

NTE1898 & NTE1899 Integrated Circuit Dual Audio Power Amp, 5.8W (22W BTL)

Description:

The NTE1898 and NTE1899 are dual audio power amplifiers in a 12-Lead SIP type package designed for use as high performance, car-audio power amplifiers in consumer applications. These devices feature high power, low distortion, and low noise along with various types of protection circuits. The NTE1899 is a mirror image pin-out of the NTE1898 allowing for easier design of PC boards when used in BTL-stereo applications.

Features:

- High Power:
 $P_{OUT} = 22W$ (Typ) @ $V_{CC} = 14.4V$, $f = 1kHz$, THD = 10%, $R_L = 4\Omega$ (BTL)
 $P_{OUT} = 5.8W/Ch$ (Typ) @ $V_{CC} = 13.2V$, $f = 1kHz$, THD = 10%, $R_L = 4\Omega$ (Dual)
- Low Distortion:
 $THD = 0.03\%$ (Typ) @ $V_{CC} = 14.4V$, $f = 1kHz$, $P_{OUT} = 4W$, $R_L = 4\Omega$, $G_V = 40dB$ (BTL)
 $THD = 0.06\%$ (Typ) @ $V_{CC} = 13.2V$, $f = 1kHz$, $P_{OUT} = 1W$, $R_L = 4\Omega$, $G_V = 52dB$ (Dual)
- Low Noise:
 $V_{NO} = 0.14mV_{rms}$ (Typ) @ $V_{CC} = 13.2V$, $R_L = 4\Omega$, $G_V = 40dB$, $R_g = 0$, DIN Noise: DIN45405
 $V_{NO} = 0.7mV_{rms}$ (Typ) @ $V_{CC} = 13.2V$, $R_L = 4\Omega$, $G_V = 52dB$, BW = 20Hz to 20kHz (Dual)
- Protector Circuit:
 Thermal Shut Down, Overvoltage, OUT- V_{CC} Short, OUT-GND Short, OUT-OUT Short

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 $+85^\circ C$
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}	$V_{CC} = 14.4\text{V}$, THD = 10%	–	22	–	W
		THD = 10%	16	19	–	W
		THD = 1%	12	15	–	W
Total Harmonic Distortion	THD	$P_{OUT} = 4\text{W}$, $G_V = 40\text{dB}$	–	0.03	0.25	%
Output Offset Voltage	V_{OFF}	$V_{IN} = 0$	–	0	0.35	V
Voltage Gain	G_V	$V_{OUT} = 0\text{dBm}$	–	40	–	dB
Output Noise Voltage	V_{NO}	$R_g = 0$, DIN 45405 Noise Filter	–	0.14	–	mV_{rms}
Ripple Rejection Ratio	RR	$f_{\text{ripple}} = 100\text{Hz}$, $V_{\text{ripple}} = 0\text{dBm}$	–	–52	–40	dB
Dual Mode						
Output Power	P_{OUT}	THD = 10%	5.0	5.8	–	W
Total Harmonic Distortion	THD	$P_{OUT} = 1\text{W}$	–	0.06	0.30	%
Voltage Gain	G_V	$V_{OUT} = 0\text{dBm}$	50	52	54	dB
Voltage Gain Ratio	ΔG_V	$V_{OUT} = 0\text{dBm}$	–1	–	+1	dB
Output Noise Voltage	V_{NO}	$R_g = 10\text{k}\Omega$, BW = 20Hz to 20kHz	–	0.7	1.5	mV_{rms}
Ripple Rejection Ratio	RR	$f_{\text{ripple}} = 100\text{Hz}$, $V_{\text{ripple}} = 0\text{dBm}$	–	–52	–40	dB
Crosstalk	CT	$V_{OUT} = 0\text{dBm}$	–	–57	–	dB
Input Resistance	R_{IN}	$f = 1\text{kHz}$	–	33	–	$\text{k}\Omega$

Pin Connection Diagram
(Front View)

NTE1898

12	Output 1
11	Bootstrap 1
10	V_{CC}
9	Power GND
8	Bootstrap 2
7	Output 2
6	Ripple
5	Input 2
4	NF 2
3	Pre GND
2	NF 1
1	Input 1

NTE1899

12	Input 1
11	NF 1
10	Pre GND
9	NF 2
8	Input 2
7	Ripple
6	Output 2
5	Bootstrap 2
4	Power GND
3	V_{CC}
2	Bootstrap 1
1	Output 1

