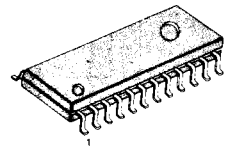
DUAL PRE-POWER AMPLIFIER FOR AUTO REVERSE

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.

24 SOP



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 inclued for suppression of shock-noise at the power ON time.**
- **Operating supply voltage range: V_{CC} = 1.8V ~ 3.6V**

ORDERING INFORMATION

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

BLOCK DIAGRAM

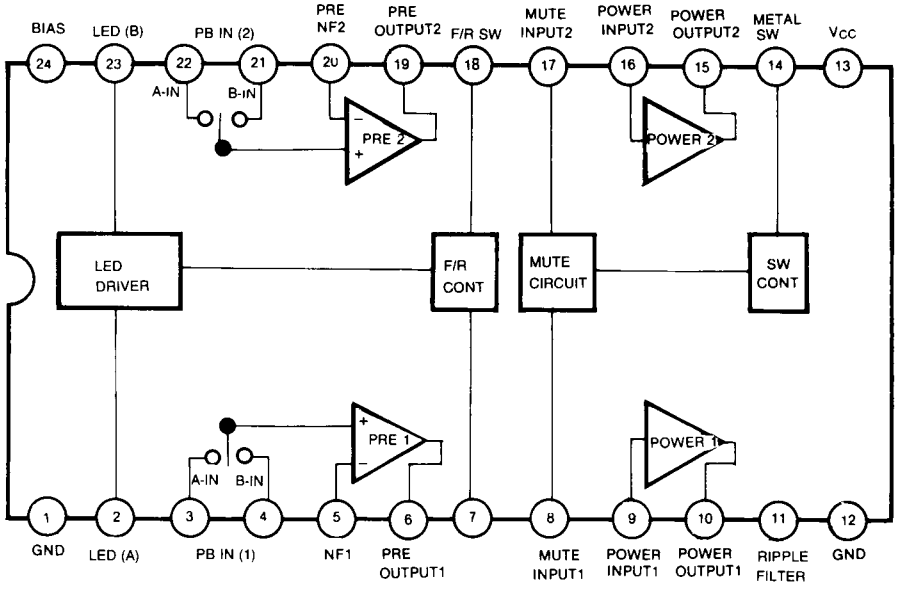


Fig. 1

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Characteristic	Symbol	Value	Unit
Supply Voltage	V_{CC}	4.5	V
Power Dissipation	P_D	600	mW
Operating Temperature	T_{OPR}	−20 ~ +70	°C
Storage Temperature	T_{STG}	−55 ~ +125	°C

ELECTRICAL CHARACTERISTICS

(Ta = 25°C, V_{CC} = 3V, f = 1KHz, unless otherwise specified)

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

TEST CIRCUIT

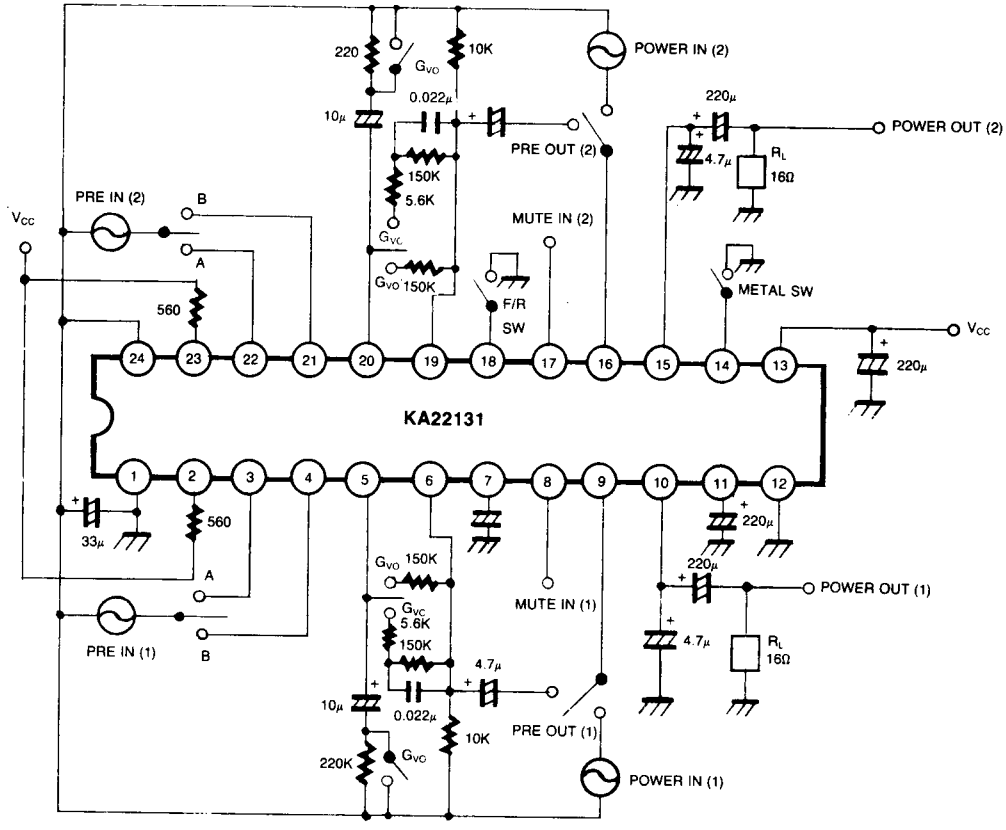


Fig. 2

APPLICATION CIRCUIT

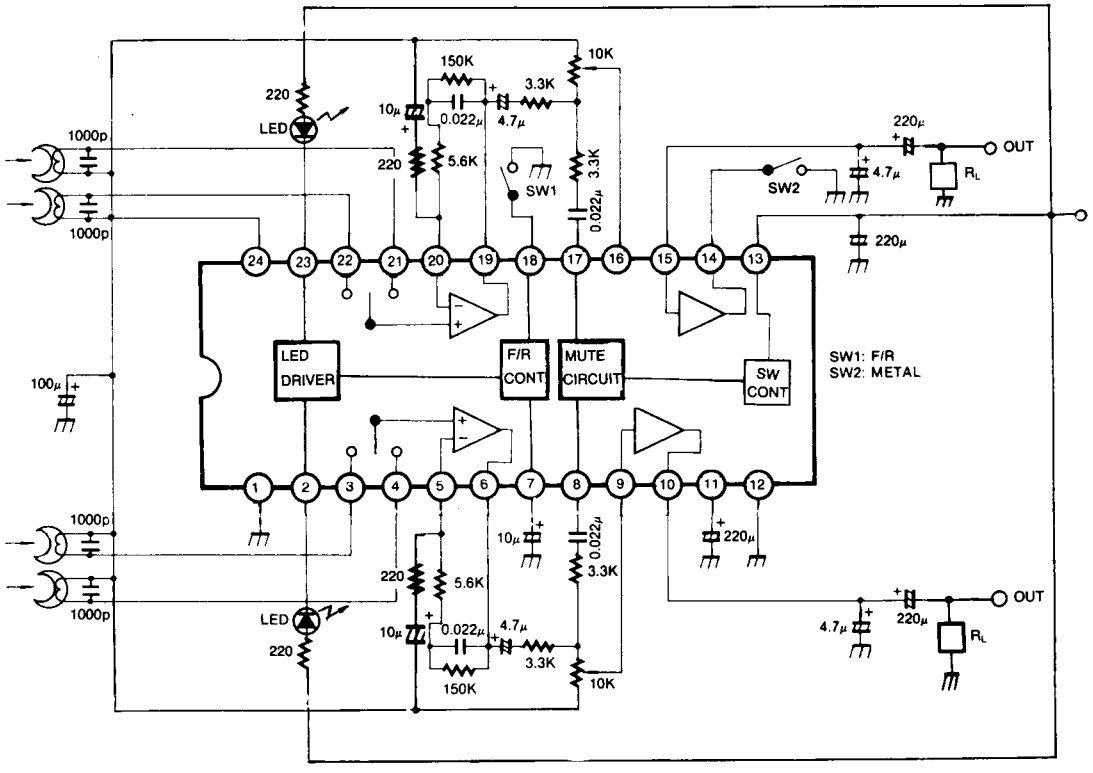


Fig. 3