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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 Sensitvity
- 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°C, unless otherwise specified)

Supply Voltage, V_{CC} . . . . . ±3V
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°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, $\Delta f = \pm 25$kHz	–	200	400	μV
AM Rejection Ratio	AMR	f = 4.5MHz, FM: $\Delta f = \pm 25$kHz, AM: 30% @ 45MHz	40	50	–	dB
Recovered AF Voltage	V_{OD}	f = 4.5MHz, V_I = 0.1V, $\Delta f = \pm 25$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	–	kΩ
Parallel Capacitance	C_{ip}		–	4	–	pF
Output Impedance Parallel Resistance	R_{op}	Terminal No. 9−GND f = 4.5MHz	–	3.25	–	kΩ
Parallel Capacitance	C_{op}		–	7.5	–	pF
Output Impedance Pin 7	z_o	f = 400Hz	–	7.5	–	kΩ
Pin 8			–	300	–	Ω
Attenuation	ATT	$R_x = \infty$	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	–	kΩ
AF Output Resistance	R_O		–	270	–	Ω

Pin Connection Diagram