

INTRODUCTION

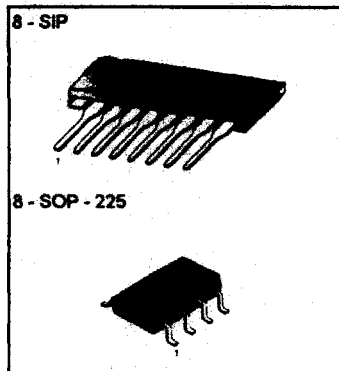
The KA2184 is a bipolar IC for the receiving pre - amplifier of infra - red remote control systems.

FUNCTIONS

- Primary stage amplifier
- Limiter amplifier
- BPF
- Signal waveform detecting
- Waveform shaping

FEATURES

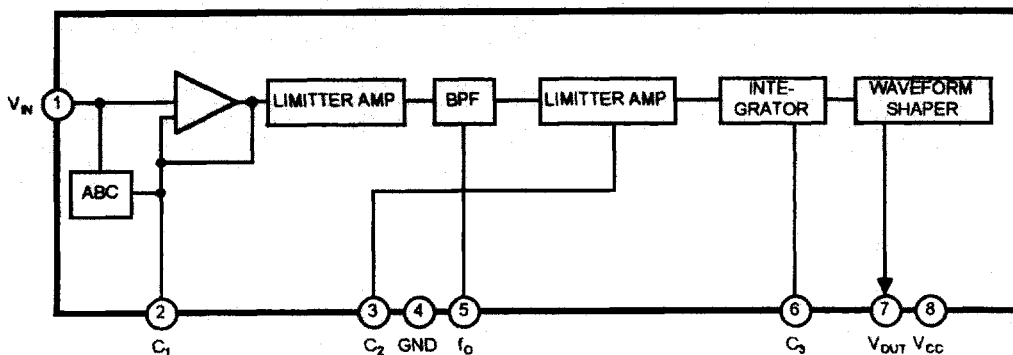
- Built - in filter (Able to vary the center frequency with pin #5 external resistor)
- $f_0 = 30\text{KHz} \sim 60\text{KHz}$, typical 38KHz
- Low power consumption ($V_{CC} = 5\text{V}$; 9mW typical)
- Using no external inductor and be free from magnetic field inductance
- Direct connecting to photo diode
- Open collector output (possible to direct connection to TTL and CMOS)



ORDERING INFORMATION

Device	Package	Operating Temperature
KA2184	8-SIP	-20 C ~ +75 C
KA2184D	8-SOP-225	-20 C ~ +75 C
KA2184G	Bare Chip	-20 C ~ +75 C

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS (T_A=25°C)

Characteristics	Symbol	Value	Unit
Power Supply Voltage	V _{CC}	+12	V
Input Voltage	V _{IN}	5	V _{R-P}
Operating Temperature	T _{OPR}	-20~+75	°C
Storage Temperature	T _{STG}	-55~+150	°C
Allowable Power Dissipation	P _D	0.4	W

RECOMMENDED OPERATING CONDITIONS

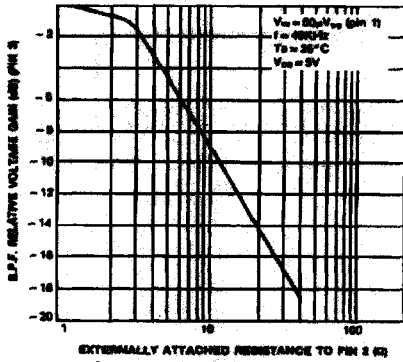
Characteristics	Symbol	Min.	Typ.	Max.	Unit
Power Supply	V _{CC}	4.7	—	5.3	V

ELECTERICAL CHARACTERISTICS (V_{CC}=5V, T_A=25°C)

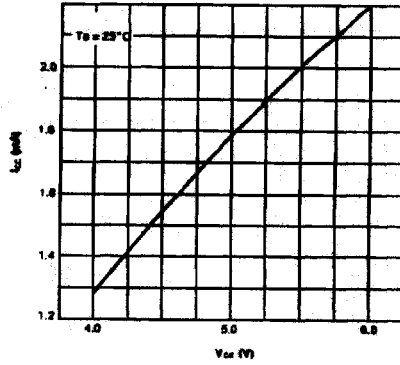
Characteristics	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Input Pin Voltage (1)	V _{IN1}		2.0	2.5	3.1	V
Input Pin Voltage (2)	V _{IN2}		0.6	1.0	1.7	V
L level Output Voltage	V _{OL}		—	0.2	0.4	V
Output Leakage Current	I _{OH}		—	0	2.2	μA
Voltage Gain	A _V	38KHz cw 50μV _{P-P}	74	79	84	dB
Input Impedance	R _{IN}	38KHz cw 0.2μV _{P-P}	27	40	55	kΩ
Detecting Ability (1)	V _{IN1}	burst wave 60μV _{P-P}	440	540	770	μs
Detecting Ability (2)	V _{IN2}	burst wave 60mV _{P-P}	440	660	770	μs
Consumption Current	I _{CC}		1.0	1.8	2.8	mA

Note. $R_{IN} = \frac{47k\Omega}{\frac{V_I}{V_X} - 1}$

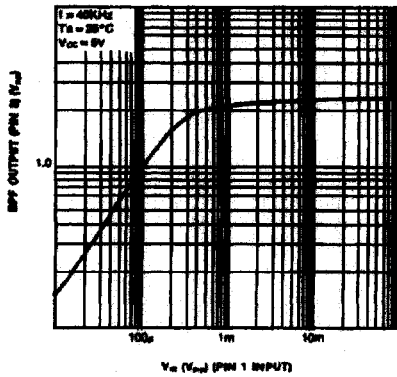
A_v CHARACTERISTICS VS. EXTERNALLY ATTACHED RESISTANCE TO PIN 2



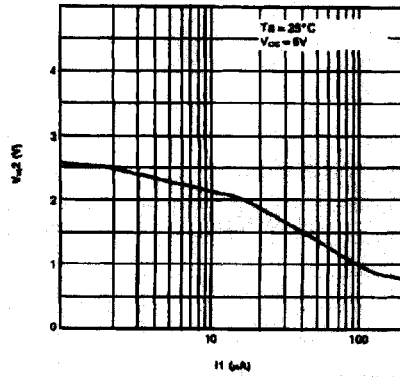
I_{cc} VS. V_{cc} CHARACTERISTICS



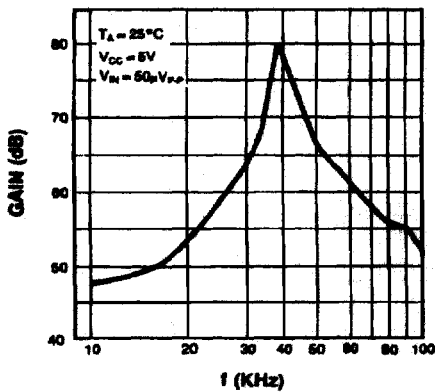
PIN 3 OUTPUT VOLTAGE CHARACTERISTICS VS. PIN 1 INPUT VOLTAGE



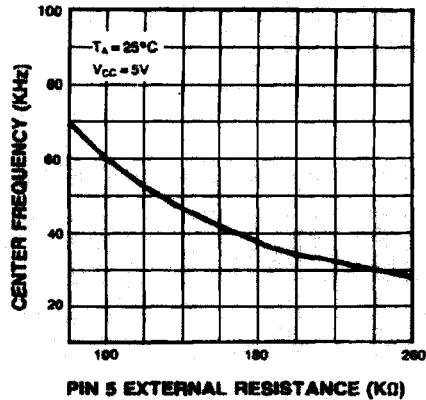
V_{cc} VS. I_b CHARACTERISTICS



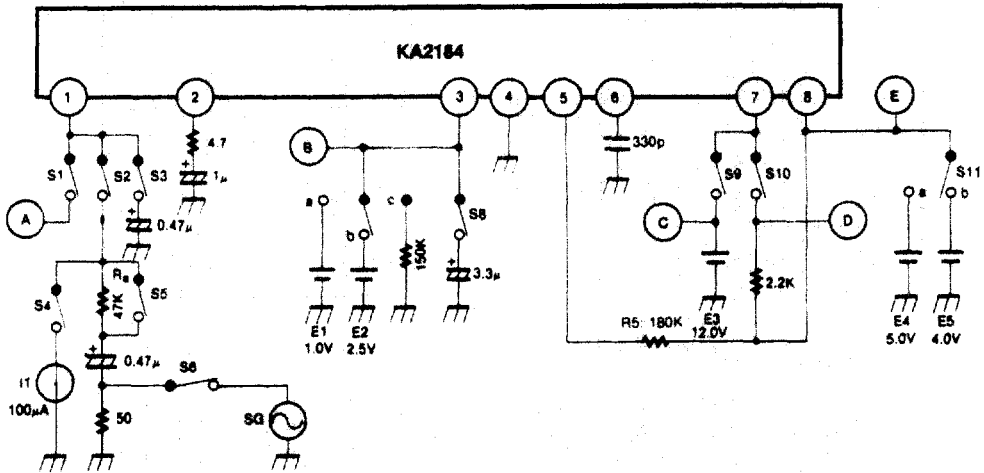
FREQUENCY CHARACTERISTICS



PIN 5 EXTERNAL RESISTANCE VS. CENTER FREQUENCY (PIN 2)



TEST CIRCUIT



DC CHARACTERISTICS

Pin	Pin Voltage	Remark
1	2.5V	
2	2.5V	
3	1.5V	
4	—	GND
5	1.4V	
6	1.0V	
7	5.0V	
8	—	V _{CC}

PIN #5 RESISTOR R5 AND CENTER FREQUENCY

	Identification		Recommended Resistor value	Center Frequency
	SIP	SOP		
BIN 2	18	02	180kΩ	38KHz
BIN 3	20	03	200kΩ	



TYPICAL APPLICATION CIRCUITS

