

NTE1380 Integrated Circuit Audio Power Amplifier, 14W

Description:

The NTE1380 is a monolithic integrated circuit in a 5-Lead TO220 type package intended for use as an audio class AB amplifier. Typically, it provides 14W output power (THD = 0.5%) at $V_S = \pm 14V/4\Omega$. This device provides high output current and has very low harmonic and cross-over distortion. Further, the NTE1380 incorporates a short circuit protection system comprising an arrangement for automatically limiting the dissipated power so as to keep the working point of the output transistors within their safe operating area. A thermal shut-down system is also included.

Absolute Maximum Ratings:

Supply Voltage, V_S $\pm 18V$
 Input Voltage, V_I V_S
 Differential Input Voltage, V_I $\pm 15V$
 Output Peak Current (Internally Limited), I_O 3.5A
 Power Dissipation ($T_C = +90^\circ C$), P_{tot} 20W
 Operating Junction Temperature Range, T_J -40° to $+150^\circ C$
 Storage Temperature Range, T_{stg} -40° to $+150^\circ C$
 Thermal Resistance, Junction-to-Case, R_{thJC} $3^\circ C/W$
 Min. Thermal Shut-Down Junction Temperature ($V_S = \pm 14V$, $P_{tot} = 12W$, $T_A = +25^\circ C$), T_{sd} $+110^\circ C$

Electrical Characteristics: ($V_S = \pm 14V$, $T_A = +25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage	V_S		± 6	—	± 18	V
Quiescent Drain Current	I_d	$V_S = \pm 18V$	—	40	60	mA
Input Bias Current	I_b	$V_S = \pm 18V$	—	0.2	2.0	μA
Input Offset Voltage	V_{OS}	$V_S = \pm 18V$	—	± 2	± 20	mV
Input Offset Current	I_{OS}	$V_S = \pm 18V$	—	± 20	± 200	nA
Output Offset Voltage	V_{OS}	$V_S = \pm 18V$	—	± 2.5	± 22	mV
Output Power	P_O	THD = 0.5%, $G_V = 30dB$, $f = 40$ to $15000Hz$, $R_L = 4\Omega$	12	14	—	W
		THD = 0.5%, $G_V = 30dB$, $f = 40$ to $15000Hz$, $R_L = 8\Omega$	8	9	—	W
		THD = 10%, $G_V = 30dB$, $f = 1kHz$, $R_L = 4\Omega$	—	18	—	W
		THD = 10%, $G_V = 30dB$, $f = 1kHz$, $R_L = 8\Omega$	—	11	—	W

Electrical Characteristics (Cont'd): ($V_S = \pm 14V$, $T_A = +25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Frequency Response ($-3dB$)	B	$P_O = 12W$, $G_V = 30dB$, $R_L = 4\Omega$	10 to 140,000			Hz
Input Sensitivity	V_i	$G_V = 30dB$, $f = 1kHz$, $P_O = 12W$, $R_L = 4\Omega$	–	215	–	mV
		$G_V = 30dB$, $f = 1kHz$, $P_O = 8W$, $R_L = 8\Omega$	–	250	–	mV
Voltage Gain	G_V	$f = 1kHz$, Open Loop	–	90	–	dB
		$f = 1kHz$, Closed Loop	29.5	30.0	30.5	dB
Total Harmonic Distortion	THD	$P_O = 0.1$ to $12W$, $G_V = 30dB$, $R_L = 4\Omega$, $f = 40$ to $15000Hz$	–	0.2	0.5	%
		$P_O = 0.1$ to $8W$, $G_V = 30dB$, $R_L = 8\Omega$, $f = 40$ to $15000Hz$	–	0.1	0.5	%
Input Noise Voltage	e_N	$B = 22Hz$ to $22kHz$, $R_L = 4\Omega$	–	3	10	μV
Input Noise Current	I_N	$B = 22Hz$ to $22kHz$, $R_L = 4\Omega$	–	80	200	pA
Input Resistance (Pin1)	R_i		0.5	5.0	–	$M\Omega$
Supply Voltage Rejection	SVR	$R_L = 4\Omega$, $R_g = 22k\Omega$, $G_V = 30dB$, $f_{ripple} = 100Hz$, $V_{ripple} = 0.5V_{eff}$	40	50	–	dB
Drain Current	I_d	$P_O = 14W$, $R_L = 4\Omega$	–	900	–	mA
		$P_O = 9W$, $R_L = 8\Omega$	–	500	–	mA

Pin Connection Diagram
(Front View)



