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NTE1117 Integrated Circuit Audio Power Amp, 2 Watt

Description:

The NTE1117 is a monolithic integrated audio amplifier in a 14-Lead DIP type plastic package designed for use as a low frequency class B amplifier with a wide range of supply voltage of 3V to 16V.

Features:

- Minimum Working Voltage of 3V
- Low Quiescent Current
- Low Number of External Components
- Good Ripple Rejection
- No Cross-Over Distortion
- Output Power:
 $P_O = 2W$ at 12V – 8Ω
 $P_O = 1.6W$ at 9V – 4Ω
 $P_O = 1.2W$ at 9V – 8Ω

Absolute Maximum Ratings:

Supply Voltage, V_S 16V
 Output Peak Current, I_O 1.5A
 Power Dissipation ($T_A = +50^\circ C$), P_{tot} 1.25W
 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-Ambient, R_{thJA} $80^\circ C/W$

Electrical Characteristics: ($T_A = +25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Supply Voltage	V_S		3	–	16	V	
Quiescent Output Voltage (Pin12)	V_O	$V_S = 9V$	4	4.5	5	V	
Quiescent Drain Current	I_d	$V_S = 9V$	–	4	–	mA	
Bias Current (Pin7)	I_b	$V_S = 9V$	–	0.1	–	μA	
Output Power	P_O	d = 10%, f = 1kHz, R _f = 120Ω	$V_S = 12V, R_L = 8\Omega$	–	2	–	W
			$V_S = 9V, R_L = 4\Omega$	–	1.6	–	W
			$V_S = 9V, R_L = 8\Omega$	–	1.2	–	W
			$V_S = 6V, R_L = 4\Omega$	–	0.75	–	W
			$V_S = 3.5V, R_L = 4\Omega$	–	0.22	–	W

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Input Sensitivity	$V_{i(\text{rms})}$	$P_O = 1.2\text{W}, V_S = 9\text{V}, f = 1\text{kHz}, R_L = 8\Omega$	$R_f = 33\Omega$	–	16	–	mV
			$R_f = 120\Omega$	–	60	–	mV
Input Sensitivity	$V_{i(\text{rms})}$	$P_O = 50\text{W}, V_S = 9\text{V}, f = 1\text{kHz}, R_L = 8\Omega$	$R_f = 33\Omega$	–	3.5	–	mV
			$R_f = 120\Omega$	–	12	–	mV
Input Resistance	R_i		–	5	–	M Ω	
Frequency Response (–3dB)	B	$V_S = 9\text{V}, R_L = 8\Omega, R_f = 120\Omega$	$C_B = 680\text{pF}$	25 to 7000		H $_z$	
			$C_B = 220\text{pF}$	25 to 20000		H $_z$	
Distortion	d	$P_O = 500\text{mW}, V_S = 9\text{V}, f = 1\text{kHz}, R_L = 8\Omega$	$R_f = 33\Omega$	–	0.8	–	%
			$R_f = 120\Omega$	–	0.4	–	%
Voltage Gain (Open Loop)	G_V	$V_S = 9\text{V}, f = 1\text{kHz}, R_L = 8\Omega$	–	75	–	dB	
Voltage Gain (Closed Loop)	G_V	$V_S = 9\text{V}, f = 1\text{kHz}, R_L = 8\Omega$	$R_f = 33\Omega$	–	45	–	dB
			$R_f = 120\Omega$	–	34	–	dB
Input Noise Voltage	e_N	$V_S = 9\text{V}, B = 22\text{Hz to } 22\text{kHz}$	–	3	–	μV	
Input Noise Current	i_N		–	0.4	–	nA	
Signal-to-Noise Ratio	$\frac{S+N}{N}$	$V_S = 9\text{V}, P_O = 1.2\text{W}, R_f = 120\Omega, R_1 = 100\text{k}\Omega, B = 22\text{Hz to } 22\text{kHz}$	–	70	–	dB	
Supply Voltage Rejection	SVR	$V_S = 9\text{V}, R_L = 8\Omega, R_f = 120\Omega, f(\text{ripple}) = 100\text{Hz}, C_6 = 50\mu\text{F}$	–	42	–	dB	

Pin Connection Diagram



