	5.0	5.8	–	W
Total Harmonic Distortion	THD (2)	$P_{OUT} = 1\text{W}$	–	0.06	0.30	%
Voltage Gain	$G_V (2)$	$V_{OUT} = 0\text{dBm}$	50	52	54	dB
Voltage Gain Ratio	ΔG_V	$V_{OUT} = 0\text{dBm}$	–1	0	+1	dB
Output Noise Voltage	$V_{NO} (2)$	$R_g = 10\text{k}\Omega$, BW = 20Hz to 20kHz	–	0.7	1.5	mV _{rms}
Ripple Rejection Ratio	RR (2)	$f_{ripple} = 100\text{Hz}$, $V_{ripple} = 0\text{dBm}$	–	–52	–40	dB
Crosstalk	CT	$V_{OUT} = 0\text{dBm}$	–	–57	–	dB
Input Resistance	R_{IN}	$f = 1\text{kHz}$	–	33	–	k Ω

Pin Connection Diagram
(Front View)

NTE1830

12	Output 2
11	Bootstrap 2
10	V_{CC}
9	Bootstrap 1
8	Output 1
7	PWR–GND
6	(+) Input 1
5	(–) NF 1
4	Pre–GND
3	Ripple Filter
2	(–) NF 2
1	(+) Input 2

NTE1831

12	(+) Input 2
11	(–) NF 2
10	Ripple Filter
9	Pre–GND
8	(–) NF 1
7	(+) Input 1
6	PWR–GND
5	Output 1
4	Bootstrap 1
3	V_{CC}
2	Bootstrap 2
1	Output 2

