ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748–5089

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

Description:

The NTE1830 and NTE1830 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 = 4Ω)

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 = 4Ω)

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 = 4Ω)

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 = 10kΩ, BW = 20Hz to 20kHz

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

Absolute Maximum Ratings: (T_A = +25°C unless otherwise specified)

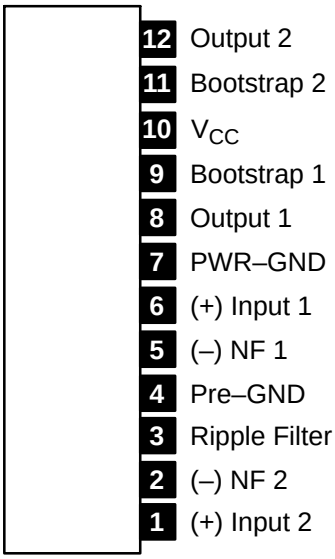
Peak Supply Voltage (0.2sec), V_{CC}surge 45V
DC Supply Voltage, V_{CC}DC 25V
Operating Supply Voltage, V_{CC}opr 18V
Peak Output Current, $I_O$peak 4.5A
Power Dissipation, P_D 25W
Operating Temperature Range, T_{opr} . . . . . –30° to +75°C
Storage Temperature Range, T_{stg} . . . . . –55° to +150°C

Electrical Characteristics: (T_A = +25°C, V_{CC} = 13.2V, R_L = 4Ω, R_g = 600Ω, f = 1kHz unless otherwise specified)

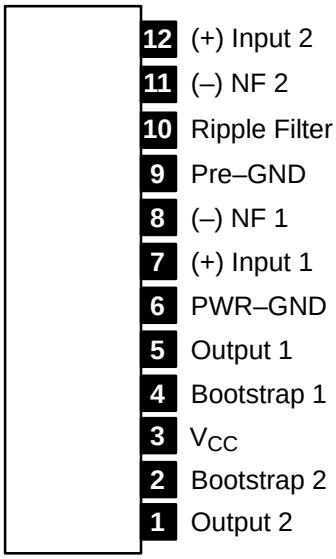
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Current	I_{CCQ}	V_{IN} = 0	–	80	145	mA
BTL Connection Mode						
Output Power	P_{OUT} (1)	THD = 10%	16	19	–	W
	P_{OUT} (2)	THD = 1%	12	15	–	W
Total Harmonic Distortion	THD (1)	P_{OUT} = 4W, G_V = 40dB	–	0.03	0.25	%
Output Offset Voltage	V_{OFF}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

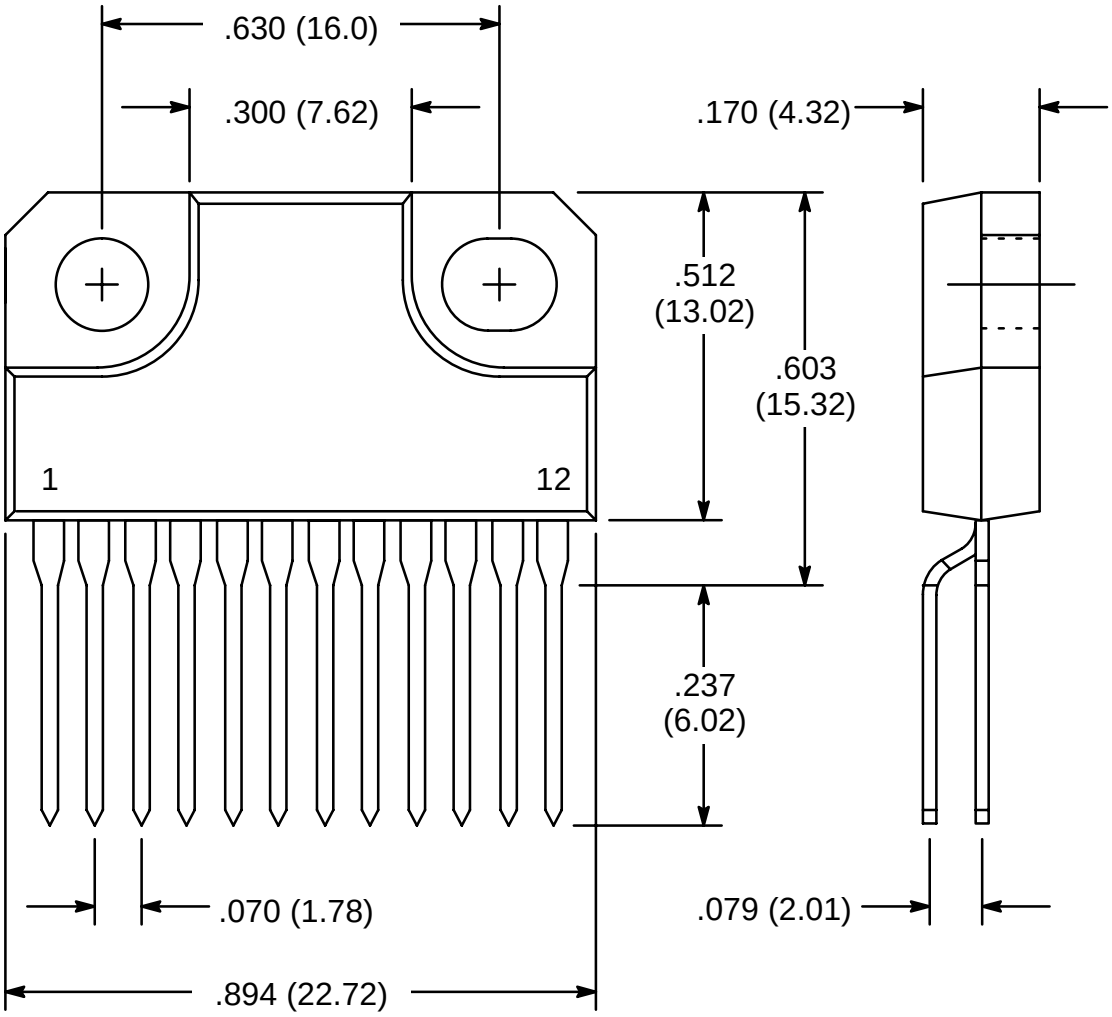
Pin Connection Diagram
(Front View)

NTE1830



NTE1831

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