ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748–5089

NTE712
Integrated Circuit
TV/FM Sound IF Detector

Description:

The NTE712 is a versitile device in a 14–Lead DIP type package incorporating IF limiting, detection, electronic attenuation, audio amplifier, and audio driver capabilities.

Features:

- Differential Peak Detector Requiring a Single Tuned Circuit
- Electronic Attenuator Replaces Conventional AC Volume Control: Range > 60dB
- Excellent AM Rejection @ 4.5 and 5.5MHz
- High Stability
- Low Harmonic Distortion
- Audio Drive Capability: $6.0mA_{P-P}$
- Minimum Undesirable Output Signal @ Maximum Attenuation

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

Input Signal Voltage (Pin1 and Pin2) . . . . . ±3V
Power Supply Current 50mA
Power Dissipation, P_D 625mW
Derate Above 25°C . . . . . 5mW/°C
Operating Ambient Temperature Range, T_{opr} . . . . . –20° to +75°C
Storage Temperature Range, T_{stg} . . . . . –65° to +150°C

Electrical Characteristics: (V+ = 24V, T_A = +25C unless otherwise specified)

Parameter	Pin	Test Conditions	Min	Typ	Max	Unit
Regulated Voltage	5		10.3	11.0	12.2	V
DC Supply Current	5	V+ = 9V, R_S = 0	10	16	24	mA
Quiescent Output Voltage	12		5.1	–	–	V

Dynamic Characteristics: (V+ = 24V, T_A = +25°C unless otherwise specified)

Parameter	Test Conditions	Min	Typ	Max	Unit
IF Amplifier and Detector (f_o = 4.5MHz, Δf = ±25kHz)					
AM Rejection	V_{in} = $10mV_{rms}$, Note 1	40	51	–	dB
Input Limiting Threshold Voltage		–	200	400	μV_{rms}
Recovered Audio Output Voltage	V_{in} = $10mV_{rms}$	0.5	0.7	–	V_{rms}
Output Distortion	V_{in} = $10mV_{rms}$	–	0.4	2.0	%

Note 1. 100% FM, 30% AM Modulation.

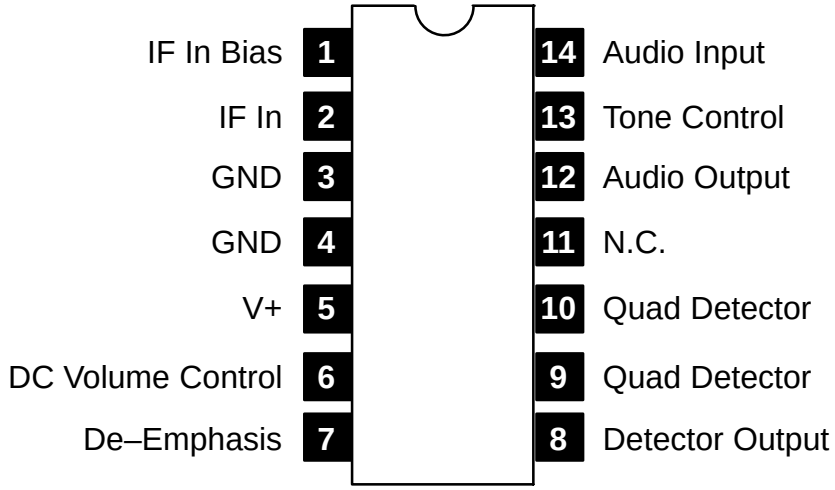
Dynamic Characteristics (Cont'd): (V+ = 24V, T_A = +25°C unless otherwise specified)

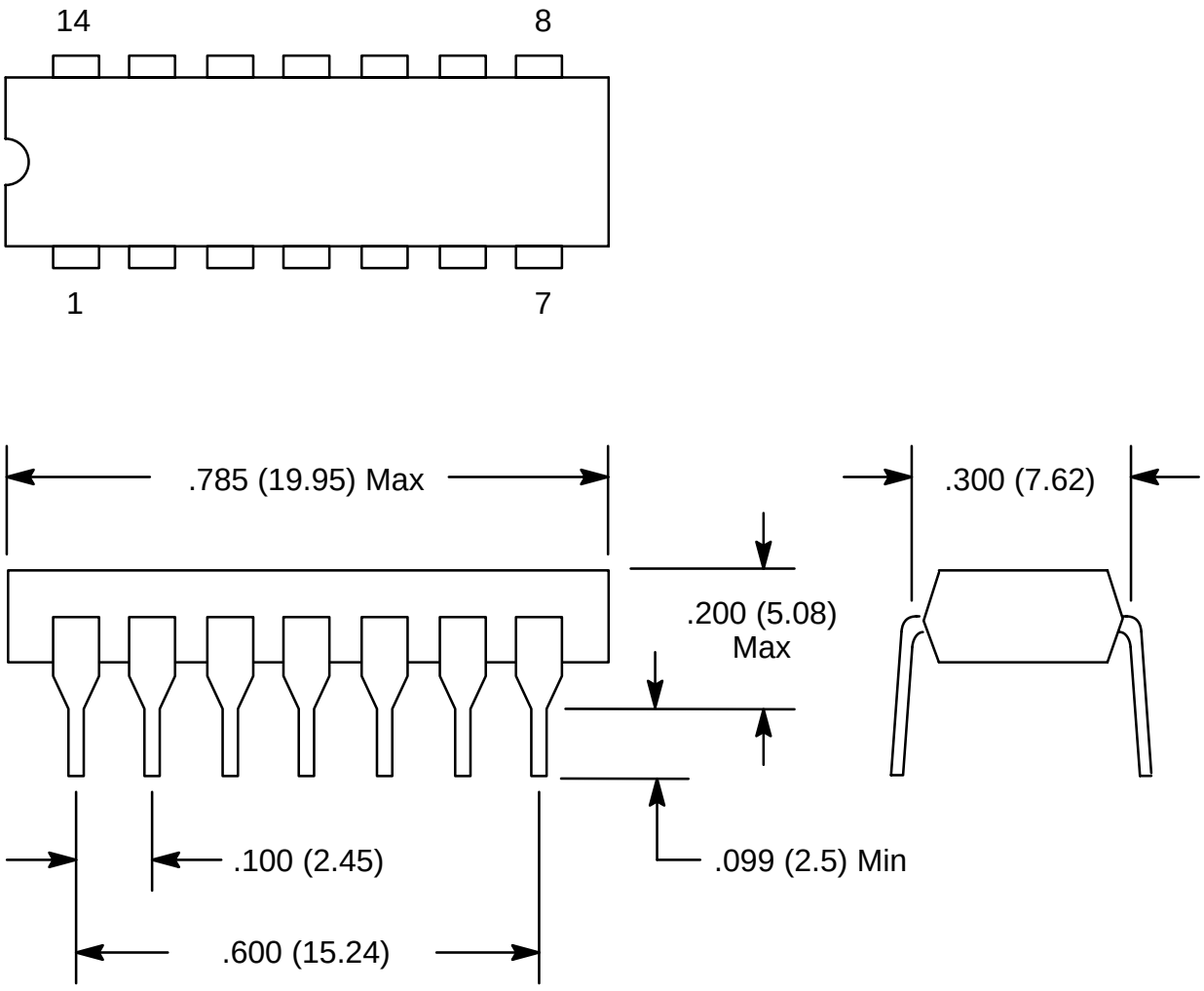
Parameter	Test Conditions	Min	Typ	Max	Unit
IF Amplifier and Detector (f_o = 5.5MHz, Δf = ±50kHz)					
AM Rejection	V_{in} = 10mV_{rms}, Note 1	40	53	–	dB
Input Limiting Threshold Voltage		–	200	400	μV_{rms}
Recovered Audio Output Voltage	V_{in} = 10mV_{rms}	0.5	0.91	–	V_{rms}
Output Distortion	V_{in} = 10mV_{rms}	–	0.9	–	%
Input Impedance Components Parallel Input Resistance	f = 4.5MHz, measurement between Pin1 and Pin2	–	17	–	kΩ
Parallel Input Capacitance		–	4	–	pF
Output Impedance Components Parallel Output Resistance	f = 4.5MHz, measurement between Pin9 and GND	–	3.25	–	kΩ
Parallel Output Capacitance		–	3.6	–	pF
Output Resistance Pin7		–	7.5	–	kΩ
Pin8		–	250	–	Ω
Attenuator					
Volume Reduction Range	DC Volume Control = ∞	60	–	–	dB
Maximum Undesirable Signal	DC Volume Control = ∞, Note 2	–	0.07	1.0	mV
Audio Amplifier					
Voltage Gain	V_{in} = 0.1V_{rms}, f = 400Hz	17.5	20.0	–	dB
Total Harmonic Distortion	V_O = 2V_{rms}, f = 400Hz	–	2.0	–	%
Output Voltage	THD = 5%, f = 400Hz	2.0	3.0	–	V_{rms}
Input Resistance	f = 400Hz	–	70	–	kΩ
Output Resistance	f = 400Hz	–	270	–	Ω

Note 1. 100% FM, 30% AM Modulation.

Note 2. Undesirable signal is measured at Pin8 when volume control is set for minimum output.

Pin Connection Diagram




14
8
1
7
.785 (19.95) Max
.300 (7.62)
.200 (5.08)
Max
.100 (2.45)
.099 (2.5) Min
.600 (15.24)