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NTE787
Integrated Circuit
AM Receiver Subsystem

For Applications in a variety of AM broadcast and communications receivers and applications requiring an array of amplifiers.

Description:

The NTE787, a monolithic integrated circuit, is an AM subsystem that provides the converter, IF amplifier, detector, and audio preamplifier stages for an AM receiver. It also provides internal AGC for the first IF amplifier stage, delayed AGC for an optional external RF amplifier, a buffer stage to drive a tuning meter, and terminals facilitating the optional use of a tone control.

This device features four independent transistor amplifiers, each incorporating internal biasing for temperature tracking. These amplifiers are particularly useful in general–purpose amplifier, oscillator, and detector applications in a wide variety of equipment designs.

The NTE787 utilizes a 16–Lead DIP package and operates over an ambient temperature range of –40° to +85°C.

Features:

- Excellent overload characteristics
- AGC for IF amplifier
- Buffered output signal for tuning meter
- Internal Zener diode provides voltage regulation
- Two IF amplifiers stages
- Low–noise converter and first IF amplifier
- Low harmonic distortion (THD)
- Delayed AGC for RF amplifier
- Terminals for optional inclusion of tone control
- Operates from wide range of power supplies: V+ = 6 to 16 volts
- Optional AC and/or DC feedback on wide–band amplifier
- Array of amplifiers for general–purpose applications
- Suitable for use with optional external RF stage, either MOS or bipolar

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

DC Supply Voltage (Across Pin5 and Pin3, Pin6, Pin13, Pin16 respectively) 16V

DC Current

At Pin3, Pin6, Pin13, Pin16 respectively 10mA

At Pin10 . . . . . 30mA

Device Dissipation (Up to T_A = +50°C), P_D 760mW

Derate Above T_A = +50°C . . . . . 7.6mW/°C

Operating Ambient Temperature Range, T_{opr} . . . . . –40° to +85°C

Storage Temperature Range, T_{stg} . . . . . –65° to +150°C

Lead Temperature (During Soldering, 1/32" from case, 10sec max), T_L . . . . . +265°C

Electrical Characteristics: (T_A = +25°C, V+ = 12V unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
DC Voltage Pin1, Pin4, Pin9, Pin11	V_1, V_4, V_9, V_{11}		–	0.7	–	V
Pin2, Pin7, Pin8	V_2, V_7, V_8		–	1.4	–	V
Pin10	V_{10}		–	5.6	–	V
Pin12	V_{12}		–	0	–	V
Pin15	V_{15}		–	3.5	–	V
DC Current Pin3	I_3		–	0.35	–	mA
Pin6	I_6		–	1.0	–	mA
Pin10	I_{10}		–	20	–	mA
Pin13	I_{13}		–	0	–	mA
Pin16	I_{16}		–	1.2	–	mA
Dynamic Characteristics						
Detector Output		30% Modulation	–	75	–	mV_{rms}
Audio Amplifier Gain	A_{AF}	f = 1kHz	–	30	–	dB
Audio Distortion		V_{OUT} = 100mV	–	0.2	–	%
Sensitivity At Converter Stage Input		f_{IN} = 1MHz, Signal–to–Noise Ratio (S/N) = 20dB	–	200	–	µV/m
At RF Stage Input			–	100	–	µV/m
Total Harmonic Distortion	THD	30% Modulation	–	1.0	–	%
Input Resistance At Transistor Q1	R_{IN}	No AGC, Input Frequency Signal (f_{IN}) = 1MHz	–	3500	–	Ω
At Transistor Q5			–	2000	–	Ω
Input Capacitance At Transistor Q1	C_{IN}		–	17	–	pF
At Transistor Q5			–	12	–	pF
Feedback Capacitance At Transistor Q1	C_{FB}		–	1.5	–	pF
At Transistor Q5			–	1.5	–	pF

Pin Connection Diagram