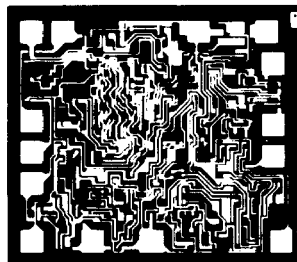


ULN-3809A PHASE-LOCKED LOOP STEREO DECODER

FEATURES

- Unity Voltage Gain
- I^2L and Ion Implant Technology
- Wide Dynamic Range
- Low Distortion
- Excellent Channel Separation
- No Tuning Coils
- Automatic Stereo/Mono Switching
- Stereo Indicator Lamp Driver
- Direct Replacement for MC1309
- 14-Pin Dual In-Line Plastic Package

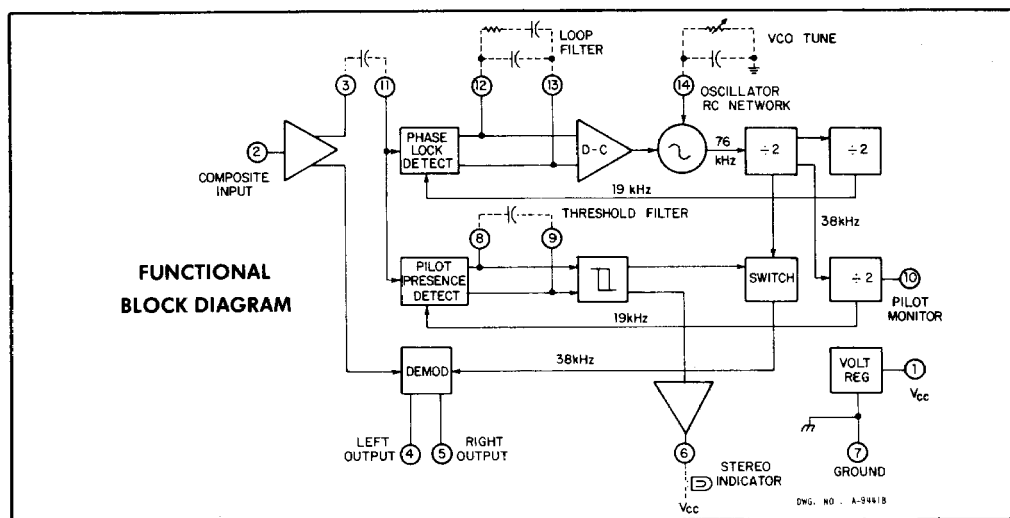


SPRAGUE Type ULN-3809A phase-locked loop decoder demodulates standard composite F-M stereo input signals within the range of 0.25 to 1.7 Vpp without the use of tuning coils.

Integrated circuit design allows tuning with a single resistive adjustment. The decoder automatically switches between stereo and monaural operation by detection and evaluation of the 19-kHz pilot carrier signal.

Type ULN-3809A exhibits 35 dB suppression of the 19-kHz pilot and 45 dB rejection of the regenerated 38-kHz subcarrier at demodulator output terminals. Stereo channel separation is typically 47 dB. With a composite input signal of 850 mV, total harmonic distortion for the unit is typically 0.06%.

Type ULN-3809A is designed to work within a range of supply voltages from 4.5 to 16 V.



ULN-3809A PHASE-LOCKED LOOP STEREO DECODER

ABSOLUTE MAXIMUM RATINGS

Supply Voltage, V_{CC} 16 V
 Nominal Lamp Current, I_{LAMP} 50 mA
 Package Power Dissipation, P_D 670 mW*
 Operating Temperature Range, T_A -20°C to +85°C
 Storage Temperature Range, T_S -65°C to +150°C

*Derate at the rate of 8.3 mW/°C above $T_A = +70^\circ\text{C}$.

**ELECTRICAL CHARACTERISTICS at $T_A = +25^\circ\text{C}$, $V_{CC} = 9.0\text{ V}$,
 $V_{in} = 1.7\text{ Vpp}$, $f_m = 1.0\text{ kHz}$ (L or R only), Pilot Level = 10% unless otherwise specified**

Characteristic	Test Conditions	Limits			
		Min.	Typ.	Max.	Units
Max. Standard Composite Input Signal	$V_{CC} = 6.0\text{ V}$, 0.5% THD	0.85	1.7	—	Vpp
	$V_{CC} = 9.0\text{ V}$, 0.5% THD	1.7	2.1	—	Vpp
Max. Monaural Input Signal	$V_{CC} = 6.0\text{ V}$, 1.0% THD	0.85	1.7	—	Vpp
	$V_{CC} = 9.0\text{ V}$, 1.0% THD	1.7	2.2	—	Vpp
Input Impedance		15	30	—	k Ω
Stereo Channel Separation	$f = 100\text{ Hz}$	—	45	—	dB
	$f = 1.0\text{ kHz}$	30	47	—	dB
	$f = 10\text{ kHz}$	—	40	—	dB
Monaural Gain		0.6	0.9	—	V/V
Channel Balance		—	0	1.0	dB
Total Harmonic Distortion	Stereo, $V_{in} = 850\text{ mVpp}$	—	0.06	—	%
	Mono, $V_{in} = 850\text{ mVpp}$	—	0.08	—	%
Ultrasonic Frequency Rejection	19 kHz	—	35	—	dB
	38 kHz	—	45	—	dB
SCA Rejection		—	75	—	dB
Stereo Switch Level	Lamp ON	—	9.0	12	mV
	Lamp OFF	2.0	4.5	—	mV
Mono/Stereo Switch Transient	No Lamp	—	0	—	mV
Capture Range	Pilot = 60 mVrms	—	7.0	—	%
Supply Current		—	11	—	mA

NOTE: THD and channel separation are measured after a bandpass filter (200 Hz to 10 kHz).



0.000, 0.00, $n = 10, 0.000$

- REF. NO. A-10,656

- Doc. No. A-1467A

[illegible]