

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: ($T_A = +25^\circ\text{C}$ 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_g	-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: ($T_A = +25^\circ\text{C}$ 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): ($T_A = +25^{\circ}\text{C}$ unless otherwise specified)

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

Pin Connection Diagram

