

## NTE1383 Integrated Circuit Dual Audio Power Amp, 5.1W/Ch (10.5W BTL)

### **Description:**

The NTE1383 is an integrated circuit in an 18-Lead DIP designed for use as an audio output with low noise, low distortion, and high output for a wide range of power supply voltages and load resistance. Two built-in amplifiers provide dual or BTL operation. Typical applications include radio cassette recorder, tape recorder, car stereo, and home entertainment.

### **Features:**

- High Output Power, Dual or BTL Circuit Operation
- Wide Output Power Setting Range
- Wide Supply Voltage Range
- Incorporates an Automatic Operating Point Stabilizer Circuit
- Low Distortion, Low 1/f Noise, and Low Shock Noise
- High Audio Channel Separation
- Incorporates a Phase Converter

### **Absolute Maximum Ratings:** ( $T_A = +25^\circ\text{C}$ unless otherwise specified)

Supply Voltage (Note 1), $V_{CC}$ .....	20V
Supply Current, $I_{CC}$ .....	4A
Power Dissipation ( $T_A = +60^\circ\text{C}$ ), $P_D$ .....	14W
Operating Ambient Temperature Range, $T_{opr}$ .....	$-30^\circ$ to $+75^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-55^\circ$ to $+150^\circ\text{C}$

Note 1.  $V_{CC}$  at operation mode = 20V (Stabilized power source).

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Quiescent Circuit Current	$I_{CQ}$	$V_{CC} = 9V$	$V_i = 0$	20	35	55	mA
		$V_{CC} = 12V$		21	40	65	
		$V_{CC} = 13.2V$		22	40	66	

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

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
<b>BTL</b> ( $R_L = 8\Omega$ , $f = 1\text{kHz}$ )							
Voltage Gain	$G_V$	$V_{CC} = 9\text{V}$	$V_i = 4\text{mV}$	40	43	46	dB
		$V_{CC} = 12\text{V}$		40	43	46	dB
		$V_{CC} = 13.2\text{V}$		40	43	46	dB
Total Harmonic Distortion	THD	$V_{CC} = 9\text{V}$	$V_i = 4\text{mV}$	–	0.15	1.0	%
		$V_{CC} = 12\text{V}$		–	0.15	1.0	%
		$V_{CC} = 13.2\text{V}$		–	0.15	1.0	%
Output Power	$P_O$	$V_{CC} = 9\text{V}$	THD = 10%	4.5	5.0	–	W
		$V_{CC} = 12\text{V}$		8.0	9.0	–	W
		$V_{CC} = 13.2\text{V}$		9.4	10.5	–	W
Output Noise Voltage	$V_{no}$	$V_{CC} = 9\text{V}$	$V_i = 0$ , $R_g = 3.9\text{k}\Omega$	–	0.3	1.0	mV
		$V_{CC} = 12\text{V}$	$V_i = 0$ , $R_g = 10\text{k}\Omega$	–	0.5	2.0	mV
		$V_{CC} = 13.2\text{V}$		–	0.7	2.0	mV
Output Offset Voltage	$V_{O(\text{offset})}$	$V_{CC} = 9\text{V}$	$V_i = 0$	–10	–	+10	mV
		$V_{CC} = 12\text{V}$		–12	–	+12	mV
		$V_{CC} = 13.2\text{V}$		–12	–	+12	mV
<b>Dual</b> ( $R_L = 4\Omega$ , $f = 1\text{kHz}$ )							
Voltage Gain	$G_V$	$V_{CC} = 9\text{V}$	$V_i = 4\text{mV}$	41	44	47	dB
		$V_{CC} = 12\text{V}$		42	45	48	dB
		$V_{CC} = 13.2\text{V}$		42	45	48	dB
Total Harmonic Distortion	THD	$V_{CC} = 9\text{V}$	$V_i = 4\text{mV}$	–	0.3	1.0	%
		$V_{CC} = 12\text{V}$		–	0.3	1.0	%
		$V_{CC} = 13.2\text{V}$		–	0.3	1.0	%
Output Power	$P_O$	$V_{CC} = 9\text{V}$	THD = 10%	2.0	2.4	–	W
		$V_{CC} = 12\text{V}$		3.6	4.2	–	W
		$V_{CC} = 13.2\text{V}$		4.5	5.1	–	W
Output Noise Voltage	$V_{no}$	$V_{CC} = 9\text{V}$	$V_i = 0$ , $R_g = 3.9\text{k}\Omega$	–	0.2	1.0	mV
		$V_{CC} = 12\text{V}$	$V_i = 0$ , $R_g = 10\text{k}\Omega$	–	0.3	1.5	mV
		$V_{CC} = 13.2\text{V}$		–	0.3	1.5	mV
Channel Balance	CB	$V_{CC} = 9\text{V}$	$V_i = 4\text{mV}$	–	0	1	dB
		$V_{CC} = 12\text{V}$		–	0	1	dB
		$V_{CC} = 13.2\text{V}$		–	0	1	dB

### Pin Connection Diagram

