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NTE1404
Integrated Circuit
TV Sound IF Amplifier, Detector, AF Output Circuit

Description:

The NTE1404 is an integrated circuit in a 16–Lead DIP ^{W}/Fin type package designed for use as a TV sound signal processing circuit.

Features:

- Provides Total TV Sound Signal Processing Circuitry from IF Amplifier through AF Output
- DC Volume Control System: Control Voltage 0V to V_{CC}
- Fixed Detection Output Terminal for TV Sound Multiplex Application

Absolute Maximum Ratings: (T_A = +25°C unless otherwise specified)

Supply Voltage, V_{CC1} . . . . . $V_{3–16}$ to 13.8V
Supply Voltage, V_{CC2} . . . . . $V_{7–16}$ to 26V
Circuit Voltage, $V_{6–16}$ . . . . . 6V to $V_{3–16}$
Circuit Current (Peak), I_8 . . . . . –1.2 to +1.2A
Power Dissipation, P_D
Detector, DCVR Circuit 0.6W
Output Circuit 1.6W
Operating Ambient Temperature Range, T_{opr} . . . . . –20° to +70°C
Storage Temperature Range, T_{stg} . . . . . –55° to +150°C

Note 1. + and – are flow–in and flow–out current to/from the circuit respectively.

Electrical Characteristics: (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
DC Characteristics						
Total Circuit Current	I_{tot}	$V_{3–16}$ = 12V	23	–	42	mA
Circuit Voltage	$V_{1–16}$	$V_{3–16}$ = 12V, Pin14 and Pin15 are connected	3.2	4.0	4.8	V
	$V_{4–16}$		5.8	6.6	7.7	V
	$V_{8–16}$		8.8	9.5	10.2	V
	$V_{13–16}$		6.6	7.6	8.5	V

Electrical Characteristics (Cont'd): (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
IF Amplification Detector						
Input Limiting Sensitivity	$V_{i(lim)}$	f_o = 4.5MHz, f_m = 400Hz, Δf = ±25kHz	–	250	400	µV
AM Rejection	AMR	f_o = 4.5MHz, f_m = 400Hz, MOD = 30% (AM), V_i = 100mV_{rms}	38	45	–	dB
Input Resistance	R_i	f = 4.5MHz	6	18	100	kΩ
Input Capacitance	C_i	f = 4.5MHz	4	8	12	pF
Output Voltage (Det.)	V_O	f_o = 4.5MHz, f_m = 400Hz, Δf = ±25kHz, V_i = 100mV_{rms}	200	300	440	mV_{rms}
Total Harmonic Distortion	$THD_{(IF)}$		–	0.3	1.0	%
Volume Circuit						
Attenuation (Max. Remaining Sound)	A_{tt}	f = 1kHz, V_i = 0.5mV_{rms}, V_6 = 0V	–	2	5	mV_{rms}
Amplification	$V_{13–5}$	f = 1kHz, V_i = 0.5mV_{rms}, V_6 = 12V	–2	0	+2	dB
Total Harmonic Distortion	$THD_{(AF)}$	f = 1kHz, V_i = 0.5mV_{rms}, V_6 = 12V	–	0.15	1.0	%
Output Circuit						
Output Power (Max)	P_O	f = 1kHz, R_L = 16Ω, THD = 10%	1.8	2.0	–	W
Voltage Gain	G_V	f = 1kHz, $V_{i(12)}$ = 50mV_{rms}	30	32	34	dB
Total Harmonic Distortion	$THD_{(out)}$	f = 1kHz, P_O = 1W	–	0.7	1.2	%
Static Circuit Current	I_{CQ}	V_{CC} = 20V	8	20	50	mA

Pin Connection Diagram