SONY®

CXA1410M

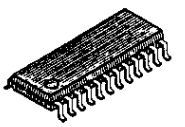
Video Switch

For the availability of this product, please contact the sales office.

Description

The CXA1410M is a bipolar IC designed for VCR input selection.

24 pin SOP (Plastic)



Features

- Video signal selector for 5 input systems (12 inputs) and 1 output system
- Corresponds to S pin (corresponds to Y, C, composites)
- Operating power supply voltage range 5 to 9V
- Switch control level compatible with TTL
- Usage possible regardless of VCR format
- Standard input level: 1Vp-p

Structure

Bipolar silicon monolithic IC

Features

- Input select SW
- Output mute
- 4.2V regulator

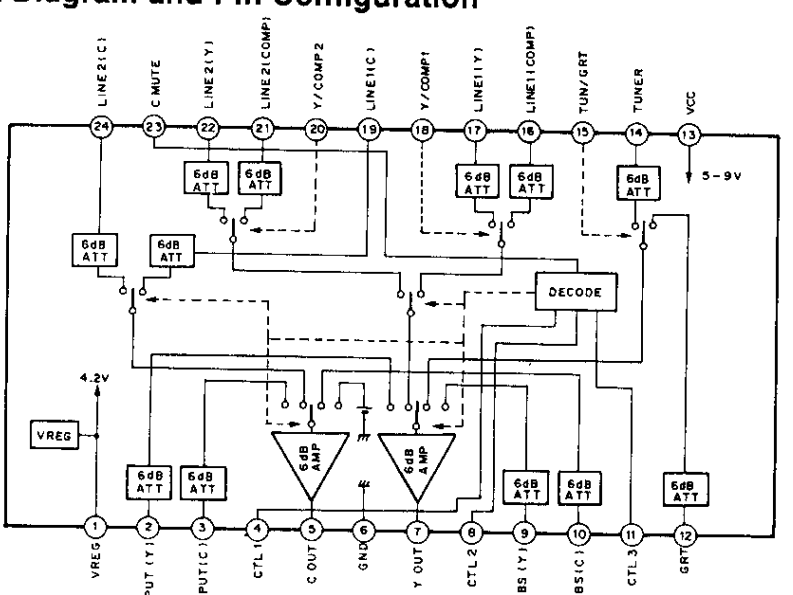
Absolute Maximum Ratings (Ta=25°C)

• Supply voltage	Vcc	12	V
• Operating temperature	Topr	−20 to +75	°C
• Storage temperature	Tstg	−65 to +150	°C
• Allowable power dissipation	PD	680	mW

Operating Condition

Supply voltage	Vcc	4.75 to 9.25	V

Block Diagram and Pin Configuration

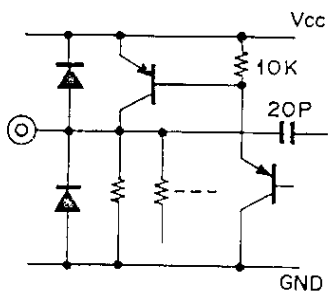
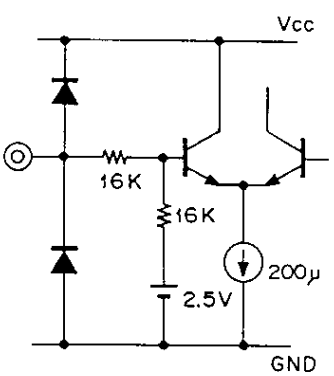
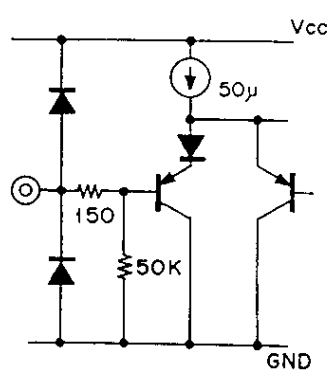
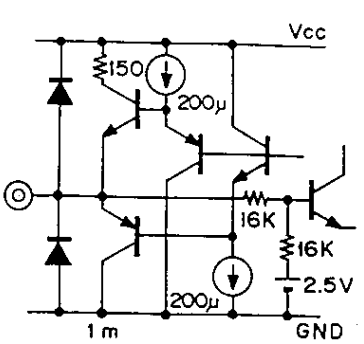


Note) Pins were named in accordance with the usage in the example.

E90815 – ST

Pin Description

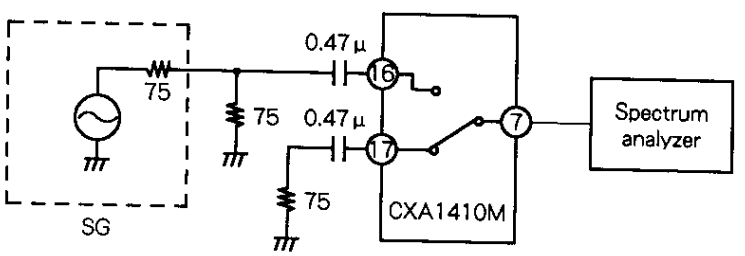
* External impressed electromotive force

Pin No.	Symbol	Pin voltage	Equivalent circuit	Description
1	VREG	4.2V		VREG 4.2V output pin. Ground with a 10 µF (approx.) capacitor.
2 3 9 10 12 14 16 17 19 21 22 24	INPUT (Y) INPUT (C) BS (Y) BS (C) GRT (COMP) TUNER (COMP) LINE1 (COMP) LINE1 (Y) LINE1 (C) LINE2 (COMP) LINE2 (Y) LINE2 (C)	2.5V		Input pins of the video signal. Standard input level at 1Vp-p. No clamp performed. (GRT=Ghost Reduction Tuner)
4 8 11 15 18 20 23	CTL1 CTL2 CTL3 TUN/GRT Y/COMP1 Y/COMP2 C MUTE	* H ≧ 2V L ≦ 1V		Input pins of the switch control signal. H ≧ 2V L ≦ 1V
5 7	C OUT Y OUT	2.5V		Output pins of the video signal. Standard output level at 1Vp-p.
6	GND	* 0V		GND pin.
13	Vcc	* 5V		Vcc pin.

Electrical Characteristics (Ta=25℃, Vcc=5V, See Electrical Characteristics Test Circuit, Switch Control.)

Item	Symbol	Condition	Test point	Min.	Typ.	Max.	Unit
Current consumption	Icc	S4, S18: ON	I	10.0	15.0	22.0	mA
VREG voltage	VREG	S4, S18: ON	V	4.05	4.20	4.35	V
Gain	G	SG: f=300kHz, 0.714Vp-p sine wave	TP1, TP2	–0.5	0	+0.5	dB
Frequency characteristics	f	SG: f=5MHz, 0.714Vp-p sine wave G (5M) / G (300k)	TP1, TP2	–0.5	0	+0.5	dB
Secondary distortion	HD_2	SG: f=5 MHz, 0.714Vp-p sine wave	TP1, TP2		–56		dB
Cross-talk	CT	SG: f=5 MHz, 0.714Vp-p sine wave (Note 1)	TP1, TP2		–60		dB
Differential gain	DG	SG: 3-step wave input (Note 2)	TP1, TP2		0.3		%
Differential phase	DP		TP1, TP2		0.3		deg

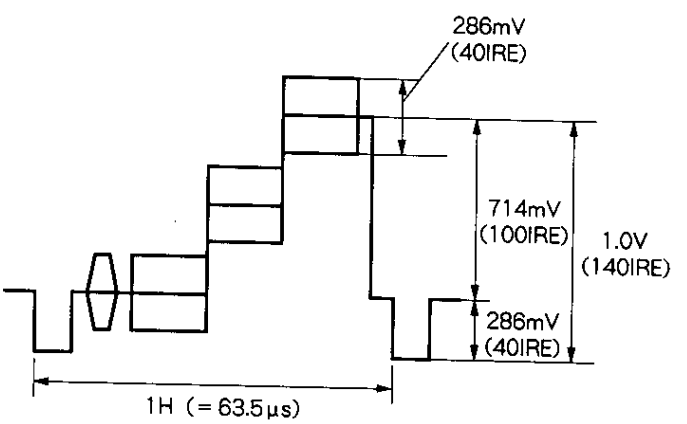
Note 1. Cross-talk test conditions



Tests cross-talk between all input pins. Figure at left is an example. Ground the input pin on the through side with a 0.47 µF capacitor and a 75Ω resistance.

Note 2. Test conditions of differential gain, differential phase

3-step wave signal
NTSC (fsc=3.58MHz)



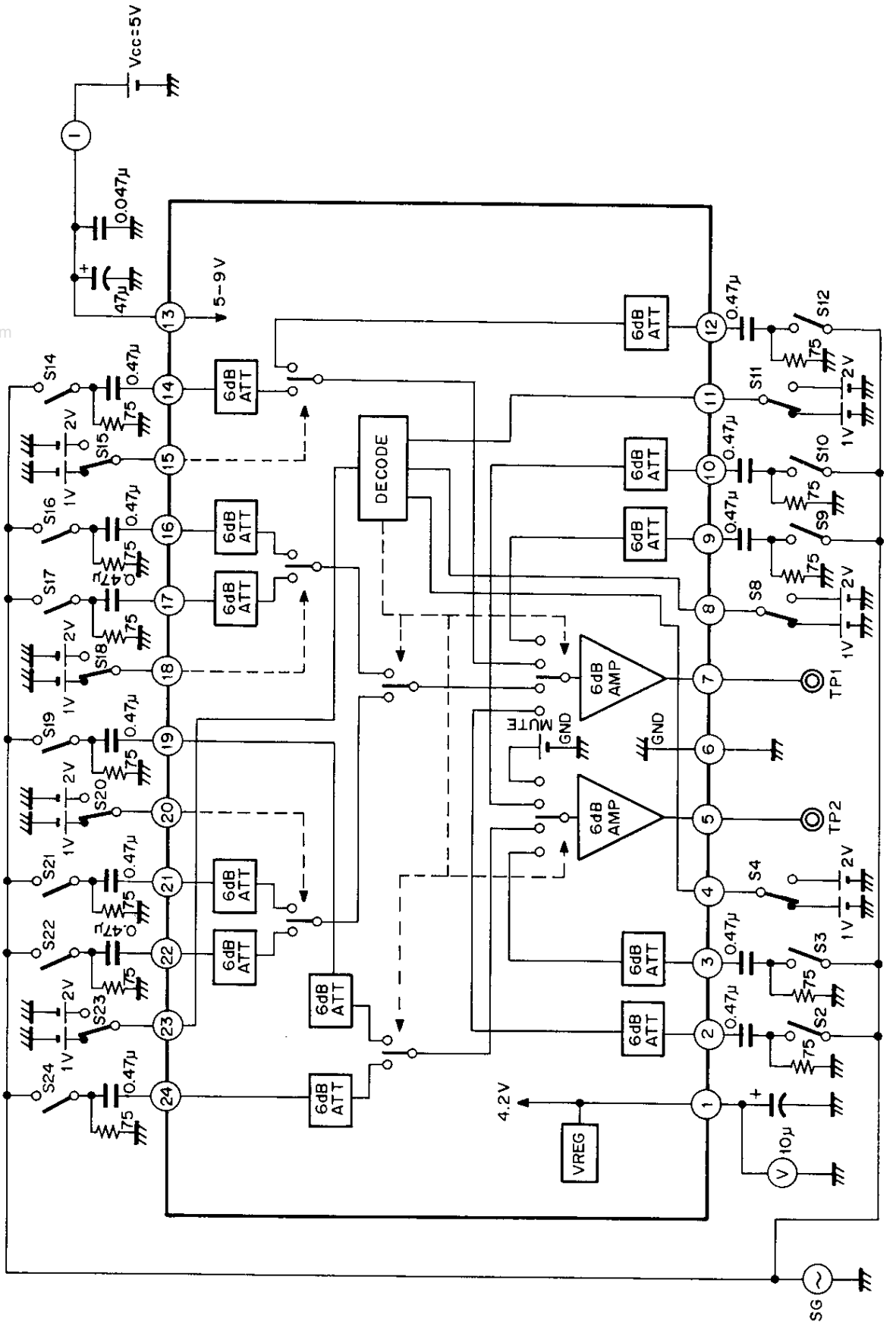
Relation between Switch Control and Output Signal

(H ≧ 2V, L ≦ 1V)

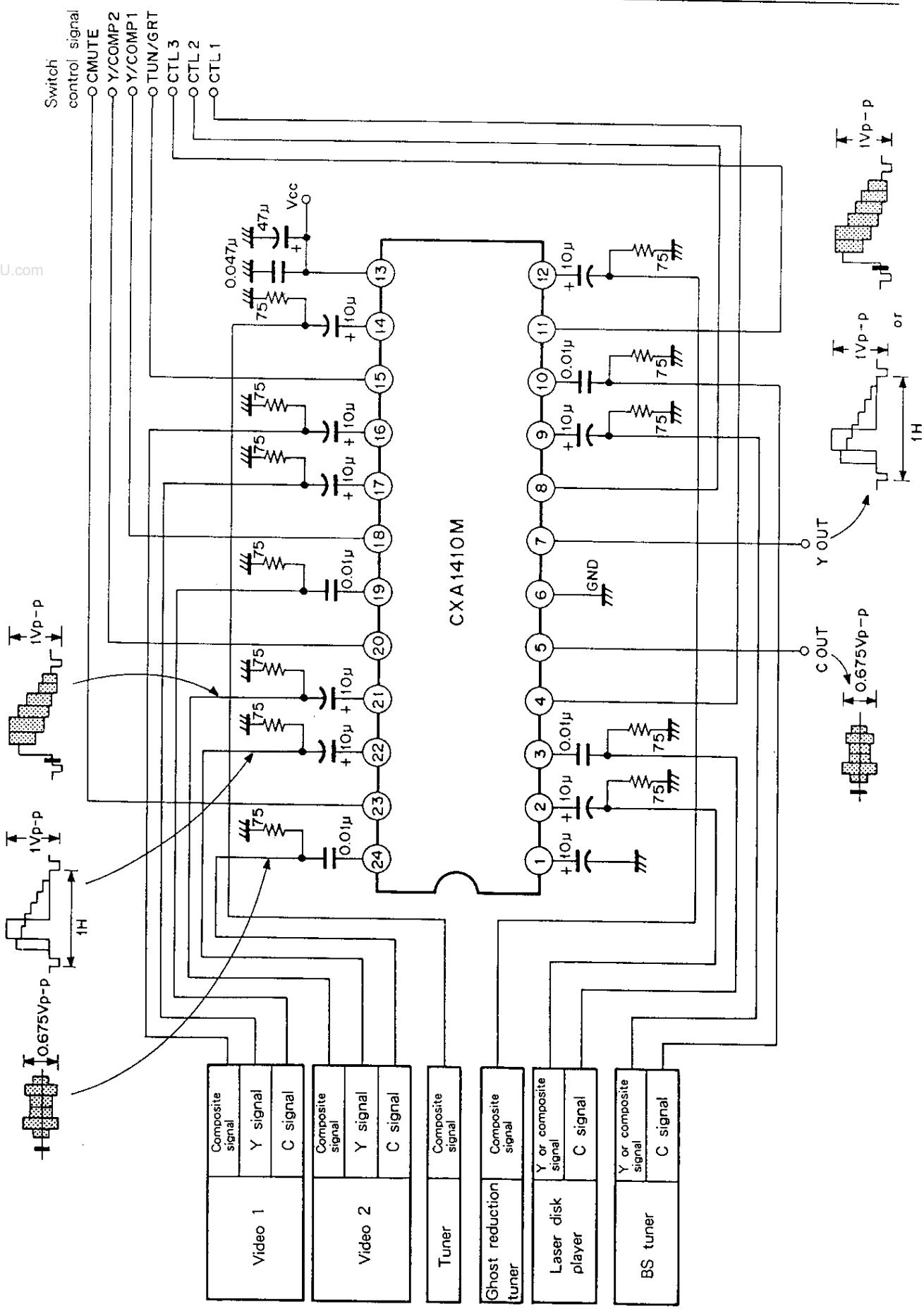
Control signal							Output	
CTL1 ④	CTL2 ⑧	CTL3 ⑪	TUN/GRT ⑮	Y/COMP1 ⑱	Y/COMP2 ⑳	C MUTE ㉓	⑦Y OUT	⑤C OUT
H	L	L	L	H	L	L	Pin 16 input signal	(Pin 19 input signal)
H	L	L	L	L	L	L	Pin 17 input signal	Pin 19 input signal
L	H	L	L	L	H	L	Pin 21 input signal	(Pin 24 input signal)
L	H	L	L	L	L	L	Pin 22 input signal	Pin 24 input signal
L	L	H	L	L	L	L	Pin 14 input signal	(Pin 24 input signal)
L	L	H	H	L	L	L	Pin 12 input signal	(Pin 24 input signal)
L	L	L	L	L	L	L	Pin 9 input signal	Pin 10 input signal
H	H	L	L	L	L	L	Pin 2 input signal	Pin 3 input signal
——	——	——	——	——	——	H		Mute applies

Note) —— unrelated to L, H.

Electrical Characteristics Test Circuit



Application Circuit



Application

<Operation>

- Video signals input through Pins 2, 9, 12, 14, 16, 17, 21 and 22 are selected through switch control signals from Pins 4, 8, 11, 15, 18 and 20. Similarly, video signals input through Pins 3, 10, 19 and 24 are selected through switch control signals from Pins 4, 8, 11, 15, 18 and 20. The selected signals are output from Pins 7 and 5 respectively. The output of Pin 5 can be muted by means of the switch control signal from Pin 23. (See table on the relation between the switch control and output signal.)
- The standard input level of the respective input pins stands at 1.0Vp-p.

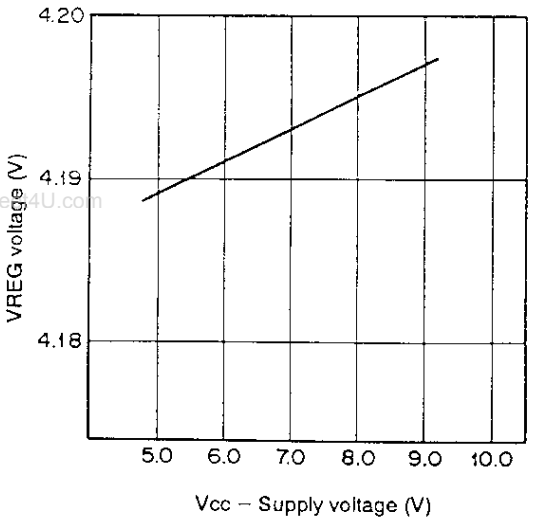
<Usage Instructions>

- Cross-talk may worsen according to the way, supply, GND or the substrate pattern of the signal line are arranged. It is advisable to keep the supply and GND at as low an impedance as possible. The signal line should be kept as far as possible, from other lines.
- Ground unused input pins.

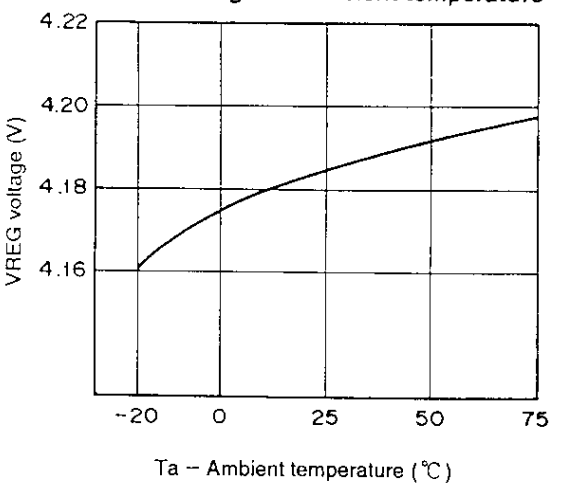
Example of Representative Characteristics

(When test conditions are not specified, Vcc=5V, Ta=25°C)

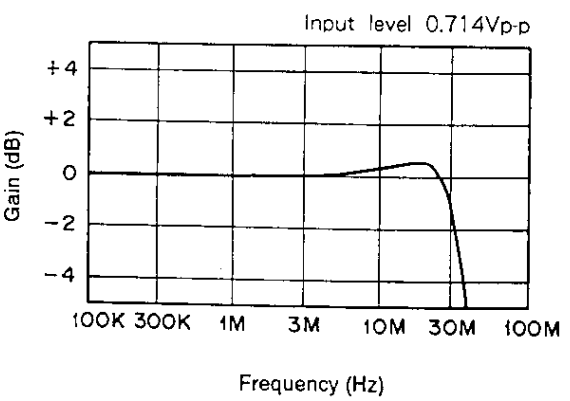
VREG voltage vs. Supply voltage



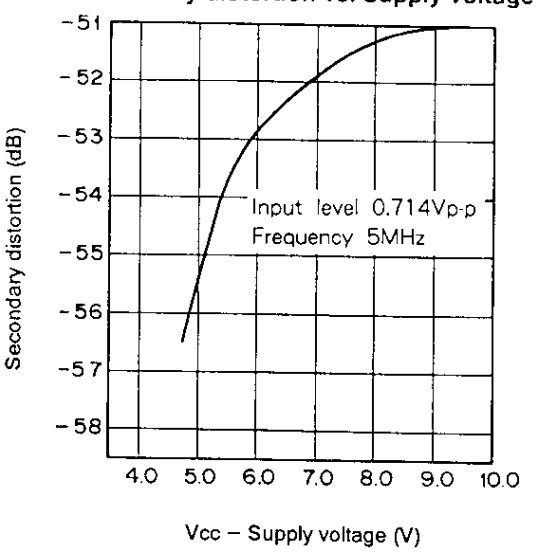
VREG voltage vs. Ambient temperature



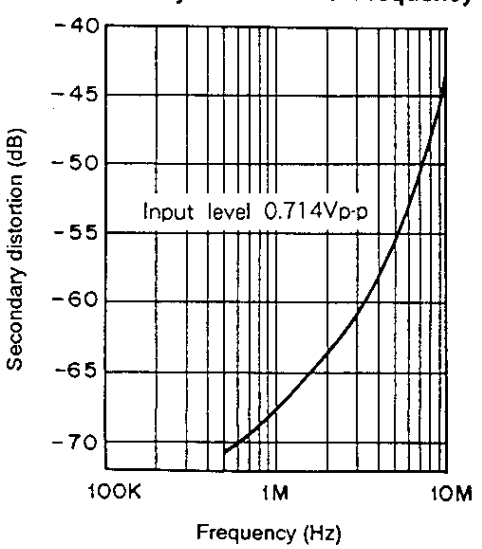
Gain vs. Frequency



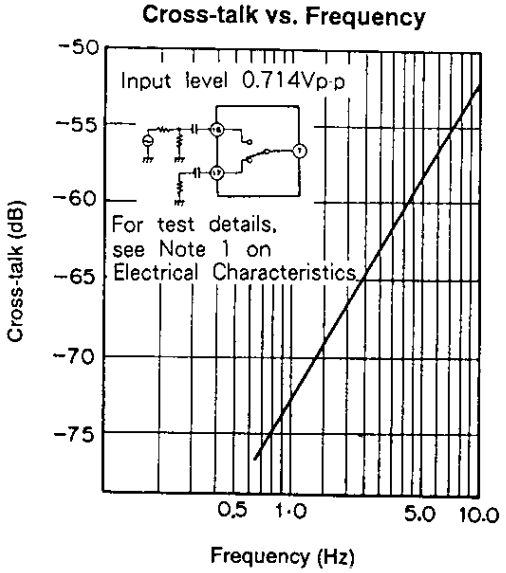
Secondary distortion vs. Supply voltage



Secondary distortion vs. Frequency



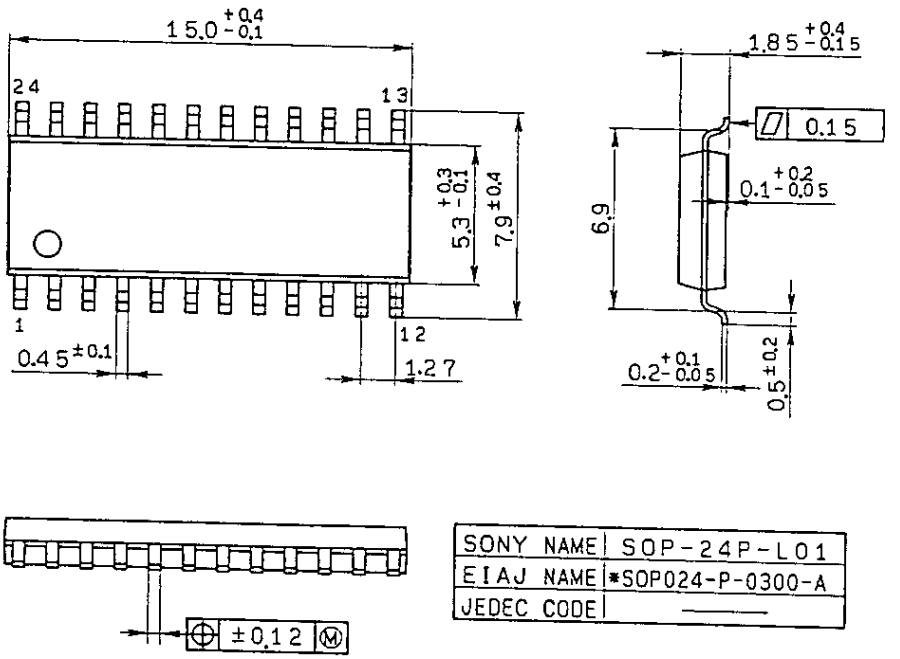
Cross-talk vs. Frequency



Package Outline

Unit : mm

24pin SOP (Plastic) 300mil 0.3g



SONY NAME	SOP-24P-L01
EIAJ NAME	*SOP024-P-0300-A
JEDEC CODE	———