

NTE1115 & NTE1115A Integrated Circuit Audio Power Amplifier, 7W

Description:

The NTE1115 and NTE1115A are monolithic integrated circuits designed for use as low frequency class B amplifiers. These devices provide 7W power output at 16V/4Ω, 6W at 14.4V/4Ω, 2.5W at 9V/Ω, 1W at 6V/4Ω and works with a wide range of supply voltages (4V to 20V); and gives high output current (up to 2.5A), high efficiency (75% at 6W output), very low harmonic and cross-over distortion. In addition, thermal protection is provided.

Absolute Maximum Ratings:

Supply Voltage, V_S	20V
Output Peak Current (Non-Repetitive), I_O	3.5A
Output Current (Repetitive), I_O	2.5A
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, $R_{thJ-TAB}$	
NTE1115	10°C/W
NTE1115A	12°C/W
Thermal Resistance, Junction-to-Ambient, R_{thJA}	
NTE1115	80°C/W
NTE1115A (Note 1)	70°C/W

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

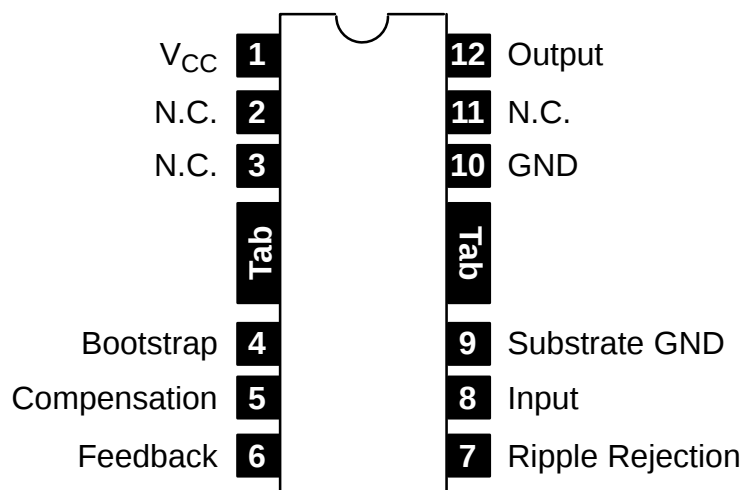
Electrical Characteristics: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage (Pin1)	V_S		4	–	20	V
Quiescent Output Voltage (Pin12)	V_O	$V_S = 14.4\text{V}$	6.4	7.2	8.0	V
Quiescent Drain Current	I_d		–	12	20	mA
Bias Current (Pin8)	I_b		–	0.4	–	μA

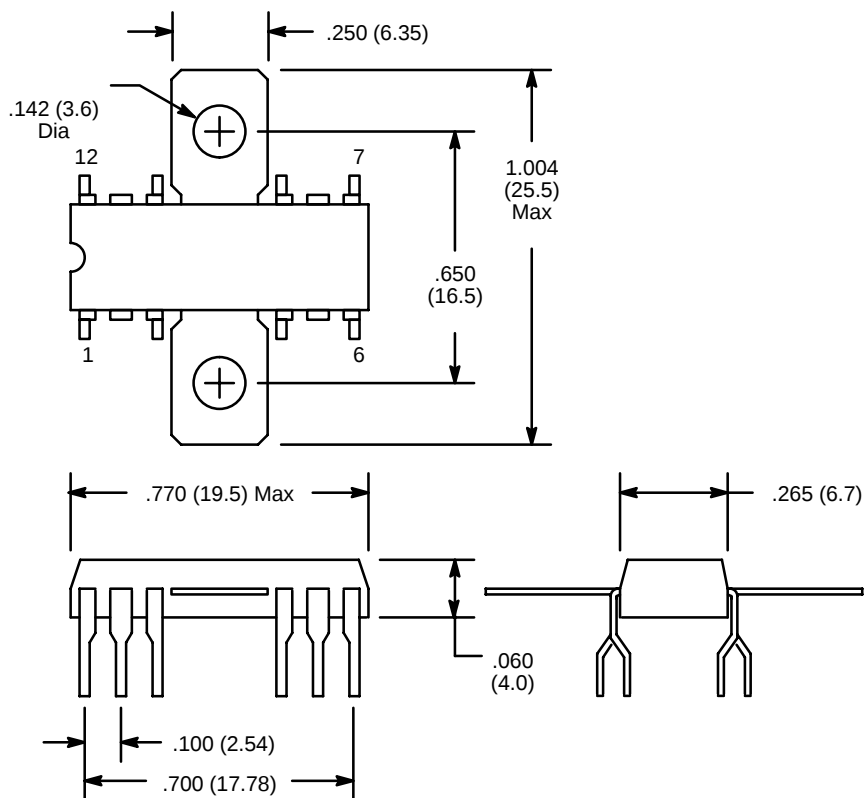
Electrical Characteristics (Cont'd): ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Power Output	P_O	THD = 10%, $R_L = 4\Omega$, $f = 1\text{kHz}$	$V_S = 16\text{V}$	–	7.0	–	W
			$V_S = 14.4\text{V}$	5.5	6.0	–	W
			$V_S = 9\text{V}$	–	2.5	–	W
			$V_S = 6\text{V}$	–	1.0	–	W
Input Voltage	$V_{i(\text{rms})}$			–	–	22	mW
Input Sensitivity	V_i	$P_O = 6\text{W}$, $V_S = 14.4\text{V}$, $R_L = 4\Omega$, $f = 1\text{kHz}$	$R_f = 56\Omega$	–	80	–	mV
			$R_f = 22\Omega$	–	35	–	mV
Input Resistance (Pin8)	R_i			–	5	–	$M\Omega$
Frequency Response (–3dB)	B	$V_S = 14.4\text{V}$, $R_L = 4\Omega$	$C3 = 820\text{pF}$	40 to 20,000			Hz
			$C3 = 1500\text{pF}$	40 to 10,000			Hz
Total Harmonic Distortion	THD	$P_O = 50\text{mW}$ to 3W , $V_S = 14.4\text{V}$, $R_L = 4\Omega$, $f = 1\text{kHz}$		–	0.3	–	%
Voltage Gain (Open Loop)	G_V	$V_S = 14.4\text{V}$, $R_L = 4\Omega$, $f = 1\text{kHz}$		–	80	–	dB
Voltage Gain (Closed Loop)	G_V			34	37	40	dB
Input Noise Voltage	e_N	$V_S = 14.4\text{V}$, $R_g = 0$, B (–3dB) = 20Hz to 20kHz		–	2	–	μV
Input Noise Current	i_N	$V_S = 14.4\text{V}$, B (–3dB) = 20Hz to 20kHz		–	0.1	–	nA
Efficiency	h	$P_O = 5\text{W}$, $V_S = 14.4\text{V}$, $R_L = 4\Omega$, $f = 1\text{kHz}$		–	70	–	%
Supply Voltage Rejection	SVR	$V_S = 14.4\text{V}$, $R_L = 4\Omega$, $f_{\text{ripple}} = 100\text{Hz}$		–	38	–	dB

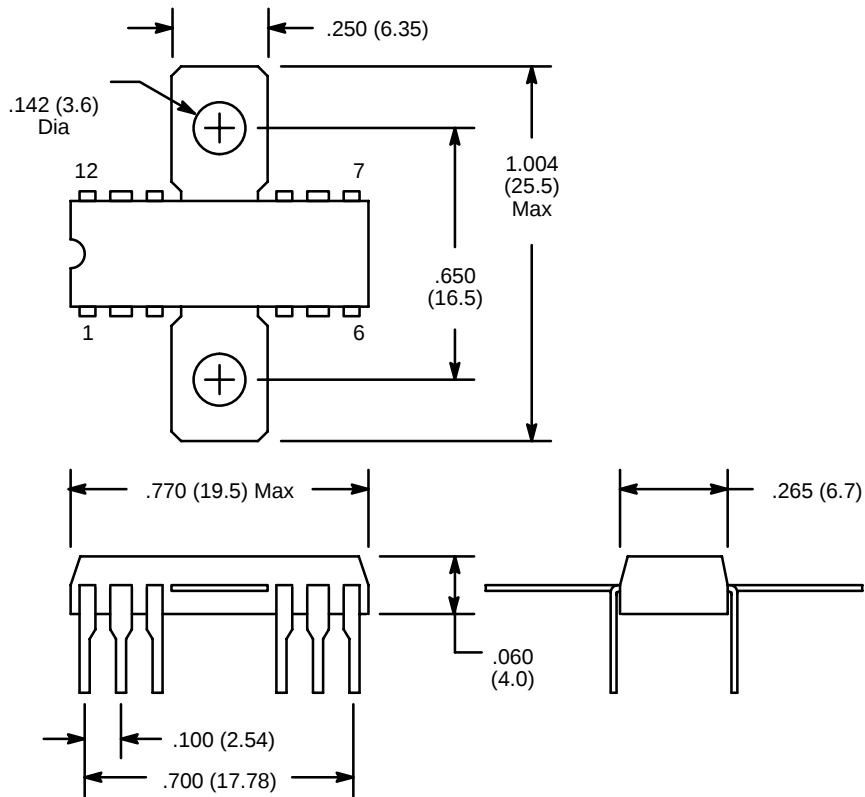
Pin Connection Diagram



NTE1115



NTE1115 Alt.



NTE1115A

