

## 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°C
Storage Temperature Range, $T_{stg}$ .....	-40° to +150°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.

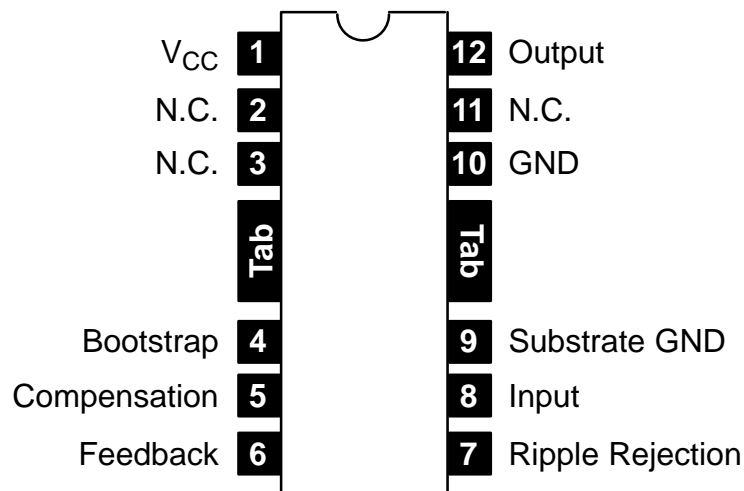
**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

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

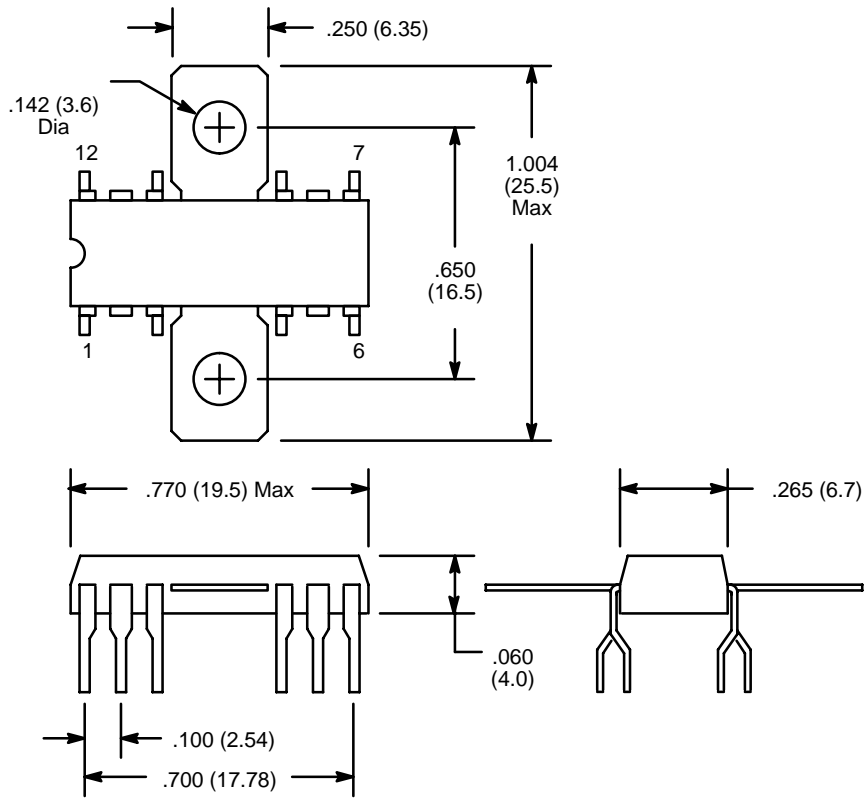
**Electrical Characteristics (Cont'd):** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

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 $3\text{W}$ , $V_S = 14.4\text{V}$ , $R_L = 4\Omega$ , $f = 1\text{kHz}$	–	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	–	$\mu\text{V}$	
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	

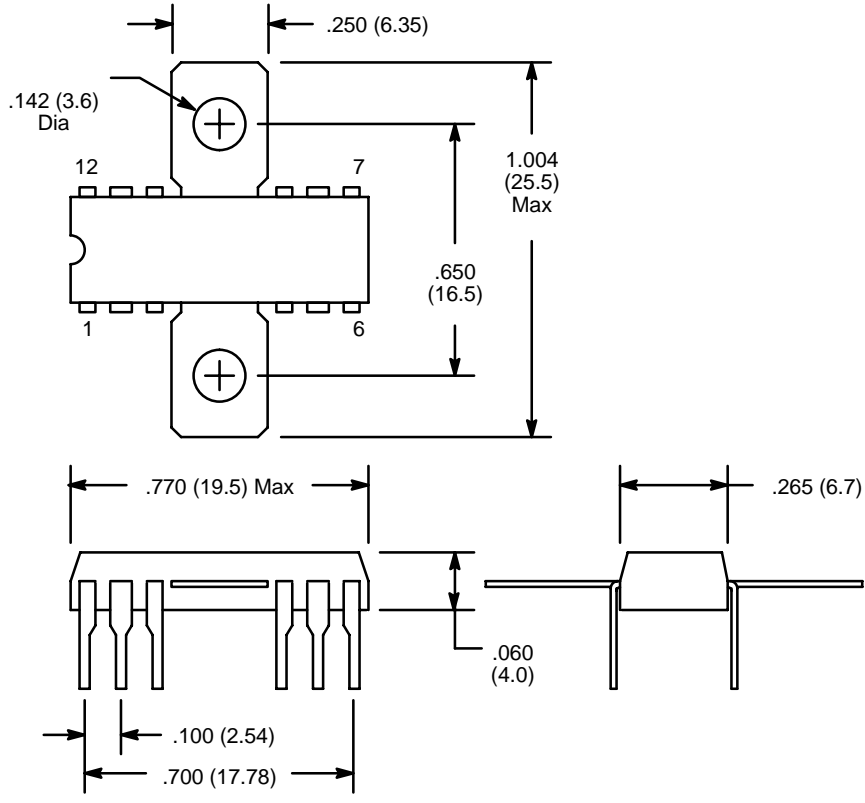
**Pin Connection Diagram**



### NTE1115



### NTE1115 Alt.



NTE1115A

