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NTE1236 Integrated Circuit TV Sound IF System

Description:

The NTE1236 monolithic TV/FM sound system consists of a multistage limiting IF amplifier, DC gain control, FM detector, and an audio driver constructed on a single silicon chip. Excellent sensitivity, high AM rejection and an internally regulated power supply coupled with low external component requirements makes the NTE1236 suitable for a wide variety of applications including TV sound channels, FM radios and mobile communications equipment.

Features:

- Electronic Attenuator Replaces Conventional Volume Control
- High Sensitivity
- Low Harmonic Distortion
- Excellent AM Rejection: (5-dB typ. at 4.5MHz)
- Internal Zener Diode Regulated Supply
- Differential Peak Detector Requires Only One Single-Turned Coil

Absolute Maximum Ratings: ($T_A = +25^\circ\text{C}$, unless otherwise specified)

Supply Voltage, V_{CC}	$\pm 3\text{V}$
Input Current, I_{CC}	30mA
Power Dissipation, P_D	625mW
Operating Temperature Range, T_{opg}	-20° to +75°C
Storage Temperature Range, T_{stg}	-55° to +150°C

Note *. Pin 5 may be connected to any positive voltage through a suitable dropping resistor, provided the dissipation rating is not exceeded.

Note **. For temperatures above 25°C, derate linearly at 5.0mW/°C.

Electrical Characteristics: ($T_A = +25^\circ\text{C}$, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Supply Current	I _{CC}	V _{CC} = 9V	10	16	24	mA
Zener Regulating Characteristics	V _Z		10.3	11.2	12.2	V
Internal Power Dissipation	P _D		330	345	360	mW
Dynamic Characteristics						
Input Limiting Voltage at -3dB	V _{IN(lim)}	f _o = 4.5MHz, f _M = 400Hz, $\Delta f = \pm 25\text{kHz}$	-	200	400	μV
AM Rejection Ratio	AMR	f = 4.5MHz, FM: $\Delta f = \pm 25\text{kHz}$, AM: 30% @ 45MHz	40	50	-	dB
Recovered AF Voltage	V _{OD}	f = 4.5MHz, V _I = 0.1V, $\Delta f = \pm 25\text{kHz}$, f _M = 400Hz	0.5	0.75	-	V _{rms}
Total Harmonic Distortion	THD		-	0.9	2.0	%
Input Impedance Parallel Resistance	R _{ip}	Terminal No. 1–2 f = 4.5MHz	-	17	-	k Ω
Parallel Capacitance	C _{ip}		-	4	-	pF
Output Impedance Parallel Resistance	R _{op}	Terminal No. 9–GND f = 4.5MHz	-	3.25	-	k Ω
Parallel Capacitance	C _{op}		-	7.5	-	pF
Output Impedance Pin 7	z _o	f = 400Hz	-	7.5	-	k Ω
Pin 8			-	300	-	Ω
Attenuation	ATT	R _x = ∞	60	80	-	dB
AF Voltage Gain	G _{V(ATF)}	V _I = 0.1V _{rms} , f = 400Hz	17.5	20	-	dB
Total Harmonic Distortion	THD(2)	V _O = 2V _{rms} , f = 400Hz	-	1.5	-	%
Undistorted Output Voltage	V _O	THD = 5%, f = 400Hz	2	2.5	-	V _{rms}
AF Input Resistance	R _I	f = 400Hz	-	70	-	k Ω
AF Output Resistance	R _O		-	270	-	Ω

Pin Connection Diagram

IF Input	1	AF Input
IF Input	2	Tone Control
GND	3	AF Output
GND	4	N.C.
V _{CC}	5	IF Detector Tuning
Volume Control	6	IF Detector Tuning
De-Emphasis	7	AF Buffer Output

