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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, espeically tweet and overload distortions.

Features:

- Low Supply Current, AM: 7mA, FM: 10mA (Typ)
- Low Number of External Components
- Excellent Tweet
- 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: $V_{CC9opr)}$ = 3V to 8V

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

Supply Voltage, V_{CC} 8V
Lamp Current, I_{LAMP} 10mA
Power Dissipation, P_D 750mW
Derate Above 25°C . . . . . 6mW/°C
Operating Temperature Range, T_{opr} . . . . . –25°C to +75°C
Storage Temperature Range, T_{stg} . . . . . –55° to +150°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°C FM: f = 10.7MHz, $\Delta f = \pm 22.5$kHz, 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_{09}	f = 1kHz	–	3.0	–	kΩ
FM						
Input Limiting Voltage	$V_{IN(lim)}$	–3dB Limiting	–	40	46	dBμ
Recovered Output Voltage	V_{OD}	V_{IN} = 66dBμV	57	85	114	mV_{rms}
Signal–to–Noise Ratio	S/N	V_{IN} = 80dBμV	–	65	–	dB
Total Harmonic Distortion	THD	V_{IN} = 80dBμV	–	0.05	–	%
AM Rejection Ratio	AMR	V_{IN} = 80dBμV	–	38	–	dBμ
Meter Drive Voltage	V_M	V_{IN} = 100dBμV	–	1.8	–	V
Lamp ON Sensitivity	V_L	I_L = 1mA	–	46	52	dB
AM						
Gain	G_V	V_{IN} = 26dBμV	15	30	75	mV_{rms}
Recovered Output Voltage	V_{OD}	V_{IN} = 60dBμV	65	95	125	mV_{rms}
Signal–to–Noise Ratio	S/N	V_{IN} = 60dBμV	–	47	–	dB
Total Harmonic Distortion	THD	V_{IN} = 60dBμV	–	1.0	–	%
Meter Drive Voltage	V_M	V_{IN} = 100dBμV	–	1.8	–	V
Lamp ON Sensitivity	V_L	I_L = 1mA	–	28	–	dBμ
Local OSC Stop Voltage	V_{stop}	R_{DUMP} = ∞	–	1.5	–	V

Pin Connection Diagram