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## **NTE1231 & NTE1231A Integrated Circuit Complete 4 Watt TV Sound Channel**

**Description:**

Capable of carrying out all of the functions of a TV sound channel, the NTE1231 and NTE1231A silicon monolithic integrated circuits consist of a six-stage IF amplifier/limiter, low-pass filter, differential peak detector, DC volume control, regulated power supply, audio preamplifier, and output stage.

The audio power amplifier will deliver 4W of low-distortion audio to a 16Ω load with a supply of 24V. When used with a 12V supply, such as is found in many portable TV sets, these devices will furnish 1.5W to an 8Ω loud speaker.

The NTE1231 is supplied in a quad in-line plastic package with a copper lead frame. This device is designed to use the printed wiring board on which it is mounted for heat dissipation.

The NTE1231A is furnished in a 16-Lead DIP package with heat-sink contact tabs. The webbed lead configuration (Pin4 & Pin5, Pin12 & Pin13) allows an inexpensive heat sink to be easily attached for increased power dissipation capability and yet permits the use of a standard IC socket or printed wiring board hole layout.

**Features:**

- High Sensitivity
- High AM Rejection
- DC Volume Control
- High Power Output
- Low Distortion
- Wide Operating Voltage Range: 9V to 28V
- Low Quiescent Current Drain

**Absolute Maximum Ratings:**

Supply Voltage, $V_{CC}$ .....	28V
Repetitive Peak Output Current, $I_{OUT}$ .....	1.5A
Power Dissipation, $P_D$	
$T_{pins} = +90^{\circ}C$ .....	4.3W
$T_A = +70^{\circ}C$ .....	1W
Junction Temperature Range, $T_J$ .....	-40° to +150°C

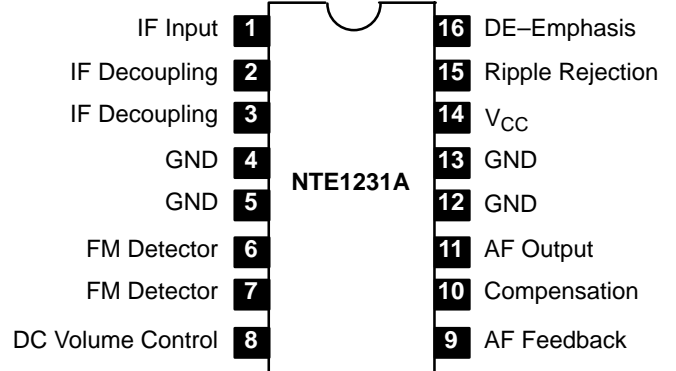
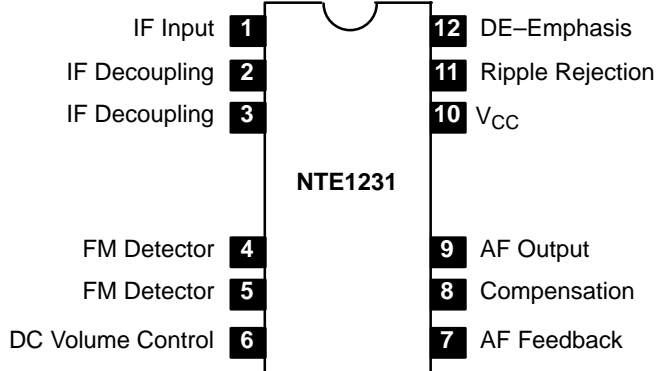
**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$ ,  $f_o = 4.5\text{MHz}$ ,  $f_m = 400\text{Hz}$ ,  $f_d = \pm 7.5\text{kHz}$ ,  $V_{CC} = 12\text{V}$ ,  $R_L = 8\Omega$ ,  $V_{in} = 1\text{mV}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Output Voltage	$V_{OUT}$	$V_{in} = 0$	5.1	6.0	6.9	V
Quiescent Supply Current	$I_{CC}$	$R_X = 22\text{k}\Omega$ , $V_{in} = 0$	–	19	33	mA
Input Limiting Threshold	$V_{TH}$	$R_X = 0$	–	40	100	$\mu\text{V}$
AM Rejection	AMR	$f_d = \pm 25\text{kHz}$ , $m = 0.3$	40	55	–	dB
Signal-to-Noise Ratio	S + N/N	$P_{OUT} = 0.5\text{W}$ , $f_d = \pm 25\text{kHz}$	50	65	–	dB
Recovered Audio	$V_{out}$	$R_X = 0$	–	120	–	mV
Output Distortion	THD	$P_{OUT} = 50\text{mW}$	–	1.0	–	%
Output Power	$P_{OUT}$	THD = 2%, $f_d = \pm 25\text{kHz}$	–	1.4	–	W
		THD = 10%, $f_d = \pm 25\text{kHz}$	–	1.5	–	W
Power Supply Rejection	PSR	$f = 120\text{Hz}$ , $R_X = 22\text{k}\Omega$ , $R_L = 4\Omega$	–	46	–	dB
Input Resistance	$R_{in}$		–	30	–	$\text{k}\Omega$
Input Capacitance	$C_{in}$		–	5	–	pF

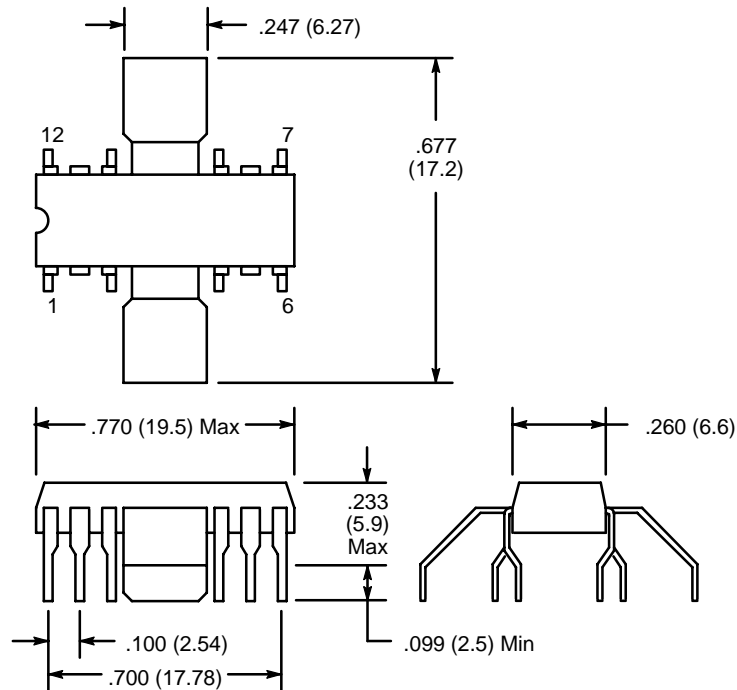
**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$ ,  $f_o = 4.5\text{MHz}$ ,  $f_m = 400\text{Hz}$ ,  $f_d = \pm 7.5\text{kHz}$ ,  $V_{CC} = 24\text{V}$ ,  $R_L = 16\Omega$ ,  $V_{in} = 1\text{mV}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Output Voltage	$V_{OUT}$	$V_{in} = 0$	11	12	13	V
Quiescent Supply Current	$I_{CC}$	$R_X = 22\text{k}\Omega$ , $V_{in} = 0$	11	22	35	mA
Input Limiting Threshold	$V_{TH}$	$R_X = 0$	–	40	100	$\mu\text{V}$
AM Rejection	AMR	$f_d = \pm 25\text{kHz}$ , $m = 0.3$	40	55	–	dB
Signal-to-Noise Ratio	S + N/N	$P_{OUT} = 1\text{W}$ , $f_d = \pm 25\text{kHz}$	50	65	–	dB
Recovered Audio	$V_{out}$	$R_X = 0$	–	120	–	mV
Output Distortion	THD	$P_{OUT} = 50\text{mW}$	–	0.75	–	%
Output Power	$P_{OUT}$	THD = 2%, $f_d = \pm 25\text{kHz}$	–	3.5	–	W
		THD = 10%, $f_d = \pm 25\text{kHz}$	–	4.2	–	W
Power Supply Rejection	PSR	$f = 120\text{Hz}$ , $R_X = 22\text{k}\Omega$ , $R_L = 4\Omega$	–	46	–	dB
Input Resistance	$R_{in}$		–	30	–	$\text{k}\Omega$
Input Capacitance	$C_{in}$		–	5	–	pF

### Pin Connection Diagram



### NTE1231



### NTE1231A

