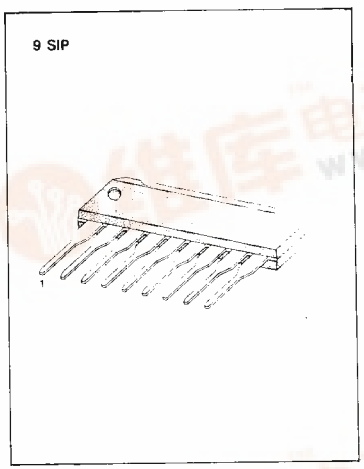
SYNC SEPARATOR I

The KA2605 is a monolithic integrated circuit designed for all kinds of sync separation from composite video signals. Regardless of the input signal (C. Video Signal) variations, the KA2605 can generate fully stabilized sync pulses.



FUNCTIONS

- Phase Inverters.
- Horizontal Synchronization Separators.
- Vertical Synchronization Separators.
- Composite Synchronization Separators.
- Low Pass Filter Included.
- Open Collector Output.

FEATURES

- **Requiring few external components.**
- **Wide supply voltage range: V_{CC} = 8V – 15V**
- **All kinds of sync separation in composite video signals.**
- **Usable for a basis signal in digital systems.**
- **Separated synchronization are accurate and stable.**

ORDERING INFORMATION

Device	Package	Operating Temperature
KA2605	9 SIP	– 20 ~ + 80°C

BLOCK DIAGRAM

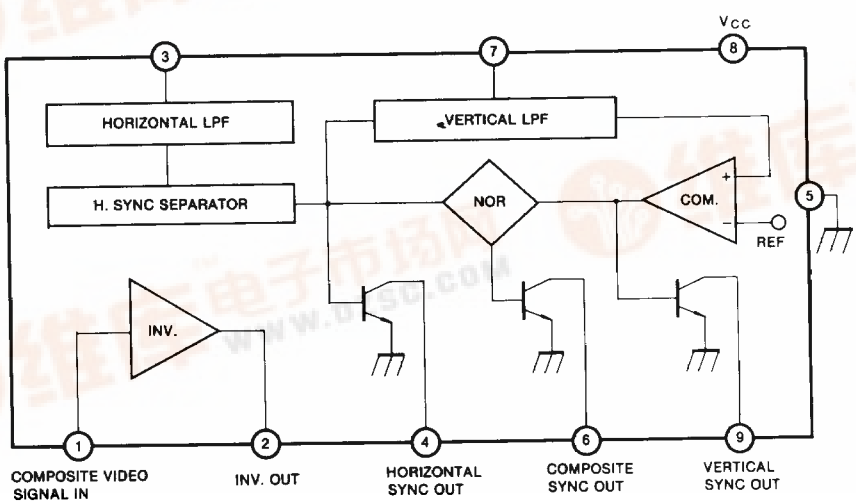


Fig. 1

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Characteristic	Symbol	Value	Unit
Supply Voltage	V_{CC}	15	V
Power Dissipation	P_d	500	mW
Operating Temperature	T_{opr}	−20 ~ +80	°C
Storage Temperature	T_{stg}	−65 ~ +150	°C

ELECTRICAL CHARACTERISTICS (Ta = 25°C, V_{CC} = 12V)

Characteristic	Symbol	Test Pin	Test Condition	Min	Typ	Max	Unit
Supply Current	I_{CC}	8	SW1, SW2: OFF	16	22	28	mA
Input Offset Voltage	V_{ofs}	1	V_{CC} = 12V SIG-1:2$V_{p\text{-}p}$ C. VIDEO	2.5	4.5	8.5	V
Input Signal Voltage	V_{in}	1	V_{CC} = 12V V_{ofs} = 3.5V-8V	0.6	2.0	3.5	$V_{p\text{-}p}$
Horizontal Sync Delay	T_{HD}	4	SW1, SW2: ON SIG-1:2$V_{p\text{-}p}$ C. VIDEO	0	0.4	0.5	μS
Horizontal Sync Width	D_H	4	SW1, SW2: ON SIG-1:2$V_{p\text{-}p}$ C. VIDEO	4.4	4.6	4.9	μS
Vertical Sync Delay	T_{VD}	9	SW1, SW2: ON SIG-1:2$V_{p\text{-}p}$ C. VIDEO	0	9	12	μS
Vertical Sync Width	D_V	9	SW1, SW2: ON SIG-1:2$V_{p\text{-}p}$ C. VIDEO	185	190	195	μS
Horizontal Sync Delay in Composite Sync	T_{CHD}	6	SW1, SW2: ON SIG-1:2$V_{p\text{-}p}$ C. VIDEO	0	0.4	0.5	μS
Horizontal Sync Width in Composite Sync	D_{CH}	6	SW1, SW2: ON SIG-1:2$V_{p\text{-}p}$ C. VIDEO	4.4	4.6	4.9	μS
Vertical Sync Delay in Composite Sync	T_{CVD}	6	SW1, SW2: ON SIG-1:2$V_{p\text{-}p}$ C. VIDEO	0	0.4	1.0	μS
Vertical Sync Width in Composite Sync	D_{CV}	6	SW1, SW2: ON SIG-1:2$V_{p\text{-}p}$ C. VIDEO	195	200	205	μS

* This spec. is used 10:1 probe. Measure point is 2V of output.

NOTE (Ta = 25°C)

Supply Voltage (V_{CC})	Input Signal Voltage (V_{in})	Input Offset Voltage (V_{ofs})
8V	$0.6V_{p-p}$	2.0V – 5.0V
	2.0_{p-p}	2.0 – 5.5V
	$3.5V_{p-p}$	3.0V – 5.5V
12V	$0.6V_{p-p}$	2.0V – 8.0V
	$2.0V_{p-p}$	2.5V – 8.5V
	$3.5V_{p-p}$	3.5V – 8.5V
15V	$0.6V_{p-p}$	2.5V – 9.0V
	$2.0V_{p-p}$	3.0V – 10.5V
	$3.5V_{p-p}$	4.0V – 10.5V

PIN ASSIGNMENT

Pin 1: Composite Video Signal In
Pin 2: Inverter Out
Pin 3: Horizontal Low Pass Filter Out
Pin 4: Horizontal Synchronization Out (Open Collector)
Pin 5: Ground
Pin 6: Composite Synchronization Out (Open Collector)
Pin 7: Vertical Low Pass Filter
Pin 8: V_{CC} (+ 12V)
Pin 9: Vertical Synchronization Out (Open Collector)

TEST CIRCUIT

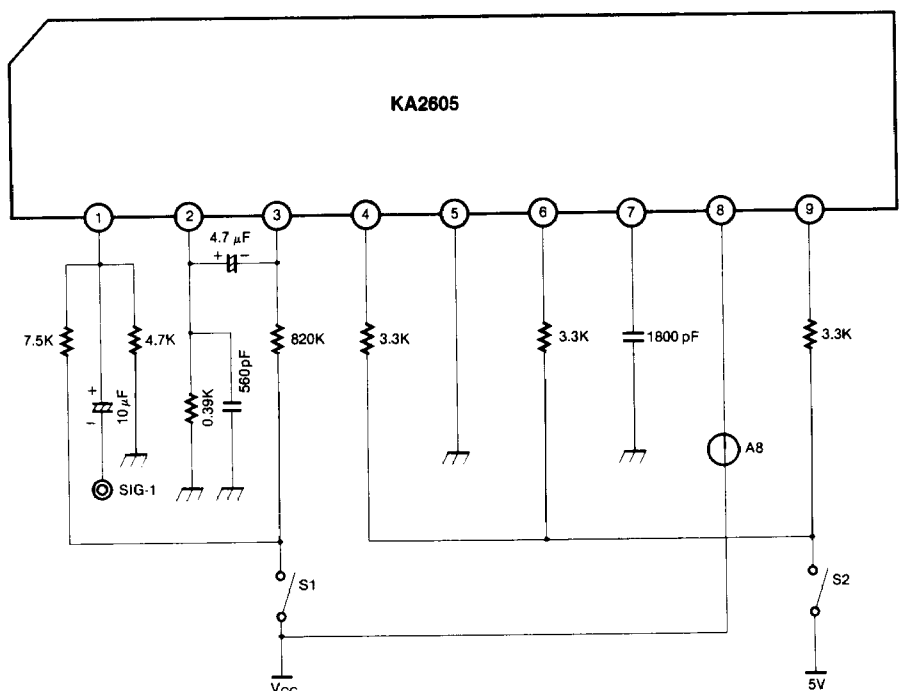


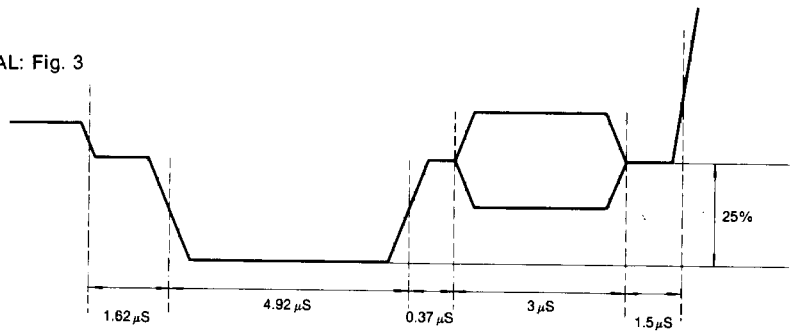
Fig. 2

NOTE

INPUT SIGNAL: Fig. 3

V_{CC}: DC 12V

(a)



The white level of input signal (C. VIDEO) is 100 percent.

(b)

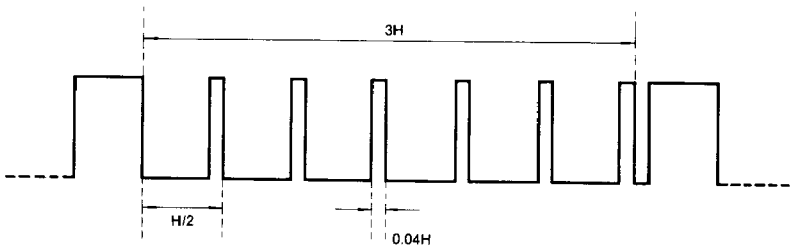


Fig. 3 $2V_{p\text{-}p}$ Positive composite video signal
(a) Horizontal sync pulse.
(b) Vertical sync pulse. H equals 63.5 μS.

TYPICAL APPLICATION CIRCUIT

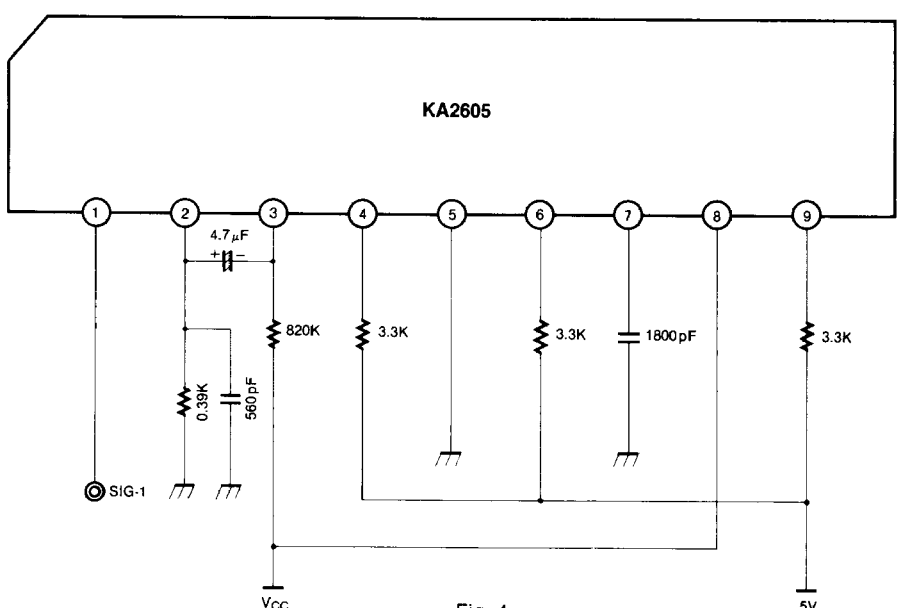


Fig. 4