

NTE1378 Integrated Circuit Audio Power Amplifier, 10W

Description:

The NTE1378 is a monolithic integrated circuit in a 5-Lead TO220 type package intended for use as an audio class AB amplifier. Typically, it provides 12W output power (THD = 10%) at $V_S = \pm 12V/4\Omega$. This device provides high output current and has very low harmonic and cross-over distortion. Further, the NTE1378 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 $\pm 15V$
 Input Voltage, V_I V_S
 Differential Input Voltage, V_I $\pm 12V$
 Output Peak Current (Internally Limited), I_O 3A
 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 ($V_S = \pm 12V$, $P_{tot} = 9W$, $T_A = +25^\circ C$), T_{sd} $+110^\circ C$

Electrical Characteristics: ($V_S = \pm 12V$, $T_A = +25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage	V_S		± 6	—	± 15	V
Quiescent Drain Current	I_d	$V_S = \pm 15V$	—	40	80	mA
Input Bias Current	I_b	$V_S = \pm 15V$	—	0.2	3.0	μA
Input Offset Voltage	V_{OS}	$V_S = \pm 15V$	—	± 8	—	mV
Input Offset Current	I_{OS}	$V_S = \pm 15V$	—	± 80	—	nA
Output Offset Voltage	V_{OS}	$V_S = \pm 15V$	—	± 10	± 100	mV
Output Power	P_O	THD = 10%, $f = 1kHz$, $R_L = 4\Omega$	—	12	—	W
		THD = 10%, $f = 1kHz$, $R_L = 8\Omega$	6	8	—	W

Electrical Characteristics (Cont'd): ($V_S = \pm 12V$, $T_A = +25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Frequency Response (-3dB)	B	$P_O = 8W$, $R_L = 4\Omega$	10 to 140,000			Hz
Input Sensitivity	V_i	$f = 1kHz$, $P_O = 10W$, $R_L = 4\Omega$	–	200	–	mV
		$f = 1kHz$, $P_O = 6W$, $R_L = 8\Omega$	–	220	–	mV
Voltage Gain	G_V	$f = 1kHz$, Open Loop	–	75	–	dB
		$f = 1kHz$, Closed Loop	29.5	30.0	30.5	dB
Total Harmonic Distortion	THD	$P_O = 0.1$ to $8W$, $R_L = 4\Omega$, $f = 1kHz$	–	0.2	–	%
		$P_O = 0.1$ to $4W$, $R_L = 8\Omega$, $f = 1kHz$	–	0.1	1.0	%
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	$f = 1kHz$	0.5	5.0	–	$M\Omega$
Supply Voltage Rejection	SVR	$R_L = 4\Omega$, $R_g = 22k\Omega$, $f_{ripple} = 100Hz$	40	50	–	dB
Drain Current	I_d	$P_O = 12W$, $R_L = 4\Omega$	–	850	–	mA
		$P_O = 8W$, $R_L = 8\Omega$	–	500	–	mA

Pin Connection Diagram
(Front View)



