



**ELECTRONICS, INC.**  
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## NTE1390 & NTE1391 Integrated Circuit Audio Power Amplifier, 12W for Car Radio or Car Stereo

**Features:**

- High Gain: 51dB Typ., High Power Output: 12W Typ.
- Low Number of External Components Required
- Low Noise During Power ON/OFF Operation
- Soft Tonal Quality in Saturated Power Output
- Low Distortion Over Low to High Audio Frequency Range
- Low Residual Noise:  $R_g = 0$
- Built-In Audio Muting Circuits: AC Mute & DC Mute
- Built-In Protection Circuits:
  - Thermal
  - Overvoltage and Surge Voltage
  - Load Short-Circuit Current Limiting
  - Output Pins DC Short-Circuit
- NTE1391 is Mirror Image Pinout of NTE1390

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

Maximum Supply Voltage, $V_{CCmax}$	
Quiescent (30sec) .....	25V
With Signal .....	18V
Supply Current, $I_{10peak}$	
Instantaneous Value Duty $\leq 5\%$ , Pulse Width $\leq 1\text{ms}$ Flow-In Only .....	4.5A
Output Current, $I_7, I_{9peak}$	
Instantaneous Value Duty $\leq 5\%$ , Pulse Width $\leq 1\text{ms}$ .....	4.5A
Surge Supply Voltage ( $t \leq 0.2\text{sec}$ ), $V_{surge}$ .....	50V
Allowable Power Dissipation ( $T_C = +75^\circ\text{C}$ ), $P_{Dmax}$ .....	25W
Operating Temperature Range, $T_{opr}$ .....	$-20^\circ$ to $+75^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-40^\circ$ to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Case, $R_{thJC}$ .....	$3^\circ\text{C/W}$

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

Recommended Supply Voltage, $V_{CC}$ .....	13.2V
Load Resistance, $R_L$ .....	$4\Omega$ to $8\Omega$

**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$ ,  $V_{CC} = 13.2\text{V}$ ,  $R_L = 4\Omega$ ,  $f = 1\text{kHz}$ ,  $R_g = 600\Omega$ , with  $100 \times 100 \times 1.5\text{mm}^3$  Al Heat Sink unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Current	$I_{CCO}$		–	65	120	mA
Voltage Gain	VG	Closed Loop	49	51	53	dB
Output Power	$P_O$	THD = 10%	10	12	–	W
Total Harmonic Distortion	THD	$P_O = 1\text{W}$	–	0.1	1.0	%
Input Resistance	$r_i$		21	30	–	k $\Omega$
Output Noise Voltage	$V_{NO1}$	$R_g = 0$ , $f = 20\text{Hz}$ to $20\text{MHz}$ , Band Pass Filter	–	0.4	1.0	mV
	$V_{NO2}$	$R_g = 10\text{k}\Omega$ , $f = 20\text{Hz}$ to $20\text{MHz}$ , Band Pass Filter	–	0.6	2.0	mV
Output Offset Voltage	$V_{off}$		–300	–	+300	mV
Muting Suppression (AC, Note 1)	$A_{TT}$	$v_o = 0\text{dBm}$ , $V_M = 9\text{V}$	–	38	–	dB

Note 1. For DC muting,  $A_{TT} = \infty$ .



