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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 electic 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 he 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 spearation 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°C unless otherwise specified)

Maximum Supply Voltage, V_{CC}max 16V
Lamp Driving Current, I_L 40mA
Allowable Power Dissipation ($T_A \le$ +45°C), $P_D$max 520mW
Operating Temperature Range, T_{opr} . . . . . –20° to +70°C
Storage Temperature Range, T_{stg} . . . . . –40° to +125°C

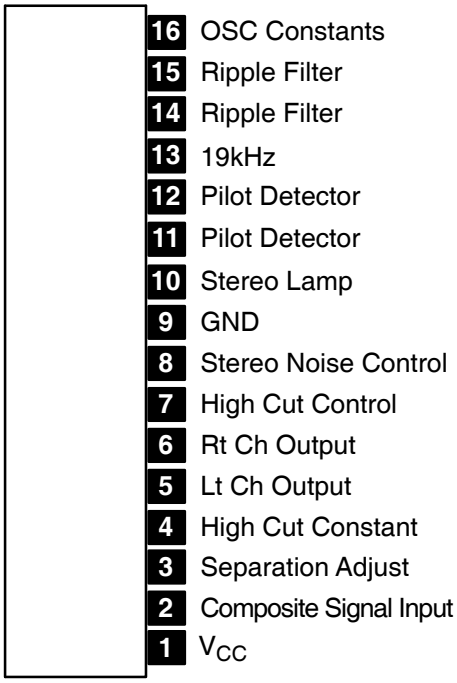
Recommended Operating Conditions: (T_A = +25°C unless otherwise specified)

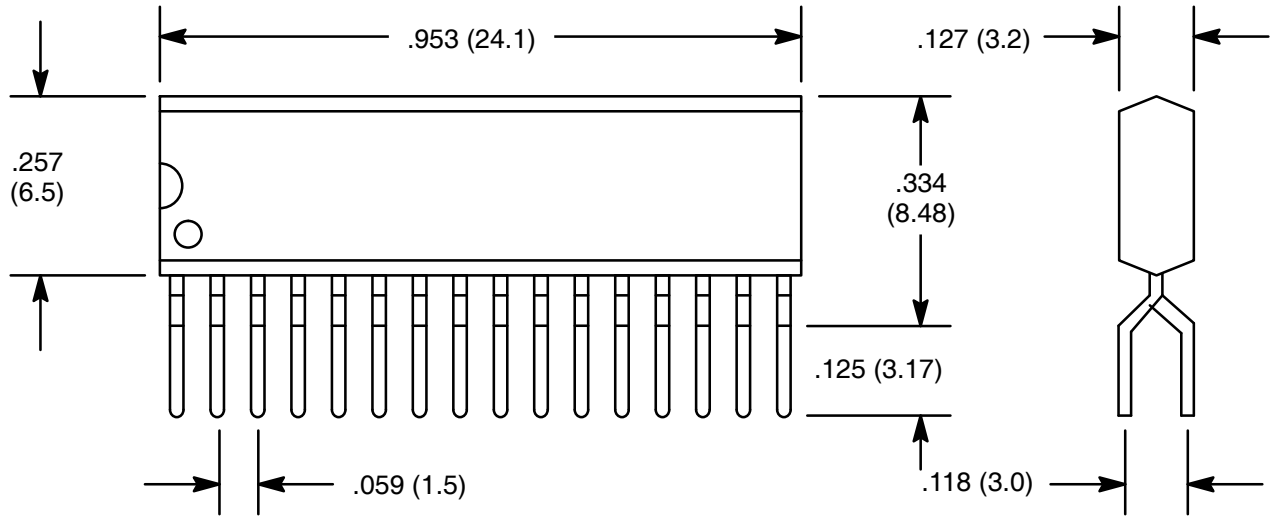
Recommended Supply Voltage, V_{CC} . . . . . 6.5 to 14V
Input Signal Voltage, V_i . . . . . 200 to 300mV

Electrical Characteristics: (T_A = +25°C, V_{CC} = 10V, V_i = 300mV, f = 1kHz, 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	–	±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	–	kΩ
SCA Rejection	SCA_{rej}		–	80	–	dB
Allowable Input Voltage	V_i	THD = 1%	700	800	–	mV
SNC Output Attenuation	SNC_{Att}	V_8 = 0.6V, L − R = 90%, Pilot = 10%	−8.5	−3.0	−0.3	dB
SNC Output Voltage	$V_o$sub	V_8 = 0.1V, L − R = 90%, Pilot = 10%	–	–	5	mV
HCC Output Attenuation	HCC_{Att}	V_7 = 0.6V, L + R = 90%, Pilot = 10%	−15	−6	−0.5	dB
		V_7 = 1V, 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)

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