ELECTRONICS, INC.
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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 (33dBμ, Typ)
  - Low Residual Noise (45dB at V_i = –10dBμ)
  - Small Side Peak of Detuned Output Voltage

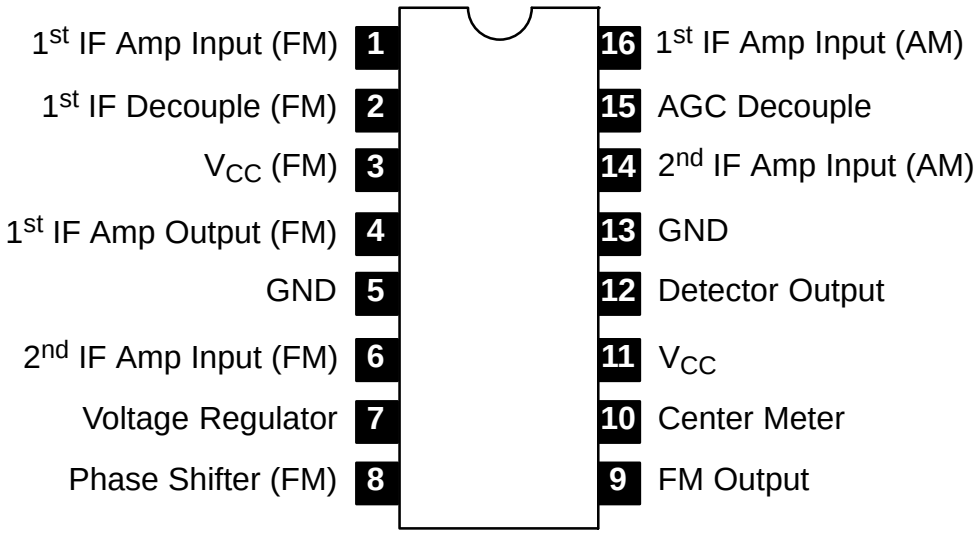
Absolute Maximum Ratings: (T_A = +25°C unless otherwise specified)

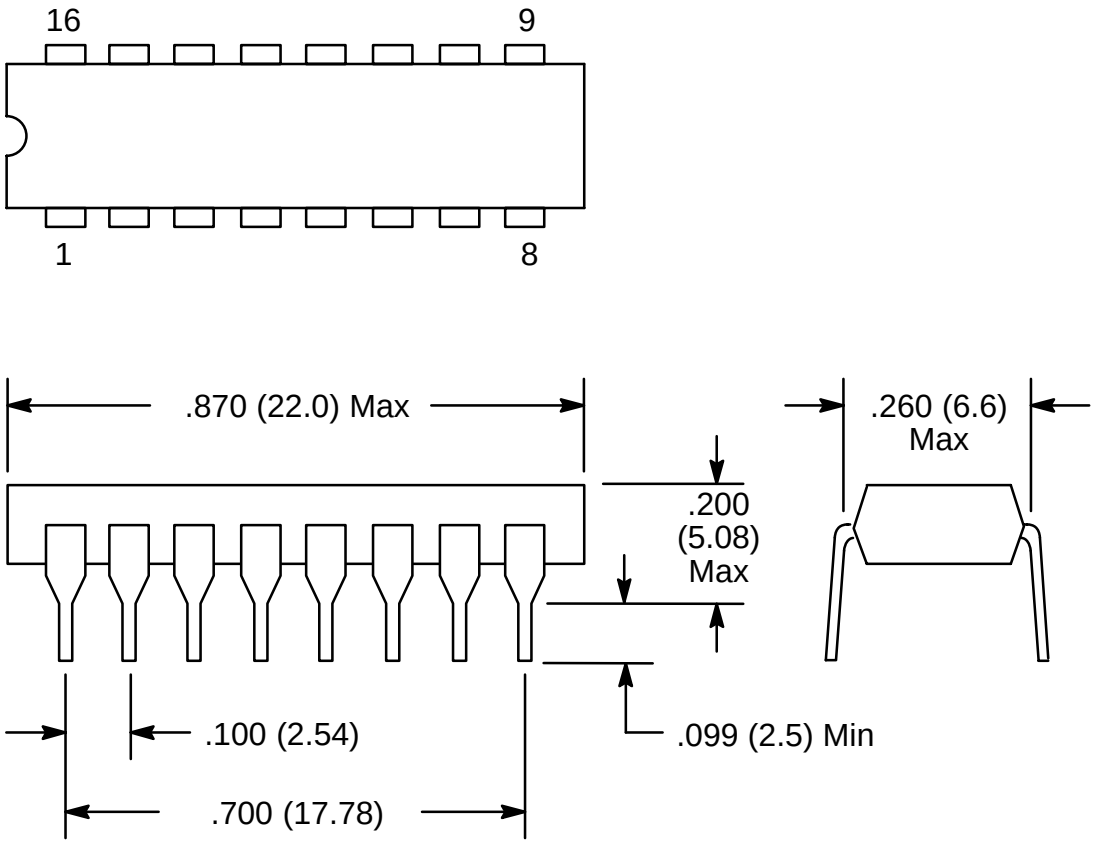
Supply Voltage, V_{CC} 16V
Power Dissipation, P_D 600mW
Operating Temperature Range, T_{opr} . . . . . –20° to +70°C
Storage Temperature Range, T_{stg} . . . . . –40° to +125°C

Electrical Characteristics: (T_A = +25°C, V_{CC} = 5.5V, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
FM Section (f = 10.7MHz, fm = 1kHz, Δf = ±75kHz)						
Quiescent Circuit Current	I_{CC}	V_i = 0	7	11	16.5	mA
Input Limiting Sensitivity	$V_{i(lim)}$	V_O (V_i = 100dBμ) –3dB	–	33	38	dBμ
Detector Output Voltage	V_O	V_I = 100dBμ	180	245	310	mV
Total Harmonic Distortion	THD	V_i = 100dBμ	–	0.3	1.0	%
AM Rejection Ratio	AMR	V_i = 100dBμ	50	60	–	dB
Signal to Noise Ratio	S/N	V_i = 100dBμ	72	83	–	dB
Signal Meter Output	V_M	V_i = 100dBμ	1.05	1.5	2.05	V
Residual Noise	V_N	V_O (AF) (V_i = 100dBμ)	–	45	–	dB
Muting Attenuation	M(att)	V_I = 37dBμ, Mute SW on	–	35	–	dB
AM Section (f = 455kHz, fm = 1kHz, 30% Mod)						
Quiescent Circuit Current	I_{CC}	V_i = 0	–	8	–	mA
Maximum Sensitivity	V_i(sen)	V_O (AF) = 10mV	–	29	–	dBμ
Detector Output Voltage	V_o	V_i = 74dBμ	45	65	85	mV
Total Harmonic Distortion	THD	V_i = 74dBμ	–	0.3	2.0	%
		V_i = 100dB	–	0.7	3.5	%
Signal to Noise Ratio	S/N	V_i = 74dBμ	45	55	–	dBμ
Signal Meter Output	V_M	V_I = 100dBμ	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	kΩ

Pin Connection Diagram




16
9
1
8
.870 (22.0) Max
.260 (6.6)
Max
.200
(5.08)
Max
.100 (2.54)
.099 (2.5) Min
.700 (17.78)