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## NTE1214 Integrated Circuit AM Tuner System

### **Description:**

The NTE1214 is a high integrated circuit in a 16-Lead DIP type package designed for use in the AM system of high grade receivers. This device contains most of the functions needed for AM receiving.

### **Functions:**

- RF Amplifier
- Frequency Counter
- IF Amplifier
- Detector
- AGC
- Signal Meter Driving

### **Features:**

- RF Amplifier Stage:  
Good quieting sensitivity by means of low noise transistors and cascade connecting.
  - Frequency Converter Stage:  
Splendid spurious characteristics by means of reduction of high frequency distortion in local oscillation and differential mixer.
  - IF Amplifier Stage:  
Reasonable distortion by wide output dynamic range.
  - Detector Stage:  
Low distortion even at deep modulation considering diagonal clip or negative clip.
  - AGC Stage:  
Wide AGC range and good large input signal characteristics by AGC'd IF and RF amplifier stage.
  - Signal Meter Driving Stage:  
Excellent linearity to input signal.
  - Others:  
Stabilized biasing against supply voltage drifting over all stages. Particularly superior compensation circuit in IF amplifier. Less deterioration of gain, detector output, and distortion in low supply voltage range in order to get wide supply voltage range (7V\* to 16V).
- \* Needs to vary peripheral parts and its value of RF and local oscillator stage for the purpose of low supply voltage operation.

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

Maximum Supply Voltage (Pin3, Pin11), $V_{CC\text{max}}$ .....	16V
Output Voltage (Pin4, Pin5), $v_o$ .....	24V
Input Voltage (Pin2), $v_i$ .....	0 to 4V
Supply Current (Pin3, Pin4, Pin5, Pin11), $I_{CC}$ .....	30mA
Flow-Out Current (Pin15), $I_{15}$ .....	2mA
Allowable Power Dissipation ( $T_A \leq +70^\circ\text{C}$ ), $P_{D\text{max}}$ .....	450mW
Operating Temperature Range, $T_{opr}$ .....	$-20^\circ$ to $+70^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-40^\circ$ to $+125^\circ\text{C}$

**Recommended Operating Conditions:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

Recommended Supply Voltage, $V_{CC}$ .....	12V
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**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$ ,  $V_{CC} = 12\text{V}$ ,  $f = 1000\text{kHz}$ ,  $f_m = 400\text{Hz}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Current Dissipation	$I_{CC}$	No Input	–	16	23	mA
Detector Output	$v_o$	Input 23dB, 30% MOD	-27.5	-23.0	–	dBm
		Input 80dB, 30% MOD	-16	-13	-10	dBm
Signal-to-Noise Ratio	S/N	Input 23dB, 30% MOD	16	20	–	dB
		Input 80dB, 30% MOD	49	53	–	dB
Total Harmonic Distortion	THD	Input 80dB, 80% MOD	–	0.5	1.0	%
		Input 107dB, 30% MOD	–	0.3	1.0	%
Signal Meter Driving Output	$V_{SM}$	Input 107dB, 30% MOD	0.40	0.44	0.48	V

Note 1. 0dBm is defined as 0.775V, and in IF circuit 0dB is 1 $\mu\text{V}$  of IHF input at the use of IHF dummy antenna.

**Pin Connection Diagram**



