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NTE1232
Integrated Circuit
Audio Amplifier for Car Radio, 8W

Description:

The NTE1232 is a Class B audio amplifier in a 5–Lead TO220 type package designed for driving low impedance loads (down to 1.6Ω). This device provides a high output current capability (up to 3.5A), very low harmonic and cross–over distortion.

Features:

- Low Number of External Components
- No Electrical Insulation Requirement
- Space and Cost Saving
- High Reliability
- Flexibility in Use
- Complete Safety During Operation due to Protection Against:
  - Short Circuit
  - Thermal Over Range
  - Fortuitous Open Ground
  - Polarity Inversion (V_s = 12V Max)
  - Load Dump Voltage Surge

Absolute Maximum Ratings;

Peak Supply Voltage (50ms), V_s 40V
DC Supply Voltage, V_s 28V
Operating Supply Voltage, V_s 18V
Output Peak Current, I_o
  Repetitive 3.5A
  Non–Repetitive 4.5A
Power Dissipation (T_C = +90°C), P_{tot} 15W
Operating Junction Temperature Range, T_J . . . . . –40° to +150°C
Storage Temperature Range, T_{stg} . . . . . –40° to +150°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 4°C/W max

Electrical Characteristics: (V_S = 14.4V, T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
DC Characteristics							
Supply Voltage	V_s			8	–	18	V
Quiescent Output Voltage (Pin4)	V_o			6.4	7.2	8.0	V
Quiescent Drain Current (Pin5)	I_d			–	45	80	mA
AC Characteristics (G_V = 40dB)							
Output Power	P_o	d = 10%, f = 1kHz	R_L = 4Ω	4.8	5.2	–	W
			R_L = 2Ω	7.0	8.0	–	W
		V_s = 16V, d = 10%, f = 1kHz	R_L = 4Ω	–	6.5	–	W
			R_L = 2Ω	–	10	–	W
Input Saturation Voltage	$V_{i(rms)}$			600	–	–	mV
Input Sensitivity	V_i	f = 1kHz, P_o = 0.5W	R_L = 4Ω	–	15	–	mV
			R_L = 2Ω	–	11	–	mV
		f = 1kHz, P_o = 5.2W, R_L = 4Ω		–	55	–	mV
		f = 1kHz, P_o = 8W, R_L = 2Ω		–	50	–	mV
Frequency Response (–3dB)	B	R_L = 4Ω, P_o = 1W		40 to 15,000			Hz
Distortion	d	f = 1kHz, P_o = 0.05 to 3.5W, R_L = 4Ω		–	0.2	–	%
		f = 1kHz, P_o = 0.05 to 5W, R_L = 2Ω		–	0.2	–	%
Input Resistance (Pin1)	R_i	f = 1kHz		70	150	–	kΩ
Voltage Gain (Open Loop)	G_V	f = 1kHz, R_L = 4Ω		–	80	–	dB
Voltage Gain (Closed Loop)	G_V	f = 1kHz, R_L = 4Ω		39.5	40.0	40.5	dB
Input Noise Voltage	e_N	Note 1		–	4	–	μV
Input Noise Current	i_N	Note 1		–	60	–	pA
Efficiency	η	P_o = 5.2W, R_L = 4Ω	f = 1kHz	–	68	–	%
		P_o = 8W, R_L = 2Ω		–	58	–	%
Supply Voltage Rejection	SVR	R_L = 4Ω, R_g = 10kΩ, f_{ripple} = 100Hz		30	35	–	dB

Note 1. Filter with noise bandwidth: 22Hz to 22kHz.

Pin Connection Diagram