

M52756SP

WIDE BAND ANALOG SWITCH

DESCRIPTION

The M52756SP is a semiconductor integrated circuit for the RGBHV interface. The device features switching signals input from two types of image sources and outputting the signals to the CRT display, etc. Synchronous signals, meeting a frequency band of 10kHz to 200kHz, are output at TTL. The frequency band of video signals is 250MHz, acquiring high-resolution images, and are optimum as an interface IC with high-resolution CRT display and various new media.

DESCRIPTION

 Frequency band: RGB 	250MHz
HV	10kHz to 200kHz
• Input level: RGB	0.7Vp-p(typ.)
HV TTL input	3.5Vo-p(both channel)

- RGBOUT can drive connected load of 75 Ω .
- Only the G channel is provided with sync-on video output.
- The TTL format is adopted for HV output.
- It is possible to save the consumption current by stopping current supply to Pin 2, 4, 24, 27, 30.
- Sync Separation circuit

PIN CONFIGURATION	ON (T	OP VIEW)
INPUT1 (R) 1 VCC1(R)(5V) 2 INPUT1 (B) 3 VCC1(B)(5V) 4 INPUT1 (G) 5 INPUT1 (H) 6 INPUT1 (V) 7 INPUT2 (R) 8 VCC(G)(5V) 9 VCC(H,V, INPUT2 (B) 10 Buffer,SW,sync Sepa)(5V)11 INPUT2 (G) 12 INPUT2 (H) 13 INPUT2 (V) 14 SWITCH 15	M52756SP	30 VCC(R)(12V) 29 OUTPUT (R) 28 GND(R) 27 VCC(B)(12V) 26 OUTPUT (B) 25 GND(B) 24 VCC(G)(12V) 23 OUTPUT (G) 22 GND(G) 21 G Buffer OUT 20 Sync Sepa IN 19 Sync Sepa OUT 18 OUTPUT (H) 17 OUTPUT (V) 16 GND(H,V,Buffer, SW,sync Sepa)

APPLICATION

Display monitor

RECOMMENDED OPERATING CONDITION

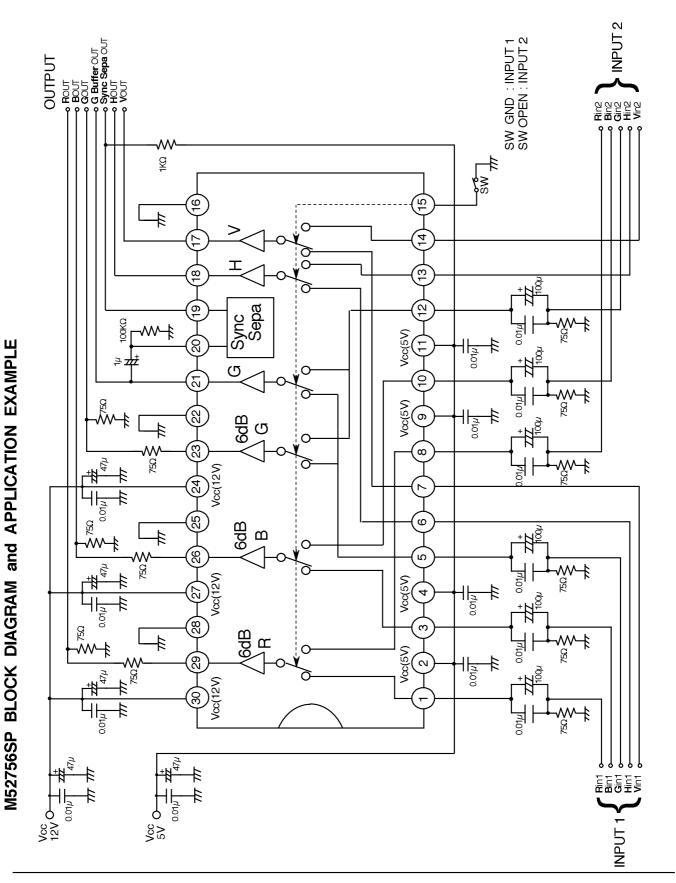
Supply voltage range......4.75 to 5.25V, 11.5 to 12.5V Rated supply voltage......5.0V, 12.0V



30 pin plastic SDIP



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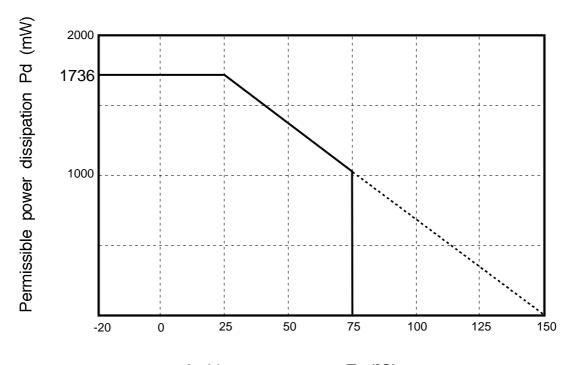
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Absolute Maximum Rating (Ambient temperature: 25°C)

Parameter	Symbol	Rating	Unit
Supply voltage	Vcc	6.0,13.0	V
Power dissipation	Pd	1736	mW
Ambient temperature	Topr	-20~+75	°C
Storage temperature	Tstg	-40~+150	°C
Recommended supply voltage	Vopr	5.0,12.0	V
Recommended sopply voltage range	Vopr'	4.75~5.25,11.5~12.5	V
Electrostatic discharge	Surge	<u>+</u> 150	V

Thermal Derating Curve





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WIDE BAND ANALOG SWITCH

Pin Description

Pin No.	Description	DC Voltage[V]	Peripheral circuits at pins	Notes
1	Input 1 (R)		5.0V }	Input signal with low impedance.
3	Input 1 (B)	2.25	3.0V T	
5	Input 1 (G)		750 _µ	
2 4 9 11	Vcc(R) Vcc(B) Vcc(G) Vcc(H,V,Buffer, SW,SyncSep)	5.0		
6	Input 1 (H) Input 1 (V)		4.5K \$ 20K	Input pulse between 2V and 5V. 2 2~5V 0~0.8V
			∫	
8	Input 2 (R)		5.0V }	Input signal with low impedance.
10	Input 2 (B)	2.25	3.0V T	
12	Input 2 (G)		↓ ⊜ ,,,,750µ	
13	Input 2 (H)		→ 5.0V 4.5K ≸ \$ 20K	Input pulse between 2V and 5V.
14	Input 2 (V)		₹10K	2~5V 0~0.8V



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WIDE BAND ANALOG SWITCH

Pin Description

Pin No.	Description	DC Voltage[V]	Peripheral circuits at pins	Notes
15	Switch	2.4	5.0V	Switch by OPEN and GND.
16 22 25 28	GND(H,V,Buffer, SW,SyncSep) GND(G) GND(B) GND(R)	GND		
17 18	Output(V) Output(H)		5.0V	Output impedance is built in.
19	Sync Sepa OUT		5.0V \$790	Connect resistance more than $1K\Omega$ is necessary during power supply and terminal that open collector output type. When not used, ground the pin to GND.
20	Sync Sepa IN	2.3	5.0V 500 3.0V 1K	Input signal with low impedance. When not used, set to OPEN
21	OUTPUT (G Buffer)	0.75	5.0V 1K ₹ 75	Output impedance is built in.



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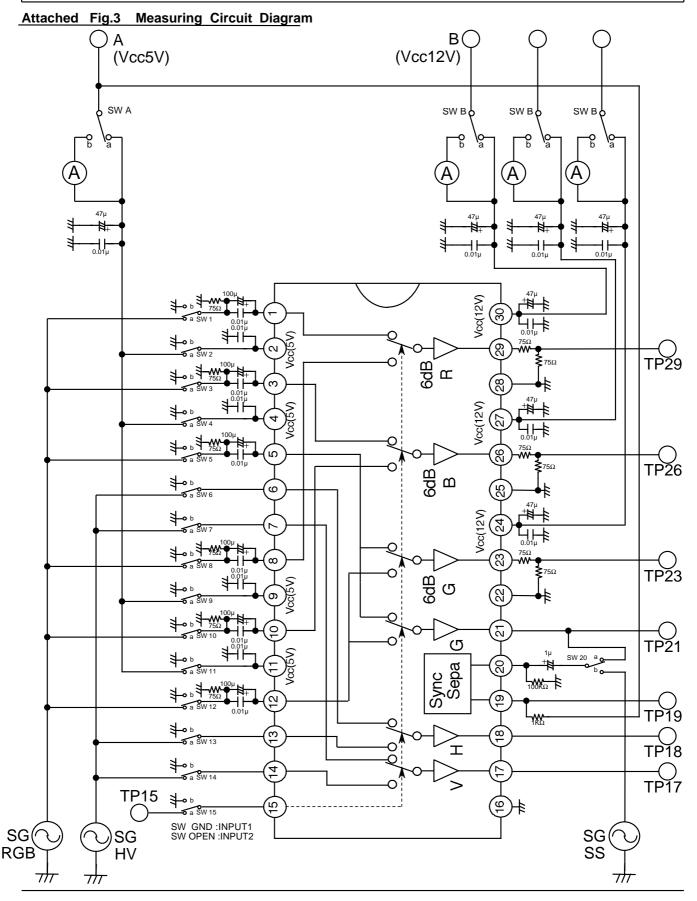
WIDE BAND ANALOG SWITCH

Pin Description

Pin No.	Description	DC Voltage[V]	Peripheral circuits at pins	Notes
22	OUTPUT(G)		→ ↓ 12.0V \$50	This output pin can drive connected load of 75Ω .
26	OUTPUT(B)	1.8		0.7022.
29	OUTPUT(R)		1.6m 8.0m	
24 27 30	Vcc(G) Vcc(B) Vcc(R)	12.0		



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MITSUBISHI ICs (Monitor)

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WIDE BAND ANALOG SWITCH

25 47 86 Standard 78 37 8 Z 5 28 27 a/b _ SW15 Swich a/b ΝS 1 1 Supplementary Table1 Electrical Characteristics (Vcc = 5V,12V; Ta = 25°C unless otherwise specified) S.Sep S.Sepin SW20 ۵ I ۵ I α I SW14 ΝZi ا ۵ ا ۵ ا ۵ SW13 Ϋ́ ا ۵ ا ۵ ا ۵ SW12 GZin ا ۵ ا ۵ ا ۵ SW10 BZin ΩI ΩI ΩI Input SW8 RZin ا ۵ ا ۵ ا ۵ SW7 Ϋ́ ا ۵ ا ۵ ا ۵ SW6 ا ۵ ا ۵ ا ۵ SW5 g ا ۵ ΩI ا ۵ SWB ا ۵ ا ۵ ا ۵ SWI ا ۵ ا ۵ ا ۵ SW11 Vcc5V 2∑ a a ∑ 2 g 6WS V0055V (5V) z{ a 2∑ a ا ۵ 8 SW4 Vcc5V 2 a s ≥ ا ۵ Vcc5V SWZ 2∑ a 2 a ا ۵ 5,12 5,12 38 8 Ŋ Test Point(s) ⋖ $\mathbf{\omega}$ ⋖ <u>ფ</u> <u>8</u> 8 Conditions Circuit current 3 (power save) Circuit current 1 (no signal) Circuit current 2 (no signal) parameter 2

30	UNIT Heman	note2	note2	note3	note3	Vp- note4 p	Vp- note4 p
::	UNIT	^	^	^	^	م م	۸ م
g	ΜA	1.	1. 3	3.	1. 3	I	I
Standard	TYP MA	1.0	1.0	1.0	1.0	2.0	2.0
Ste	MIN	0.7	0.7	0.7	0.7	1.6	1.6
SW	SW15 Swich	b GND	a OPEN	b GND	a OPEN	b GND	a OPEN
S.Sep SW	SW20 SW15 S.Sepin Swich	ВІ	B I	ВI	l a	ВІ	l a
	SW14 VZin	۱۵	٦ ۵	ا ۵	٦	ا ۵	ا ۵
	SW13 HZin	۱۵	ا ۵	ا ۵	۱۵	ا ۵	ا ۵
	SW10 SW12 SW13 BZin GZin HZin	۹۱	۹ ا	Q I	٦	ا ۵	bba SG1
	SW10 BZin	٦٥	<u>م</u> ـ	Q I	٦٥	ا ۵	bab SG1
Input	SW8 RZin	a I	а -	QΙ	<u>م</u>	ا ۵	abb SG1
	SW7	۱۵	۱۵	۱۵	۱۵	ا ۵	ا ۵
	SW6 H1in	۱۵	۱۵	۱۵	۱۵	ا ۵	ا ۵
	SW5 G1in	۱۵	۱۵	۱۵	۱۵	bba SG1	ا ۵
	SW1F SW3B1i SW5 1in n G1in	۱۵	ا ۵	ا ۵	ا ۵	bab SG1	ا ۵
		۱۵	ا ۵	ا ب	۱۵	abb SG1	ا ۵
	SW11 Vcc5V	a 5V	a 5V	a 5V	a 5V	a 5V	a 5V
(5V)	SW9 Vcc5V	a 5V	a 5V	a 5V	a 5V	a 5V	a 5V
Vcc (5V)	VCC VCC5V VCC5V VCC5V VCC5V	a 5V	a 5V	a 5V	a 5V	a 5V	a 5V
	SW2 Vcc5V	a 5V	a 5V	a 5V	a 5V	a 5V	2 5
/sc (S)	Vcc	5,12	5,12	5,12	5,12	5,12	5,12
Test	Polm(s)	T.P.29 T.P.26 T.P.23	T.P.29 T.P.26 T.P.23	T.P.21	T.P.21	T. D. 1 F. D. 1 F. S. 5	T.B.3
lodmy	oyiii.co	Vpc1	Vpc2	Voc3	V _{DO} 4	Vimax1	Vimax2
Conditions	parameter	Output DC voltage 1 V _{DC} 1 7: 9:29 5,12	Output DC voltage 2 V ₀₀₂ 1 P.29 5,12	Output DC voltage $3 \mid V_{\infty}3 \mid T.P.21 \mid 5,12 \mid$	Output DC voltage 4 V ₀₀ 4 T.P.215,12	Maximum allowable Vimax1 T.B.3 5,12 input 1	Maximum allowable Vimax 7.12 7.12 input 2
<u> </u>	<u>.</u>	C			າ		t

RGB



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	Unit Remark	dB nate5	dB note5	dB note5	dB nate5	dB note5'	dB note6	dB note6	dB note7	dB note7	dB note7	dB note7	dB note8	
	MAX	1.9	4.0	1.9	0.4	4.0	0	0	3.0	1.0	3.0	1.0	1.0	
Standard	TYPN	1.2	<u> </u>	2.	0	0	9.0-	9.0-	7.7	0	1.5	0	-1.5	
Stal	NIM	0.5	4.0	0.5	-0.4	4.0	-1.5	-1.5 -	0	-1.0	0	-1.0	-3.0	
SW	SW15 Swich	GND		a OPEN			GND	a OPEN	GND		a OPEN	·	GND	ď
S.Sep	SW20 S.Sepir	α I	ø	α I) (e	e	α I	ω I	α Ι	e e	и I	Je	и I	π
	SW14 VZin	۹ -	above	Ω١	above	above	q ا	<u>م</u>	۱۵	above	q	above	q	ء
	SW1 3HZin	۱۵		۱۵			ا ۵	Q I	۱۵	1	-		q	ء
	SW12 GZin	۱۵	values	b b a SG2	measured values	values	ا ۵	a SG2	ا ۵	values	bba SG4	values	<u>م</u>	4
	SW10 BZin	٦٥	<u>red</u>	a b bb a bb b a SG2 SG2 SG2	Ired	red	ا ۵	۱۵	۱۵	measured	abbbabbba SG4 SG4 SG4	measured	Р	7 7 7 7 7 7
Input	SW8 R2in	۱۵	measured	abb SG2	əasn	measured	Р	q	۱۵	easu	abb SG4	əasn	q	2
	SW7 V1in	۱۵		Ω١			ا ۵	٦٩	۱۵	1	<u>م</u>	l	۱۵	ء
	SW6 H1in	۱۵	ē 5	р _	e to	e to	۱۵	۹۱	۱۵	e to	٦١	e to	۹۱	٩
	SW5 G1in	babbba SG2 SG2	Relative	۹۱	Relative	Relative	a SG2	-	bba SG4	Relative	<u>-</u>	Relative	abbbabbba SG5 SG5 SG5	9
	SW3 B1in	bab SG2	Ä	р _	Re	Ä	qι	q I	oab SG4	A.	q -	Re	bab SG5	۲
	SW1 R1in	abb SG2		۱۵			٩ I	Q	abbl SG4		-		abb SG5	2
	SW11 Vcc5V	a 5V		2 5 5			a 5V	a 5V	2 g		a 5V		a 5V	,
5V)	SW9 Vcc5V	5√a		5< a			a 5\	a 5V	2∑ a		a 5V		a 5V	a
Vcc (5V)	SW4 Vcc5V	a 5V		2 [√] a			a 5∖	a 5\	2 g		a 5V		a 5V	٠
	SW2 Vcc5V	5 5		a 5V			a 5V	a 5V	2 [√] a		a 5V		a 5V	ď
38	Vcc	5,12		5,12			5,12	5,12	5,12		5,1 2		5,1	
Test	Symbol Point(s)	T.P.29 T.P.26 T.P.23		T.P.29 T.P.26 T.P.23			T.P.2	T.P.2	T.P.29 T.P.26 T.P.23		T.P.29 T.P.26 T.P.23		T.P.29 T.P.26 T.P.23	T.P.29
	Symbol	Gv1	∆Gv1	G _v 2	∆Gv2	ΔGv'	G _v 3	Gv4	FG	∆Fc1	Fc2	ΔFc2	Fc3	
Conditions	parameter	Voltage gain1	Relative voltage gain1	Voltage gain2	Relative voltage gain2	Relative voltage gain'	Voltage gain 3	Voltage gain 4	Freq. charactreistic 1 (100MHz)	Relative Freq. charactreistic 1 (100MHz)	Freq. charactreistic 2 (100MHz)	Relative Freq. charactreistic 2 (100MHz)	Freq. charactreistic3 (250MHz)	Fred charactreistic4
	2			Ŋ			ď	>		^			α)



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	Conditions			38		Vcc (5V)	5						🖆	Input				S.Se p	MS e		Standard	2	±.	
0	parameter	Symbol	۵	Vcc	SW2 Vcc5V	SW4 SW9 SW11 Vcc5V Vcc5V	SW9 S		SW1 8	SW3 S B1in G	SW5 S	SW6 S H1in \	SW7 Si	SW8 SV RZin BZ	SW10 SW12 BZin GZin		SW1 SW14 3HZin VZin	14 SWZ n S.Sep	SW14 SW20 SW15S VZin S.Sepin wich	MIN	ТҮР	MAX		нетак
c	Crosstalk between two inputs 1 (10MHz)	C.T.I.1		.29 .265,12 .23	a 5V	5V	2 2 3	a a 5V S	abbab SG3 SG3	babb SG3 S	b а G3	а I	а I	<u>α</u> .	۱ B	а I а I	Q I	αΙ	GND ↓ OPEN		09-	-50	땅	note9
0	Crosstalk between two inputs 2 (10MHz)	C.T.I.2	T.P.29 T.P.265 T.P.23	5,12	a 5V	a 5V	a 5V	a 5V	ا ۵	ا ۵	ا ۵	 	ь а - S(abbbe SG3 SC	a b bb a bb b a SG3 SG3 SG3	33 –	۹ -	αı	OPEN ↓ GND		09-	-50	₽P	note9
5	Crosstalk between two inputs 3 (100MHz)	C.T.I.3	T.P.29 T.P.26 T.P.23	5,12	a 5V	a 5V	5V 5V	a a 5V S	abbe SG4SC	b a bb b a SG4 SG4		<u>α</u> Ι	а I	a .	Q I	а I а I	Q I	ख I	GND ↓ OPEN		40	-30	дB	note10
2	Crosstalk between two inputs 4 (100MHz)	C.T.I.4	T.P.29 T.P.26 T.P.23	.29 .265,12 .23	a 5V	5V	a 5V	a 5V	۹ I	ا ۵	ا ۵	<u> </u>	b a l - S(abbbab SG4 SG4	b a bb b a SG4 SG4	bba b SG4 -	۹ -	в I	OPEN ↓ GND		-40	-30	dВ	note10
7	Crosstalk between channels 1 (10MHz)	C.T.C1	T.P.29 T.P.26 T.P.23	5,12	a 5V	a 5V	a 5V	a a 5V S	abbb SG3 S	b a bb b a SG3 SG3		<u>а</u> .	а ₋	۹. ۹.	а I	а I а I	۹ I	α I	b GND		-50	-40	Вb	note11
	Crosstalk between channels 2 (10MHz)	C.T.C2	T.P.29 T.P.26 T.P.23	5,12	5×	5×	5×	5×	۱ ۵	۹ I	ا ۵	<u>а</u>	р - S	abbb SG3 S(a b bb a bb b a SG3 SG3 SG3	33 –	Q	и I	a OPEN		-50	-40	dВ	note11
	Crosstalk between channels 3 (100MHz)	C.T.C3	T.P.29 T.P.26 T.P.23	5,12	5 5	5<	9 5 4	a 5V S	abbb SG4S	babb SG4S	bba SG4	۵ I	۹ .	۹. وا	Q I	а I	Q	в I	GND		-30	-25	dB	note12
,	Crosstalk between channels 4 (100MHz)	C.T.C4	T.P.29 T.P.26 T.P.23	5,12	a 5V	a 5V	a 5V	a 5V	۹ I	۵ I	١۵	а I	а 9 -	aba G4S(b a ba b bb b a SG4 SG4 SG4	o a b	а -	α I	a OPEN		-30	-25	dВ	note12
	Pulse	TH	T.P.29 T.P.26 T.P.23	5,12	a 5V	8 5V	a 5V	a 5V S	a SG6 S	a SG6 S	а SG6	<u>а</u> .	а ₋	а I	а I	а I а I	Q Ι	αι	b GND		1.0	2.0	nsec	nsec note13
13	characteristic 1	ΤĦ	T.P.29 T.P.26 T.P.23	5,12	a 5V	a 5V	a 5V	a 5V S	a SG6 S	a SG6 S	a SG6	<u>а</u>	а -	a -	۱ p	о -	Q Ι	αΙ	GND		1.0	2.0	nsec	nsec note13
	Pulse	Tr2	T.P.29 T.P.26 T.P.23	5,12	a 5V	a 5V	a 5V	a 5V	۹ ا	ا ۵	۹ I	а I	9 Q -	a (a a SG6 SG6	a b G6 -	α I	ВΙ	a OPEN		1.0	2.0	nsec	nsec note13
	characteristic 2	Tf2	T.P.29 T.P.26 T.P.23	5,12	a 5V	a 5V	a 5V	a 5V	۹ I	<u>ــــا</u>	ا ۵)S –	a 6 SG6 S0	a a SG6 SG6	а Э6 -	ا ۵	αΙ	open		1.0	2.0	nsec	nsec note13



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	Remark	note14	note14	note15	note15	note16	note16	note17	note17	note18	note18	note19	note19
:	Unit	>	>	>	>	>	^	nsec note17	NSeC note17	NSeC note18	NSeC note18	>	^
7	MAX	I	I	0.5	0.5	2.0	2.0	150	150	9	9	2.0	2.0
Standard	ТУР	5.0	5.0	0.2	0.2	1.6	1.6	100	100	50	20	1.7	1.7
St.	Z	4.5	4.5	ı	I	1.2	1.2		I	ı	I	0.5	0.5
SW	SW15 Swich	dND GND	a OPEN	gND GND	a OPEN	b GND	a OPEN	b GND	a OPEN	gND GND	open	a Voltage	a Voltage
S.Sep	SW20 S.Sepin	αı	α I	αı	α I	αı	α I	αı	αı	αı	α I	α I	αı
	SW14 VZin	ا ۵	ba 5.0V	ا ۵	ba S	ا ۵	ba Voltage	ا ۵	ba SG7	ا ۵	ba SG7	ا ۵	a SG7
	SW13 HZin	ا ۵	ab 5.0V	ا ۵	ab 0<	ا ۵	ab ba Vottage Vottage	ا ۵	ab SG7	ا ۵	ab SG7	ا ۵	a SG7
	SW12 GZin	ا ۵	ا ۵	ا ۵	ا ۵	ا ۵	q	ا ۵	ا ۵	ا ۵	ا ۵	۹ ا	a SG1
	SW10 BZin	ا ۵	ا ۵	ا ۵	ا ۵	ا ۵	٩ -	۱۵	ا ۵	ا ۵	ا ۵	ь _	a SG1
Input	SW8 RZin	ا ۵	ا ۵	ا ۵	ا ۵	ا ۵	۹ ا	ا ۵	ا ۵	ا ۵	ا ۵	р _	a SG1
	SW7 V1in	ba 5.0V	ا ۵	ba 0V	ا ۵	ba Voltage	ا	ba SG7	ا ۵	ba SG7	ا ۵	a SG7	٦٥
	SW6 H1in	ab 5.0V	۹ I	ab 0V	۱ ۵	ab Voltage	q	ab SG7	<u>م</u>	ab SG7	ا ۵	a SG7	٩ -
	SW5 G1in	-	Q I	ا ۵	۱ ۵	٦ ٩	-	<u>م</u>	-	ا ۵	ا ۵	a SG1	<u>م</u>
	SW3 B1in	-	۱۵	ا ۵	ا ۵	۱۵	-	<u>م</u>	<u>م</u>	ا ۵	ا ۵	a SG1	<u>م</u>
	SW1 R1in	<u>-</u>	ا ۵	ا ۵	ا ۵	ا ۵	-	Q I	<u>م</u>	ا ۵	ا ۵	a SG1	٦ ٦
	SW11 Vcc5V	a 5V	a 5V	5V	а 5\	a 5V	a 5V	a 5V	a 5V	5 2√a	5 2√a	a 5V	a 5V
(5V)	SW9 Vcc5V	a 5V	5 ∑{ a	2 <u></u>	5 <a>2	5√ 5√	a 5V	5V	5√ 2√	5√a	2 <u>\</u> 2	5√a	5√ 2√
000	SW2 SW4 SW9 Vcc5V Vcc5V Vcc5V	a 5V	5 2√a	2 <u></u>	5 ² a	5 2∕a	a 5V	5 5	5√a	5\g	2 <u></u> 8¤	5 2√a	5√a
		a 5\	5 <u>√</u> 8	2 <u>`</u> 8	5 <u>√</u> 8	5√a	a 5V	5 2√a	5V	5 2√a	5 2∕a	a 5V	5 2 3
38	Vcc	5,12	5,12	5,12	5,12	5,12	5,12	5,12	5,12	5,12	5,12	5,12	5,12
<u> </u>	Symbol Point(s)	T.P.17 T.P.18	T.P.17 T.P.18	T.P.17 T.P.18	T.P.17 T.P.18	T.P.6 T.P.7	T.P.13 T.P.14	T.P.17	T.P.17 T.P.18 5,12	T.P.17 T.P.18 5,12	T.P.17	Vsth1 T.P.15 5,12	T.P.15 5,12
	Symbol	VoH1	VoH2	Vol1	Vol2	Vith1	Vith2	Trd1	Trd2	Tfd1	Tfd2	Vsth1	Vsth2
Conditions	parameter	High level output voltage 1	High level output voltage 2	Low level output voltage 1	Low level output voltage 2	Input selectional voltage 1	Input selectional voltage 2	Rising delay time 1	Rising delay time 2	Falling delay time 1	Falling delay time 2	Switching selectional voltage 1	Switching selectional vsth2 voltage 2
(9	7		τ	2	4	2	7	=	ά	2	9	2





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	Kemark	10te20	note21	note22	V note22	note23	note23
±: 2	<u>‡</u> <u> </u>	0.03 Vpp nate20	Vpp nate21	>	>	100 nsec nate23	200 nsec nate23
ъ	MAX	0.03		1	0.5	100	200
Standard	TYPMAX	I		4.9	0.3	50	120
St	ZIIV	I	0.2	4.5		J	
SW	SW15S wich	۱ ۵	۱۵	ا ۵	۱۵	ا ۵	ا ۵
S.Sep SW	SW12 SW13 SW14 SW20 SW15S G2n H2n V2n S.Sepin wich	b SG8	85S	b SG8	a SG8	p SG8	85S q
	SW14 VZin	<u>-</u>	<u>-</u>	-	<u>-</u>	<u>-</u>	<u>-</u>
	SW13 HZin	q -	-	Q I	-	- q	<u>-</u>
	SW12 GZin	۹ ا	<u>م</u>	۹۱	<u>م</u>	- م	-
	SW10 BZin	<u>م</u>	<u>-</u>	<u>م</u>	<u>-</u>	-	<u>-</u>
Input	SW8 RZin	۱ ۵	٦١	۱ ۵	۱ ۵	۱ ۵	ا ۵
-	SW7	۱ ۵	۹۱	۱ ۵	۱ ۵	ا ۵	۱Ω
	SW6 H1in	۱ ۵	۱ ۵	۱ ۵	۱ ۵	۱ ۵	ا ۵
	SW5 G1in	۱ ۵	٦١	۱ ۵	۱ ۵	۱۵	ا ۵
	SW3 B1in	۱ ۵	۱ ۵	۱ ۵	۱ ۵	۱ ۵	ا ۵
	SW1	ا ۵	ا ۵	ا ۵	ا ۵	ا ۵	ا ۵
	SW11 Vcc5V	a 5V	a 5V	a 5\	a 5V	5 5	a 5V
) (So	SW9 Vcc5V	a 5V	a 5V	a 5V	a 5V	a 5V	a 5V
Vcc (5V)	VCC VCCSV VCCSV VCCSV VCCSV	a 5V	a 5V	a 5V	a 5V	a 5V	a 5V
	SW2 Vcc5V	a 5V	a 5V	a 5V	a 5V	a 5V	a 5V
38	Vcc	5,12	5,12	5,12	5,12	5,12	5,12
Test	Symbol Point(s)	SSNV T.P.19 5,12	SSSV T.P.19 5,12	T.P.19 5,12	T.P.19 5,12	Tdsf T.P.19 5,12	Tdsr T.P.19 5,12
	Symbol	SSNV	SSsv	VsH	VSL	Tdsf	Tdsr
Conditions	parameter	SOG input 20 maximum noize voltage		Sync output hi level	Sync output lo level	Sync output delay time 1	Sync output delay time 2
2	<u> </u>	20	21	8		60	



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- note) It omits the SW.No accorded with signal input pin because it is already written in Table 1. SW A is in side a if there is not defined specially.
- note1) The condition is shown as Table 1. Set SW15 to GND(or OPEN) and SW A to side b, measure the current by current meter A(or B). The current is as Icc1(Icc2,Icc3).
- note2) Set SW15 to GND (or OPEN), measure the DC voltage of T.P.29(T.P.26,T.P.23) when there is no signal input.The DC voltage is as Vbc1(or Vbc2).
- note3) Measure the DC voltage of T.P.21 same as note2, the DC voltage is as Vbc3(or Vbc4).
- note4) Set SW15 to GND, SG1 as the input signal of Pin 1.Rising up the amplitude of SG1 slowly, read the amplitude of input signal when the output waveform is distorted. The amplitude is as Vimax1. And measure Vimax1 when SG1 as the input signal of Pin 3,Pin 5 in same way.

 Next, set SW 15 to OPEN, measure Vimax2 when SG1 as the input signal of Pin8, 10, 12.
- note5) 1. The condition is shown as Table 1.
 - 2. Set SW15 to GND, SG2 as the input signal of Pin 1. At this time, read the amplitude output from T.P 29. The amplitude is as Vor1.
 - 3. Voltage gain Gv1 is

$$G_V1 = 20 LOG \frac{V_{OR}1 [Vp-p]}{0.7 [Vp-p]} [dB]$$

- 4. The method as same as 2 and 3, measure the voltage gain Gv1 when SG2 as the input signal of Pin 3, 5.
- 5. The difference of each channel relative voltage gain is as $\Delta Gv1$.

ΔGv1=Gv1R-Gv1B,Gv1B-Gv1G,Gv1G-Gv1R

- 6. Set SW15 to OPEN, measure Gv2, ΔGv2 in the same way.
- note5') Voltage gain $\Delta Gv'$ is

- note6) 1. The condition is shown as table 1. This test is by active probe.
 - 2. Measure the amplitude output from T.P.21.
 - 3. Measure the Gv3,Gv4 by the same way as note5.
- note7) 1. The condition is shown as table 1. This test is by active probe.
 - 2. Set SW15 to GND, SG2 as the input signal of Pin 1. Measure the amplitude output from T.P.29. The amplitude is as VoR1.By the same way, measure the output when SG4 is as input signal of Pin 1, the output is as VoR2.
 - 3. The frequency characteristic Fc1 is

$$F_{c1} = 20 \text{ LOG} \frac{V_{OR2} \text{ [Vp-p]}}{V_{OR1} \text{ [Vp-p]}} \text{ [dB]}$$

- 4. The method as same as 2 and 3, measure the frequency Fc1 when input signal to Pin 3, 5.
- 5. The difference between of each channel frequency characteristic is as $\Delta Fc1$.
- Set SW15 to OPEN, measure Fc2,∆Fc2.
- note8) By the same way as Note7 measure the Fc3, Fc4 when SG5 of input signal.
- note9) 1. The condition is shown as Table1. This test is by active prove.
 - 2. Set SW15 to GND, SG3 as the input signal of Pin 1. Measure the amplitude output from T.P.29. The amplitude is as Vor3.
 - 3. Set SW15 to OPEN, measure the amplitude output from T.P.29. The amplitude is as Vor3'.
 - 4. The crosstalk between two inputs C.T.I.1 is

C.T.I.1= 20 LOG
$$\frac{\text{Vor3' [Vp-p]}}{\text{Vor3 [Vp-p]}}$$
 [dB]

5. By the same way, measure the crosstalk between two inputs when SG3 as the input signal of Pin3, Pin 5.



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- 6. Next, set SW15 to OPEN, SG3 as the input signal of Pin 8, measure the amplitude output from T.P.29. The amplitude is as VoR4.
- 7. Set SW15 to GND, measure the amplitude output from T.P.29. The amplitude is as VoR4'.
- 8. The crosstalk between two inputs C.T.I.2 is

C.T.I.2= 20 LOG
$$\frac{V_{OR}4'[Vp-p]}{V_{OR}4[Vp-p]}$$
 [dB]

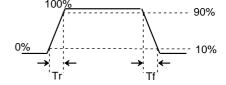
- 9. By the same way, measure the crosstalk between channels when SG3 as the input signal of Pin 10,12.
- note10) Set SG4 as the input signal, and then the same method as note9, measure C.T.I.3, C.T.I.4.
- note11) 1. The condition is as Table 1. This test is by active prove.
 - 2. Set SW15 to GND, SG3 as the input signal of Pin 1. Measure the amplitude output from T.P.29. The amplitude is as Vor.5.
 - 3. Next, measure T.P.26, T.P.23 in the same state, and the amplitude is as Vog 5, VoB 5.
 - 4. The crosstalk between channels C.T.C.1 is

C.T.C1= 20 LOG
$$\frac{\text{Vog5 or Vog5}}{\text{Vog5}}$$
 [dB]

- 5. Measure the crosstalk between channels when SG3 is as the input signal of Pin 3, Pin 5.
- 6. Next, set SW15 to OPEN, SG3 as the input signal of Pin8, measure the amplitude output from T.P.29. The amplitude is as Vor6.
- 7.Next, measure the amplitude output from T.P.26, T.P.23 in the same state. The amplitude is

as

- 8. The crosstalk between channels C.T.C.2 is C.T.C2= 20 LOG $\frac{V_{OG}6 \text{ or } V_{OB}6}{V_{OR}6}$ [dB]
- 9. By the same way, measure the crosstalk between channels when input signal to Pin10, 12.
- note12) Set SG4 as the input signal, and the same method as note11, measure C.T.C.3, C.T.C.4.
- note13) 1. The condition is as Table 1. Set SW15 to GND (or OPEN).
 - 2. The rising of 10 % ~ 90 % for input pulse is Tri, the falling of 10 % ~ 90 % for input pulse is Tfi.
 - 3. Next, the rising of 10 % ~ 90 % for output pulse is Tro, the falling of 10 % ~ 90 % for output pulse is Tfo.
 - 4. The pulse characteristic Tr1, Tf1 (Tr2, Tf2) is



$$Tr1(Tr2) = \sqrt{(Tr0)^2 - (Tri)^2}$$
 (nsec) $Tf1(Tf2) = \sqrt{(Tf0)^2 - (Tfi)^2}$ (nsec)

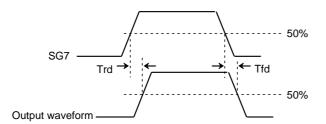
- note14) The condition is as Table 1. Set SW15 to GND (OPEN), input 5V at input terminal. Measure the output voltage, the voltage is as VoH1 (VoH2).
- note15) The condition is as Table 1. Set SW15 to GND (OPEN), input 0V at input terminal. Measure the output voltage, the voltage is as VoL1 (VoL2).
- note16) The condition is as table 1. Set SW15 to GND (OPEN), increasing gradually the voltage of input terminal from 0V, measure the voltage of input terminal when output terminal is 4.5V. The input voltage is as Vith1(Vith 2).



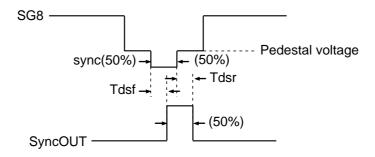
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note17, note18) The condition is as table 1. Set SW15 to GND (OPEN), SG7 is as the input signal of input terminal, measure the waveform of output. Rising delay time is as Trd1 (Trd2). Falling delay time is as Tfd1(Tfd2). Reference to the Fig. as shown below.

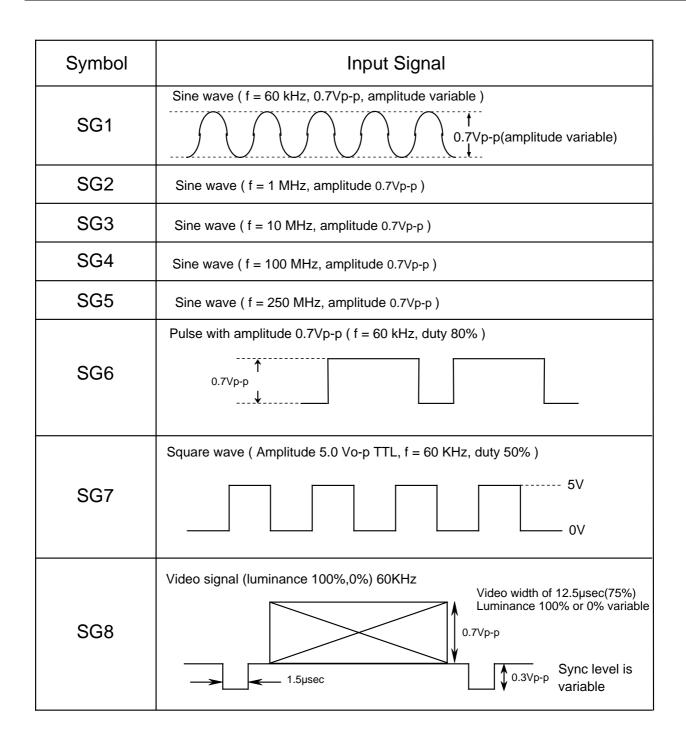


- note19) 1. The condition is as table 1. SG1 is as the input signal of Pin1, Pin3, Pin5, and SG7 is as the input signal of Pin6, Pin7. There is no input at another pins.
 - 2. Input 0V at Pin15, confirm that there are signals output from T.P.29, T.P.26, T.P.23, T.P.21, T.P.18, T.P.17.
 - Increasing gradually the voltage of terminal Pin15. Read the voltage when there is no signal output from the terminals listed as above. The voltage is as Vsth1.
 - 4. SG1 as the input signal of Pin8, Pin10, Pin12, and SG7 as the input signal of Pin13, Pin14. There is no input at another pins.
 - 5. Inputs 5V at Pin15, confirm that there is no signal output from T.P29, T.P.26, T.P.23, T.P.21, T.P.18,T.P.17.
 - 6. Decreasing gradually the voltage of terminal Pin 15. Read the voltage when there are signals output from the terminals listed as above. The voltage is as Vsth2.
- note20) The condition is as table 1. SG8 of luminance 0% is the input signal of Pin20. Increase sync level from 0Vp-p to 0.02Vp-p. Confirm outputting no pluse.
- note21) The condition is as table 1. SG8 of luminance 100%(or 0%) is the input signal of Pin20. Decrease sync level from 0.3Vp-p to 0.2Vp-p. Confirm no malfunction produced by noise.
- note22) The condition is as table 1. SG8 of luminance 100%(or 0%) is the input signal of Pin20. Measure the high(low) at SyncOUT. The measured value is treated as Vsh(VsL).
- note23) The condition is as table 1. SG8 of luminance 100%(or 0%) is the input signal of Pin20. SyncOUT becomes High with sync part of SG8. Measure the time needed for the front(rear) edge of SG8 sync to fall(rise) from 50% and for SyncOUT to rise(fall) from 50% with an active prove. The measured value is treated as Tdsf(Tdsr).





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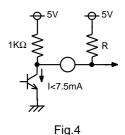


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Note how to use this IC

- 1. R, G, B input signal is 0.7Vp-p of standard video signal.
- 2. H, V input is 2.0V(minimum) TTL type.
- 3. Input signal with sufficient low impedance to input terminal.
- 4. The terminal of H, V output pin are shown as Fig.4. It is possible to reduce rise time by insert the resistor between Vcc line and H, V output Pin, but set the value of resistor in order that the current is under 7.5 mA. Setting the value of R is more than $2k\Omega$ as shown in Fig.4 .



5. Switch (Pin 15) can be changed when this terminal is GND or OPEN

When GND: Signal output from input 1
When OPEN: Signal output from input 2
When the switch is being used as Fig.5
0 ~ 0.5V: Signal output from input 1
2 ~ 5 V: Signal output from input 2
It is not allowable to set voltage higher than Vcc.



Fig.5

Notice of making printed circuit board.

Please notice following as shown below. It will maybe cause something oscillation because of the P.C.B. layout of the wide band analog switch.

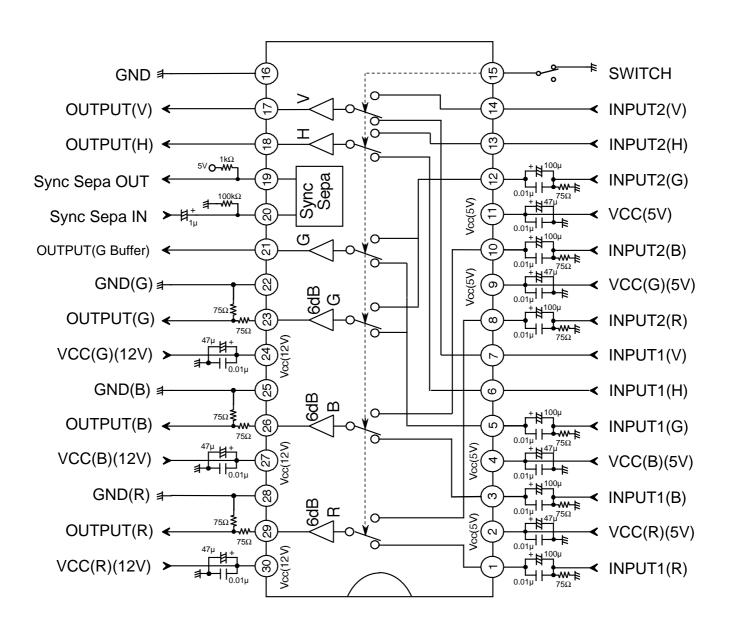
- The distance between resistor and output pin is as short as possible.
- The capacitance of output terminal as small as possible.
- Set the capacitance between Vcc and GND near the pins if possible.
- Using stable power-source.
- The separated 12V-power-source (if possible the separated 5V-power-source will be better).
- Assign an area as large as possible for grounding.
- Pay attention to leak of signaling from the output.



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Attached Fig.6 Application Example

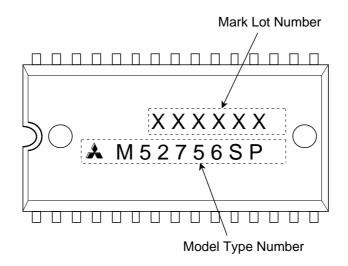




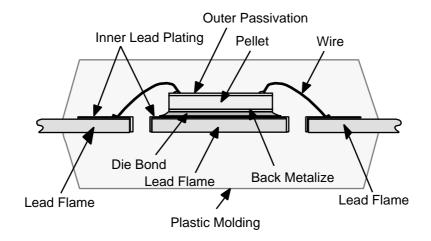
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WIDE BAND ANALOG SWITCH

Marking



Structure



Material

Mold Material : Epoxy Wire Material : Au

Outer Lead Treatment : Solder Plating
Lead Flame Material : Tin Nickel Copper
Inner Lead Treatment : Silver Plating

Over Passivation : SiN

Factory

Fukuoka, Japan