



ELECTRONICS, INC.

44 FARRAND STREET  
BLOOMFIELD, NJ 07003  
(973) 748-5089  
<http://www.nteinc.com>

## NTE1687 Linear Integrated Circuit Dual, 2.5W (7.8W BTL) Audio Amp

### **Description:**

The NTE1687 is a high performance stereo power amplifier in an 11-Lead SIP type package designed to deliver 1W/Ch into 4Ω or 2W bridged monaural into 8Ω. It is ideal for sensitive AM radio applications, exhibiting lower wideband noise, lower distortion, and less AM radiation than conventional designs.

### **Features:**

- Low AM Radiation
- Low Noise
- 3V, 4Ω, Stereo P<sub>O</sub> = 250mW
- Wide Supply Operation: 3V to 15V
- Low Distortion
- P<sub>O</sub> = 9W Bridged

### **Applications:**

- Compact AM/FM Radios
- Stereo Tape Recorders and Players
- High Power Portable Stereos

### **Absolute Maximum Ratings:**

Supply Voltage, V <sub>S</sub> .....	18V
Junction Temperature, T <sub>J</sub> .....	+150°C
Operating Temperature Range (Note 1), T <sub>opr</sub> .....	0°C to +70°C
Storage Temperature Range, T <sub>stg</sub> .....	-65°C to +150°C
Lead Temperature (During Soldering, 10 sec), T <sub>L</sub> .....	+260°C

Note 1. For operation at ambient temperature greater than +25°C, the NTE1687 must be derated based on a maximum +150°C junction temperature using a thermal resistance which depends upon mounting techniques,

**Electrical Characteristics:** ( $T_A = 25^\circ\text{C}$ ,  $A_V = 200$  (46dB),  $T_{TAB} = 25^\circ\text{C}$ ,  $V_S = 12\text{V}$ ,  $R_L = 8\Omega$ , unless otherwise specified)

Parameter	Test Conditions	Min	Typ	Max	Unit	
Supply Current	$P_O = 0\text{W}$ , Dual Mode	–	25	40	mA	
Operating Supply Voltage		3	–	15	V	
Output Power	THD = 10%, $f = 1\text{kHz}$	$V_S = 12\text{V}$ , $R_L = 8\Omega$ Dual Mode	2.0	2.5	–	W/Ch
		$V_S = 12\text{V}$ , $R_L = 8\Omega$ Bridge Mode	7.2	9.0	–	W
		$V_S = 9\text{V}$ , $R_L = 4\Omega$ Bridge Mode	–	7.8	–	W
		$V_S = 9\text{V}$ , $R_L = 4\Omega$ Dual Mode	–	2.5	–	W/Ch
Distortion	$f = 1\text{kHz}$	$P_O = 50\text{mW}$	–	0.09	–	%
		$P_O = 0.5\text{W}$	–	0.11	–	
		$P_O = 1\text{W}$	–	0.14	–	
Power Supply Rejection Ratio (PSRR)	$C_{BY} = 100\mu\text{F}$ , $f = 1\text{kHz}$ , $C_{IN} = 0.1\mu\text{F}$ , Output Referred, $V_{RIPPLE} = 250\text{mV}$	–40	–54	–	dB	
Channel Separation	$C_{BY} = 100\mu\text{F}$ , $f = 1\text{kHz}$ , $C_{IN} = 0.1\mu\text{F}$ , Output Referred	–50	–64	–	dB	
Noise	Equivalent Input Noise $R_S = 0$	$C_{IN} = 0.1\mu\text{F}$ , BW = 20 – 20kHz	–	1.4	–	$\mu\text{V}$
		CCIR/ARM	–	1.4	–	
		Wideband	–	2.0	–	
DC Output Level		5.6	6	6.4	V	
Input Impedance		50	100	350	$\text{k}\Omega$	
Input Offset Voltage		–	5	–	mV	
Voltage Difference between Outputs		–	10	20	mV	
Input Bias Current		–	120	–	nA	

**Pin Connection Diagram**  
(Front View)



