

## NTE7101 Integrated Circuit AF Power Amplifier, 7W

**Description:**

The NTE7101 is an audio power amplifier in an 8-Lead SIP type package designed for use in car radio and car stereo applications. This device features a low thermal resistance providing easy design for 2Ω load circuits and 4Ω load BTL circuits.

**Features:**

- High Output Power:
  - $P_O = 7W$  Typ @  $R_L = 4\Omega$ , THD = 10%,  $V_{CC} = 14.4V$
  - $P_O = 11W$  Typ @  $R_L = 2\Omega$ , THD = 10%,  $V_{CC} = 14.4V$
  - $P_O = 18W$  (Bridge) @  $R_L = 4\Omega$ , THD = 10%,  $V_{CC} = 14.4V$
- Low Distortion: THD = 0.1% Typ @  $R_L = 4\Omega$ ,  $P_O = 500mW$
- High Reliability
- Protection Circuits Include:
  - Load Dump Voltage Surge
  - Thermal Overload
  - Output DC and AC Short Circuit to GND or  $V_{CC}$
  - Reverse Insertion
- Minimum External Components Required

**Absolute Maximum Ratings:** ( $T_A = +25^\circ C$  unless otherwise specified)

Surge Supply Voltage (PW = 200ms), $V_{CCsurge}$ .....	50V
Quiescent Supply Voltage (Note 1), $V_{CC1}$ .....	25V
Operational Supply Voltage, $V_{CC2}$ .....	18V
Peak Circuit Current, $I_{CCpeak}$ .....	4.5A
Power Dissipation, $P_D$ .....	12W
Operating Temperature Range (Note 1), $T_{opr}$ .....	-30° to +75°C
Storage Temperature Range, $T_{stg}$ .....	-55° to +150°C

Note 1. Using an aluminum heat sink 100mm x 100mm x 1mm.

**Recommended Operating Conditions:** ( $T_A = +25^\circ C$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage Range	$V_{CC}$		9.5	–	16.0	V
Load Impedance	$R_L$		2	–	16	Ω

**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$ ,  $f = 1\text{kHz}$ ,  $R_L = 4\Omega$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Circuit Current	$I_{CC}$	$v_{in} = 0$ , $V_{CC} = 13.2\text{V}$	25	45	80	mA
Output Power	$P_O$	$R_L = 4\Omega$ , THD = 10%, $V_{CC} = 13.2\text{V}$	5.0	5.8	–	W
		$R_L = 4\Omega$ , THD = 10%, $V_{CC} = 14.4\text{V}$	–	7.0	–	W
		$R_L = 2\Omega$ , THD = 10%, $V_{CC} = 13.2\text{V}$	–	9.2	–	W
		$R_L = 2\Omega$ , THD = 10%, $V_{CC} = 14.4\text{V}$	–	11.0	–	W
Total Harmonic Distortion	THD	$R_L = 4\Omega$ , $P_O = 500\text{mW}$ , $V_{CC} = 13.2\text{V}$	–	0.1	1.0	%
		$R_L = 2\Omega$ , $P_O = 1\text{W}$ , $V_{CC} = 13.2\text{V}$	–	0.4	–	%
Voltage Gain	$A_v$	$P_O = 500\text{mW}$	49.0	51.5	54.0	dB
Output Noise Level	$v_n$	$R_G = 10\text{k}\Omega$	–	1.4	4.0	$\text{mV}_{\text{rms}}$

**Pin Connection Diagram**  
(Front View)

