ELECTRONICS, INC.
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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 Votlage, V_S 16V
Output Peak Current, I_O 1.5A
Power Dissipation (T_A = +50°C), P_{tot} 1.25W
Operating Junction Temperature Range, T_J . . . . . –40° to 150°C
Storage Temperature Range, T_{stg} . . . . . –40° to 150°C
Thermal Resistance, Junction–to–Ambient, R_{thJA} . . . . . 80°C/W

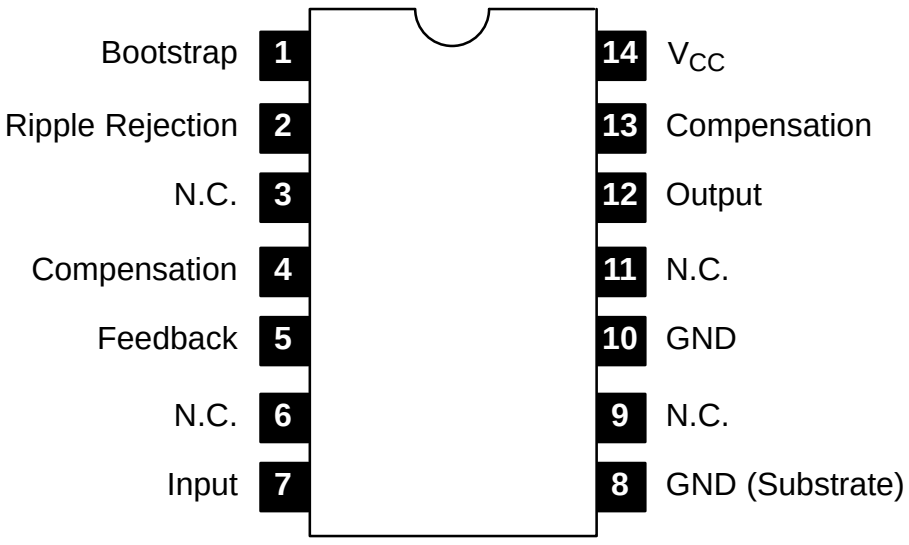
Electrical Characteristics: (T_A = +25°C unless otherwise specified)

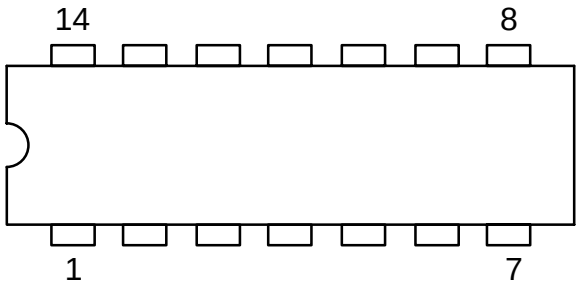
Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Supply Voltage	V_S			3	–	16	V
Quiescent Output Voltage (Pin12)	V_O	V_S = 9V		4	4.5	5	V
Quiescent Drain Current	I_d	V_S = 9V		–	4	–	mA
Bias Current (Pin7)	I_b	V_S = 9V		–	0.1	–	μA
Output Power	P_O	d = 10%, f = 1kHz, R_f = 120Ω	V_S = 12V, R_L = 8Ω	–	2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

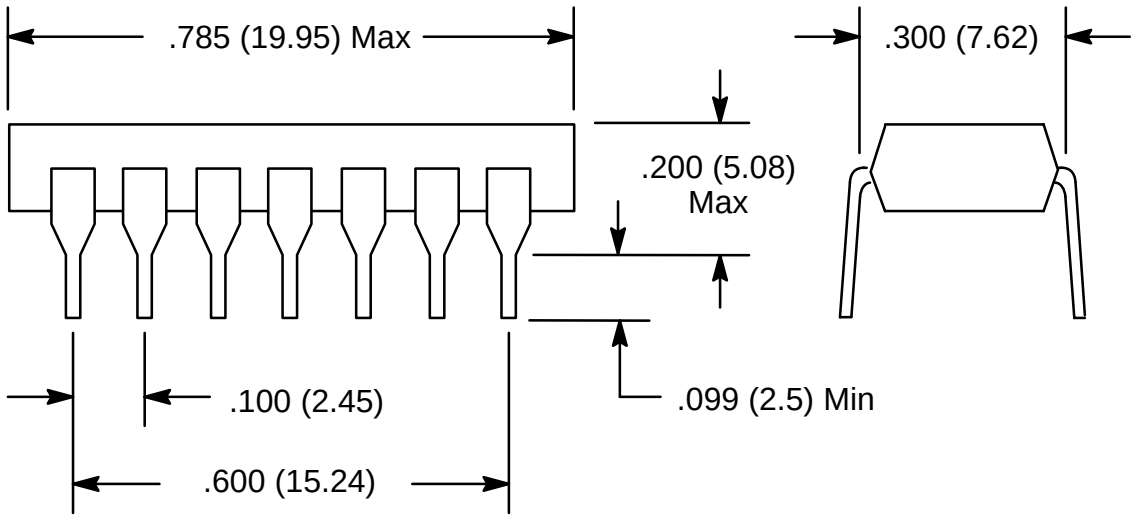
Electrical Characteristics (Cont'd): (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Input Sensitivity	$V_{i(rms)}$	P_O = 1.2W, V_S = 9V, f = 1kH_Z, R_L = 8Ω	R_f = 33Ω	–	16	–	mV
			R_f = 120Ω	–	60	–	mV
Input Sensitivity	$V_{i(rms)}$	P_O = 50W, V_S = 9V, f = 1kH_Z, R_L = 8Ω	R_f = 33Ω	–	3.5	–	mV
			R_f = 120Ω	–	12	–	mV
Input Resistance	R_i			–	5	–	MΩ
Frequency Response (–3dB)	B	V_S = 9V, R_L = 8Ω, R_f = 120Ω	C_B = 680pF	25 to 7000			H_Z
			C_B = 220pF	25 to 20000			H_Z
Distortion	d	P_O = 500mW, V_S = 9V, f = 1kH_Z, R_L = 8Ω	R_f = 33Ω	–	0.8	–	%
			R_f = 120Ω	–	0.4	–	%
Voltage Gain (Open Loop)	G_V	V_S = 9V, f = 1kH_Z, R_L = 8Ω		–	75	–	dB
Voltage Gain (Closed Loop)	G_V	V_S = 9V, f = 1kH_Z, R_L = 8Ω	R_f = 33Ω	–	45	–	dB
			R_f = 120Ω	–	34	–	dB
Input Noise Voltage	e_N	V_S = 9V, B = 22H_Z to 22KH_Z		–	3	–	µV
Input Noise Current	i_N			–	0.4	–	nA
Signal–to–Noise Ratio	$\frac{S+N}{N}$	V_S = 9V, P_O = 1.2W, R_f = 120Ω, R_1 = 100KΩ, B = 22H_Z to 22KH_Z		–	70	–	dB
Supply Voltage Rejection	SVR	V_S = 9V, R_L = 8Ω, R_f = 120Ω, f(ripple) = 100Hz, C6 = 50µF		–	42	–	dB

Pin Connection Diagram




14
8
1
7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.300 (7.62)
.200 (5.08)
Max
.100 (2.45)
.099 (2.5) Min
.600 (15.24)