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NTE1624 Integrated Circuit AM/FM Radio Circuit ^w/Power Amp

Features:

- Suitable for Use in AM/FM Portable Radios or Main-fed AM/FM Clock Radios.
- Incorporates AM RF Amp, AM Local Oscillator, AM Mixer, AM/FM IF Amp, AM/FM Detector, AM AGC Circuit, FM AFC Circuit and B Class-Audio Power Amplifier.
- Using the NTE1624, Plus the Discrete Input Stage (for FM: RF Amp and Converter), It is Possible to Construct a Complete AM/FM Radios Receivers.
- Wide Operating Voltage Range: 3V to Approx 13V, Depending on the Internal Regulator Tolerance.
- As the Internal Shunt Voltage Regulator Circuit is Connected to the Supply Voltage Terminal, it Permits a Constant Current Mode (Approximately 42mA) of Operation which is Desirable for Line-Operated Equipments.
- AM to FM Switching is Accomplished by Switching Only DC Circuitry.

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

Supply Voltage, V_{CC}	11V
Supply Current, I_{CC}	44mA
Power Dissipation ($T_A \leq +65^\circ\text{C}$), P_D	600mW
Derate Above 25°C	10mW/ $^\circ\text{C}$
Operating Temperature Range, T_{opr}	-18° to $+65^\circ\text{C}$
Storage Temperature Range, T_{stg}	-40° to $+125^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient, R_{thJA}	100 $^\circ\text{C}/\text{W}$

Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $f_{(AM)} = 1\text{MHz}$, Mod=30%, $f_{(FM)} = 10.7\text{MHz}$ $\Delta F = 22.5\text{kHz}$, $f_M = 1\text{kHz}$, $V_{IN} = \text{SG}$ Open Voltage -6dB unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Current	I_{CCQ}	SW \rightarrow FM, $V_{CC} = 3\text{V}$	7	12	17	mA
		SW \rightarrow FM, $V_{CC} = 9\text{V}$	10	17	23	mA
Terminal Voltage (Pin16)	$V_{16(FM)}$	SW1 \rightarrow FM, $I_{CC} = 42\text{mA}$, No Signal	2.0	2.4	3.1	V
Limiting Voltage	$V_{IN(lim)}$	SW \rightarrow FM, $V_{CC} = 5.5\text{V}$, -3dB, $V_{16} = 2.4\text{V}$, VR = Min	-	57	-	dB μV
Internal Regulated Voltage	V_{CC}	SW1 \rightarrow AM, $I_{CC} = 42\text{mA}$	12.5	13.2	14.0	V
Terminal Voltage (Pin16)	$V_{16(AM)}$	SW1 \rightarrow AM, $V_{CC} = 9\text{V}$, No Signal	1.4	-	1.9	V

Electrical Characteristics (Cont'd): ($T_A = +25^\circ\text{C}$, $f_{(AM)} = 1\text{MHz}$, $\text{Mod} = 30\%$, $f_{(FM)} = 10.7\text{MHz}$, $\Delta F = 22.5\text{kHz}$, $f_M = 1\text{KHz}$, $V_{IN} = \text{SG Open Voltage} - 6\text{dB}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Maximum Sensitivity	V_O	SW \rightarrow AM, $V_{CC} = 12\text{V}$, $V_{IN} = 37\text{dB}$, SW $\rightarrow 45\Omega$, $V_{16} = 1.4\text{V}$	1.5	3.0	–	V
Quieting Sensitivity	S/N	SW1 \rightarrow AM, $V_{CC} = 5.5\text{V}$, SW $\rightarrow 8\Omega$, $V_{IN} = 37.5\text{dB}$	15	20	–	dB
Output Power	P_{OUT}	SW $\rightarrow 8\Omega$, $V_{CC} = 5.5\text{V}$, $f = 1\text{kHz}$, VH = Min., THD = 10%	0.28	–	–	W
Total Harmonic Distortion	THD	SW $\rightarrow 45\Omega$, $I_{CC} = 42\text{mA}$, $f = 1\text{kHz}$, VR = Min., $V_{OUT} = 2\text{V}$	–	0.5	4.0	%
Voltage Gain	G_V	SW $\rightarrow 8\Omega$, $V_{CC} = 5.5\text{V}$, $f = 1\text{kHz}$, VR = Min.	–	40	–	dB
Pin2 Input Impedance (AM)	$R_{ip2 (AM)}$	$f = 455\text{kHz}$	–	200	–	k Ω
	$C_{ip2 (AM)}$		–	3.0	–	pF
Pin2 Input Impedance (FM)	$R_{ip2 (FM)}$	$f = 10.7\text{MHz}$	–	30	–	k Ω
	$C_{ip2 (FM)}$		–	3.5	–	pF
Pin4 Output Impedance	R_{op4}	$f = 455\text{kHz}$	–	300	–	k Ω
	C_{op4}		–	6.0	–	pF
Pin6 Input Impedance	R_{ip6}	$f = 1\text{MHz}$	–	50	–	k Ω
	C_{ip6}		–	5.0	–	pF
Pin14 Input Impedance (AM)	$R_{ip14 (AM)}$	$f = 455\text{kHz}$	–	300	–	k Ω
	$C_{ip14 (AM)}$		–	3.5	–	pF
Pin14 Input Impedance (FM)	$R_{ip14 (FM)}$	$f = 10.7\text{MHz}$	–	300	–	k Ω
	$C_{ip14 (FM)}$		–	4.0	–	pF
Pin15 Output Impedance (AM)	$R_{op15 (AM)}$	$f = 455\text{kHz}$	–	300	–	k Ω
	$C_{op15 (AM)}$		–	5.5	–	pF
Pin15 Output Impedance (FM)	$R_{op15 (FM)}$	$f = 10.7\text{MHz}$	–	300	–	k Ω
	$C_{op15 (FM)}$		–	6.0	–	pF

Pin Connection Diagram



