

## 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, $T_J$ .....	$-40^\circ$ to $+150^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-40^\circ$ 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	$\mu\text{A}$
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 $2.5\text{W}$ , $f = 1\text{kHz}$	–	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 = 22Hz to 22kHz	-	5	-	$\mu\text{V}$
Input Noise Current	$i_N$		-	0.2	-	nA
Efficiency	$\eta$	$P_O = 5\text{W}$ , $f = 1\text{kHz}$	-	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**

