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NTE1557 Integrated Circuit FM/AM IF System

Description:

The NTE1557 is a monolithic integrated circuit in a 16-Lead DIP type package developed for the radio cassette tape recorder included AM/FM IF amplifier and detector.

Functions:

- AM Section:
 - IF Amplifier with AGC Detector
- Voltage Regulator for RF External Circuit
- FM Section:
 - IF Amplifier
 - Quadrature Detector
 - Post Amplifier
 - Signal Meter Driver Circuit

Features:

- Suitable for Radio Cassette and Home Stereo
- Wide Operating Supply Voltage Range (3.0V to 14V)
- Low Quiescent Circuit Current
- AM Section
- Simplified Input Circuit IFT (Ceramic Filter Type)
 RF AGC Available
- FM Section:
 - High Limiting Sensitivity (33dB μ , Typ)
 - Low Residual Noise (45dB at $V_i = -10\text{dB}\mu$)
 - Small Side Peak of Detuned Output Voltage

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

Supply Voltage, V_{CC}	16V
Power Dissipation, P_D	600mW
Operating Temperature Range, T_{opr}	-20° to $+70^\circ\text{C}$
Storage Temperature Range, T_{stg}	-40° to $+125^\circ\text{C}$

Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $V_{CC} = 5.5\text{V}$, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
FM Section ($f = 10.7\text{MHz}$, $f_m = 1\text{kHz}$, $\Delta f = \pm 75\text{kHz}$)						
Quiescent Circuit Current	I_{CC}	$V_i = 0$	7	11	16.5	mA
Input Limiting Sensitivity	$V_{i(lim)}$	$V_O (V_i = 100\text{dB}\mu) -3\text{dB}$	–	33	38	$\text{dB}\mu$
Detector Output Voltage	V_O	$V_i = 100\text{dB}\mu$	180	245	310	mV
Total Harmonic Distortion	THD	$V_i = 100\text{dB}\mu$	–	0.3	1.0	%
AM Rejection Ratio	AMR	$V_i = 100\text{dB}\mu$	50	60	–	dB
Signal to Noise Ratio	S/N	$V_i = 100\text{dB}\mu$	72	83	–	dB
Signal Meter Output	V_M	$V_i = 100\text{dB}\mu$	1.05	1.5	2.05	V
Residual Noise	V_N	$V_O (AF) (V_i = 100\text{dB}\mu)$	–	45	–	dB
Muting Attenuation	M(att)	$V_i = 37\text{dB}\mu$, Mute SW on	–	35	–	dB
AM Section ($f = 455\text{kHz}$, $f_m = 1\text{kHz}$, 30% Mod)						
Quiescent Circuit Current	I_{CC}	$V_i = 0$	–	8	–	mA
Maximum Sensitivity	$V_{i(sen)}$	$V_O (AF) = 10\text{mV}$	–	29	–	$\text{dB}\mu$
Detector Output Voltage	V_o	$V_i = 74\text{dB}\mu$	45	65	85	mV
Total Harmonic Distortion	THD	$V_i = 74\text{dB}\mu$	–	0.3	2.0	%
		$V_i = 100\text{dB}$	–	0.7	3.5	%
Signal to Noise Ratio	S/N	$V_i = 74\text{dB}\mu$	45	55	–	$\text{dB}\mu$
Signal Meter Output	V_M	$V_i = 100\text{dB}\mu$	1.2	1.4	1.6	V
Input Impedance (Pin 16)	R_i	Pin 16 $0.8-0.9V_{DC}$	1.45	2.12	2.8	$\text{k}\Omega$

Pin Connection Diagram



