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## NTE1864 Integrated Circuit PLL (Phase Lock Loop) FM Stereo Demodulator <sup>w</sup>/Blend

**Description:**

The NTE1864 is a phase lock loop FM stereo demodulator with a DC control pin for reducing noise by decreasing separation during weak signal conditions.

**Features:**

- Blend Control
- Large Input Overload
- Low Beat Note Distortion
- Low THD Diode Switching Outputs
- VCO Stop Function
- Wide Supply Range: +7V to +15V
- Mono Override Pin

**Applications:**

- Automobile Radios
- Hi Fi Receivers and Tuners
- High Performance Portable Radios

**Absolute Maximum Ratings:**

Supply Voltage, Pin3 .....	15V
Lamp Driver Voltage, Pin11 .....	18V
Output Voltage, Pin12, Pin13, Supply Off .....	7V
Quick Mono Input (Pin1) .....	V+ (Pin3)
Blend Input (Pin20) .....	15V
Power Dissipation (Note 1), P <sub>D</sub> .....	1.9W
Operating Temperature Range, T <sub>opr</sub> .....	0° to +70°C
Storage Temperature Range, T <sub>stg</sub> .....	-65° to +125°C
Lead Temperature (During Soldering, 10sec), T <sub>L</sub> .....	+260°C

Note 1. For operation in ambient temperatures above +25°C, the device must be derated based on a +150°C maximum junction temperature and a thermal resistance of +65°C/W junction to ambient.

**Electrical Characteristics:** ( $T_A = +25^{\circ}\text{C}$ ,  $V_+ = 8\text{V}$ )

Parameter	Test Conditions	Min	Typ	Max	Unit
<b>DC</b>					
Operating Supply Voltage		7	8	15	V
Supply Current		–	26	45	mA
Input DC Voltage	Pin19	–	4	–	V
	Pin2	–	1.8	–	V
Supply Rejection		15	30	–	dB
Lamp Leakage Current	Lamp Off, Pin11 = 16V	–	0.1	100	$\mu\text{A}$
Lamp Saturation Voltage	Lamp Off, Pin11 @ 75mA	–	1.4	2.0	V
VCO Stop Voltage	Voltage at Pin4 to Stop VCO	0.2	0.4	–	V
VCO Stop Current	Pin4 = 0.2V	–	–30	–100	$\mu\text{A}$
Blend Input Bias Current	Pin20 = 0V	–	–2	–20	$\mu\text{A}$
Quick Mono Switch Voltage		–	4	–	V
Quick Mono Bias Current	Pin1 = 8V	–	2	–	$\mu\text{A}$
Output Leakage	Pin12 or Pin13 = 6.5V, Pin3 = 0V				$\mu\text{A}$
<b>Audio</b>					
Mono Gain	1kHz	–4	–1	+2	dB
Mono THD	1kHz @ 200mVrms	–	0.05	0.25	%
Channel Balance		–	$\pm 0.4$	$\pm 1.5$	dB
Gain Shift	Mono to Stereo	–	$\pm 0.1$	$\pm 1.0$	dB
Channel Separation	Pin20 $\geq$ 1.1V	30	45	–	dB
Output DC Shift	Mono to Stereo	–	$\pm 15$	$\pm 100$	mV
Input Resistance	Pin19	20	40	–	k $\Omega$
Output Resistance	Pin12, Pin13	–	65	200	$\Omega$
Ultrasonic Rejection	19kHz + 38kHz	–	30	–	dB
SCA Rejection	Note 2	–	70	–	dB
Signal to Noise	1kHz @ 200mVrms Mono	–	68	–	dB
<b>PLL</b>					
Lamp On Voltage	19kHz on Pin2	–	15	20	mV
Lamp Off Voltage	19kHz on Pin2	2.5	5.0	–	mV
Lamp Hysteresis		–	10	–	dB
Capture Range	25mVrms on Pin2	$\pm 2$	$\pm 4$	$\pm 6$	%
Hold In Range	25mVrms on Pin2	–	$\pm 12$	–	%
Input Resistance	Pin2	8	14	–	k $\Omega$
<b>Blend (Pin20 from 1.1V to 0.2V)</b>					
Stereo Gain Change	1kHz L = –R Input	–25	–35	–	dB
Mono Gain Change	1kHz L = R Input	–1.5	–0.5	0.5	dB
	10kHz L = R Input	–8	–14	–20	dB
Output DC Shift		–	$\pm 40$	$\pm 100$	mV

Note 2. Input is 10% SCA (74.5kHz), 9% pilot, and 1kHz left or right. Rejection is ratio of 1kHz output to 1.5kHz output.

### Pin Connection Diagram

