

NTE1116 Integrated Circuit Audio Power Amplifier, 5W

Description:

The NTE1116 is a monolithic integrated circuit designed for use as a low frequency class B amplifier. The external cooling tabs enable 2.5 watts of output power to be achieved without the use of an external heat sink and 5 watts of output power using a small area of the P.C. board copper as a heat sink.

Absolute Maximum Ratings:

Supply Voltage, V_S	30V
Output Peak Current (Non-Repetitive), I_O	2A
Output Current (Repetitive), I_O	1.5A
Power Dissipation, P_{tot}	
$T_A = +70^\circ\text{C}$	1W
$T_{tab} = +100^\circ\text{C}$	5W
Operating Junction Temperature Range, T_J	-40° to $+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-40° to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Tab, $R_{thJ-TAB}$	12°C/W
Thermal Resistance, Junction-to-Ambient (Note 1), R_{thJA}	70°C/W

Note 1. Obtained with tabs soldered to printed circuit with minimized copper area.

Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $V_S = 24\text{V}$, $R_L = 16\Omega$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Output Voltage (Pin12)	V_O		11	12	13	V
Quiescent Drain Current	I_d		—	9	20	mA
Input Bias Current (Pin8)	I_b		—	1	5	μA
Output Power	P_O	THD = 10%, $f = 1\text{kHz}$	4.4	5.0	—	W
Input Saturation Voltage	$V_{i(rms)}$		220	—	—	mV
Input Sensitivity	V_i	$P_O = 5\text{W}$, $f = 1\text{kHz}$	—	80	—	mV
Input Resistance (Pin8)	R_i	$f = 1\text{kHz}$	—	5	—	$\text{M}\Omega$
Frequency Response (-3dB)	B	$C3 = 330\text{pF}$	40 to 20,000			Hz
Total Harmonic Distortion	THD	$P_O = 50\text{mW}$ to 2.5W , $f = 1\text{kHz}$	—	0.5	—	%
Voltage Gain (Open Loop)	G_V	$f = 1\text{kHz}$	—	80	—	dB
Voltage Gain (Closed Loop)	G_V	$f = 1\text{kHz}$	39	42	45	dB

Electrical Characteristics (Cont'd): ($T_A = +25^{\circ}\text{C}$, $V_S = 24\text{V}$, $R_L = 16\Omega$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Noise Voltage	e_N	$B = 22\text{Hz to } 22\text{kHz}$	–	5	–	μV
Input Noise Current	i_N		–	0.2	–	nA
Efficiency	η	$P_O = 5\text{W}$, $f = 1\text{kHz}$	–	75	–	%
Supply Voltage Rejection	SVR	$f_{\text{ripple}} = 100\text{Hz}$, $C_5 = 25\mu\text{F}$	–	35	–	dB
		$f_{\text{ripple}} = 100\text{Hz}$, $C_5 = 100\mu\text{F}$	–	38	–	dB
Drain Current	I_d	$P_O = 5\text{W}$	–	280	–	mA

Pin Connection Diagram

