

Feature

- **Supply Voltage Range:** 2.7V ~ 5.5 V
- **TTL and CMOS compatibility**
- **No external components Except PIN Diode**
- **Available for Carrier Frequencies between 32.7kHz to 40 kHz (Adjusted by Fusing, 32.7kHz, 36.7 kHz, 37.9 kHz, 40 kHz).**
- **Internal filter for a high frequency lighting fluorescent lamp**
- **Output active low**
- **No occurrence of disturbance pulses at output pin within nominal conditions.**
- **Short settling time after power on (below 1msec)**

General Description

The SC5420 is a standard CMOS IC for use in infrared remote control system, It consist of automatic gain control amplifier, post amplifier, Oscillator, automatic gain control circuit, a band pass filter, a signal waveform detection circuit, automatic threshold control circuit, a waveform rectifier.

Application

- **TV, VCR, AUDIO**
- **Home Appliances**
- **Remote Control Equipment**

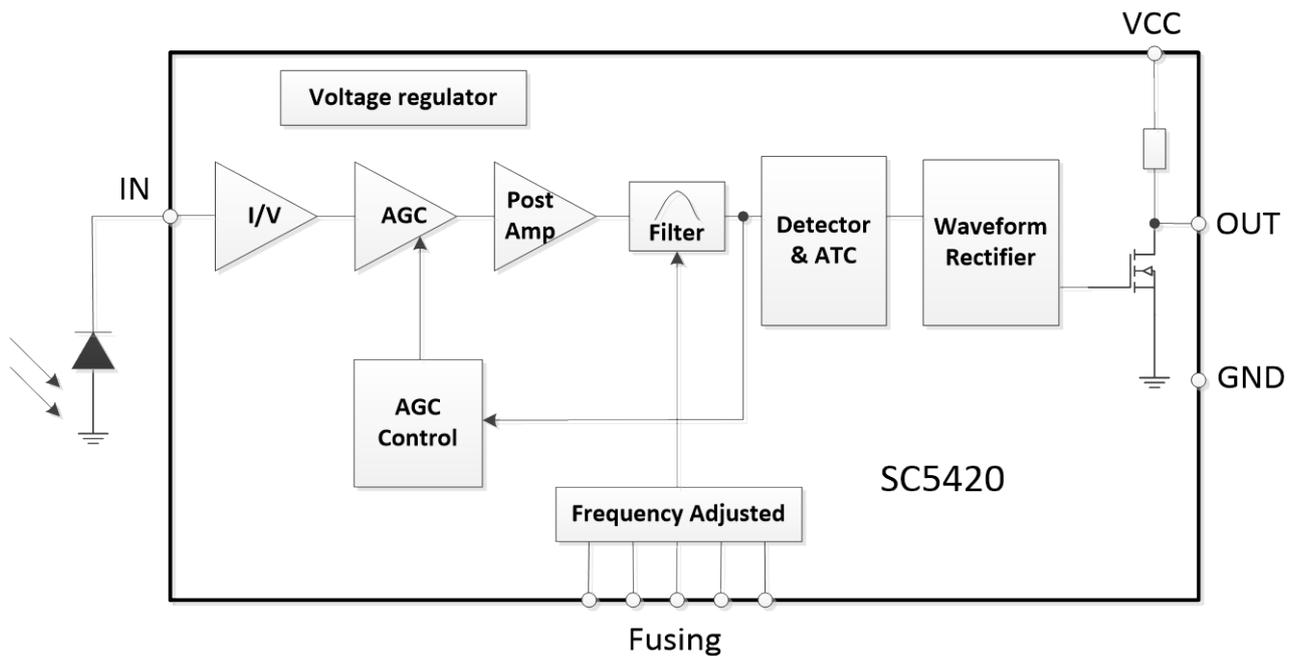


Fig.1 block diagram of SC5420

REV. 0.1

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Absolute Maximum Ratings

(If out of these ratings, the filter may be fail or damaged)

Table 1

Symbol	Parameter	Rating	Units
VCC	Power Supply(VCC-GND)	6	V
ICC	Supply Current	3	mA
VOUT	Output Voltage(VOUT-GND)	6	V
IOUT	Output Current	2.5	mA
TSTG	Storage Temperature	-45~+125	°C

* Stress above those listed under Absolute Maximum Ratings may cause permanent damage of device. This is stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for longer periods may affect device reliability.

During overload conditions (VIN>VCC or VIN<GND), those voltage on VCC pins with respect to ground must not exceed the values defined by the absolute maximum ratings

Recommended Operating Conditions

Table 2

Symbol	Parameter	rating	Unit
VCC	Supply Voltage	2.7~5.5	V
Fin	Input Frequency*	32.7~40.0	KHz
Top	Operating Temperature	-20~+80	°C

*Available for carrier frequencies adjusted by fusing.

32.7 kHz, 36.7 kHz, 37.9 kHz, 40.0 kHz

Electrical Characteristics

(Specifications hold over the recommended operation conditions, unless otherwise note. All values are at 27°C and VCC=3.3V)

Table 3

Symbol	Parameter	Min	Typ	Max	Unit
VCC	Supply Voltage	2.7	5.0	5.5	V
ICC	Supply Current(VCC=3.0V)	0.3	0.45		mA
	Supply Current(VCC=5.0V)	0.4	0.5		mA
A _v	Max. Voltage Gain(fin=37.9KHz)		80		dB
F _{BW}	BPF Bandwidth(fin=37.9KHz)		6		KHz
F _c	BPF Frequency	-5%	F ₀	5%	%
R _{pul}	Internal Pull-Up Resistor		42		KΩ
T _{PW}	Output Pulse Width(600us burst@37.9KHz)	450	600	750	us
V _{OL}	Low Level Output Voltage		0.15	0.3	V
V _{OH}	High Level Output Voltage(VCC=3.3V)	3.2	3.3		
	High Level Output Voltage(VCC=5.0V)	4.8	5.0		

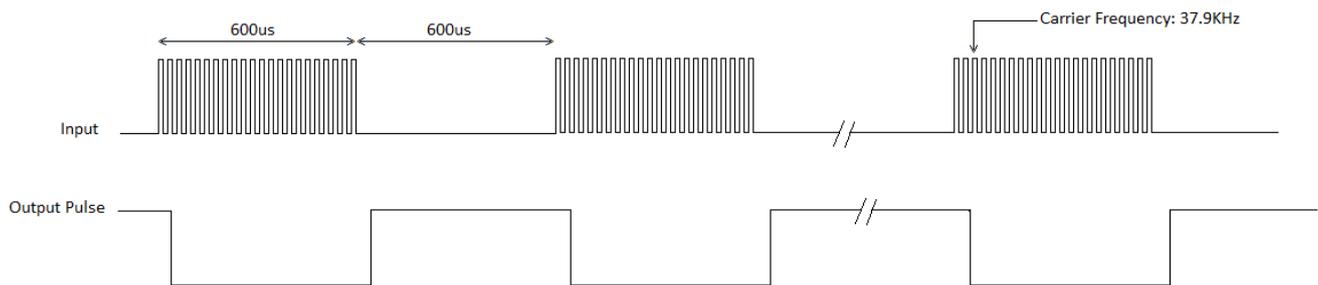


Fig.2 The output pulse of 37.9 KHz carrier frequency with 22 pulses burst

Data Signal Limitation

Table 4

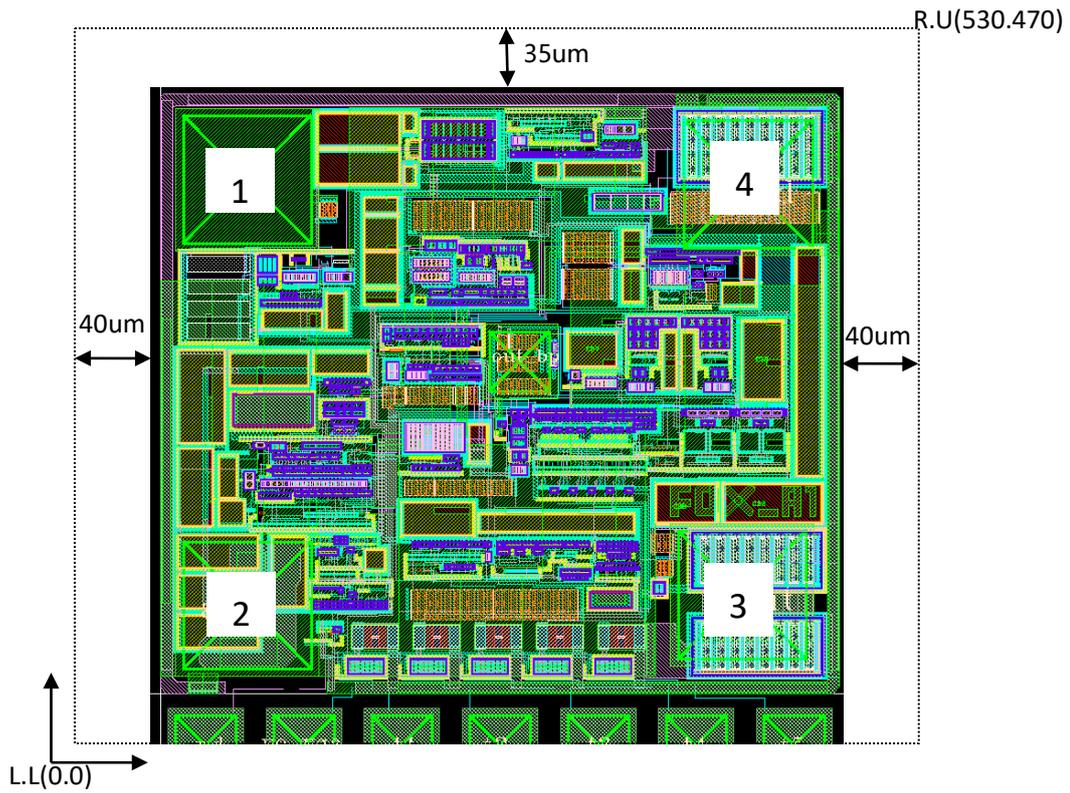
Item	Limitation
Minimum burst length	10 pulses
Minimum gap time between two burst	10 pulses
Required data pause time	Data word length/3+16ms

Acceptable Code List

Table 5

Data format	NEC	yes
	RC5/RC6	yes
	Panasonic	yes
	Sony 12 bit	yes
	Sharp	yes
	Mitsubishi	Yes
	Zenith	Yes
	Toshiba	Yes

Floor Planning Diagram



Chip Size: 530umX470um(With Scribe Lane);

User Pad: 85umX85um (PAD1,2,3,4);

Chip Thickness: 350um;

PADS Description

Table 6. Pad definition (With Scribe Lane)

Pad number	Pad name	Description	Pad Location
1	IN	INPUT pad	97,377
2	VSS	GND pad	97,93
3	OUT	OUTPUT pad	425,100
4	VDD	VDD pad	429,374

Application Circuits

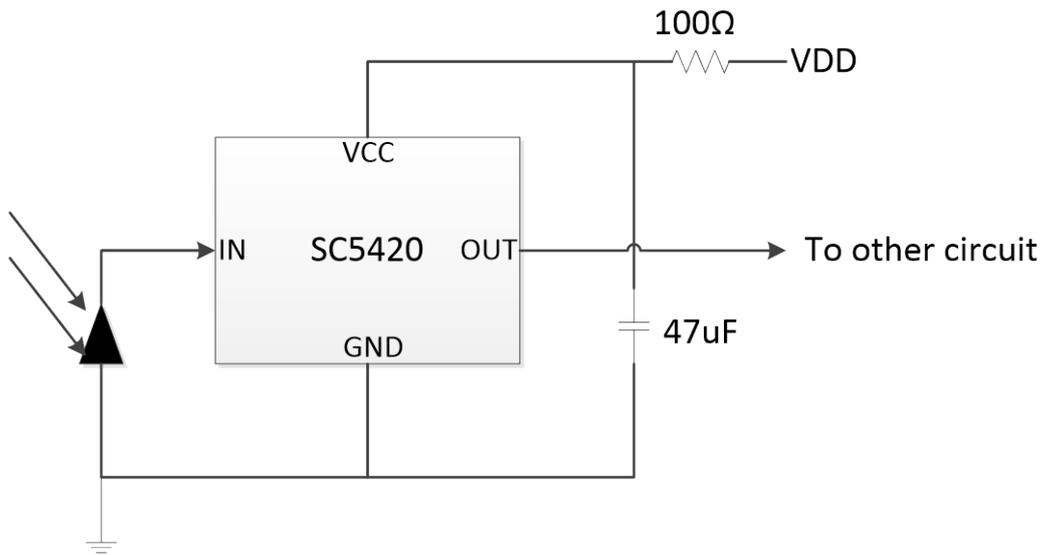


Fig.2 Applications Circuits of SC5420