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NTE1842 Integrated Circuit FM/AM IF System

Description:

The NTE1842 is a FM/AM IF system IC in a 16-Lead DIP type package designed for portable use. As compared with conventional ICs, this device is greatly improved in external parts counts and electrical characteristics, especially in over-voltage and over-current distortions.

Features:

- Low Supply Current, AM: 7mA, FM: 10mA (Typ)
- Low Number of External Components
- Excellent Tweed
- Low Overvoltage Distortion
- Tuning Indicator LED Driving Capability: $I_{LAMP} = 10mA$ (Max)
- Built-In FM/AM Mode Switch
- Common Output for FM/AM
- Operating Supply Voltage Range: $V_{CC(opr)} = 3V$ to $8V$

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

Supply Voltage, V_{CC}	8V
Lamp Current, I_{LAMP}	10mA
Power Dissipation, P_D	750mW
Derate Above $25^\circ C$	6mW/ $^\circ C$
Operating Temperature Range, T_{opr}	$-25^\circ C$ to $+75^\circ C$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ C$

DC Characteristics: ($V_{CC} = 5V$, Pin Voltage at No Signal)

Parameter	Symbol	Typical		Unit
		AM	FM	
Pin1 Voltage (AM Mix Input)	V_1	1.5	0	V
Pin2 Voltage (AM Mix Bypass)	V_2	1.5	0	V
Pin3 Voltage (AM OSC)	V_3	2.3	2.3	V
Pin4 Voltage (Reg)	V_4	2.3	2.3	V

DC Characteristics (Cont'd): ($V_{CC} = 5V$, Pin Voltage at No Signal)

Parameter	Symbol	Typical		Unit
		AM	FM	
Pin5 Voltage (AM IF Output)	V_5	1.0	0.9	V
Pin6 Voltage (Meter Output)	V_6	1.0	0.9	V
Pin7 Voltage (LED)	V_7	–	–	V
Pin8 Voltage (GND)	V_8	0	0	V
Pin9 Voltage (Detector Output)	V_9	1.4	1.5	V
Pin10 Voltage (V_{CC})	V_{10}	5.0	5.0	V
Pin11 Voltage (FM Detector)	V_{11}	5.0	5.0	V
Pin12 Voltage (AM IF Bypass)	V_{12}	1.5	1.5	V
Pin13 Voltage (AM IF Input)	V_{13}	1.5	1.5	V
Pin14 Voltage (FM IF Bypass)	V_{14}	1.5	1.5	V
Pin15 Voltage (FM IF Input)	V_{15}	1.5	1.5	V
Pin16 Voltage (AM Mix Output)	V_{16}	5.0	5.0	V

AC Characteristics: ($V_{CC} = 5V$, $T_A = +25^\circ C$ FM: $f = 10.7MHz$, $\Delta f = \pm 22.5kHz$, $f_m = 400Hz$
AM: $f = 1MHz$, MOD = 30%, $f_m = 400Hz$)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Current	I_{CC}	FM $V_{IN} = 0$	–	10	15	mA
		AM $V_{IN} = 0$	–	7	10	mA
Pin5 Output Resistance	R_{O9}	$f = 1kHz$	–	3.0	–	$k\Omega$
FM						
Input Limiting Voltage	$V_{IN(lim)}$	–3dB Limiting	–	40	46	$dB\mu$
Recovered Output Voltage	V_{OD}	$V_{IN} = 66dB\mu V$	57	85	114	mV_{rms}
Signal-to-Noise Ratio	S/N	$V_{IN} = 80dB\mu V$	–	65	–	dB
Total Harmonic Distortion	THD	$V_{IN} = 80dB\mu V$	–	0.05	–	%
AM Rejection Ratio	AMR	$V_{IN} = 80dB\mu V$	–	38	–	$dB\mu$
Meter Drive Voltage	V_M	$V_{IN} = 100dB\mu V$	–	1.8	–	V
Lamp ON Sensitivity	V_L	$I_L = 1mA$	–	46	52	dB
AM						
Gain	G_V	$V_{IN} = 26dB\mu V$	15	30	75	mV_{rms}
Recovered Output Voltage	V_{OD}	$V_{IN} = 60dB\mu V$	65	95	125	mV_{rms}
Signal-to-Noise Ratio	S/N	$V_{IN} = 60dB\mu V$	–	47	–	dB
Total Harmonic Distortion	THD	$V_{IN} = 60dB\mu V$	–	1.0	–	%
Meter Drive Voltage	V_M	$V_{IN} = 100dB\mu V$	–	1.8	–	V
Lamp ON Sensitivity	V_L	$I_L = 1mA$	–	28	–	$dB\mu$
Local OSC Stop Voltage	V_{stop}	$R_{DUMP} = \infty$	–	1.5	–	V

Pin Connection Diagram

