ELECTRONICS, INC.
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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°C 4.3W
T_A = +70°C 1W
Junction Temperature Range, T_J . . . . . –40° to +150°C

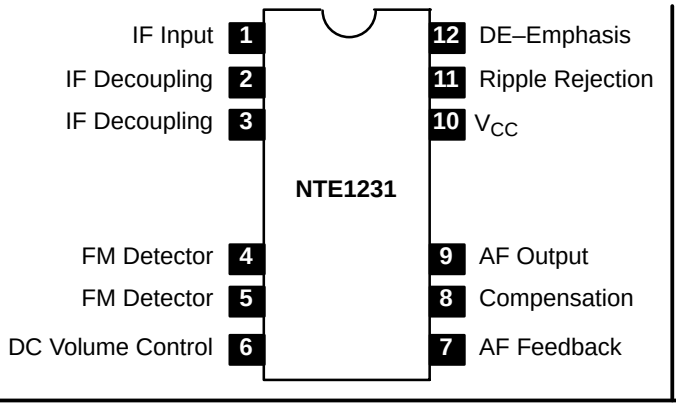
Electrical Characteristics: (T_A = +25°C, f_o = 4.5MHz, f_m = 400Hz, f_d = ±7.5kHz, V_{CC} = 12V, R_L = 8Ω, V_{in} = 1mV unless otherwise specified)

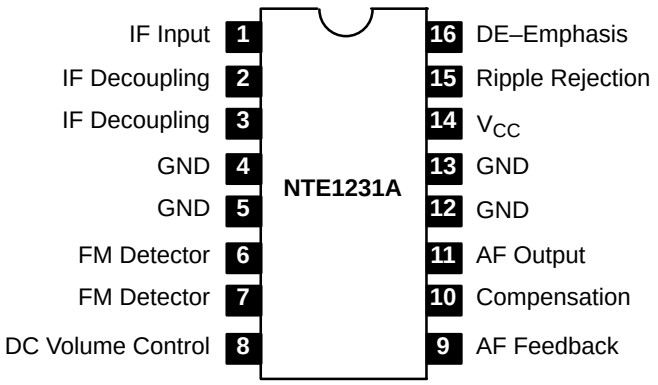
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiesecnt Output Voltage	V_{OUT}	V_{in} = 0	5.1	6.0	6.9	V
Quiescent Supply Current	I_{CC}	R_X = 22kΩ, V_{in} = 0	–	19	33	mA
Input Limiting Threshold	V_{TH}	R_X = 0	–	40	100	μV
AM Rejection	AMR	f_d = ±25kHz, m = 0.3	40	55	–	dB
Signal–to–Noise Ratio	S +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

Electrical Characteristics: (T_A = +25°C, f_o = 4.5MHz, f_m = 400Hz, f_d = ±7.5kHz, V_{CC} = 24V, R_L = 16Ω, V_{in} = 1mV unless otherwise specified)

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

Pin Connection Diagram





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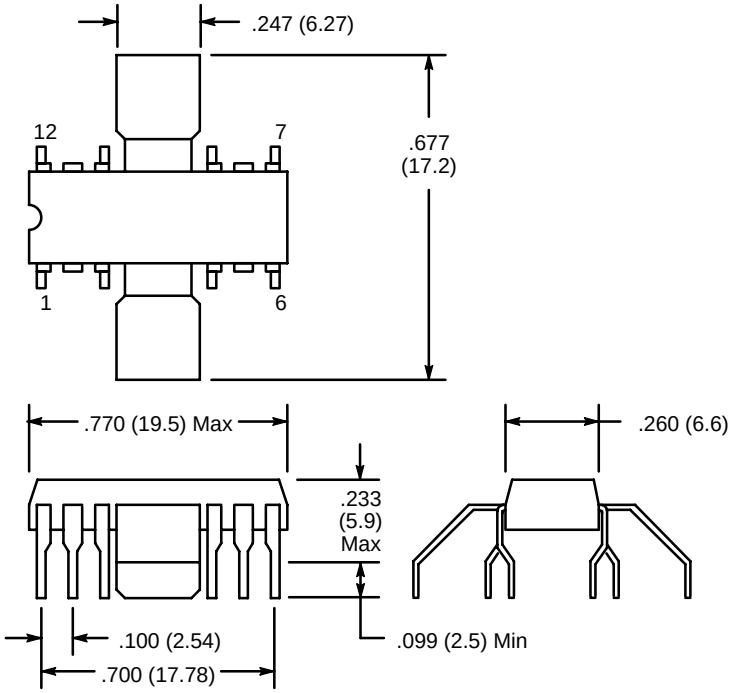

NTE1231A