

NTE1388 Integrated Circuit Audio Power Amplifier, 5.8W, for Car Radio, Car Stereo

Features:

- High Gain (52dB. Typ) and High Output (5.8W Typ)
- Soft Clip
- Few External Components
- Built-In Thermal Cutoff Circuit Protects Against Load Short, Overload
- Built-In Pop Noise Prevention Circuit Protects Against Power Supply ON Noise
- May Be Used for Bridge Amplifier Applications ($P_O = 18W$, $R_L = 4\Omega$)

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

Maximum Supply Voltage, V_{CCmax}	18V
Maximum Output Current (Pin1: Sink, Pin8: Source, Pin10: Sink, Note 1), I_O	4.5A
Surge Supply Voltage ($t \leq 0.2sec$), V_{surge}	40V
Allowable Power Dissipation, P_{Dmax}	7W
Operating Temperature Range, T_{opr}	-20° to $+75^\circ C$
Storage Temperature Range, T_{stg}	-40° to $+150^\circ C$

Note 1. 100 x 100 x 1.5mm³ Al heat sink used.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Recommended Supply Voltage	V_{CC}		—	13.2	—	V
Load Resistance	R_L		—	4	—	Ω

Electrical Characteristics: ($T_A = +25^{\circ}\text{C}$, $V_{CC} = 13.2\text{V}$, $R_L = 4\Omega$, $f = 1\text{kHz}$, $100 \times 100 \times 1.5\text{mm}^3$ Al heat sink unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Current	I_{CCO}		–	35	80	mA
Voltage Gain	VG	Closed Loop	51	53	55	dB
		Open Loop Based on a Specific Circuit	–	70	–	dB
Output Power	$P_O (1)$	THD = 10%, $R_L = 4\Omega$	5.0	5.8	–	W
	$P_O (2)$	THD = 10%, $R_L = 2\Omega$	–	9.0	–	W
Total Harmonic Distortion	THD	$P_O = 1\text{W}$	–	0.7	2.0	%
Input Resistance	r_i		–	30	–	$k\Omega$
Output Noise Voltage	V_{NO}	$R_g = 10k\Omega$, No Filter	–	1.2	2.5	mV

Function of External Components:

The recommended number of external components used with the NTE1388 is 4 pieces as follows:

- Feedback Capacitor from Pin5, C_{NF}
- Pin7 to Pin10 Bootstrap Capaciter, C_{BS}
- Output Capacitor from Pin10, C_{OUT}
- High Frequency Paracitic Oscillation Compensating Capacitor, C_X

The fixed values of these components are:

$$\begin{aligned}
 C_{NF} &= 100\mu\text{F} \\
 C_{BS} &= 100\mu\text{F} \\
 C_{OUT} &= 1000\mu\text{F} \\
 C_X &= 0.15\mu\text{F}
 \end{aligned}$$

Pin Connection Diagram
(Front View)



