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NTE1226 Integrated Circuit FM Multiplex Stereo Demodulator

Description:

The NTE1226 is a silicon monolithic integrated circuit designed for FM multiplex stereo demodulator applications in FM stereo radio receivers that use phase locked loop techniques. The device contains a demodulator system, a voltage controlled oscillator, phase detectors, low pass filters, dividers and a DC amplifier plus a stereo-monoaural switching circuit and a driver circuit for a stereo indicator lamp. The features available make possible a system delivering high fidelity sound within the cost restraints of inexpensive stereo receivers.

Features:

- No Coil Necessary, all tuning performed with a Single Potentiometer
- Automatic Stereo/Monoaural Switching
- High Voltage Gain: $G_V = 1.5\text{dB}$ ($R_L = 3.9\text{k}\Omega$)

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

Supply Voltage, V_{CC}	16V
Package Dissipation ($T_A = +75^\circ\text{C}$), P_D	350mW
Lamp Driver Current (Pin 6), I_L	100mA
Operating Temperature Range, T_{opg}	-20° to $+75^\circ\text{C}$
Storage Temperature Range, T_{stg}	-40° to $+125^\circ\text{C}$

Electrical Characteristics: ($T_A = +25^\circ\text{C}$, $V_{CC} = 10\text{V}$, $V_{IN} = 160\text{mV}$, $f = 1\text{kHz}$, $R_L = 3.9\text{k}\Omega$, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage	V_{CC}		7	-	16	V
Circuit Current	I_{CC}	Quiescent	7	13	18	mA
Input Impedance	Z_i		-	50	-	$\text{k}\Omega$
Stereo Channel Separation	Sep.	$f = 100\text{Hz}$, $V_{in (Pilot)} = 15\text{mV}$	30	40	-	dB
		$f = 1\text{kHz}$, $V_{in (Pilot)} = 15\text{mV}$	35	45	-	dB
		$f = 10\text{kHz}$, $V_{in (Pilot)} = 15\text{mV}$	30	40	-	dB
Voltage Gain	G_V	Monoaural Input, $V_{in (L+R)} = 150\text{mV}$	-4.5	-1.5	2.0	dB
Channel Balance	Ch.B		-1.5	0	1.5	dB
		Monoaural Input, $V_{in (L+R)} = 15\text{mV}$	-1.5	0	1.5	dB
Total Harmonic Distortion	THD	Monoaural Input, $V_{in (L+R)} = 150\text{mV}$	-	0.15	0.5	%
		Stereo Input, $V_{in (Pilot)} = 15\text{mV}$	-	0.15	0.5	%
Lamp Indicator Input Level	Lamp ON	Pilot Level	5	8	11	mV
Lamp Hysteresis			3	6	9	dB

Electrical Characteristics (Cont'd): ($T_A = +25^\circ\text{C}$, $V_{CC} = 10\text{V}$, $V_{IN} = 160\text{mV}$, $f = 1\text{kHz}$, $R_L = 3.9\text{k}\Omega$, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Capture Range	CR	$V_{in(Pilot)} = 15\text{mV}$	± 1.5	± 3	-	%
Ultrasonic Frequency Rejection	19kHz Rej.	19kHz, $V_{in(Pilot)} = 15\text{mV}$	-	35	-	dB
	38kHz Rej.	38kHz, $V_{in(Pilot)} = 15\text{mV}$	-	45	-	dB
SCA Rejection	SCA Rej.		-	70	-	dB
Max. Input Level	V_i	Monoaural Input, THD = 1%	0.4	0.6	-	V_{rms}

Pin Connection Diagram

