

# KA8405

# 3-INPUT SWITCH

## 3-INPUT SWITCH

The KA8405 is a monolithic integrated circuit designed for the 3-input switch in a VCR or a TV system.

## FEATURES

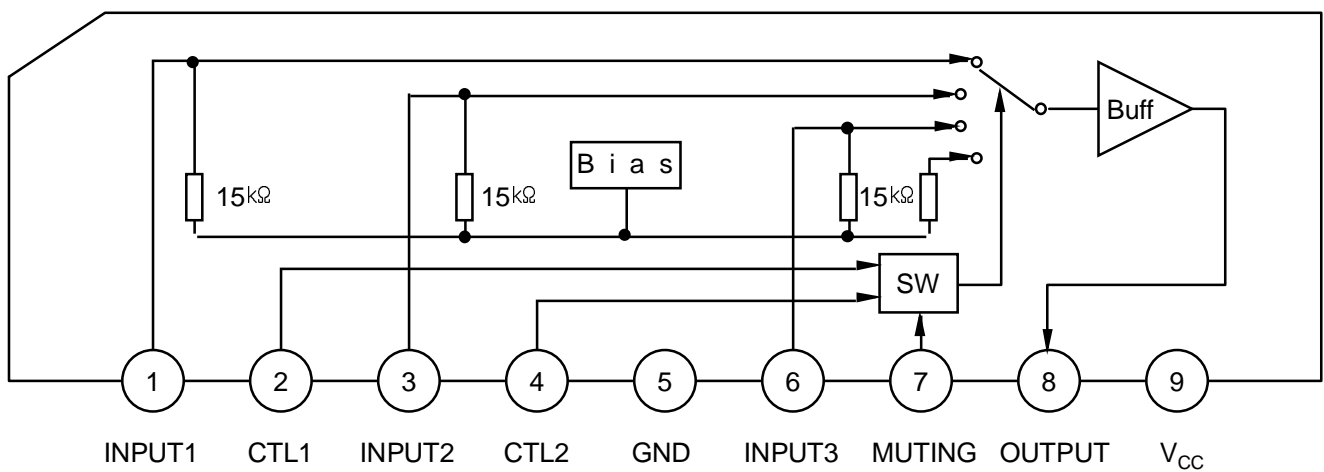
- Suitable for video and audio signal
- Low current operation ( 5.6mA typ )
- Very low level crosstalk ( - 70dB typ )

9- SIP

## ORDERING INFORMATION

Device	Package	Operating Temperature
KA8405	9-SIP	- 10 °C ~ + 75 °C

## BLOCK DIAGRAM



**TRUTH TABLE**

CTL1	CTL2	MUTING	OUTPUT
H	L	L	INPUT 1
L	H	L	INPUT 2
L	L	L	INPUT 3
H	H	L	Undefined
*	*	H	NONE

\* Don't care

**PIN DESCRIPTIONS**

PIN NO	FUNCTION	DC VOLTAGE	IN / OUT CIRCUIT
1	INPUT1	6.1V	
2	CONTROL INPUT 1	Logic Low Logic High (Note 6)	
3	INPUT2	6.1V	SAME AS PIN 1
4	CONTROL INPUT 2	Logic Low Logic High (Note 6)	SAME AS PIN 2
5	GND		
6	INPUT 3	6.1V	SAME AS PIN 1
7	MUTING	Logic Low, Logic High (Note 6)	SAME AS PIN 2
8	OUTPUT	5.3V	
9	Vcc	9.0V	

Note 6 : Logic Low < 2.7V, Logic High > 3.7V

## ABSOLUTE MAXIMUM RATINGS

Characteristic	Symbol	Value	Unit
Supply Voltage	V <sub>ccmax</sub>	14	V
Signal Level At Input Pin	V <sub>input</sub>	5	V <sub>pp</sub>
	V <sub>ct1</sub>	$V_{cc} - 0.2 < V_{cc} < V_{cc} + 0.2$	V
Power Dissipation	P <sub>dmax</sub>	500	mW
Operating Temperature	T <sub>opr</sub>	- 20 ~ 75	°C
Storage Temperature	T <sub>stg</sub>	- 40 ~ 125	°C

ELECTRICAL CHARACTERISTICS ( V<sub>cc</sub> = 9V, T<sub>a</sub> = 25 °C)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage	V <sub>cc</sub>	Note 1	8.0	9.0	10.0	V
Total current	I <sub>cc</sub>	SW1 ~ SW6 = "2"	4.2	5.6	8.2	mA
Frequency Characteristic	GF1	V <sub>i</sub> = 2.5V <sub>pp</sub> , 20Hz / 100KHz V <sub>o</sub> ( 20Hz ) / V <sub>o</sub> ( 100KHz )	- 0.5	0	0.5	dB
	GF2	V <sub>i</sub> = 2.5V <sub>pp</sub> , 20Hz / 100KHz V <sub>o</sub> ( 20Hz ) / V <sub>o</sub> ( 100KHz )				
Insertion Loss	GL	V <sub>i</sub> = 2.5V <sub>pp</sub> 100KHz, V <sub>o</sub> / V <sub>i</sub>	- 0.5	- 0.3	0	dB
Distortion	THD	V <sub>i</sub> = 2.5V <sub>pp</sub> , 1KHz	0	0.2	0.5	%
Differential Gain	DG	V <sub>i</sub> = Input Waveform 1 (Note 2)	-	0.5	-	%
Differential Phase	DP	V <sub>i</sub> = Input Waveform 1 (Note 2)	-	0.5	-	deg
Output Offset Voltage	V <sub>os</sub>	Note 3	- 50	0	+ 50	mV
Cross - Talk	C <sub>R1</sub>	V <sub>i</sub> = 2.0pp 4.43MHz	-	- 70	- 60	dB
SW Control Voltage	V <sub>CON</sub>	Note 4	2.7	3.2	3.7	V
Muting Capacity	C <sub>TM</sub>			- 50	- 40	dB
Video Output Level	V <sub>OUT</sub>	V <sub>i</sub> = 2.0pp 100KHz, V <sub>o</sub>	1.89	1.93	2.00	V <sub>pp</sub>
Input Impedance	R <sub>i</sub>			15		kΩ
Output Impedance	R <sub>o</sub>			10		Ω

Note 1 : Supply Voltage means a recommended operation range but spec data guarantee.

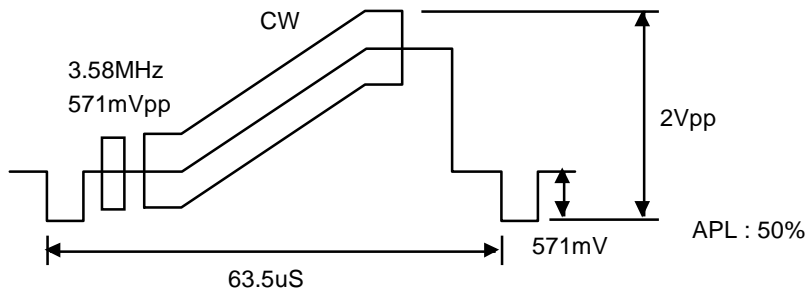
Note 2 : Not set system guaranteed but IC test program guaranteed

Note 3 : In SW1=SW2=SW3=2, SW4=1 → SW5=SW6=2 etc., read the difference of output DC voltage.

Note 4 : Guaranteed switching level (Active & Non-active)

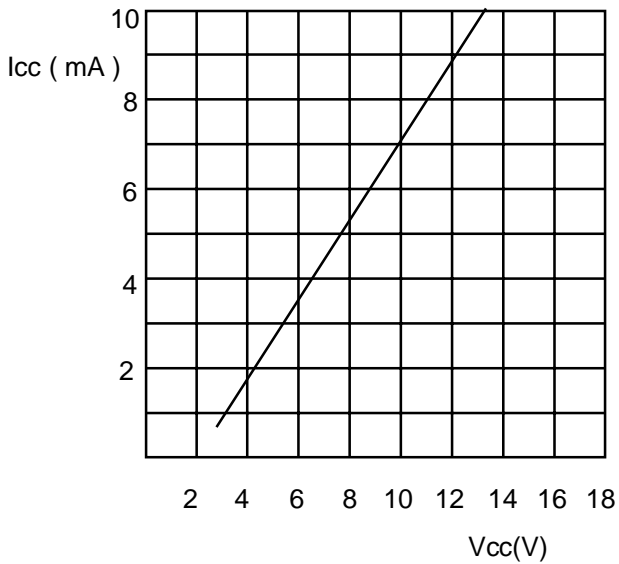
Note 5 : Specifications are subject to change without notice.

## INPUT WAVEFORM 1

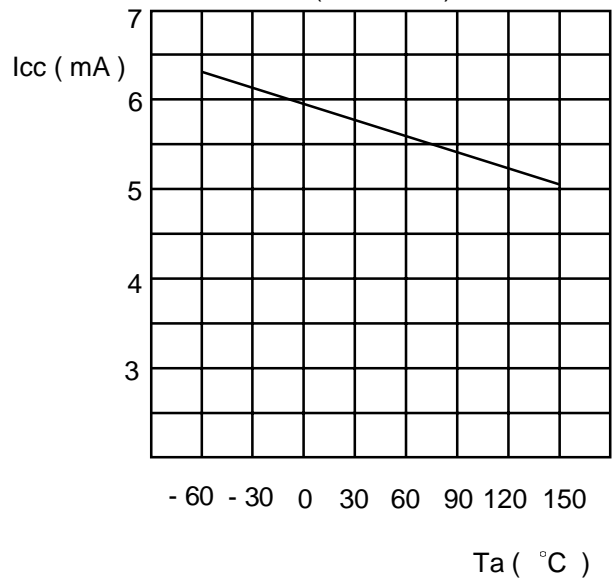


## CHARACTERISTICS GRAPH

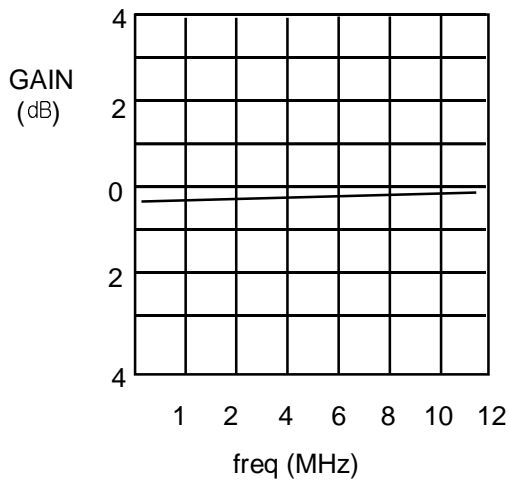
Vcc vs Icc  
(Ta = 25 °C)



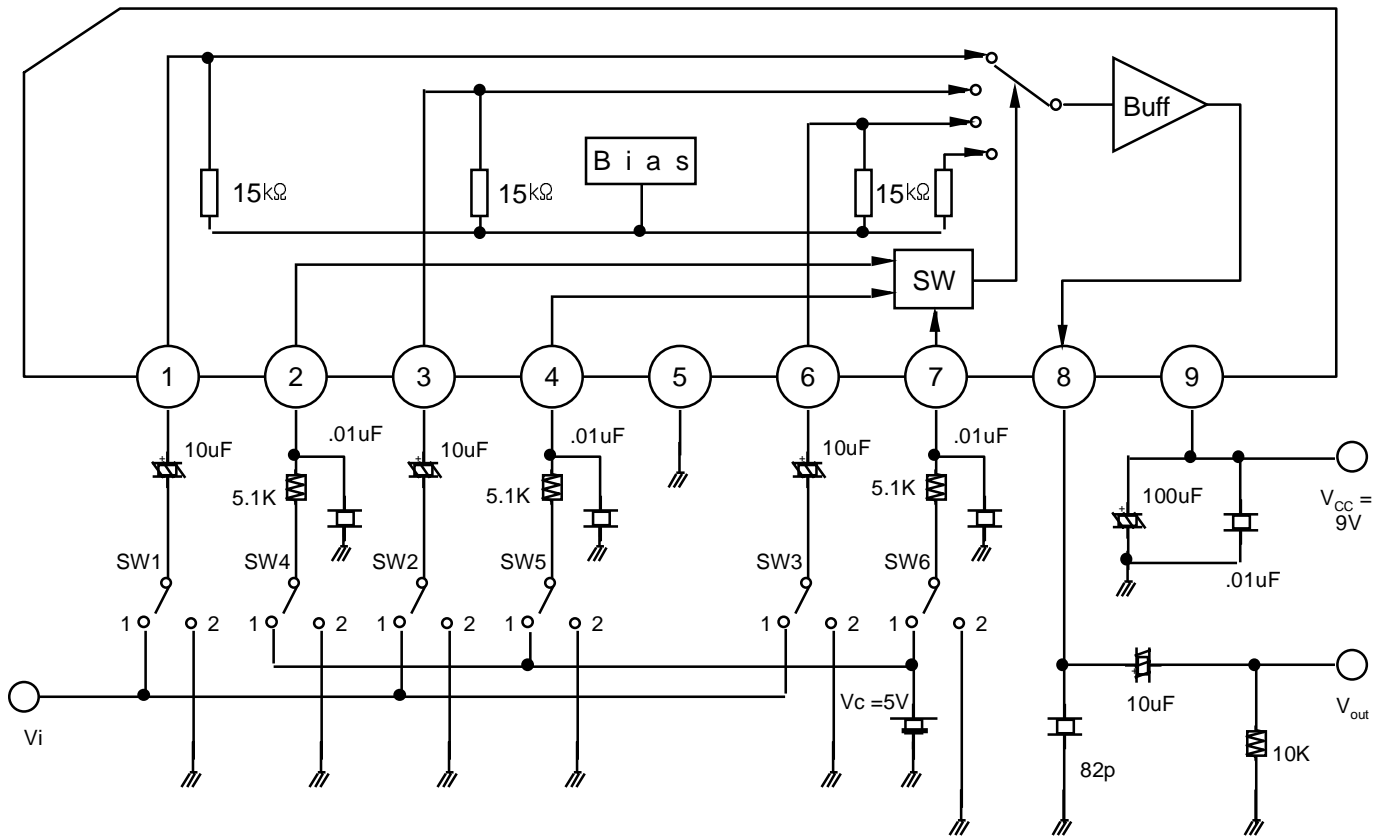
Ta vs Icc  
(Vcc = 9V)



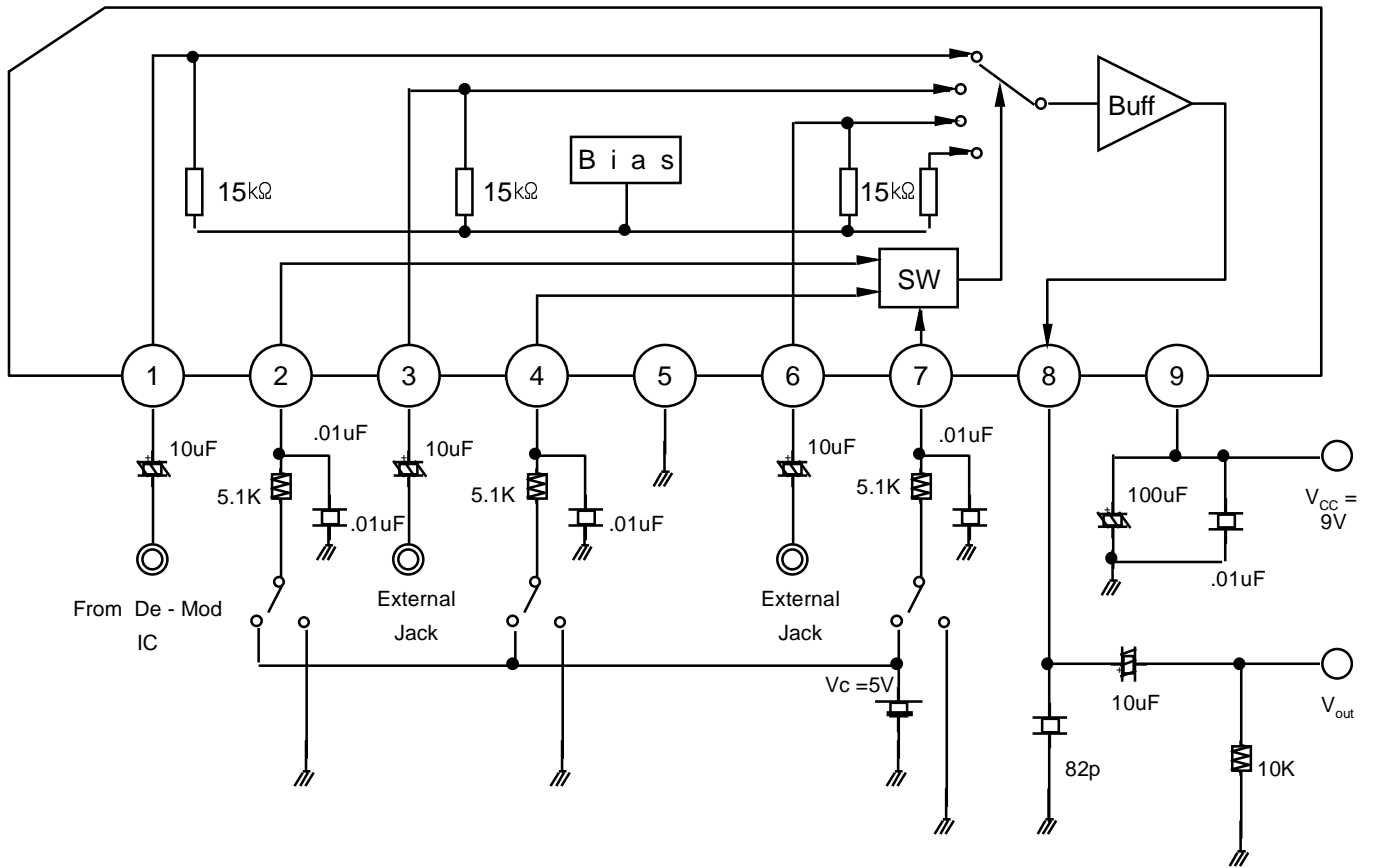
## FREQUENCY RESPONSE



## TEST CIRCUIT

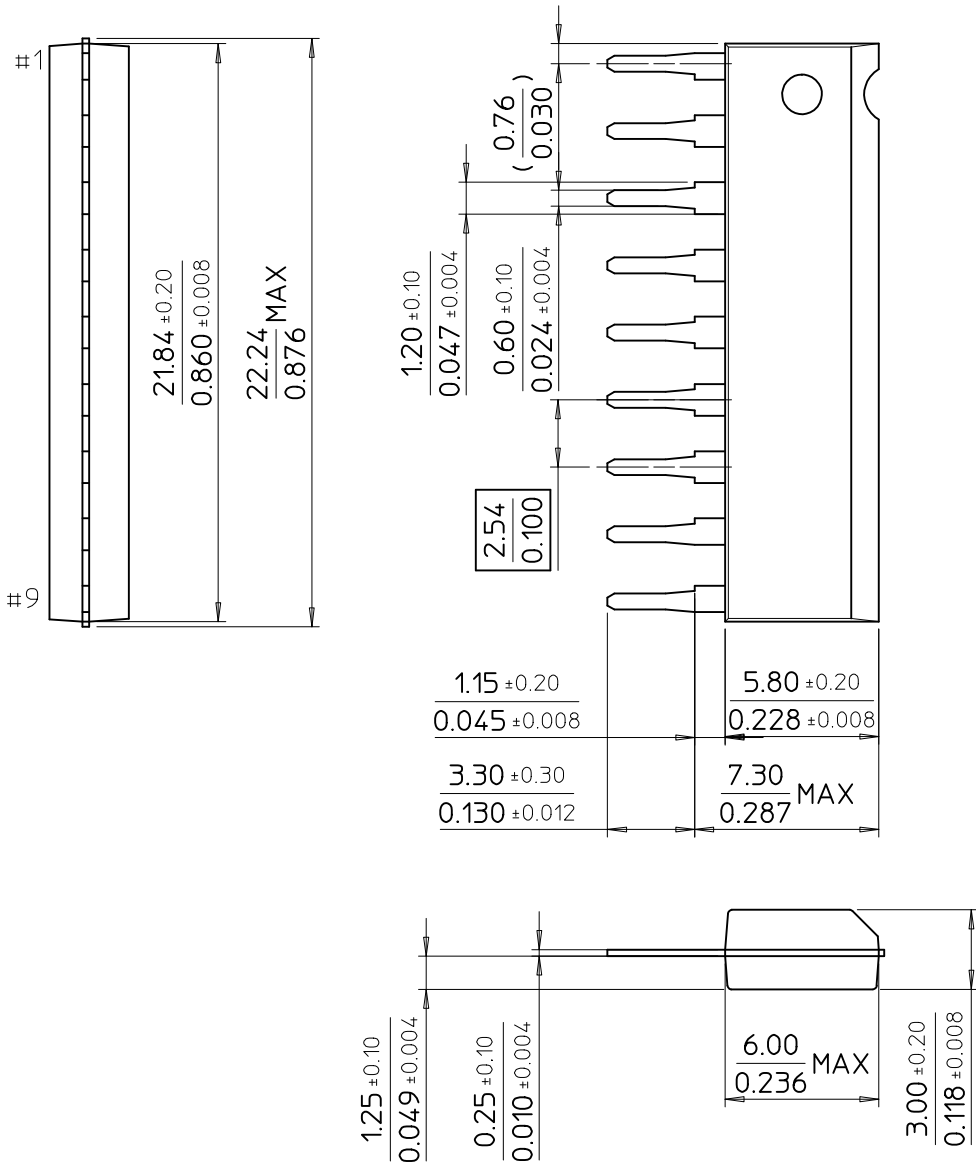


## APPLICATION CIRCUIT



# 9-SIP

Dimensions in Milimeters/Inches



SAMSUNG ELECTRONICS CO.,LTD.