ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748–5089
http://www.nteinc.com

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°C unless otherwise specified)

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

Note 1. Pulse Width = 200ms, $T_{rise} \geq$ 1ms.
Note 2. Using an aluminum heat sink, R_{thCA} = 4°C/W.

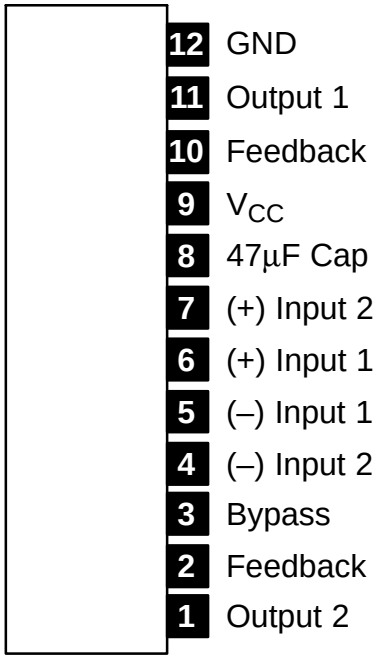
Recommended Operating Conditions: (T_A = +25°C unless otherwise specified)

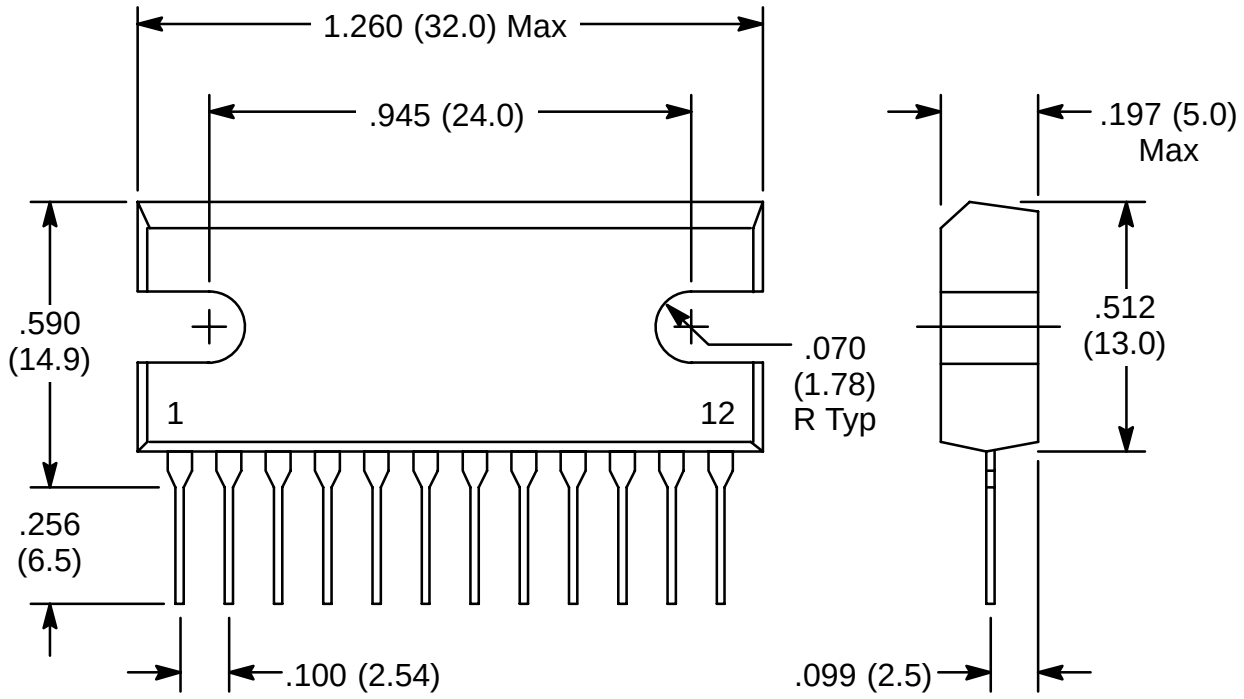
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage Range	V_{CC}		9.5	–	16	V
Load Impedance	R_L		3.2	–	16	Ω

Electrical Characteristics: (T_A = +25°C, V_{CC} = 13.2V, R_L = 4Ω, f = 1kHz 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} = 14.4V THD = 10%	–	23	–	W
		V_{CC} = 13.2V THD = 10%	16	20	–	W
Voltage Gain	A_V	V_{in} = 2.45mV	53	55	56	dB
Total Harmonic Distortion	THD	P_O = 2W	–	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} = 100Hz, v_{ripple} = 0.5V	–	45	–	dB
Input Resistance	R_i		–	45	–	kΩ
Rolloff Frequency, High	f_H	A_v = –3dB from 1kHz Ref.	–	90	–	kHz
Rolloff Frequency, Low	f_L		–	15	–	Hz

Pin Connection Diagram
(Front View)

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(6.5)
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