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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 overload 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, $T_{stg}$ .....	$-55^\circ$ 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 $\Omega$
<b>FM</b>						
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
<b>AM</b>						
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

