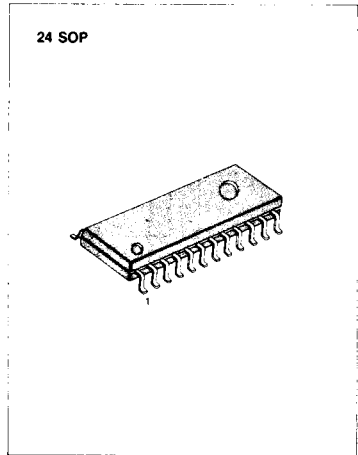


**DUAL PRE-POWER AMPLIFIER FOR AUTO REVERSE**

The KA22131 is a monolithic integrated circuit consisting of an autoreverse dual pre and power amplifier. It is suitable for 3V portable radio cassettes with an auto-reverse function.

**FEATURES**

- Dual pre-power amplifier on 1 chip
- Auto-reverse switch included
- Muting circuit included for Metal/Normal gain control
- LED drive circuit included for tape direction indication
- Power ON muting circuit included for suppression of shock-noise at the power ON time.
- Operating supply voltage range:  $V_{CC} = 1.8V \sim 3.6V$



**BLOCK DIAGRAM**

**ORDERING INFORMATION**

Device	Package	Operating Temperature
KA22131D	24 SOP	-20°C ~ +70°C

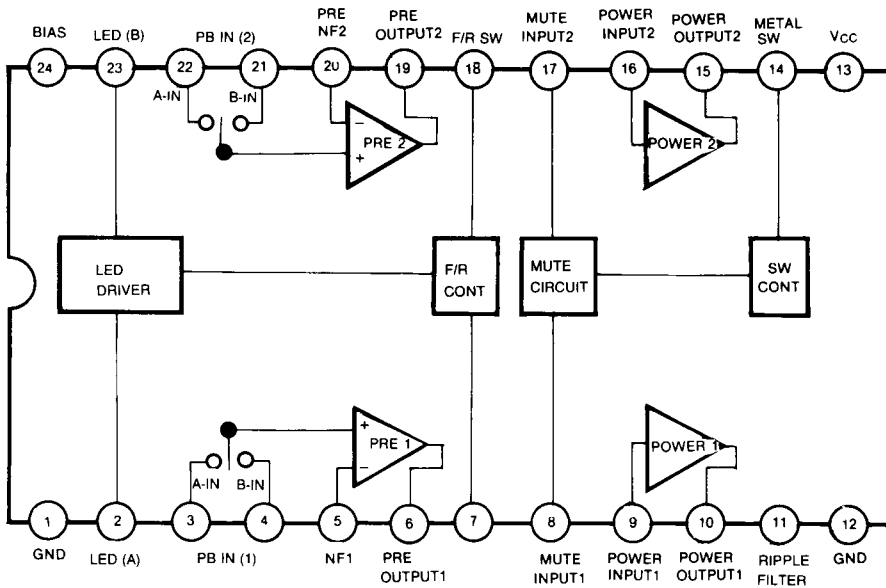


Fig. 1

## ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Characteristic	Symbol	Value	Unit
Supply Voltage	V <sub>CC</sub>	4.5	V
Power Dissipation	P <sub>D</sub>	600	mW
Operating Temperature	T <sub>OPR</sub>	-20 ~ +70	°C
Storage Temperature	T <sub>STG</sub>	-55 ~ +125	°C

## ELECTRICAL CHARACTERISTICS

(Ta = 25°C, V<sub>CC</sub> = 3V, f = 1KHz, unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Quiescent Circuit Current	I <sub>CCQ</sub>	V <sub>i</sub> = 0V, Pin 14, 18: Open	4	9	15	mA
<b>PRE-AMP (R<sub>L</sub> = 10KΩ)</b>						
Open Loop Voltage Gain	G <sub>VO</sub>	V <sub>o</sub> = -10dBm	72	83		dB
Output Voltage	V <sub>o</sub>	THD = 1%	300	450		mV
Total Harmonic Distortion	THD	V <sub>o</sub> = 0.2V, NAB = 33dB		0.03	0.08	%
Equivalent Input Noise Voltage	V <sub>NI</sub>	R <sub>G</sub> = 2.2KΩ BW(-3dB) = 20Hz ~ 20KHz		0.9	1.2	μV
Ripple Rejection Ratio	RR	V <sub>R</sub> = -20dBm, f = 100Hz NAB = 33dB	43	53		dB
FWD-REV Cross Talk	CT <sub>F-R</sub>	V <sub>o</sub> = -10dBm, R <sub>G</sub> = 2.2KΩ BW = 20Hz ~ 20KHz	65	75.5		dB
Input Bias Current	I <sub>BIAS</sub>	V <sub>i</sub> = 0V		130	500	nA
<b>POWER-AMP (R<sub>L</sub> = 16Ω)</b>						
Output Power	P <sub>o</sub>	THD = 10%	50	69		mW
Closed Loop Voltage Gain	G <sub>VC</sub>	V <sub>i</sub> = -40dBm	24.6	26.6	28.6	dB
Total Harmonic Distortion	THD	P <sub>o</sub> = 1mW		0.27	0.5	%
Output Noise Voltage	V <sub>NO</sub>	R <sub>G</sub> = 0Ω, BW (-3dB) = 20Hz ~ 20KHz		27	39	μV
Ripple Rejection Ratio	RR	V <sub>R</sub> = -20dBm, f = 100Hz, R <sub>G</sub> = 0Ω	45	61		dB
Input Resistance	R <sub>i</sub>		21.4	30	38.6	KΩ
Input Bias Current	I <sub>BIAS</sub>	V <sub>i</sub> = 0V, R <sub>G</sub> = 100KΩ		10	90	nA
Channel Balance	CB	V <sub>o</sub> = -10dBm		0.1	0.7	dB
LED Maximum Current	I <sub>DR (MAX)</sub>	V <sub>CE (SAT)</sub> = 0.3V	5			mA
<b>PRE + POWER AMP</b>						
L-R Cross Talk	CT <sub>L-R</sub>	VR: Max, PRE: R <sub>G</sub> = 2.2KΩ BW = 20Hz ~ 20KHz, Power: V <sub>o</sub> = -5dBm	40	48		dB
Signal Leakage	S <sub>LKG</sub>	PRE: V <sub>o</sub> = -12dBm VR: Min		-66	-60	cBm



APPLICATION CIRCUIT

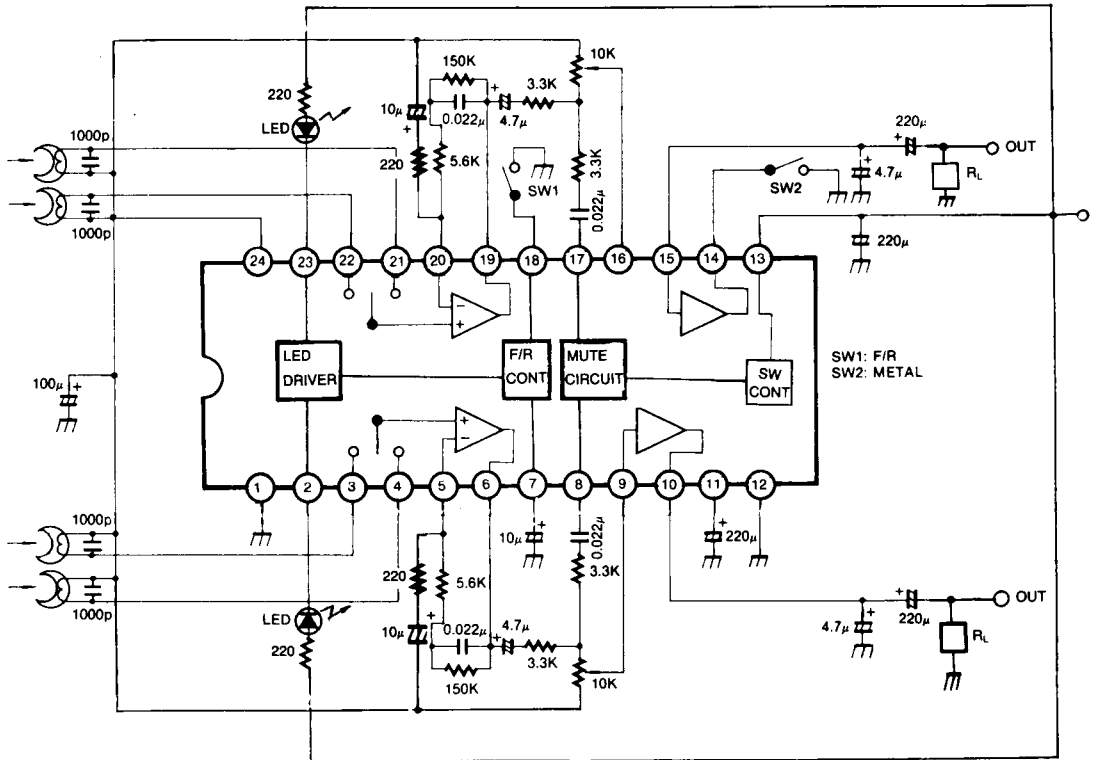


Fig. 3