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## NTE1461 Integrated Circuit Phase Lock Loop (PLL) FM Stereo Demod

**Description:**

The NTE1461 is a multiplex integrated circuit in a 16-Lead SIP type package designed for use in FM car stereo applications. Due to its low distortion factor, this device can be used as a multiplex stereo demodulator appropriate for car component stereo units.

**Functions:**

- Stereo Noise Control (SNC Pin):  
 Through controlling the quality of sound from stereo mode to monaural mode with the voltage applied to the control pin, the FM stereo noise in the weak electric field is reduced by this function.
- High-Cut Control Function (HCC Pin):  
 The FM noise in weak electric field is reduced through the attenuation of high frequency thereof. Such attenuation can be changed smoothly from "Normal" to "High-Cut" by controlling the voltage applied to the control pin. The volume of "High-Cut" can be selected by using a capacitor installed at the outside of the unit.
- Stereo/Monaural Automatic Conversion:  
 This conversion operates in priority to the stereo noise control. Preference on the pilot input.
- Stoppage of VCO Oscillation:  
 When a voltage higher than 6V is applied on the HCC pin, the oscillation of VCO can be discontinued. An erroneous operation of stereo lamp does not happen even at this stage.
- With separation control terminal

**Features:**

- Low Distortion Factor: 0.05% Typ, 300mV Input Mono
- The Ripple of Power Source can Effectively be Rejected
- Wide Supply Voltage Range:  $V_{CC} = 6.5V$  to 14V

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

Maximum Supply Voltage, $V_{CCmax}$ .....	16V
Lamp Driving Current, $I_L$ .....	40mA
Allowable Power Dissipation ( $T_A \leq +45^\circ C$ ), $P_{Dmax}$ .....	520mW
Operating Temperature Range, $T_{opr}$ .....	$-20^\circ$ to $+70^\circ C$
Storage Temperature Range, $T_{stg}$ .....	$-40^\circ$ to $+125^\circ C$

**Recommended Operating Conditions:** ( $T_A = +25^\circ C$  unless otherwise specified)

Recommended Supply Voltage, $V_{CC}$ .....	6.5 to 14V
Input Signal Voltage, $V_i$ .....	200 to 300mV

**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$ ,  $V_{CC} = 10\text{V}$ ,  $V_i = 300\text{mV}$ ,  $f = 1\text{kHz}$ ,  $L + R = 90\%$ , Pilot = 10% unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Current	$I_{CCO}$		-	21	27	mA
Channel Separation	Sep		40	50	-	dB
Monaural Distortion	$THD_{Mono}$	Mono = 300mV	-	0.05	0.2	%
Stereo Distortion	$THD_{ST}$	Main	-	0.05	0.2	%
Lamp Turn-On Level	$V_L$	L = R = 90%, Pilot = 10%	60	85	120	mV
Hysteresis	hy		-	3	6	dB
Capture Range	CR	Pilot = 30mV	-	$\pm 3$	-	%
Output Signal Level	$V_o$	Sub	140	200	280	mV
Signal-to-Noise Ratio	S/N		70	78	-	dB
Input Resistance	$r_i$		-	20	-	k $\Omega$
SCA Rejection	$SCA_{rej}$		-	80	-	dB
Allowable Input Voltage	$V_i$	THD = 1%	700	800	-	mV
SNC Output Attenuation	$SNC_{Att}$	$V_8 = 0.6\text{V}$ , L - R = 90%, Pilot = 10%	-8.5	-3.0	-0.3	dB
SNC Output Voltage	$V_{o\text{sub}}$	$V_8 = 0.1\text{V}$ , L - R = 90%, Pilot = 10%	-	-	5	mV
HCC Output Attenuation	$HCC_{Att}$	$V_7 = 0.6\text{V}$ , L + R = 90%, Pilot = 10%	-15	-6	-0.5	dB
		$V_7 = 1\text{V}$ , L + R = 90%, Pilot = 10%	-2	-	0	dB
Power Ripple Rejection	RR		-	35	-	dB
VCO Stopping Voltage	$VCO_{Stop}$		-	6.8	-	V
Channel Balance	$CH_{Ba}$		-	0.5	1.5	dB

**Pin Connection Diagram**  
(Front View)

16	OSC Constants
15	Ripple Filter
14	Ripple Filter
13	19kHz
12	Pilot Detector
11	Pilot Detector
10	Stereo Lamp
9	GND
8	Stereo Noise Control
7	High Cut Control
6	Rt Ch Output
5	Lt Ch Output
4	High Cut Constant
3	Separation Adjust
2	Composite Signal Input
1	$V_{CC}$

