

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 ($T_C = +90^\circ C$), 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: ($V_S = 14.4V$, $T_A = +25^\circ C$ 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	$R_L = 4\Omega$	4.8	5.2	–	W
			$R_L = 2\Omega$	7.0	8.0	–	W
		$V_S = 16V$, d = 10%, f = 1kHz	$R_L = 4\Omega$	–	6.5	–	W
			$R_L = 2\Omega$	–	10	–	W
Input Saturation Voltage	$V_{i(rms)}$		600	–	–	mV	
Input Sensitivity	V_i	f = 1kHz, $P_O = 0.5W$	$R_L = 4\Omega$	–	15	–	mV
			$R_L = 2\Omega$	–	11	–	mV
		f = 1kHz, $P_O = 5.2W$, $R_L = 4\Omega$		–	55	–	mV
		f = 1kHz, $P_O = 8W$, $R_L = 2\Omega$		–	50	–	mV
Frequency Response (–3dB)	B	$R_L = 4\Omega$, $P_O = 1W$	40 to 15,000			Hz	
Distortion	d	f = 1kHz, $P_O = 0.05$ to $3.5W$, $R_L = 4\Omega$	–	0.2	–	%	
		f = 1kHz, $P_O = 0.05$ to $5W$, $R_L = 2\Omega$	–	0.2	–	%	
Input Resistance (Pin1)	R_i	f = 1kHz	70	150	–	k Ω	
Voltage Gain (Open Loop)	G_V	f = 1kHz, $R_L = 4\Omega$	–	80	–	dB	
Voltage Gain (Closed Loop)	G_V	f = 1kHz, $R_L = 4\Omega$	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	$P_O = 5.2W$, $R_L = 4\Omega$	f = 1kHz	–	68	–	%
		$P_O = 8W$, $R_L = 2\Omega$		–	58	–	%
Supply Voltage Rejection	SVR	$R_L = 4\Omega$, $R_g = 10k\Omega$, $f_{ripple} = 100Hz$	30	35	–	dB	

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

Pin Connection Diagram

