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## NTE828 Integrated Circuit Audio Power Amp, 1.5W

**Description:**

The NTE828 is an audio amplifier in a 14-Lead DIP type package designed for use in medium power consumer applications. The gain is internally set to 20 to keep external part count low, but the addition of an external resistor and capacitor between Pin2 and Pin6 will increase the gain to any value up to 200. The inputs are ground referenced while the output is automatically biased to one half the supply voltage.

**Features:**

- Minimum External Parts
- Wide Supply Voltage Range
- Ground Referenced Input
- Excellent Supply Rejection
- Variable Voltage Gain
- Self-Centering Output Quiescent Voltage
- Low Distortion
- Low Voltage Operation, 4V

**Applications:**

- AM-FM Radio Amplifiers
- Intercoms
- TV Sound Systems
- Portable Tape Player Amplifiers
- Power Converters
- Lamp Drivers
- Ultrasonic Drivers
- Line Drivers
- Small Servo Drivers

**Absolute Maximum Ratings:**

Supply Voltage, $V_S$ .....	22V
Package Dissipation (Note 1), $P_D$ .....	8.3W
Input Voltage, $V_{IN}$ .....	$\pm 0.4V$
Operating Junction Temperature, $T_J$ .....	+150°C
Operating Temperature Range, $T_{opr}$ .....	0° to +70°C
Storage Temperature Range, $T_{stg}$ .....	-65° to +150°C
Lead Temperature (During Soldering, 10sec), $T_L$ .....	+300°C

Note 1 Pin3, Pin4, Pin5, Pin10, Pin11, and Pin12 at +25°C. Derate at 15°C/W above +25°C case.

**Electrical Characteristics:** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Operating Supply Voltage	$V_S$		5	–	18	V	
Quiescent Current	$I_Q$	$V_S = 16\text{V}, V_{IN} = 0$	–	20	35	mA	
Output Power	$P_{OUT}$	$R_1 = R_2 = 180\Omega$ , THD = 10%, Note 2	$V_S = 12\text{V}, R_L = 8\Omega$	1.5	2.2	–	W
			$V_S = 6\text{V}, R_L = 4\Omega$	0.6	0.8	–	W
Voltage Gain	$A_V$	$V_S = 12\text{V}, f = 1\text{kHz}$ ,	23	26	30	dB	
		10 $\mu\text{F}$ from Pin2 to Pin6	–	46	–	dB	
Bandwidth	BW	$V_S = 12\text{V}$ , Pin2 and Pin6 Open	–	300	–	kHz	
Total Harmonic Distortion	THD	$V_S = 12\text{V}, R_L = 8\Omega, P_{OUT} = 500\text{mW}, f = 1\text{kHz}$ , Pin2 and Pin6 Open	–	0.1	1.0	%	
Power Supply Rejection Ratio	PSRR	$V_S = 12\text{V}, f = 1\text{kHz}, C_{BYPASS} = 10\mu\text{F}$ , Pin2 and Pin6 Open, Referred to Output, Note 3	–	50	–	dB	
Input Resistance	$R_{IN}$		10	50	–	k $\Omega$	
Input Bias Current	$I_{BIAS}$	$V_S = 12\text{V}$ , Pin7 and Pin8 Open	–	250	–	nA	

Note 2 The amplifier should be in high gain for full swing on higher supplies due to input voltage limitations.

Note 3 If load and bypass capacitor are returned to  $V_S$  rather than ground, PSRR is typically 30dB.

