

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

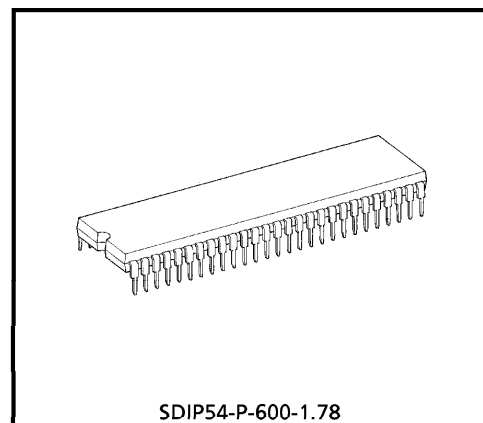
TA8851BN, TA8851CN

AUDIO / VIDEO SWITCH IC FOR TV WITH S-TERMINALS

The TA8851BN/CN is an A/V SWITCH IC, which has 7 input channels and 2 output channels. Because the 2 output channels can be switched independently of each other, the TA8851BN/CN allows you to configure a PIP system input switching circuit easily.

The TA8851BN/CN can be interfaced easily to a microcontroller via the I²C bus.

3 of 7 input channels can be used for Y/C separated input.



Weight : 1.0g (Typ.)

FEATURES

Video Stage

- Input
 - Composite video input : 7 channels
 - Y/C input : 3 channels
- Output
 - Composite video output : 2 channels (Main and Sub)
 - Y/C output : 2 channels (Main and Sub)

Audio Stage

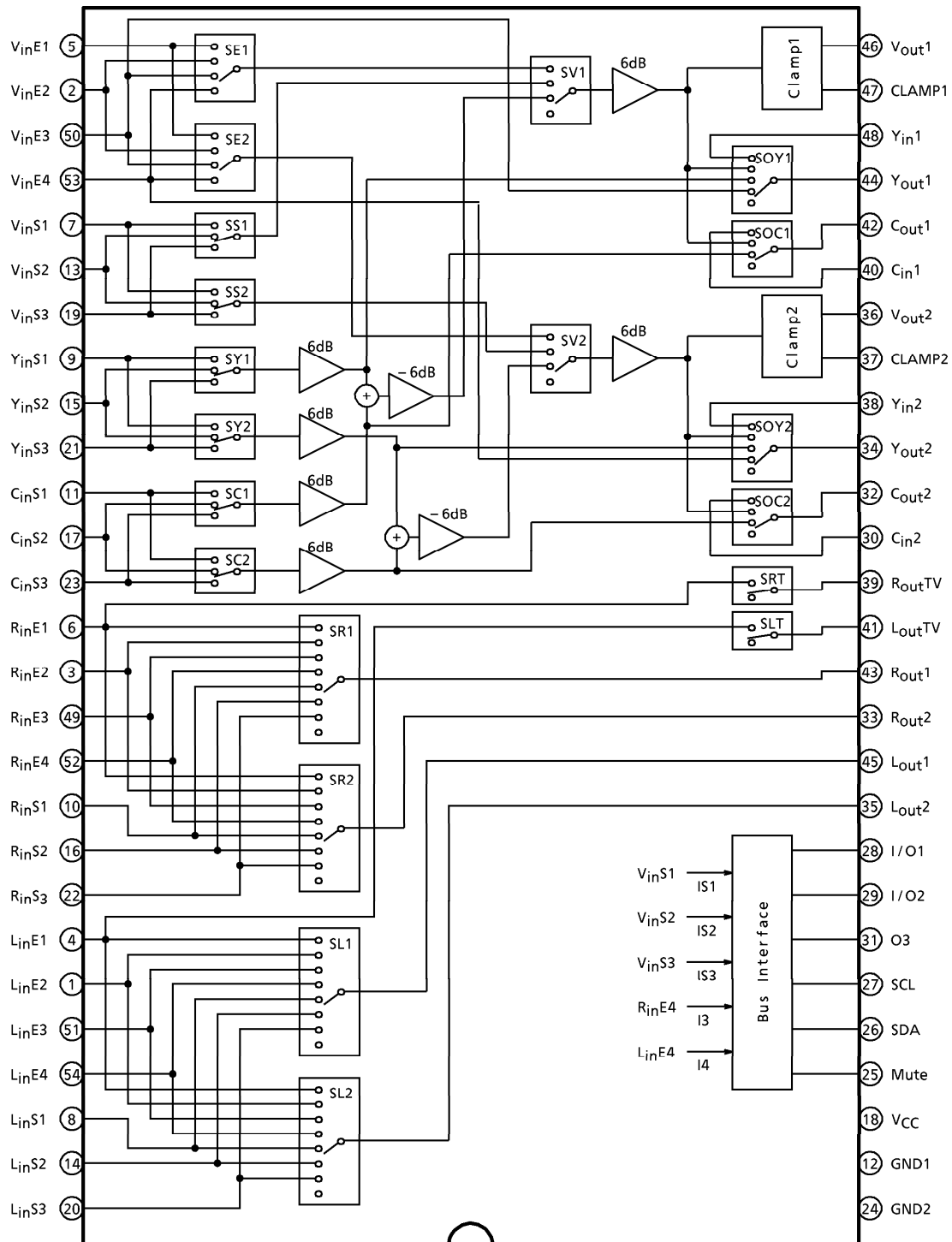
- Input
 - L/R input : 7 channels
- Output
 - L/R output : 3 channels (2 of 3 depend on video, and the other is selectable from Main or Sub)

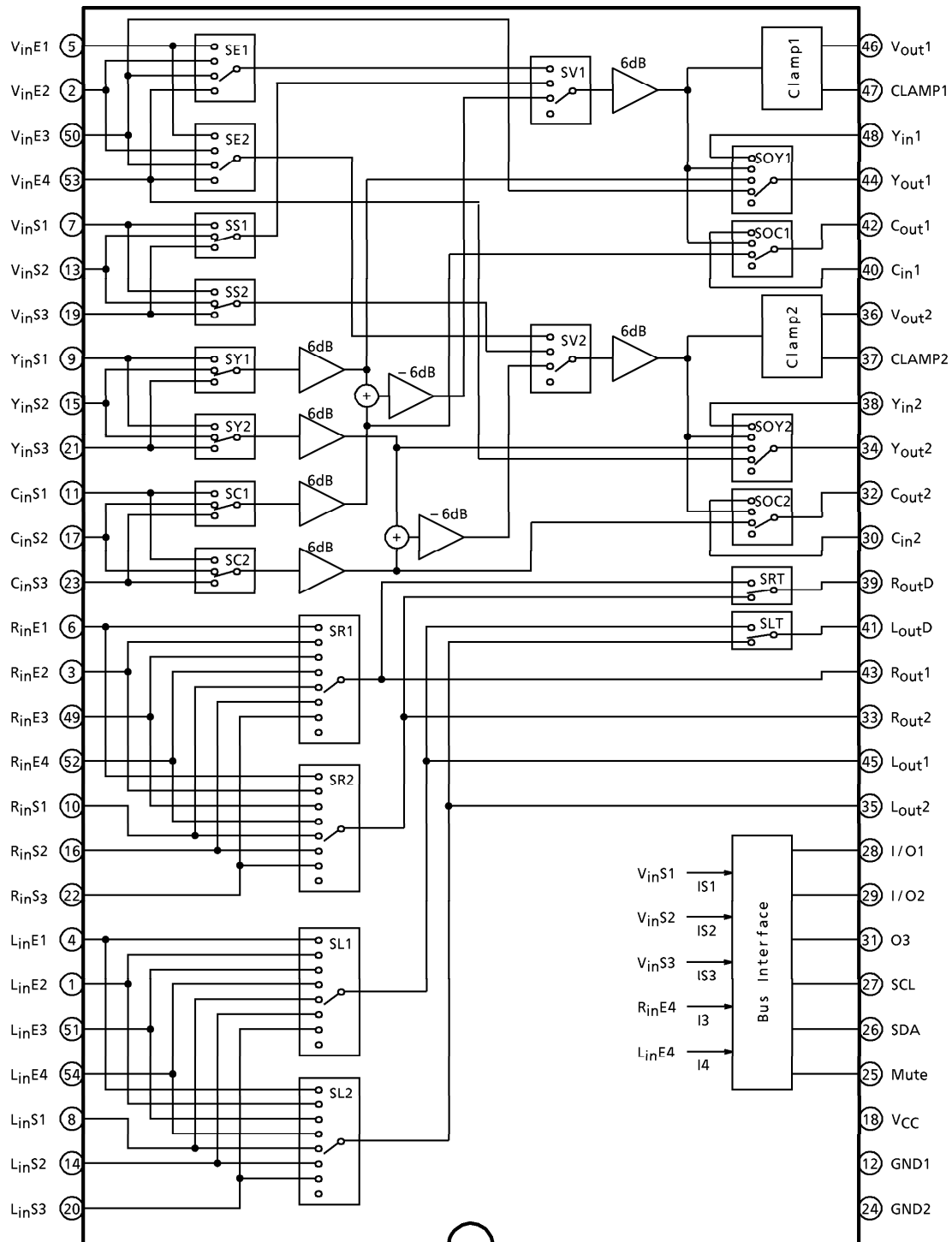
Functions

- I²C bus interface
- External mute circuit
- DAC output (3 outputs)
- Video clamp circuit
- Mode output
- ADC input (4 inputs)

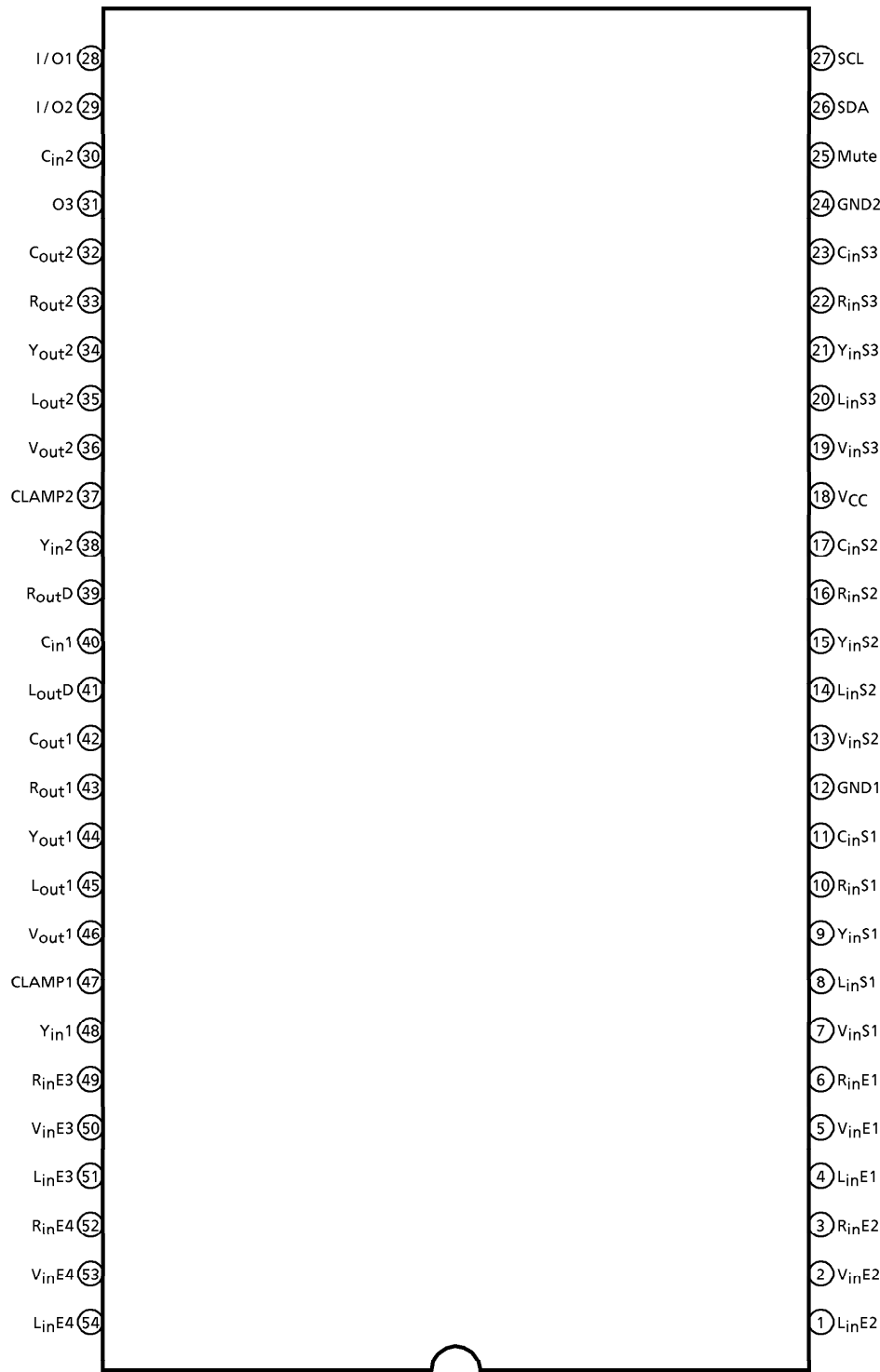
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BLOCK DIAGRAM
 TA8851BN


BLOCK DIAGRAM
 TA8851CN


TERMINAL CONNECTION DIAGRAM



PIN No.	PIN NAME	FUNCTION	INTERFACE CIRCUIT
2 : V_{inE2} 5 : V_{inE1}	Composite Video Signal Input	These pins are for composite video signal input. The recommendable input level is $1.0V_{p-p}$.	
50 : V_{inE3} 53 : V_{inE4}	Composite Video Signal/Y Signal Input	These pins can be used for composite video signal or Y signal input. The recommendable input level is $1.0V_{p-p}$.	
7 : V_{inS1} 13 : V_{inS2} 19 : V_{inS3}	Composite Video Signal Input and S-Mode Switch	These pins are for composite video signal input and S mode Switch. By setting DC voltage of one of these pins lower than 2.6V, that channel (S1, S2 or S3) turns to S-mode. And when it is higher than 2.6V, that pin is for composite video input. The recommendable input level is $1.0V_{p-p}$.	

PIN No.	PIN NAME	FUNCTION	INTERFACE CIRCUIT
9 : Y_{inS1} 15 : Y_{inS2} 21 : Y_{inS3} 11 : C_{inS1} 17 : C_{inS2} 23 : C_{inS3}	Y Signal Input/ C Signal Input	These pins accept a Y signal from the S-terminal and a C signal as input. The recommended input signal level is $1.0V_{p-p}$ for Y signal and $300mV_{p-p}$ for C signal (burst).	
4 : L_{inE1} 6 : R_{inE1}	Audio Input (TV)	These pins accept the sound of the internal TV signal as input. The signal input to this pin is output from the main/sub output after being selected, as well as from the TV audio output terminal. The recommended input signal level is $300mV_{rms}$.	
52 : R_{inE4} 54 : L_{inE4}	Audio Input/ ADC Input	These pins accept an audio signal as input. They also accept input from a 1bit ADC. In this case, if the voltage on these pins is below 2.3V the ADC outputs I_3 and I_4 become logic is. The recommended input signal level is $300mV_{rms}$.	
8 : L_{inS1} 10 : R_{inS1} 14 : L_{inS2} 16 : R_{inS2} 20 : L_{inS3} 22 : R_{inS3} 1 : L_{inE2} 3 : R_{inE2} 51 : L_{inE3} 49 : R_{inE3}	Audio Input	These pins accept an audio signal as input. The recommended input signal level is $300mV_{rms}$.	

PIN No.	PIN NAME	FUNCTION	INTERFACE CIRCUIT
25 : Mute	Mute	If the voltage on this pin is above 1.5V, all audio outputs (main, sub, and TV) are disabled.	
46 : V _{out1} 36 : V _{out2}	Monitor Output	These pins output the selected composite signal. The standard output signal amplitude is 2.0V _{p-p} . These pins can sink a maximum current of 3.0mA.	
47 : CLAMP1 37 : CLAMP2	Clamp Filter	These pins are a filter terminal for the clamp circuit to maintain the monitor output at a constant DC level. If these pins are tied to GND, the clamp circuit is disabled, so that the DC voltage of the monitor output cannot be clamped to a constant level.	
48 : Y _{in1} 40 : C _{in1} 38 : Y _{in2} 30 : C _{in2}	Comb Y/C Input	These pins accept a Y/C separated signal from the comb filter as input. The recommended input signal level is 2.0V _{p-p} for Y signal and 600mV _{p-p} for C signal (burst).	

PIN No.	PIN NAME	FUNCTION	INTERFACE CIRCUIT
44 : Y _{out1} 42 : C _{out1} 34 : Y _{out2} 32 : C _{out2}	Y/C Output	These pins output the Y and C signals that are fed to the V/C/D circuits. The standard output signal level is 2.0V _{p-p} for Y signal and 600mV _{p-p} for C signal (burst). These pins can sink a maximum current of 2.5mA.	
28 : I/O1 29 : I/O2	I/O	These pins are for input and output to and from the 1bit DAC/ADC of the bus signal. These pins can source a maximum current of 2.0mA.	
31 : O3	O3	This pin is for output of the 1bit DAC of the bus signal. This pin can source a maximum current of 2.0mA.	
26 : SDA 27 : SCL	SCL/SDA	These pins are for input of the I ² C bus.	
33 : R _{out2} 35 : L _{out2} 39 : R _{outD} / R _{outTV} 41 : L _{outD} / L _{outTV} 43 : R _{out1} 45 : L _{out1}	Audio Output	These pins output an audio signal. These pins can sink a maximum current of 1.4mA.	

ADDRESS MAP

(Slave address 90H, 91H)

MODE	DATA No.	DATA							
Write	Data 1	D07	D06	D05	D04	D03	D02	D01	D00
	TA8851BN	—		DAC Output			Sound Mute		
	TA8851CN			(0)	(1)	(1)	(1)	(1)	(1)
	Data 2 (main)	D17	D16	D15	D14	D13	D12	D11	D10
						F.VIDEO (0)			
	Data 3 (sub)	D27	D26	D25	D24	D23	D22	D21	D20
		Y/C Output Switching (0) (0) (0) (0)				F.VIDEO (0)	Output Switching (0) (0) (0)		
Read	Data 4	D37	D36	D35	D34	D33	D32	D31	D30
		ADC Ident (0) (0) (0) (0)				S Input Ident (0) (0) (0)			P.O.R (1)

F.VIDEO : Forced video mode

P.O.R : Power On reset (power : ON (1))

(0) (1) : preset

◎ Write mode
Output switching (main)

MODE			BUS DATA				S INPUT			OUTPUT SIGNAL		
			D ₁₃	D ₁₂	D ₁₁	D ₁₀	IS1	IS2	IS3	V _{out1}	R _{out1}	L _{out1}
TV	E1		—	1	1	1	—	—	—	V _{inE1}	R _{inE1}	L _{inE1}
	E2		—	1	1	0	—	—	—	V _{inE2}	R _{inE2}	L _{inE2}
	E3		—	1	0	1	—	—	—	V _{inE3}	R _{inE3}	L _{inE3}
	E4		—	1	0	0	—	—	—	V _{inE4}	R _{inE4}	L _{inE4}
	S1	V	0	0	1	1	0	—	—	V _{inS1}	R _{inS1}	L _{inS1}
		S	1				—			Y _{inS1}		
			—				1			+ C _{inS1}		
	S2	V	0	0	1	0	—	0	—	V _{inS2}	R _{inS2}	L _{inS2}
		S	1					—		Y _{inS2}		
			—					1		+ C _{inS2}		
	S3	V	0	0	0	1	—	—	0	V _{inS3}	R _{inS3}	L _{inS3}
		S	1						—	Y _{inS3}		
			—						1	+ C _{inS3}		
Mute			—	0	0	0	—	—	—	Mute	Mute	Mute

Output switching (sub)

MODE			BUS DATA				S INPUT			OUTPUT SIGNAL		
			D ₂₃	D ₂₂	D ₂₁	D ₂₀	IS1	IS2	IS3	V _{out2}	R _{out2}	L _{out2}
TV	E1		—	1	1	1	—	—	—	V _{in} E1	R _{in} E1	L _{in} E1
	E2		—	1	1	0	—	—	—	V _{in} E2	R _{in} E2	L _{in} E2
	E3		—	1	0	1	—	—	—	V _{in} E3	R _{in} E3	L _{in} E3
	E4		—	1	0	0	—	—	—	V _{in} E4	R _{in} E4	L _{in} E4
	S1	V	0	0	1	1	0	—	—	V _{in} S1	R _{in} S1	L _{in} S1
		S	1				—			Y _{in} S1 + C _{in} S1		
			—				1					
	S2	V	0	0	1	0	—	0	—	V _{in} S2	R _{in} S2	L _{in} S2
		S	1					—		Y _{in} S2 + C _{in} S2		
			—					1				
	S3	V	0	0	0	1	—	—	0	V _{in} S3	R _{in} S3	L _{in} S3
		S	1						—	Y _{in} S3 + C _{in} S3		
			—						1			
Mute			—	0	0	0	—	—	—	Mute	Mute	Mute

Output switching (Dual sound output) : This table is only applied for TA8851CN.

MODE		BUS DATA		OUTPUT SIGNAL	
		D ₀₂		R _{out TV}	L _{out TV}
TV	Main	1		R _{out1}	L _{out1}
	Sub	0		R _{out2}	L _{out2}

Y/C output switching (main)

MODE		BUS DATA				OUTPUT SIGNAL	
		D17	D16	D15	D14	Y _{out} 1	C _{out} 1
Y	S-terminal Input	EXCEPT 0 0	0 0	1	1	Y _{in} S1 to Y _{in} S3 (*1)	—
	Video Input			1	0	V _{out} 1	
	Comb1			0	1	Y _{in} 1	
	Comb2			0	0	V _{in} E3	
C	S-terminal Input	1	1	—	—	—	C _{in} S1 to C _{in} S3 (*2)
	Video Input	1	0				V _{out} 1
	Comb	0	1				C _{in} 1
Mute		0	0	—	—	Mute	Mute

(*1): SY1 switches between Y_{in}S1~Y_{in}S3(*2): SC1 switches between C_{in}S1~C_{in}S3

Y/C output switching (sub)

MODE		BUS DATA				OUTPUT SIGNAL	
		D27	D26	D25	D24	Y _{out} 2	C _{out} 2
Y	S-terminal Input	EXCEPT 0 0	0 0	1	1	Y _{in} S1 to Y _{in} S3 (*1)	—
	Video Input			1	0	V _{out} 2	
	Comb1			0	1	Y _{in} 2	
	Comb2			0	0	V _{in} E4	
C	S-terminal Input	1	1	—	—	—	C _{in} S1 to C _{in} S3 (*2)
	Video Input	1	0				V _{out} 2
	Comb	0	1				C _{in} 2
Mute		0	0	—	—	Mute	Mute

(*1): SY2 switches between Y_{in}S1~Y_{in}S3(*2): SC2 switches between C_{in}S1~C_{in}S3

Mute mode

MODE			BUS		PIN 25	VIDEO OUTPUT				SOUND OUTPUT		
						MAIN		SUB		MAIN	SUB	Dual
			BIT	DATA		V _{out1}	Y _{out1} C _{out1}	V _{out2}	Y _{out2} C _{out2}	R _{out1} L _{out1}	R _{out2} L _{out2}	R _{outD} L _{outD}
Ext Mute			—	—	High level	—	—	—	—	Mute	Mute	Mute
Bus Line Mute	Sound Mute SW	Main	D00	1	—	—	—	—	—	Mute	—	—
		Sub	D01	1	—	—	—	—	—	—	Mute	—
		TV (*)	D02	1	—	—	—	—	—	—	—	Mute
	Video & Sound Mute SW	Main	D10	0	—	Mute	—	—	—	Mute	—	—
			D11	0								
			D12	0								
		Sub	D20	0	—	—	—	Mute	—	—	Mute	—
			D21	0								
			D22	0								
		Y/C	D14	0	—	—	Mute	—	—	—	—	—
Main	D15		0									
Y/C	D24	0	—	—	—	—	—	Mute	—	—	—	
	Sub	D25										0

(*) : TV mode is only applied for TA8851BN

DAC output

TERMINAL	BUS		OUTPUT
	BIT	DATA	
I/O1	D03	1	Open
		0	Low level
I/O2	D04	1	Open
		0	Low level
O3	D05	1	Open
		0	Low level

Dual Sound Selection

MODE	BUS		OUTPUT	
	BIT	DATA	R _{outD}	L _{outD}
MAIN	D02	1	Main Sound	Main Sound
SUB		0	Sub Sound	Sub Sound

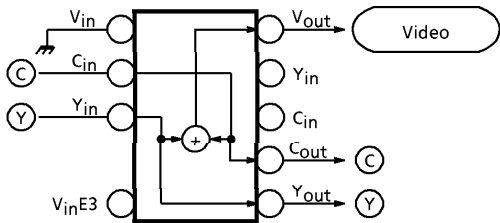
© Read mode
S-Output ident

TERMINAL	INPUT	BUS	
		BIT	DATA
V _{inS1}	L	D31	1
	H		0
V _{inS2}	L	D32	1
	H		0
V _{inS3}	L	D33	1
	H		0

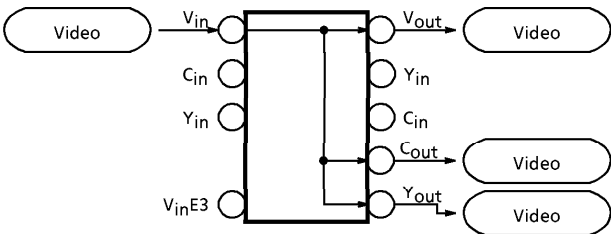
ADC ident

TERMINAL	INPUT	BUS	
		BIT	DATA
I/O1	L	D34	1
	H		0
I/O2	L	D35	1
	H		0
I3	L	D36	1
	H		0
I4	L	D37	1
	H		0

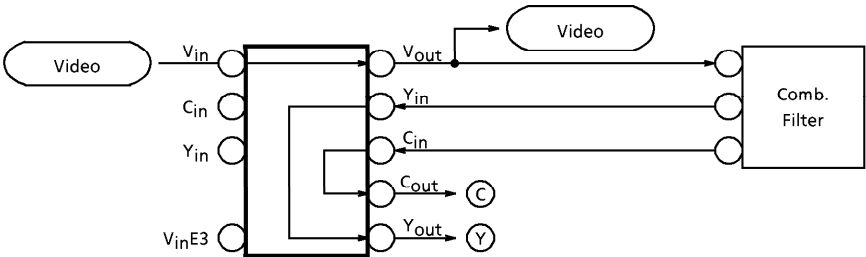
MODE EXPLANATION
<S-terminal input mode>



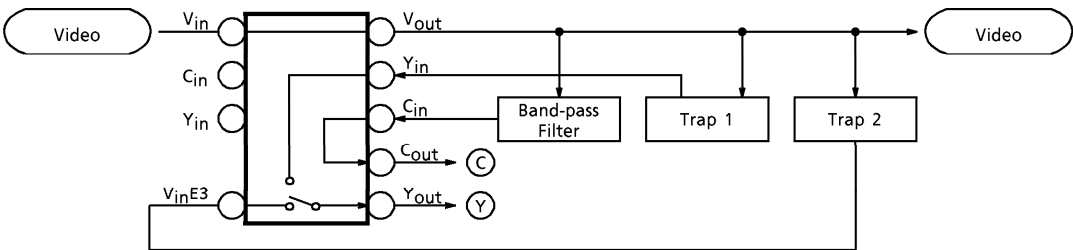
<Video input mode>



<Comb.1 input mode>



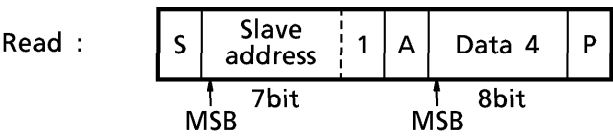
<Comb.2 input mode>



I²C BUS CONTROLLED FORMAT SUMMARY

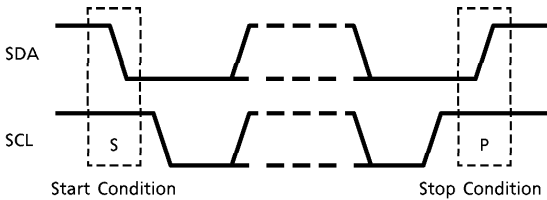
Bus Controlled format of TA8851CN is based on I²C Bus Control format of Philips.

Data transfer format

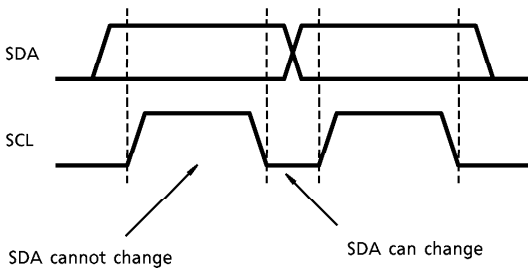


S : Start Condition
P : Stop Condition
A : Acknowledge

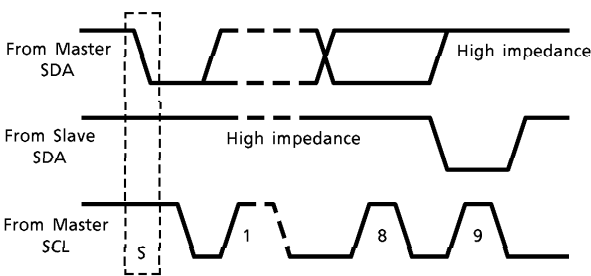
(1) Start condition, stop condition



(2) Bit transfer



(3) Acknowledge



(4) Slave address

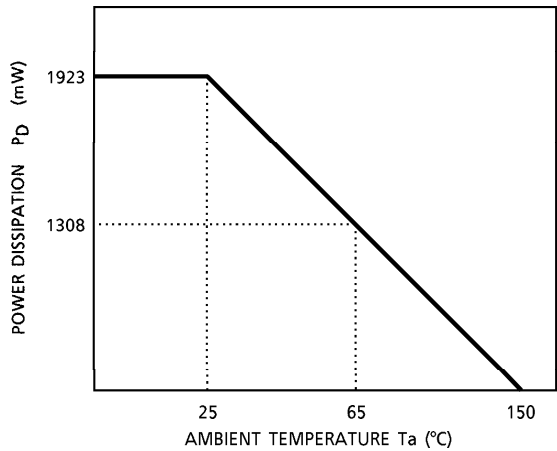
A6	A5	A4	A3	A2	A1	A0	R/ $\bar{W}$
1	0	0	1	0	0	0	1/0

Purchase of TOSHIBA I²C components conveys a license under the Philips I²C Patent Rights to use these components in an I²C system, provided that the system conforms to the I²C Standard Specification as defined by Philips.

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V _{CC}	13	V
Power Dissipation	P _{Dmax}	1923 (Note)	mW
Input Signal Voltage	e _{in}	5	V _{p-p}
Operating Temperature	T _{opr}	− 20~65	°C
Storage Temperature	T _{stg}	− 55~150	°C

(Note) When using the device at above Ta = 25°C, decrease the power dissipation by 15.4mW for each increase of 1°C.



RECOMMENDED OPERATING CONDITION

PIN No.	PIN NAME	MIN.	TYP.	MAX.	UNIT
18	V _{CC}	8.1	9.0	9.9	V

ELECTRICAL CHARACTERISTICS

DC CHARACTERISTICS

DC voltage characteristics (Unless other wise specified, $V_{CC} = 9V$, $T_a = 25^\circ C$)

PIN No.	PIN NAME	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
1	L _{in} E2	V ₁	1	—	5.0	5.2	5.4	V
2	V _{in} E2	V ₂		—	5.0	5.2	5.4	
3	R _{in} E2	V ₃		—	5.0	5.2	5.4	
4	L _{in} E1	V ₄		—	5.0	5.2	5.4	
5	V _{in} E1	V ₅		—	5.0	5.2	5.4	
6	R _{in} E1	V ₆		—	5.0	5.2	5.4	
7	V _{in} S1	V ₇		—	5.0	5.2	5.4	
8	L _{in} S1	V ₈		—	5.0	5.2	5.4	
9	Y _{in} S1	V ₉		—	5.0	5.2	5.4	
10	R _{in} S1	V ₁₀		—	5.0	5.2	5.4	
11	C _{in} S1	V ₁₁		—	5.0	5.2	5.4	
13	V _{in} S2	V ₁₃		—	5.0	5.2	5.4	
14	L _{in} S2	V ₁₄		—	5.0	5.2	5.4	
15	Y _{in} S2	V ₁₅		—	5.0	5.2	5.4	
16	R _{in} S2	V ₁₆		—	5.0	5.2	5.4	
17	C _{in} S2	V ₁₇		—	5.0	5.2	5.4	
19	V _{in} S3	V ₁₉		—	5.0	5.2	5.4	
20	L _{in} S3	V ₂₀		—	5.0	5.2	5.4	
21	Y _{in} S3	V ₂₁		—	5.0	5.2	5.4	
22	R _{in} S3	V ₂₂		—	5.0	5.2	5.4	
23	C _{in} S3	V ₂₃		—	5.0	5.2	5.4	
25	MUTE	V ₂₅		—	—	1.5	—	
26	SDA	V ₂₆		—	—	4.2	—	
27	SCL	V ₂₇		—	—	4.2	—	
28	I/O1	V ₂₈		—	8.5	9.0	—	
29	I/O2	V ₂₉		—	8.5	9.0	—	
30	C _{in} 2	V ₃₀		—	5.0	5.2	5.4	
31	O3	V ₃₁		—	8.5	9.0	—	
32	C _{out} 2	V ₃₂		—	3.4	3.7	4.0	
33	R _{out} 2	V ₃₃		—	3.7	4.0	4.3	
34	Y _{out} 2	V ₃₄		—	3.4	3.7	4.0	
35	L _{out} 2	V ₃₅		—	3.7	4.0	4.3	
36	V _{out} 2	V ₃₆		—	2.3	2.8	3.3	
37	CLAMP2	V ₃₇		—	2.7	3.2	3.7	
38	Y _{in} 2	V ₃₈		—	5.0	5.2	5.4	
39	R _{out} TV	V ₃₉		—	3.7	4.0	4.3	
40	C _{in} 1	V ₄₀		—	5.0	5.2	5.4	
41	L _{out} TV	V ₄₁		—	3.7	4.0	4.3	
42	C _{out} 1	V ₄₂		—	3.4	3.7	4.0	
43	R _{out} 1	V ₄₃		—	3.7	4.0	4.3	

PIN No.	PIN NAME	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
44	Y _{out1}	V ₄₄	1	—	3.4	3.7	4.0	V
45	L _{out1}	V ₄₅		—	3.7	4.0	4.3	
46	V _{out1}	V ₄₆		—	2.3	2.8	3.3	
47	CLAMP1	V ₄₇		—	2.7	3.2	3.7	
48	Y _{in1}	V ₄₈		—	5.0	5.2	5.4	
49	R _{inE3}	V ₄₉		—	5.0	5.2	5.4	
50	V _{inE3}	V ₅₀		—	5.0	5.2	5.4	
51	L _{inE3}	V ₅₁		—	5.0	5.2	5.4	
52	R _{inE4}	V ₅₂		—	5.0	5.2	5.4	
53	V _{inE4}	V ₅₃		—	5.0	5.2	5.4	
54	L _{inE4}	V ₅₄		—	5.0	5.2	5.4	

DC current characteristics (Unless other wise specified, V_{CC} = 9V, Ta = 25°C)

PIN No.	PIN NAME	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
18	V _{CC}	I _{CC}	1	—	48	60	80	mA

AC CHARACTERISTICS (Unless otherwise specified, V_{CC} = 9V, Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Clamp Current		I _{DIS}	2	Discharge current	11	17	28	μA
		I _{CHR}		charge current	0.50	1.25	1.80	mA
Output Resistance		R _{M-AUD}	2	—	50	100	150	Ω
		R _{S-AUD}		—	65	130	195	
		R _{T-AUD}		—	40	80	120	
		R _{M-VID}		—	25	50	75	
		R _{S-VID}		—	50	100	150	
		R _{M-Y / C}		—	25	50	75	
		R _{S-Y / C}		—	40	80	120	
Input Resistance		R _{iAUD}	2	—	49	70	100	kΩ
		R _{iVID}		—	20	30	40	
		R _{iY / C}		—	20	30	40	
Video Input Dynamic Range	(Main)	V _{dVID1}	2	(Note 1)	1.6	2.1	—	V _{p-p}
	(Sub)	V _{dVID2}			1.6	2.1	—	
	(Clamp off)	V _{dVID3}			2.4	2.8	—	
Y / C Input Dynamic Range	(Main)	V _{dY / C1}	2	(Note 2)	2.4	2.8	—	V _{p-p}
	(Sub)	V _{dY / C2}			2.4	2.8	—	
Comb Input Dynamic Range	(Main)	V _{dCOM1}			5.1	6.5	—	
	(Sub)	V _{dCOM2}			5.1	6.5	—	
S Video Dynamic Range	(Main)	V _{dS-V1}	2	(Note 3)	1.6	2.1	—	V _{p-p}
	(Sub)	V _{dS-V2}			1.6	2.1	—	
	(Clamp off)	V _{dS-V3}			2.4	2.8	—	
Monochrome Mode Dynamic Range	(Main)	V _{dB / W1}	2	(Note 4)	1.6	2.1	—	V _{p-p}
	(Sub)	V _{dB / W2}			1.6	2.1	—	

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Video Gain (Main) (Sub) (Clamp Off)	G _{VID1}	2	(Note 5)	5.7	6.2	6.7	dB
	G _{VID2}			5.7	6.2	6.7	
	G _{VID3}			5.8	6.3	6.8	
Y / C Gain (Main) (Sub)	G _{Y / C1}	2	(Note 6)	5.9	6.4	6.9	dB
	G _{Y / C2}			5.9	6.4	6.9	
Comb Gain (Main) (Sub)	G _{COM1}	2	(Note 6)	- 0.5	0	0.5	dB
	G _{COM2}			- 0.5	0	0.5	
S Video Gain (Main) (Sub) (Clamp Off)	G _{S-V1}	2	(Note 7)	5.7	6.2	6.7	dB
	G _{S-V2}			5.7	6.2	6.7	
	G _{S-V3}			6.0	6.5	7.0	
B / W Mode Gain (Main) (Sub)	G _{B / W1}	2	(Note 8)	5.7	6.2	6.7	dB
	G _{B / W2}			5.7	6.2	6.7	
Video Switch Crosstalk (Main) (Sub) (Clamp Off)	C _{VID1}	2	(Note 9)	50	60	—	dB
	C _{VID2}		(Note 9)	50	60	—	
	C _{VID3}		(Note 12)	50	60	—	
Y Switch Crosstalk (Main) (Sub)	C _{Y1}	2	(Note 10)	50	60	—	dB
	C _{Y2}			50	60	—	
C Switch Crosstalk (Main) (Sub)	C _{C1}	2	(Note 11)	50	60	—	dB
	C _{C2}			50	60	—	
Video Mute Attenuation	G _{VM}	2	(Note 13)	50	60	—	dB
Video Frequency Response (Main) (Sub) (Clamp Off)	f _{VID1}	2	(Note 14)	9.0	—	—	MHz
	f _{VID2}			9.0	—	—	
	f _{VID3}			9.0	—	—	
Y / C Frequency Response (Main) (Sub)	f _{Y / C1}	2	(Note 15)	9.0	—	—	MHz
	f _{Y / C2}			9.0	—	—	
Comb Frequency Response (Main) (Sub)	f _{COM1}	2	(Note 15)	9.0	—	—	MHz
	f _{COM2}			9.0	—	—	
S Video Frequency Response (Main) (Sub) (Clamp Off)	f _{S-V1}	2	(Note 16)	9.0	—	—	MHz
	f _{S-V2}			9.0	—	—	
	f _{S-V3}			9.0	—	—	
B / W Mode Frequency Response (Main) (Sub)	f _{B / W1}	2	(Note 17)	9.0	—	—	MHz
	f _{B / W2}			9.0	—	—	
Clamp Level	C _L	2	(Note 18)	—	21	—	%
Audio Dynamic Range	V _{dAUD}	2	(Note 19)	5.0	6.0	—	V _{p-p}
Audio Gain	G _{AUD}	2	(Note 20)	- 0.5	0	0.5	dB
Audio Frequency Response	f _{AUD}	2	(Note 21)	0.1	3.0	—	MHz
Audio Switch Crosstalk	C _{AUD}	2	(Note 22)	60	70	—	dB
Audio Mute Attenuation	G _{AM}	2	(Note 23)	60	70	—	dB
Audio Select Offset	ΔV _{AUD}	2	(Note 24)	- 30	0	30	mV
S Input Discriminating Voltage	V _{thS}	2	(Note 25)	2.4	2.6	2.8	V
ADC Input Discriminating Voltage	V _{thADC}	2	(Note 26)	1.8	2.3	2.8	V
External Mute-ON Voltage	V _{thMUTE}	2	(Note 27)	1.0	1.5	2.0	V
DAC Output Low Level Voltage	V _{DAC}	2	(Note 28)	0	—	0.5	V

TEST CONDITIONS

NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, V _{CC} = 9V, T _a = 25±3°C)				MEASUREMENT METHOD
		SW & VR MODE				
		SW MODE		DATA 2		
1-(1)	V Input Dynamic Range (Main)	V _{in} E2	S2-a , others-b / off	***0110	(1) V ₁ 15kHz, variable-amplitude input. (2) For each, measure the amplitude of V ₁ at which the waveform on pin 46 is distorted.	
		V _{in} E1	S5-a , others-b / off	***0111		
		V _{in} S1	S7A-a , others-b / off	***0011		
		V _{in} S2	S13A-a, others-b / off	***0010		
		V _{in} S3	S19A-a, others-b / off	***0001		
		V _{in} E3	S50-a , others-b / off	***0101		
V _{in} E4	S53-a , others-b / off	***0100				
1-(2)	V Input Dynamic Range (Sub)	V _{in} E2	S2-a , others-b / off	DATA 3	(1) V ₁ 15kHz, Variable-amplitude input. (2) For each, measure the amplitude of V ₁ at which the waveform on pin 36 is distorted.	
		V _{in} E1	S5-a , others-b / off	***0110		
		V _{in} S1	S7A-a , others-b / off	***0111		
		V _{in} S2	S13A-a, others-b / off	***0011		
		V _{in} S3	S19A-a, others-b / off	***0010		
		V _{in} E3	S50-a , others-b / off	***0001		
V _{in} E4	S53-a , others-b / off	***0101				
1-(3)	V Input Dynamic Range (Clamp Off) (Main)	V _{in} E2	S2-a , S47-on, others-b / off	DATA 2	(1) V ₁ 15kHz, Variable-amplitude input, V ₃ = 0V. (2) For each, measure the amplitude of V ₁ at which the waveform on pin 46 is distorted.	
		V _{in} E1	S5-a , S47-on, others-b / off	***0110		
		V _{in} S1	S7A-a , S47-on, others-b / off	***0111		
		V _{in} S2	S13A-a, S47-on, others-b / off	***0011		
		V _{in} S3	S19A-a, S47-on, others-b / off	***0010		
		V _{in} E3	S50-a , S47-on, others-b / off	***0001		
V _{in} E4	S53-a , S47-on, others-b / off	***0101				
1-(4)	V Input Dynamic Range (Clamp Off) (Sub)	V _{in} E2	S2-a , S37-on, others-b / off	DATA 3	(1) V ₁ 15kHz, variable-amplitude input, V ₃ = 0V. (2) For each, measure the amplitude of V ₁ at which the waveform on pin 36 is distorted.	
		V _{in} E1	S5-a , S37-on, others-b / off	***0110		
		V _{in} S1	S7A-a , S37-on, others-b / off	***0111		
		V _{in} S2	S13A-a, S37-on, others-b / off	***0011		
		V _{in} S3	S19A-a, S37-on, others-b / off	***0010		
		V _{in} E3	S50-a , S37-on, others-b / off	***0001		
V _{in} E4	S53-a , S37-on, others-b / off	***0101				

NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, V _{CC} = 9V, T _a = 25±3°C)				MEASUREMENT METHOD
		SW & VR MODE		DATA 2	DATA 3	
		SW MODE				
2-(1)	YC Input Dynamic Range (Main)	Y _{in} S1	S ₉ -a , others-b / off	11111011	Measure the amplitude in the same way using pin 44.	
		Y _{in} S2	S ₁₅ -a, others-b / off	11111010		
		Y _{in} S3	S ₂₁ -a, others-b / off	11111001		
		Y _{in} 1	S ₄₈ -a, others-b / off	0101****		
		V _{in} E3	S ₅₀ -a, others-b / off	0100****		
		C _{in} S1	S ₁₁ -a, others-b / off	11111011	Measure the amplitude in the same way using pin 42.	
		C _{in} S2	S ₁₇ -a, others-b / off	11111010		
		C _{in} S3	S ₂₃ -a, others-b / off	11111001		
		C _{in} 1	S ₄₀ -a, others-b / off	0101****		
				DATA 3		
2-(2)	YC Input Dynamic Range (Sub)	Y _{in} S1	S ₉ -a , others-b / off	11111011	Measure the amplitude in the same way using pin 34.	
		Y _{in} S2	S ₁₅ -a, others-b / off	11111010		
		Y _{in} S3	S ₂₁ -a, others-b / off	11111001		
		Y _{in} 2	S ₃₈ -a, others-b / off	0101****		
		V _{in} E4	S ₅₃ -a, others-b / off	0100****		
		C _{in} S1	S ₁₁ -a, others-b / off	11111011	Measure the amplitude in the same way using pin 32.	
		C _{in} S2	S ₁₇ -a, others-b / off	11111010		
		C _{in} S3	S ₂₃ -a, others-b / off	11111001		
		C _{in} 2	S ₃₀ -a, others-b / off	0101****		
				DATA 2		
3-(1)	S Video Dynamic Range (Main)	Y _{in} S1	S ₉ -a , others-b / off	11111011	Measure the amplitude in the same way using pin 46.	
		Y _{in} S2	S ₁₅ -a, others-b / off	11111010		
		Y _{in} S3	S ₂₁ -a, others-b / off	11111001		
		C _{in} S1	S ₁₁ -a, others-b / off	11111011		
		C _{in} S2	S ₁₇ -a, others-b / off	11111010		
		C _{in} S3	S ₂₃ -a, others-b / off	11111001	Measure the amplitude in the same way using pin 36.	
		Y _{in} S1	S ₉ -a , others-b / off	11111011		
		Y _{in} S2	S ₁₅ -a, others-b / off	11111010		
		Y _{in} S3	S ₂₁ -a, others-b / off	11111001		
		C _{in} S1	S ₁₁ -a, others-b / off	11111011		
3-(2)	S Video Dynamic Range (Sub)	C _{in} S2	S ₁₇ -a, others-b / off	11111010	Measure the amplitude in the same way using pin 36.	
		C _{in} S3	S ₂₃ -a, others-b / off	11111001		
		Y _{in} S1	S ₉ -a , others-b / off	11111011		
		Y _{in} S2	S ₁₅ -a, others-b / off	11111010		
		Y _{in} S3	S ₂₁ -a, others-b / off	11111001		
		C _{in} S1	S ₁₁ -a, others-b / off	11111011	Measure the amplitude in the same way using pin 36.	
		C _{in} S2	S ₁₇ -a, others-b / off	11111010		
		C _{in} S3	S ₂₃ -a, others-b / off	11111001		
		Y _{in} S1	S ₉ -a , others-b / off	11111011		
		Y _{in} S2	S ₁₅ -a, others-b / off	11111010		
		Y _{in} S3	S ₂₁ -a, others-b / off	11111001	Measure the amplitude in the same way using pin 36.	
		C _{in} S1	S ₁₁ -a, others-b / off	11111011		
		C _{in} S2	S ₁₇ -a, others-b / off	11111010		
		C _{in} S3	S ₂₃ -a, others-b / off	11111001		
				DATA 3		

NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, $V_{CC} = 9V$, $T_a = 25 \pm 3^{\circ}C$)				MEASUREMENT METHOD
		SW & VR MODE		DATA 2	DATA 3	
		SW MODE				
3-(3)	S Video Dynamic Range (Clamp Off) (Main)	Y _{in} S1	S9-a , S47-on, others-b / off	11111011	Measure the amplitude in the same way using pin 46.	
		Y _{in} S2	S15-a , S47-on, others-b / off	11111010		
		Y _{in} S3	S21-a , S47-on, others-b / off	11111001		
		C _{in} S1	S11-a , S47-on, others-b / off	11111011		
		C _{in} S2	S17-a , S47-on, others-b / off	11111010		
		C _{in} S3	S23-a , S47-on, others-b / off	11111001		
3-(4)	S Video Dynamic Range (Clamp Off) (Sub)	Y _{in} S1	S9-a , S37-on, others-b / off	DATA 3	Measure the amplitude in the same way using pin 36.	
		Y _{in} S2	S15-a , S37-on, others-b / off	11111011		
		Y _{in} S3	S21-a , S37-on, others-b / off	11111010		
		C _{in} S1	S21-a , S37-on, others-b / off	11111001		
		C _{in} S2	S11-a , S37-on, others-b / off	11111011		
		C _{in} S3	S17-a , S37-on, others-b / off	11111010		
4-(1)	B / W Mode Dynamic Range (Main)	V _{in} E2	S2-a , others-b / off	DATA 2	Measure the amplitude in the same way using pins 44 and 42 to find the smaller one.	
		V _{in} E1	S5-a , others-b / off	10100110		
		V _{in} S1	S7A-a , others-b / off	10100111		
		V _{in} S2	S13A-a , others-b / off	10100011		
		V _{in} S3	S19A-a , others-b / off	10100010		
		V _{in} E3	S50-a , others-b / off	10100001		
4-(2)	B / W Mode Dynamic Range (Sub)	V _{in} E4	S53-a , others-b / off	10100101	Measure the amplitude in the same way using pins 34 and 32 to find the smaller one.	
		V _{in} E2	S2-a , others-b / off	10100100		
		V _{in} E1	S5-a , others-b / off	DATA 3		
		V _{in} S1	S7A-a , others-b / off	10100110		
		V _{in} S2	S13A-a , others-b / off	10100111		
		V _{in} S3	S19A-a , others-b / off	10100011		
		V _{in} E3	S50-a , others-b / off	10100010		
		V _{in} E4	S53-a , others-b / off	10100001		
		V _{in} E2	S2-a , others-b / off	10100101		
		V _{in} E1	S5-a , others-b / off	10100100		
		V _{in} S1	S7A-a , others-b / off	10100110		
		V _{in} S2	S13A-a , others-b / off	10100111		

NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, $V_{CC}=9V$, $T_a=25\pm3^\circ C$)		
		SW & VR MODE		MEASUREMENT METHOD
		SW MODE	DATA 2	
5-(1)	Video Gain (Main)	V _{in} E2	****0110	(1) V ₁ 15kHz, 1V _{p-p} input. (2) For each, measure the amplitude on pin 46 to find the gain.
		V _{in} E1	****0111	
		V _{in} S1	****0011	
		V _{in} S2	****0010	
		V _{in} S3	****0001	
		V _{in} E3	****0101	
		V _{in} E4	****0100	
5-(2)	Video Gain (Sub)	V _{in} E2	DATA 3	(1) V ₁ 15kHz, 1V _{p-p} input. (2) For each, measure the amplitude on pin 36 to find the gain.
		V _{in} E1	****0110	
		V _{in} S1	****0111	
		V _{in} S2	****0011	
		V _{in} S3	****0010	
		V _{in} E3	****0001	
		V _{in} E4	****0101	
5-(3)	Video Gain (Clamp Off) (Main)	V _{in} E2	DATA 2	(1) V ₁ 15kHz, 1V _{p-p} input. (2) For each, measure the amplitude on pin 46 to find the gain.
		V _{in} E1	****0110	
		V _{in} S1	****0111	
		V _{in} S2	****0011	
		V _{in} S3	****0010	
		V _{in} E3	****0001	
		V _{in} E4	****0101	
5-(4)	Video Gain (Clamp Off) (Sub)	V _{in} E2	DATA 3	(1) V ₁ 15kHz, 1V _{p-p} input. (2) For each, measure the amplitude on pin 36 to find the gain.
		V _{in} E1	****0110	
		V _{in} S1	****0111	
		V _{in} S2	****0011	
		V _{in} S3	****0010	
		V _{in} E3	****0001	
		V _{in} E4	****0101	

NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, V _{CC} = 9V, T _a = 25±3°C)				MEASUREMENT METHOD
		SW & VR MODE			DATA 2	
		SW MODE				
6-(1)	Y / C Gain (Main)	Y _{in} S1	S ₉ -a , others-b / off	11111011	Measure the amplitude in the same way using pin 44.	
		Y _{in} S2	S ₁₅ -a, others-b / off	11111010		
		Y _{in} S3	S ₂₁ -a, others-b / off	11111001		
		Y _{in} 1	S ₄₈ -a, others-b / off	0101****		
		V _{in} E3	S ₅₀ -a, others-b / off	0100****		
		C _{in} S1	S ₁₁ -a, others-b / off	11111011	Measure the amplitude in the same way using pin 42.	
		C _{in} S2	S ₁₇ -a, others-b / off	11111010		
		C _{in} S3	S ₂₃ -a, others-b / off	11111001		
		C _{in} 1	S ₄₀ -a, others-b / off	0101****		
				DATA 3		
6-(2)	Y / C Gain (Sub)	Y _{in} S1	S ₉ -a , others-b / off	11111011	Measure the amplitude in the same way using pin 34.	
		Y _{in} S2	S ₁₅ -a, others-b / off	11111010		
		Y _{in} S3	S ₂₁ -a, others-b / off	11111001		
		Y _{in} 2	S ₃₈ -a, others-b / off	0101****		
		V _{in} E4	S ₅₃ -a, others-b / off	0100****		
		C _{in} S1	S ₁₁ -a, others-b / off	11111011	Measure the amplitude in the same way using pin 32.	
		C _{in} S2	S ₁₇ -a, others-b / off	11111010		
		C _{in} S3	S ₂₃ -a, others-b / off	11111001		
		C _{in} 2	S ₃₀ -a, others-b / off	0101****		
				DATA 2		
7-(1)	S Video Gain (Main)	Y _{in} S1	S ₉ -a , others-b / off	11111011	Measure the amplitude in the same way using pin 46.	
		Y _{in} S2	S ₁₅ -a, others-b / off	11111010		
		Y _{in} S3	S ₂₁ -a, others-b / off	11111001		
		C _{in} S1	S ₁₁ -a, others-b / off	11111011		
		C _{in} S2	S ₁₇ -a, others-b / off	11111010		
		C _{in} S3	S ₂₃ -a, others-b / off	11111001	Measure the amplitude in the same way using pin 36.	
				DATA 3		
		Y _{in} S1	S ₉ -a , others-b / off	11111011		
		Y _{in} S2	S ₁₅ -a, others-b / off	11111010		
		Y _{in} S3	S ₂₁ -a, others-b / off	11111001		
7-(2)	S Video Gain (Sub)	C _{in} S1	S ₁₁ -a, others-b / off	11111011	Measure the amplitude in the same way using pin 36.	
		C _{in} S2	S ₁₇ -a, others-b / off	11111010		
		C _{in} S3	S ₂₃ -a, others-b / off	11111001		
				DATA 3		
		Y _{in} S1	S ₉ -a , others-b / off	11111011		

NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, V _{CC} = 9V, T _a = 25±3°C)				MEASUREMENT METHOD
		SW & VR MODE			DATA 2	
		SW MODE				
7-(3)	S Video Gain (Clamp Off) (Sub)	Y _{in} S1	S9-a , S37-on, others-b / off	11111011	Measure the amplitude in the same way using pin 36.	
		Y _{in} S2	S15-a , S37-on, others-b / off	11111010		
		Y _{in} S3	S21-a , S37-on, others-b / off	11111001		
		C _{in} S1	S11-a , S37-on, others-b / off	11111011		
		C _{in} S2	S17-a , S37-on, others-b / off	11111010		
		C _{in} S3	S23-a , S37-on, others-b / off	11111001		
7-(4)	S Video Gain (Clamp Off) (Main)	Y _{in} S1	S9-a , S47-on, others-b / off	DATA 3 11111011	Measure the amplitude in the same way using pin 46.	
		Y _{in} S2	S15-a , S47-on, others-b / off	11111010		
		Y _{in} S3	S21-a , S47-on, others-b / off	11111001		
		C _{in} S1	S11-a , S47-on, others-b / off	11111011		
		C _{in} S2	S17-a , S47-on, others-b / off	11111010		
		C _{in} S3	S23-a , S47-on, others-b / off	11111001		
8-(1)	B / W Mode Gain (Main)	V _{in} E2	S2-a , others-b / off	DATA 2 10100110	Measure the amplitude in the same way using pin 44.	
		V _{in} E1	S5-a , others-b / off	10100111		
		V _{in} S1	S7A-a , others-b / off	10100011		
		V _{in} S2	S13A-a , others-b / off	10100010		
		V _{in} S3	S19A-a , others-b / off	10100001		
		V _{in} E3	S50-a , others-b / off	10100101		
		V _{in} E4	S53-a , others-b / off	10100100		
		V _{in} E2	S2-a , others-b / off	10100110		
		V _{in} E1	S5-a , others-b / off	10100111		
		V _{in} S1	S7A-a , others-b / off	10100011		
		V _{in} S2	S13A-a , others-b / off	10100010		
		V _{in} S3	S19A-a , others-b / off	10100001		
		V _{in} E3	S50-a , others-b / off	10100101		
		V _{in} E4	S53-a , others-b / off	10100100		

NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, V _{CC} =9V, T _a =25±3°C)		
		SW & VR MODE		MEASUREMENT METHOD
		SW MODE	DATA 3	
8-(2)	B / W Mode Gain (Sub)	V _{in} E2	S2-a , others-b / off	10100110
		V _{in} E1	S5-a , others-b / off	10100111
		V _{in} S1	S7A-a , others-b / off	10100011
		V _{in} S2	S13A-a, others-b / off	10100010
		V _{in} S3	S19A-a, others-b / off	10100001
		V _{in} E3	S50-a , others-b / off	10100101
		V _{in} E4	S53-a , others-b / off	10100100
				Measure the amplitude in the same way using pin 34.
		V _{in} E2	S2-a , others-b / off	10100110
		V _{in} E1	S5-a , others-b / off	10100111
		V _{in} S1	S7A-a , others-b / off	10100011
		V _{in} S2	S13A-a, others-b / off	10100010
		V _{in} S3	S19A-a, others-b / off	10100001
		V _{in} E3	S50-a , others-b / off	10100101
		V _{in} E4	S53-a , others-b / off	10100100
				Measure the amplitude in the same way using pin 32.

NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, $V_{CC}=9V$, $T_a=25\pm3^\circ C$)		
		SW & VR MODE		MEASUREMENT METHOD
		SW MODE	DATA 2	
9-(1)	V Switch Crosstalk (Main)	V_{inE2} All-b/off except those specified on the left	***0110	(1) V_1 3.58MHz, $1V_{p-p}$ input. (2) While sequentially switching S2, S5, S7A, S9, S11, S13A, S15, S17, S19A, S21, S23, S30, S38, S40, S48, S50, and S53 to 'a', measure the maximum level of crosstalk to pin 46 and find its ratio to output in selected mode.
		V_{inE1} All-b/off except those specified on the left	***0111	
		V_{inS1} All-b/off except those specified on the left	***0011	
		V_{inS2} All-b/off except those specified on the left	***0010	
		V_{inS3} All-b/off except those specified on the left	***0001	
		V_{inE3} All-b/off except those specified on the left	***0101	
		V_{inE4} All-b/off except those specified on the left	***0100	
		Y_{inS1}, C_{inS1} All-b/off except those specified on the left	***1011	
		Y_{inS2}, C_{inS2} All-b/off except those specified on the left	***1010	
		Y_{inS3}, C_{inS3} All-b/off except those specified on the left	***1001	
			DATA 3	(1) V_1 3.58MHz, $1V_{p-p}$ input. (2) While sequentially switching S2, S5, S7A, S9, S11, S13A, S15, S17, S19A, S21, S23, S30, S38, S40, S48, S50, and S53 to 'a', measure the maximum level of crosstalk to pin 36 and find its ratio to output in selected mode.
		V_{inE2} All-b/off except those specified on the left	***0110	
		V_{inE1} All-b/off except those specified on the left	***0111	
		V_{inS1} All-b/off except those specified on the left	***0011	
		V_{inS2} All-b/off except those specified on the left	***0010	
		V_{inS3} All-b/off except those specified on the left	***0001	
		V_{inE3} All-b/off except those specified on the left	***0101	
		V_{inE4} All-b/off except those specified on the left	***0100	
		Y_{inS1}, C_{inS1} All-b/off except those specified on the left	***1011	
		Y_{inS2}, C_{inS2} All-b/off except those specified on the left	***1010	
		Y_{inS3}, C_{inS3} All-b/off except those specified on the left	***1001	
			DATA 2	Measure the maximum level of crosstalk in the same way using pin 44.
10-(1)	Y Switch Crosstalk (Main)	Y_{inS1} All-b/off except those specified on the left	11111011	
		Y_{inS2} All-b/off except those specified on the left	11111010	
		Y_{inS3} All-b/off except those specified on the left	11111001	
		Y_{in1} All-b/off except those specified on the left	0101****	
		V_{inE3} All-b/off except those specified on the left	0100****	
			DATA 3	Measure the maximum level of crosstalk in the same way using pin 34.
10-(2)	Y Switch Crosstalk (Sub)	Y_{inS1} All-b/off except those specified on the left	11111011	
		Y_{inS2} All-b/off except those specified on the left	11111010	
		Y_{inS3} All-b/off except those specified on the left	11111001	
		Y_{in2} All-b/off except those specified on the left	0101****	
		V_{inE3} All-b/off except those specified on the left	0100****	

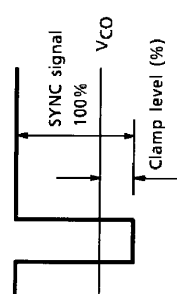
NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, $V_{CC} = 9V$, $T_a = 25 \pm 3^{\circ}C$)				MEASUREMENT METHOD
		SW & VR MODE		DATA 2	DATA 3	
		SW MODE				
11-(1)	C Switch Crosstalk (Main)	CinS1	All-b/off except those specified on the left	11111011	Measure the maximum level of crosstalk in the same way using pin 42.	
		CinS2	All-b/off except those specified on the left	11111010		
		CinS3	All-b/off except those specified on the left	11111001		
		Cin1	All-b/off except those specified on the left	0101****		
11-(2)	C Switch Crosstalk (Sub)	CinS1	All-b/off except those specified on the left	DATA 3	Measure the maximum level of crosstalk in the same way using pin 32.	
		CinS2	All-b/off except those specified on the left	11111011		
		CinS3	All-b/off except those specified on the left	11111010		
		Cin2	All-b/off except those specified on the left	11111001		
12-(1)	V Switch Crosstalk (Clamp Off) (Main)	VinE2	All-b/off except those specified on the left	DATA 2	(1) S47-ON, $V_3 = 0V$. (2) Measure the maximum level of crosstalk in the same way using pin 46.	
		VinE1	All-b/off except those specified on the left	****0110		
		VinS1	All-b/off except those specified on the left	****0111		
		VinS2	All-b/off except those specified on the left	****0011		
		VinS3	All-b/off except those specified on the left	****0010		
		VinE3	All-b/off except those specified on the left	****0001		
		VinE4	All-b/off except those specified on the left	****0101		
		YinS1, CinS1	All-b/off except those specified on the left	****0100		
		YinS2, CinS2	All-b/off except those specified on the left	****1011		
		YinS3, CinS3	All-b/off except those specified on the left	****1010		
			All-b/off except those specified on the left	****1001		
				DATA 3		
		VinE2	All-b/off except those specified on the left	****0110		
		VinE1	All-b/off except those specified on the left	****0111		
		VinS1	All-b/off except those specified on the left	****0011		
		VinS2	All-b/off except those specified on the left	****0010		
12-(2)	V Switch Crosstalk (Clamp Off) (Sub)	VinS3	All-b/off except those specified on the left	****0001	(1) S37-ON, $V_3 = 0V$. (2) Measure the maximum level of crosstalk in the same way using pin 36.	
		VinE3	All-b/off except those specified on the left	****0101		
		VinE4	All-b/off except those specified on the left	****0100		
		YinS1, CinS1	All-b/off except those specified on the left	****1011		
		YinS2, CinS2	All-b/off except those specified on the left	****1010		
		YinS3, CinS3	All-b/off except those specified on the left	****1001		
			All-b/off except those specified on the left	****1010		
			All-b/off except those specified on the left	****1001		

NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, $V_{CC} = 9V$, $T_a = 25 \pm 3^{\circ}C$)			MEASUREMENT METHOD
		SW & VR MODE		DATA 2	
		SW MODE			
13	Mute Attenuation	Vout1 Output	All-b/off except those specified on the left	****0000	(1) V ₁ 3.58MHz, 1V _{p-p} input. (2) While sequentially switching S ₂ , S ₅ , S _{7A} , S ₉ , S ₁₁ , S _{13A} , S ₁₅ , S ₁₇ , S _{19A} , S ₂₁ , S ₂₃ , S ₃₀ , S ₃₈ , S ₄₀ , S ₄₈ , S ₅₀ , and S ₅₃ to 'a', measure the maximum level of crosstalk to pin 46 and find its ratio to output in selected mode.
		Yout1 Output	All-b/off except those specified on the left	00*****	Measure the maximum level of crosstalk in the same way using pin 44.
		Cout1 Output	All-b/off except those specified on the left	00*****	Measure the maximum level of crosstalk in the same way using pin 42.
				DATA 3	
		Vout2 Output	All-b/off except those specified on the left	****0000	Measure the maximum level of crosstalk in the same way using pin 36.
		Yout2 Output	All-b/off except those specified on the left	00*****	Measure the maximum level of crosstalk in the same way using pin 34.
		Cout2 Output	All-b/off except those specified on the left	00*****	Measure the maximum level of crosstalk in the same way using pin 32.
				DATA 2	
		Vout1 Output (Clamp Off)	All-b/off except those specified on the left	****0000	(1) S ₄₇ -ON, V ₃ = 0V (2) Measure the maximum level of crosstalk in the same way using pin 46.
				DATA 3	
		Vout2 Output (Clamp Off)	All-b/off except those specified on the left	****0000	(1) S ₄₇ -ON, V ₃ = 0V (2) Measure the maximum level of crosstalk in the same way using pin 36.

NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, $V_{CC}=9V$, $T_a=25\pm3^\circ C$)			
		SW & VR MODE		MEASUREMENT METHOD	
		SW MODE	DATA 2		
14-(1)	Video Frequency Response (Main)	V_{inE2} V_{inE1} V_{inS1} V_{inS2} V_{inS3} V_{inE3} V_{inE4}	$S2-a$, others-b/off $S5-a$, others-b/off $S7A-a$, others-b/off $S13A-a$, others-b/off $S19A-a$, others-b/off $S50-a$, others-b/off $S53-a$, others-b/off	DATA 2 ****0110 ****0111 ****0011 ****0010 ****0001 ****0101 ****0100	(1) V_1 frequency-variable, $1V_{p-p}$ input. (2) For each, measure the output amplitude on pin 46 to find the frequency equivalent to $-3dB$.
		V_{inE2} V_{inE1} V_{inS1} V_{inS2} V_{inS3} V_{inE3} V_{inE4}	$S2-a$, others-b/off $S5-a$, others-b/off $S7A-a$, others-b/off $S13A-a$, others-b/off $S19A-a$, others-b/off $S50-a$, others-b/off $S53-a$, others-b/off	DATA 3 ****0110 ****0111 ****0011 ****0010 ****0001 ****0101 ****0100	
14-(2)	Video Frequency Response (Sub)	V_{inE2} V_{inE1} V_{inS1} V_{inS2} V_{inS3} V_{inE3} V_{inE4}	$S2-a$, others-b/off $S5-a$, others-b/off $S7A-a$, others-b/off $S13A-a$, others-b/off $S19A-a$, others-b/off $S50-a$, others-b/off $S53-a$, others-b/off	DATA 2 ****0110 ****0111 ****0011 ****0010 ****0001 ****0101 ****0100	(1) V_1 15kHz, $1V_{p-p}$ input (2) For each, measure the output amplitude on pin 36 to find the frequency equivalent to $-3dB$.
		V_{inE2} V_{inE1} V_{inS1} V_{inS2} V_{inS3} V_{inE3} V_{inE4}	$S2-a$, others-b/off $S5-a$, others-b/off $S7A-a$, others-b/off $S13A-a$, others-b/off $S19A-a$, others-b/off $S50-a$, others-b/off $S53-a$, others-b/off	DATA 3 ****0110 ****0111 ****0011 ****0010 ****0001 ****0101 ****0100	
14-(3)	Video Frequency Response (Clamp Off) (Main)	V_{inE2} V_{inE1} V_{inS1} V_{inS2} V_{inS3} V_{inE3} V_{inE4}	$S2-a$, S47-on, others-b/off $S5-a$, S47-on, others-b/off $S7A-a$, S47-on, others-b/off $S13A-a$, S47-on, others-b/off $S19A-a$, S47-on, others-b/off $S50-a$, S47-on, others-b/off $S53-a$, S47-on, others-b/off	DATA 2 ****0110 ****0111 ****0011 ****0010 ****0001 ****0101 ****0100	(1) V_1 frequency-variable, $1V_{p-p}$ input, $V_3=0V$. (2) For each, measure the output amplitude on pin 46 to find the frequency equivalent to $-3dB$.
		V_{inE2} V_{inE1} V_{inS1} V_{inS2} V_{inS3} V_{inE3} V_{inE4}	$S2-a$, S47-on, others-b/off $S5-a$, S47-on, others-b/off $S7A-a$, S47-on, others-b/off $S13A-a$, S47-on, others-b/off $S19A-a$, S47-on, others-b/off $S50-a$, S47-on, others-b/off $S53-a$, S47-on, others-b/off	DATA 3 ****0110 ****0111 ****0011 ****0010 ****0001 ****0101 ****0100	
14-(4)	Video Frequency Response (Clamp Off) (Sub)	V_{inE2} V_{inE1} V_{inS1} V_{inS2} V_{inS3} V_{inE3} V_{inE4}	$S2-a$, S37-on, others-b/off $S5-a$, S37-on, others-b/off $S7A-a$, S37-on, others-b/off $S13A-a$, S37-on, others-b/off $S19A-a$, S37-on, others-b/off $S50-a$, S37-on, others-b/off $S53-a$, S37-on, others-b/off	DATA 2 ****0110 ****0111 ****0011 ****0010 ****0001 ****0101 ****0100	(1) V_1 frequency-variable, $1V_{p-p}$ input, $V_3=0V$. (2) For each, measure the output amplitude on pin 36 to find the frequency equivalent to $-3dB$.
		V_{inE2} V_{inE1} V_{inS1} V_{inS2} V_{inS3} V_{inE3} V_{inE4}	$S2-a$, S37-on, others-b/off $S5-a$, S37-on, others-b/off $S7A-a$, S37-on, others-b/off $S13A-a$, S37-on, others-b/off $S19A-a$, S37-on, others-b/off $S50-a$, S37-on, others-b/off $S53-a$, S37-on, others-b/off	DATA 3 ****0110 ****0111 ****0011 ****0010 ****0001 ****0101 ****0100	

NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, V _{CC} = 9V, T _a = 25±3°C)				MEASUREMENT METHOD
		SW & VR MODE		DATA 2		
		SW MODE				
15-(1)	Y / C Frequency Response (Main)	Y _{in} S1	Sg-a , others-b / off	11111011	Measure the amplitude in the same way using pin 44.	
		Y _{in} S2	S15-a, others-b / off	11111010		
		Y _{in} S3	S21-a, others-b / off	11111001		
		Y _{in} 1	S48-a, others-b / off	0101****		
		V _{in} E3	S50-a, others-b / off	0100****		
		C _{in} S1	S11-a, others-b / off	11111011	Measure the amplitude in the same way using pin 42.	
		C _{in} S2	S17-a, others-b / off	11111010		
		C _{in} S3	S23-a, others-b / off	11111001		
		C _{in} 1	S40-a, others-b / off	0101****		
				DATA 3		
15-(2)	Y / C Frequency Response (Sub)	Y _{in} S1	Sg-a , others-b / off	11111011	Measure the amplitude in the same way using pin 34.	
		Y _{in} S2	S15-a, others-b / off	11111010		
		Y _{in} S3	S21-a, others-b / off	11111001		
		Y _{in} 2	S38-a, others-b / off	0101****		
		V _{in} E4	S53-a, others-b / off	0100****		
		C _{in} S1	S11-a, others-b / off	11111011	Measure the amplitude in the same way using pin 32.	
		C _{in} S2	S17-a, others-b / off	11111010		
		C _{in} S3	S23-a, others-b / off	11111001		
		C _{in} 2	S30-a, others-b / off	0101****		
				DATA 2		
16-(1)	S Video Frequency Response (Main)	Y _{in} S1	Sg-a , others-b / off	11111011	Measure the amplitude in the same way using pin 46.	
		Y _{in} S2	S15-a, others-b / off	11111010		
		Y _{in} S3	S21-a, others-b / off	11111001		
		C _{in} S1	S11-a, others-b / off	11111011		
		C _{in} S2	S17-a, others-b / off	11111010		
		C _{in} S3	S23-a, others-b / off	11111001	Measure the amplitude in the same way using pin 36.	
				DATA 3		
		Y _{in} S1	Sg-a , others-b / off	11111011		
		Y _{in} S2	S15-a, others-b / off	11111010		
		Y _{in} S3	S21-a, others-b / off	11111001		
16-(2)	S Video Frequency Response (Sub)	C _{in} S1	S11-a, others-b / off	11111011	Measure the amplitude in the same way using pin 36.	
		C _{in} S2	S17-a, others-b / off	11111010		
		C _{in} S3	S23-a, others-b / off	11111001		
				DATA 3		
				11111011		

NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, $V_{CC}=9V$, $T_a=25\pm3^{\circ}C$)				MEASUREMENT METHOD
		SW & VR MODE			DATA 2	
		SW MODE				
16-(3)	S Video Frequency Response (Clamp Off) (Main)	Y _{in} S1	S9-a , S47-on, others-b / off	11111011	Measure the amplitude in the same way using pin 46.	
		Y _{in} S2	S15-a , S47-on, others-b / off	11111010		
		Y _{in} S3	S21-a , S47-on, others-b / off	11111001		
		C _{in} S1	S11-a , S47-on, others-b / off	11111011		
		C _{in} S2	S17-a , S47-on, others-b / off	11111010		
		C _{in} S3	S23-a , S47-on, others-b / off	11111001		
16-(4)	S Video Frequency Response (Clamp Off) (Sub)	Y _{in} S1	S9-a , S37-on, others-b / off	DATA 3 11111011	Measure the amplitude in the same way using pin 36.	
		Y _{in} S2	S15-a , S37-on, others-b / off	11111010		
		Y _{in} S3	S21-a , S37-on, others-b / off	11111001		
		C _{in} S1	S11-a , S37-on, others-b / off	11111011		
		C _{in} S2	S17-a , S37-on, others-b / off	11111010		
		C _{in} S3	S23-a , S37-on, others-b / off	11111001		
17-(1)	B / W Mode Frequency Response (Main)	V _{in} E2	S2-a , others-b / off	DATA 2 10100110	Measure the amplitude in the same way using pin 44.	
		V _{in} E1	S5-a , others-b / off	10100111		
		V _{in} S1	S7A-a , others-b / off	10100011		
		V _{in} S2	S13A-a, others-b / off	10100010		
		V _{in} S3	S19A-a, others-b / off	10100001		
		V _{in} E3	S50-a , others-b / off	10100101		
17-(1)	B / W Mode Frequency Response (Main)	V _{in} E4	S53-a , others-b / off	10100100	Measure the amplitude in the same way using pin 42.	
		V _{in} E2	S2-a , others-b / off	10100110		
		V _{in} E1	S5-a , others-b / off	10100111		
		V _{in} S1	S7A-a , others-b / off	10100011		
		V _{in} S2	S13A-a, others-b / off	10100010		
		V _{in} S3	S19A-a, others-b / off	10100001		
17-(1)	B / W Mode Frequency Response (Main)	V _{in} E3	S50-a , others-b / off	10100101	Measure the amplitude in the same way using pin 42.	
		V _{in} E4	S53-a , others-b / off	10100100		
		V _{in} E2	S2-a , others-b / off	10100110		
		V _{in} E1	S5-a , others-b / off	10100111		
		V _{in} S1	S7A-a , others-b / off	10100011		
		V _{in} S2	S13A-a, others-b / off	10100010		
17-(1)	B / W Mode Frequency Response (Main)	V _{in} S3	S19A-a, others-b / off	10100001	Measure the amplitude in the same way using pin 42.	
		V _{in} E3	S50-a , others-b / off	10100101		
		V _{in} E4	S53-a , others-b / off	10100100		
		V _{in} E2	S2-a , others-b / off	10100110		
		V _{in} E1	S5-a , others-b / off	10100111		
		V _{in} S1	S7A-a , others-b / off	10100011		
17-(1)	B / W Mode Frequency Response (Main)	V _{in} S2	S13A-a, others-b / off	10100010	Measure the amplitude in the same way using pin 42.	
		V _{in} S3	S19A-a, others-b / off	10100001		
		V _{in} E3	S50-a , others-b / off	10100101		
		V _{in} E4	S53-a , others-b / off	10100100		
		V _{in} E2	S2-a , others-b / off	10100110		
		V _{in} E1	S5-a , others-b / off	10100111		

NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, $V_{CC} = 9V$, $T_a = 25 \pm 3^\circ C$)				MEASUREMENT METHOD
		SW & VR MODE		DATA 3		
		SW MODE				
17-(2)	B / W Mode Frequency Response (Sub)	V_{inE2}	$S2-a$, others-b / off	10100110	Measure the amplitude in the same way using pin 34.	
		V_{inE1}	$S5-a$, others-b / off	10100111		
		V_{inS1}	$S7A-a$, others-b / off	10100011		
		V_{inS2}	$S13A-a$, others-b / off	10100010		
		V_{inS3}	$S19A-a$, others-b / off	10100001		
		V_{inE3}	$S50-a$, others-b / off	10100101	Measure the amplitude in the same way using pin 32.	
		V_{inE4}	$S53-a$, others-b / off	10100100		
		V_{inE2}	$S2-a$, others-b / off	10100110		
		V_{inE1}	$S5-a$, others-b / off	10100111		
		V_{inS1}	$S7A-a$, others-b / off	10100011		
18	Clamp Level	V_{inS2}	$S13A-a$, others-b / off	10100010	(1) Measure the voltage V_{CO} on pin 46 during no-signal intervals. (2) Input a V_1 NTSC signal. (3) Observe the waveform on pin 46 and find the V_{CO} level from the sync tip in percentage assuming that the SYNC signal level = 100%	
		V_{inS3}	$S19A-a$, others-b / off	10100001		
		V_{inE3}	$S50-a$, others-b / off	10100101		
		V_{inE4}	$S53-a$, others-b / off	10100100		
		V_{out1} Output	$S2-a$, others-b / off	DATA 2 ***0110		
						
	V_{out2} Output	$S2-a$, others-b / off	DATA 3 ***0110	Measure the V_{CO} level in the same way using pin 36.		

NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, V _{CC} = 9V, T _a = 25±3°C)			
		SW & VR MODE		MEASUREMENT METHOD	
		SW MODE	DATA 2		
19	Audio L Dynamic Range	L _{in} E2	S1-a , others-b / off	***0110	(1) V2 1kHz, amplitude-variable input. (2) For each, measure the amplitude of V ₁ at which the waveform on pin 45 is distorted. (Data 1 D00 = 0 : mute off)
		L _{in} E1	S4-a , others-b / off	***0111	
		L _{in} S1	S8-a , others-b / off	***0011	
		L _{in} S2	S14-a , others-b / off	***0010	
		L _{in} S3	S20-a , others-b / off	***0001	
		L _{in} E3	S51-a , others-b / off	***0101	
		L _{in} E4	S54A-a, others-b / off	***0100	
		L _{in} E2	S1-a , others-b / off	DATA 3	
		L _{in} E1	S4-a , others-b / off	***0110	
		L _{in} S1	S8-a , others-b / off	***0111	
		L _{in} S2	S14-a , others-b / off	***0011	
		L _{in} S3	S20-a , others-b / off	***0010	
		L _{in} E3	S51-a , others-b / off	***0001	
		L _{in} E4	S54A-a, others-b / off	***0101	
		L _{in} E4	S54A-a, others-b / off	***0100	
		L _{in} E1	S4-a , others-b / off	DATA 2, 3	Measure the amplitude in the same way using pin 41. (Data 1 D02 = 0 : mute off)
	DATA 2, 3				
	DATA 2, 3				

NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, V _{CC} = 9V, Ta = 25±3°C)			
		SW & VR MODE		MEASUREMENT METHOD	
		SW MODE	DATA 2		
19	Audio R Dynamic Range	R _{in} E2 R _{in} E1 R _{in} S1 R _{in} S2 R _{in} S3 R _{in} E3 R _{in} E4	S3-a , others-b / off S6-a , others-b / off S10-a , others-b / off S16-a , others-b / off S22-a , others-b / off S49-a , others-b / off S52A-a, others-b / off	****0110 ****0111 ****0011 ****0010 ****0001 ****0101 ****0100	Measure the amplitude in the same way using pin 43. (Data 1 D ₀₀ = 0 : mute off)
		R _{in} E2 R _{in} E1 R _{in} S1 R _{in} S2 R _{in} S3 R _{in} E3 R _{in} E4	S3-a , others-b / off S6-a , others-b / off S10-a , others-b / off S16-a , others-b / off S22-a , others-b / off S49-a , others-b / off S52A-a, others-b / off	DATA 3 ****0110 ****0111 ****0011 ****0010 ****0001 ****0101 ****0100	
		R _{in} E1	S6-a , others-b / off	DATA 2, 3 *****	

NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, $V_{CC}=9V$, $T_a=25\pm3^{\circ}C$)		
		SW & VR MODE		MEASUREMENT METHOD
		SW MODE	DATA 2	
20	Audio L Gain	LinE2 LinE1 LinS1 LinS2 LinS3 LinE3 LinE4	S1-a , others-b / off S4-a , others-b / off S8-a , others-b / off S14-a , others-b / off S20-a , others-b / off S51-a , others-b / off S54A-a, others-b / off	(1) V ₂ 1kHz, 1V _{p-p} input. (2) For each, measure the output amplitude on pin 45 to find the gain. (Data 1 D ₀₀ = 0 : mute off)
		LinE2 LinE1 LinS1 LinS2 LinS3 LinE3 LinE4	DATA 3 ****0110 ****0111 ****0011 ****0010 ****0001 ****0101 ****0100	Find the gain in the same way using pin 35. (Data 1 D ₀₁ = 0 : mute off)
		LinE1	DATA 2, 3 *****	Find the gain in the same way using pin 41. (Data 1 D ₀₂ = 0 : mute off)

NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, $V_{CC}=9V$, $T_a=25\pm3^{\circ}C$)			
		SW & VR MODE		MEASUREMENT METHOD	
		SW MODE	DATA 2		
20	Audio R Gain	R _{in} E2 R _{in} E1 R _{in} S1 R _{in} S2 R _{in} S3 R _{in} E3 R _{in} E4	S3-a , others-b / off S6-a , others-b / off S10-a , others-b / off S16-a , others-b / off S22-a , others-b / off S49-a , others-b / off S52A-a, others-b / off	****0110 ****0111 ****0011 ****0010 ****0001 ****0101 ****0100	Find the gain in the same way using pin 43. (Data 1 D ₀₀ = 0 : mute off)
		R _{in} E2 R _{in} E1 R _{in} S1 R _{in} S2 R _{in} S3 R _{in} E3 R _{in} E4	S3-a , others-b / off S6-a , others-b / off S10-a , others-b / off S16-a , others-b / off S22-a , others-b / off S49-a , others-b / off S52A-a, others-b / off	DATA 3 ****0110 ****0111 ****0011 ****0010 ****0001 ****0101 ****0100	
		R _{in} E1	S6-a , others-b / off	DATA 2, 3 *****	

NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, V _{CC} = 9V, T _a = 25±3°C)			
		SW & VR MODE		MEASUREMENT METHOD	
		SW MODE	DATA 2		
21	Audio L Frequency Response	L _{in} E2	S1-a , others-b / off	****0110	(1) V ₂ frequency-variable, 1V _{p-p} input. (2) Measure the output amplitude on pin 45 and find the frequency equivalent to -3dB. (Data 1 D ₀₀ = 0 : mute off)
		L _{in} E1	S4-a , others-b / off	****0111	
		L _{in} S1	S8-a , others-b / off	****0011	
		L _{in} S2	S14-a , others-b / off	****0010	
		L _{in} S3	S20-a , others-b / off	****0001	
		L _{in} E3	S51-a , others-b / off	****0101	
		L _{in} E4	S54A-a, others-b / off	****0100	
		L _{in} E2	S1-a , others-b / off	DATA 3	
		L _{in} E1	S4-a , others-b / off	****0110	Measure the amplitude in the same way using pin 35. (Data 1 D ₀₁ = 0 : mute off)
		L _{in} S1	S8-a , others-b / off	****0111	
		L _{in} S2	S14-a , others-b / off	****0011	Measure the amplitude in the same way using pin 41. (Data 1 D ₀₂ = 0 : mute off)
		L _{in} S3	S20-a , others-b / off	****0010	
		L _{in} E3	S51-a , others-b / off	****0001	
		L _{in} E4	S54A-a, others-b / off	****0101	
				****0100	
				DATA 2, 3	

NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, $V_{CC} = 9V$, $T_a = 25 \pm 3^\circ C$)		
		SW & VR MODE		MEASUREMENT METHOD
		SW MODE	DATA 2	
21	Audio R Frequency Response	R _{in} E2 R _{in} E1 R _{in} S1 R _{in} S2 R _{in} S3 R _{in} E3 R _{in} E4	S3-a , others-b / off S6-a , others-b / off S10-a , others-b / off S16-a , others-b / off S22-a , others-b / off S49-a , others-b / off S52A-a, others-b / off	Measure the amplitude in the same way using pin 43. (Data 1 D ₀₀ = 0 : mute off)
		R _{in} E2 R _{in} E1 R _{in} S1 R _{in} S2 R _{in} S3 R _{in} E3 R _{in} E4	DATA 3 ****0110 ****0111 ****0011 ****0010 ****0001 ****0101 ****0100	Measure the amplitude in the same way using pin 33. (Data 1 D ₀₁ = 0 : mute off)
		R _{in} E1	S4-a , others-b / off	Measure the amplitude in the same way using pin 39. (Data 1 D ₀₂ = 0 : mute off)

NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, $V_{CC}=9V$, $T_a=25\pm3^{\circ}C$)		
		SW & VR MODE		MEASUREMENT METHOD
		SW MODE	DATA 2	
22	L Switch Crosstalk	LinE2 LinE1 LinS1 LinS2 LinS3 LinE3 LinE4	All-b/off except those specified on the left All-b/off except those specified on the left All-b/off except those specified on the left All-b/off except those specified on the left All-b/off except those specified on the left All-b/off except those specified on the left All-b/off except those specified on the left	(1) V ₂ 1kHz, 1V _{p-p} input. (2) While sequentially switching S ₁ , S ₃ , S ₄ , S ₆ , S ₁₀ , S ₁₄ , S ₁₆ , S ₂₀ , S ₂₂ , S ₄₉ , S ₅₁ , S _{52A} , and S _{54A} to 'a', measure the maximum level of crosstalk to pin 45 and find its ratio to selected output. (Data 1 D ₀₀ = 0 : mute off)
		LinE2 LinE1 LinS1 LinS2 LinS3 LinE3 LinE4	DATA 3 All-b/off except those specified on the left All-b/off except those specified on the left All-b/off except those specified on the left All-b/off except those specified on the left All-b/off except those specified on the left All-b/off except those specified on the left All-b/off except those specified on the left	Measure the maximum level of crosstalk in the same way using pin 35. (Data 1 D ₀₁ = 0 : mute off)

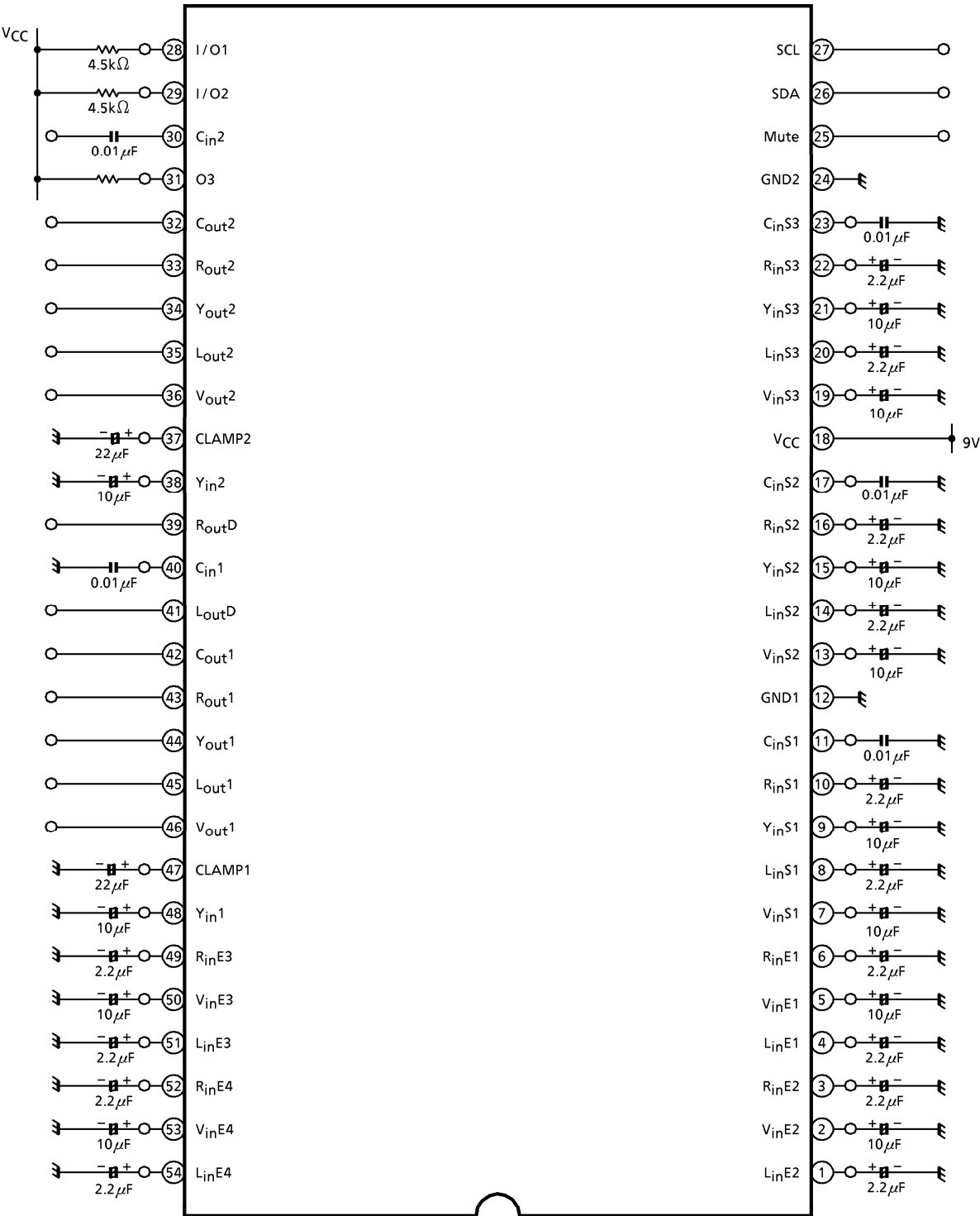
NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, V _{CC} = 9V, Ta = 25±3°C)				MEASUREMENT METHOD
		SW & VR MODE		DATA 2		
		SW MODE				
22	R Switch Crosstalk	R _{in} E2	All-b/off except those specified on the left	****0110	Measure the maximum level of crosstalk in the same way using pin 43. (Data 1 D ₀₀ = 0 : mute off)	
		R _{in} E1	All-b/off except those specified on the left	****0111		
		R _{in} S1	All-b/off except those specified on the left	****0011		
		R _{in} S2	All-b/off except those specified on the left	****0010		
		R _{in} S3	All-b/off except those specified on the left	****0001		
		R _{in} E3	All-b/off except those specified on the left	****0101		
		R _{in} E4	All-b/off except those specified on the left	****0100		
				DATA 3	Measure the maximum level of crosstalk in the same way using pin 33. (Data 1 D ₀₁ = 0 : mute off)	
		R _{in} E2	All-b/off except those specified on the left	****0110		
		R _{in} E1	All-b/off except those specified on the left	****0111		
		R _{in} S1	All-b/off except those specified on the left	****0011		
	TV-L Crosstalk	R _{in} S2	All-b/off except those specified on the left	****0010	Measure the maximum level of crosstalk in the same way using pin 41. (Data 1 D ₀₂ = 0 : mute off)	
		R _{in} S3	All-b/off except those specified on the left	****0001		
		R _{in} E3	All-b/off except those specified on the left	****0101	Measure the maximum level of crosstalk in the same way using pin 39. (Data 1 D ₀₂ = 0 : mute off)	
		R _{in} E4	All-b/off except those specified on the left	****0100		
		DATA 2, 3				
		All-b/off except those specified on the left	*****			
	TV-R Crosstalk	All-b/off except those specified on the left	*****			

NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, $V_{CC}=9V$, $T_a=25\pm3^{\circ}C$)			MEASUREMENT METHOD
		SW & VR MODE		DATA 2, 3	
		SW MODE			
23	L Switch Mute Attenuation	All-b/off except those specified on the left		*****	(1) V_2 1kHz, 1V _{p-p} input. (2) Mute on (data 1 D ₀₀ = 1) and while sequentially switching S ₁ , S ₃ , S ₄ , S ₆ , S ₈ , S ₁₀ , S ₁₄ , S ₁₆ , S ₂₀ , S ₂₂ , S ₄₉ , S ₅₁ , S _{52A} , and S _{54A} to 'a', measure the maximum level of crosstalk to pin 45 and find its ratio to selected output.
	R Switch Mute Attenuation	All-b/off except those specified on the left		*****	Measure the maximum level of crosstalk in the same way using pin 35. (Data 1 D ₀₁ = 1 : mute on)
		All-b/off except those specified on the left		*****	Measure the maximum level of crosstalk in the same way using pin 43. (Data 1 D ₀₀ = 1 : mute on)
		All-b/off except those specified on the left		*****	Measure the maximum level of crosstalk in the same way using pin 33. (Data 1 D ₀₁ = 1 : mute on)

NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, V _{CC} = 9V, T _a = 25±3°C)			
		SW & VR MODE		DATA 2, 3	MEASUREMENT METHOD
		SW MODE			
24	Mode Switching Offset	L _{in} E2	All-b / off	***0110	(1) No-signal input. (2) Measure voltage fluctuations to find the maximum value in all input modes of data 2 for pin 45, and in all input modes of data 3 for pin 35.
		L _{in} E1	All-b / off	***0111	
		L _{in} S1	All-b / off	***0011	
		L _{in} S2	All-b / off	***0010	
		L _{in} S3	All-b / off	***0001	
		L _{in} E3	All-b / off	***0101	
		L _{in} E4	All-b / off	***0100	
		R _{in} E2	All-b / off	***0110	
		R _{in} E1	All-b / off	***0111	
		R _{in} S1	All-b / off	***0011	
		R _{in} S2	All-b / off	***0010	
		R _{in} S3	All-b / off	***0001	
		R _{in} E3	All-b / off	***0101	
		R _{in} E4	All-b / off	***0100	
		L _{in} E1	All-b / off	*****	Find the maximum value in the same way using pin 41.
		R _{in} E1	All-b / off	*****	Find the maximum value in the same way using pin 39.

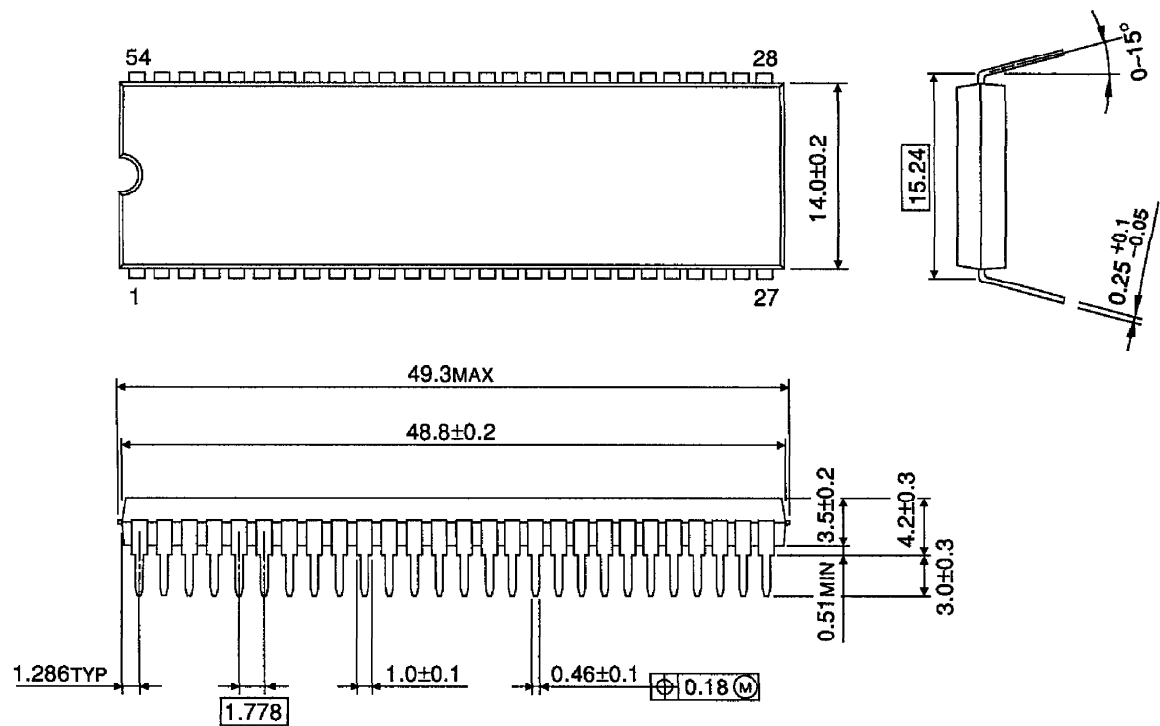
NOTE	ITEM	MEASURING CONDITIONS (UNLESS OTHERWISE SPECIFIED, V _{CC} = 9V, T _a = 25±3°C)			MEASUREMENT METHOD
		SW & VR MODE			
		SW MODE	DATA 2, 3		
25	S Input Discriminating Voltage	V _{in} S1	S9-a, S7B-on, others-b / off	****0011	(1) V ₁ 1kHz, 1V _{p-p} input. (2) While gradually lowering the V ₃ voltage, find the voltage where the output mode changes to the S mode (i.e., the voltage at which a waveform appears on pin 46). (Data 1 D00, D01, D02 = 0 : mute off)
		V _{in} S2	S15-a, S13B-on, others-b / off	****0010	
		V _{in} S3	S21-a, S19B-on, others-b / off	****0001	
26	I Input Discriminating Voltage	I/O1	S28-a , others-b / off	*****	While gradually lowering the V ₃ voltage, find the voltage at which the data of B34, B35, B36, and B37 changes from 0 to 1, respectively. (Data 1 D03, D04 = 1 : I MODE)
		I/O2	S29-a , others-b / off	*****	
		R _{in} E4	S52B-on , others-b / off	*****	
		L _{in} E4	S54B-on , others-b / off	*****	
27	External Mute-ON Voltage	Mute	S4, S25-a, others-b / off	*****	While gradually raising the V ₃ voltage, find the voltage at which mute is turned on.
28	O Output Low Level Voltage	I/O1	All-b / off	*****	Find the voltage on pins 28, 29, and 31 when the data D03, D04, and D05 are 0, respectively.
		I/O2	All-b / off	*****	
		O3	All-b / off	*****	

TEST CIRCUIT 1
DC characteristics



PACKAGE DIMENSIONS
SDIP54-P-600-1.78

Unit : mm



Weight : 1.0g (Typ.)