



ELECTRONICS, INC.

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NTE1389 Integrated Circuit Dual, Audio Power Amplifier, 20W

Description:

the NTE1389 is an audio power amplifier in a 12-Lead SIP type package specifically designed for car stereo applications. Typically, it provides 23W output power at 14.4V and 20W at 13.2V on a 4 Ohm load.

This device can be used without capacitors because it incorporates the original short circuit protection which protects output power transistors and a speaker at the same time when the output terminal is shorted to ground.

Features:

- Can be used as OCL Connection
- Very Low Output Offset Voltage
- High Output Power
- Very Low Distortion
- Very Low Number of External Low Size Components, Very Simple Mounting System with no Electrical isolation Between the package and the Heat Sink
- Low Thermal Resistance
- Provides the Following Protective Circuits:
 - Load Dump Protection
 - Output Thermal Short Circuit Protection
 - Thermal Shutdown Protection
 - Speaker Protection

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

Supply Voltage (Note 1), $V_{CC\text{surge}}$	40V
Quiescent Supply Voltage (Note 2), V_{CC1}	25V
Operational Supply Voltage, V_{CC2}	18V
Peak Circuit Current, $I_{CC\text{peak}}$	4.5A
package Dissipation, P_D	20W
Operating Temperature Range (Note 2), T_{opr}	-30° to $+75^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ\text{C}$

Note 1. Pulse Width = 200ms, $T_{\text{rise}} \geq 1\text{ms}$.

Note 2. Using an aluminum heat sink, $R_{\text{thCA}} = 4^\circ\text{C/W}$.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage Range	V_{CC}		9.5	–	16	V
Load Impedance	R_L		3.2	–	16	Ω

Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $V_{CC} = 13.2\text{V}$, $R_L = 4\Omega$, $f = 1\text{kHz}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Current	I_{CC}	$v_{in} = 0$	–	90	180	mA
Output Offset Voltage	V_{offset}	$v_{in} = 0$	–	–	± 150	mV
Output Power	P_O	$V_{CC} = 14.4\text{V}$ THD = 10%	–	23	–	W
		$V_{CC} = 13.2\text{V}$ THD = 10%	16	20	–	W
Voltage Gain	A_V	$V_{in} = 2.45\text{mV}$	53	55	56	dB
Total Harmonic Distortion	THD	$P_O = 2\text{W}$	–	0.15	1.0	%
Output Noise Level	v_n	$R_G = 0$, BW = 20Hz to 20kHz	–	0.65	–	mV
Supply Voltage Rejection Ratio	SVRR	$R_G = 0$, $f_{ripple} = 100\text{Hz}$, $v_{ripple} = 0.5\text{V}$	–	45	–	dB
Input Resistance	R_i		–	45	–	k Ω
Rolloff Frequency, High	f_H	$A_V = -3\text{dB}$ from 1kHz Ref.	–	90	–	kHz
Rolloff Frequency, Low	f_L		–	15	–	Hz

Pin Connection Diagram
(Front View)



