PRELIMINARY Notice:This is not a final specification. Some parametric limits are subject to chande.

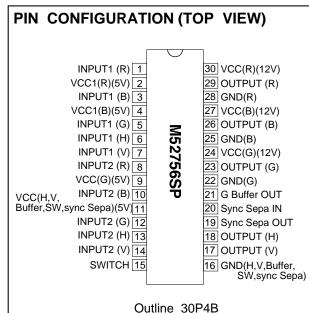
WIDE BAND ANALOG SWITCH

#### 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 $\Omega$ .
- 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



#### 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



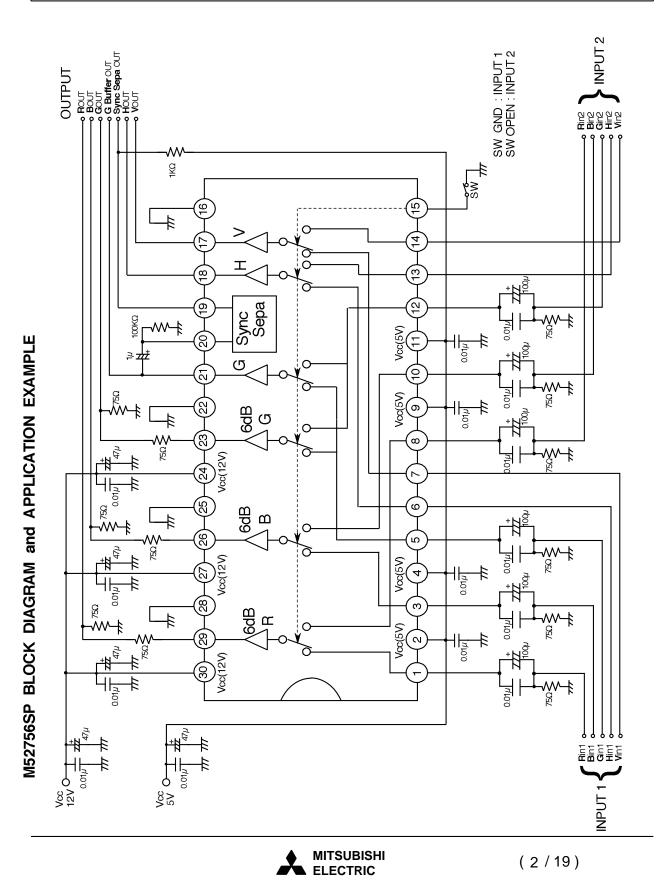
30 pin plastic SDIP





MITSUBISHI ICs (Monitor) M52756SP

WIDE BAND ANALOG SWITCH



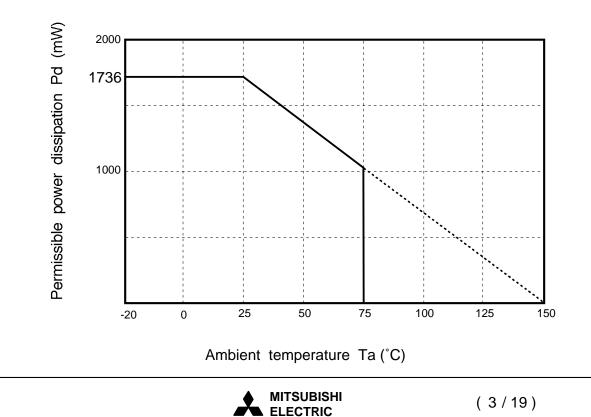
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## Absolute Maximum Rating (Ambient temperature: 25°C)

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**





M52756SP

WIDE BAND ANALOG SWITCH

#### Pin Description

Pin No.	Description	DC Voltage[V]	Peripheral circuits at pins	Notes
1	Input 1 (R)		5.0V <del>•</del>	Input signal with low impedance.
3	Input 1 (B)	2.25	3.0V	
5	Input 1 (G)			
2 4 9 11	Vcc(R) Vcc(B) Vcc(G) Vcc(H,V,Buffer, SW,SyncSep)	5.0		
6 7	Input 1 (H) Input 1 (V)		4.5K \$ 20K 4.5K \$ 20K	Input pulse between 2V and 5V.
8	Input 2 (R)		5.00 0	Input signal with low impedance.
10	Input 2 (B)	2.25		
12	Input 2 (G)		Ο Θ 	
13	Input 2 (H)		4.5K ≸ \$20K	Input pulse between 2V and 5V.
14	Input 2 (V)			2~5V 0~0.8V





WIDE BAND ANALOG SWITCH

#### Pin Description

Pin No.	Description	DC Voltage[V]	Peripheral circuits at pins	Notes
15	Switch	2.4	5.0V 10K 10K 13K 7.3K 7.3K 12K 12K 12K 12.25V	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)			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 3.0V	Input signal with low impedance. When not used, set to OPEN
21	OUTPUT (G Buffer)	0.75	+ 5.0V + 5.0V + − − − − − − − − − − − − − − − − − − −	Output impedance is built in.





WIDE BAND ANALOG SWITCH

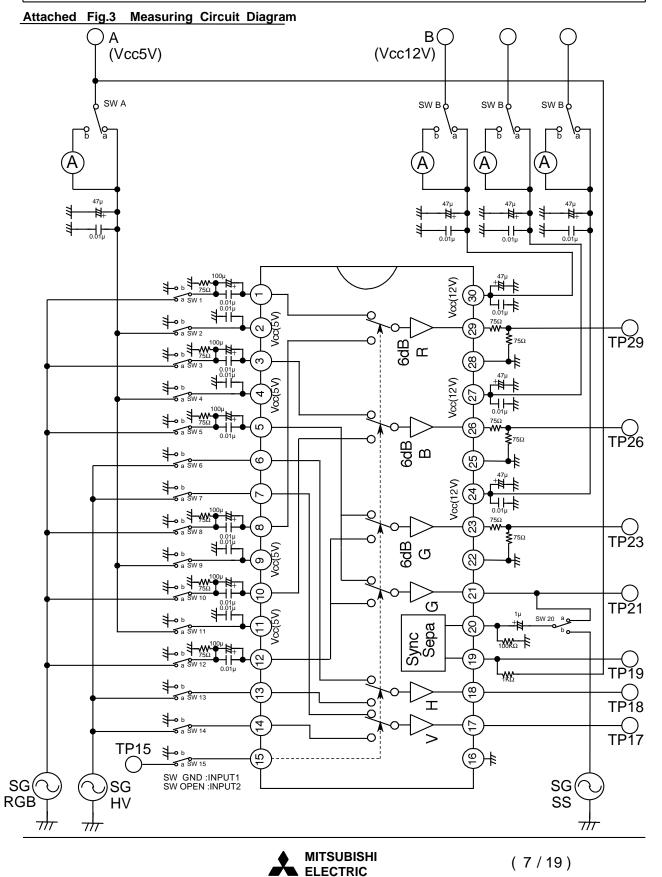
#### Pin Description

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





M52756SP





# M52756SP

S	Supplementary Table1	ble1	Electri	ical	Char	acter	istic	s (Vc	с Ц Ц	sV,12	cal Characteristics (Vcc = 5V,12V; Ta = 25°C unless otherwise specified)	a = 2	С Q	unle	s of	herwi	ise Se	speci	fied)						
	Conditions		Cumbol Test	Š€		Vcc (5V)	5V)							Input				S.Se	s.sep SW		Standard	σ			
ÖZ	parameter	oyiiite	Point(s)	Vcc		SW4 Vcc5V	SW9 S Vcc5V \		SW1 S R1in E	SW3 S B1in 0	SW5 S G1in ⊢	SW6 S H1in \	SW7 S' V1in R	SW8 SV RZin B2	SW10 SW12 B2in G2in		3 SW14 NZIN	14 SW2 1 S.Sep	SW13 SW14 SW20 SW15 HZin VZin SSepin Swich		MIN TYP MAX	MAX	Unit	Unit Remark	
	Circuit current 1 (no signal)	lcc1	A	5,12	а 5V	a 5V	a 5V	a 5V	٦١	ا م	ا ه	م۱	4 · 9 ·	4 - 9 -	q q q	٩١	ا م	с I	a/b -	27	37	47	ЧШ	note 1	
<del>.</del>	Circuit current 2 (no signal)	loc2	B	5,12	а 5V	a 5V	a 5V	a 5V	٩I	ا م	ا م	ا ۵	4 · 9 ·	а I	а а а	<u>م</u>	ا ۵	d I	a/b -	58	78	98	mA	note 1	
	Circuit current 3 (power save)	loc3	A	5	q	۹I	ا م	a 5V	٩I	ام	ا م	ا م	4 · 9 ·	а і	a a	١٩	ام	d I	a/b _	15	20	25	шA	note 1	
<b>E</b>	RGB SW																								
	Conditions		Cumbol D : : : : : : : : : : : : : : : : : :	ŞΞ		Vcc (5V)	5V)							Input				S.S.	s.sep SW		Standard	g			
NO	parameter	ngilike	(s)mort	Vcc		SW2 SW4 SW9 SW11 Vcc5V Vcc5V Vcc5V Vcc5V	SW9 SW11 Vcc5V Vcc5V		SW1RSW3B1i SW5 1in n G1in	M3B1iS		SW6 S H1in V	SW7 Sr V1in Ri	SWAB SV RZIN BX	SW10 SW12 BZin G2in	SW10 SW12 SW13 SW14 SW20 BZin G2in H2in V2in S.Sepin	NS C	14 SW2 n S.Sep	SW14 SW20 SW15 VZin S.Sepin Swich	MIM	Түр	түр ма Х	IUUI		
c	Output DC voltage 1 V <sub>Dc1</sub>	I V <sub>DC</sub> 1	T.P.29 T.P.26 T.P.26	5,12	a 5V	a 5V	5V a	a 5V	ا م	٦٦	ا م	ا م	ا م	ا م	ا م م ا	ا م	١ڡ	l છ	d DND	0.7	1.0	σ	>	note2	
J	Output DC voltage 2 Vpc2	- V 102	T.P.29 T.P.29	5,12	a 5V	a 5V	a 5V	a 5V	ا م	م ا	۱۵	ا ف	 م ا	<u>я</u> , а,	а і а і	۹ I	۱۵	ц р	a OPEN	0.7	1.0	α.	>	note2	
c	Output DC voltage 3 V <sub>D0</sub> 3	3 V DC3	T.P.21	5,12	a 5V	a 5V	5 V a	a 5V	ام	ا م	۱۵	ا ۵	 م ا	а і	а і а і	<u>م</u>	۱۵	n I	b GND	0.7	1.0	.1 α	V	note3	
0	Output DC voltage 4 V <sub>Do</sub> 4	4 V po4	. T.P.21	5,12	a 5V	a 5V	a 5V	a 5V	ا م	۱۵	ا ڡ	۵I	۔ <u>۔</u> ا م	بير ۱ م	а а	ا م	۹١	۱۵	a OPEN	ا 0.7	1.0	. <del>1</del> .	N	note3	
4	Maximum allowable input 1	Vimax1		5,12	5V 5V	а 5<	5 V a	a 5V S	abbbbab SG1SG1	babb SG1S	b b a SG1	ا گ	 ۱ م	ا م	оı оı	ا م	ا گ	ц р	b GND	1.6	2.0		م م	note4	
r 	Maximum allowable input 2	Vimax	Vimax21.58	5,12	a 5V	5 Va	5 V a	5 S a	ا م	ا م	ا ڡ	ا ۵	م م م	abbba SG1 S6	babbba SG1SG1	a 11	ام	ດ I	a OPEN	1.6	2.0		م م 2	Vp- note4 p	





# M52756SP

		9 dB note5	4 dB note5	g dB note5	4 dB note5	4 dB note5'	dB note6		dB note6	B B	ab db db	8 8 8 8 9	ар ар ар ар ар	8 8 8 8 8 8 8
ard	P MAX	2 1.9	0.4	1.9	0.4	0.4	8		0 	ო				
Standard	I ТҮР	1.2	0	1.2	0	4 0	.5 -0.8		9.0- 9					
	<sup>5</sup> MIN	0.5	-0. 4	N 0.5	-0.4	-0.4	7	-1.5	-	, 0				
MS d	0 SW15 ir Swich	6ND		a OPEN			b GND	а ОРЕN		٩Ŋ	and GN	OPEN OPEN	Opera GNI	and
S.Sep	SW20 S.Sepir	υ	Ne	ו נס	ove	ove	ы	d I		a I	ла Ме		e la e la	
	SW14 V2in	ا م	above	ا م	above	above	۹ı	ا ۵	-	2	above	an ab ar	above above above	
	SW1 3H2in	ا م	nes	ا م	ues	values	ا م	ا م	ا م		values	L Ge Ce	values values SG4 - values	
	SW12 GZin	ا م	valı	b b a SG2	valı	valı	qı	a SG2	ا م		valı	b b a l	valı <sup>b b a</sup> SG4 valı	valı sG4 valı
<u>+</u>	SW10 BZin	ا م	Relative to measured values	a b bb a bb b a SG2 SG2 SG2	measured values	Ired	q	۱۵	ا م		Ired	abbbabba SG4 SG4 SG4	bab SG4 Ired	Jred bab SG4 Jred -
Input	SW8 R2in	ا م	easu	abt SG2	easu	measured	р Ч	ا ۵	ا م		measured	<b>Basu</b> a b b SG4	measured abbab - SG4 SG4 measured	easu sG4 easu -
	SW7 V1in	ا م	Ĕ	ا م			۹١	ا م	ا م			ı ם Ž	ٽ <sub>۹</sub>	ũ <sub>Q I</sub> ũ <sub>Q I</sub>
	SW6 H1in	ا م	è tc	ا م	e to	e to	q	ا ۵	ا م		e to			_م   <sup>م</sup>   ۵   <sup>م</sup>
	SW5 G1in	b b a SG2	lativ	ا م	Relative	Relative	a SG2	ا م	bba SG4		Relative	ativ	Relative	lativ b b a sG5
	SW3 B1in	b a b b b a SG2 SG2	Re	ا م	Re	Re	ا ۵	ا ۵	bab SG4		Re	а Цал	Be rolle	bab SG5 SG5
	SW1 R1in	a b b k SG2 (		ا م			ا ۵	ا م	a b b a b SG4 SG4			ا م	ا م	Belative       b     b       -     -    -     -       -     -<
	SW11 Vac5V	a 5V		а 5V			а 5V	5 V	a 5V			а 5V	a 5V	a 5V a 5V
5V)	SW4 SW9 Vcc5V Vcc5V	a 5V		a 5V			a 5V	a 5V	a 5V			a 5V	a 5<	a 5 5 5 8
Vcc (5V)		a 5V		a 5V			a 5V	a 5V	a 5V			a 5V	5 S da	a 5 < 5 <
	SW2 Vcc5V	a 5V		a 5V			a 5V	a 5V	а 5V			a 5V	5 S <	a 5V 5V 5V
S S S	Vcc	5,12		5,12			5,12	5,12	5,12			2 2,1		
Test	Point(s)	T.P.29 T.P.26 T.P.23		Т.Р.29 Т.Р.26 Т.Р.23			T.P.2 1	T.P.2 1	Т.Р.29 Т.Р.26 Т.Р.23			T.P.29 T.P.26 T.P.23	T.P.29 T.P.26 T.P.23	111226 1226 1226 1226 1226 1226 1226 12
	Symbol	Qv1	∆Gv1	G <sup>w</sup> 2	∆Gv2	∆Gv'	G <sub>v</sub> 3	0 4	Fc1		ΔFc1			ΔFc1 AFc2 Fc3 Fc3
Conditions	parameter	Voltage gain1	Relative voltage qain1	Voltage gain2	Relative voltage gain2	Relative voltage gain'	Voltage gain 3	Voltage gain 4	Freq. charactreistic 1 (100MHz)		Relative Freq. charactreistic 1 (100MHz)	Relative Freq. charactreistic 1 (100MHz) Freq. charactreistic 2 (100MHz)	Relative Freq. charactreistic 1 (100MHz) Freq. charactreistic 2 (100MHz) Relative Freq. charactreistic 2 (100MHz)	Relative Freq. charactreistic 1 (100MHz) Freq. charactreistic 2 (100MHz) Relative Freq. charactreistic 2 (100MHz) Freq. charactreistic3 (250MHz)
	ONI			5 2			ý	)			~	~	~	~ α



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# MITSUBISHI ICs (Monitor)

# M52756SP

<u> </u>	~				-							1	
Bamark		note9	note9	note 10	note10	note11	note11	note12	note12	nsec note13	nsec note13	nsec note13	nsec note13
l loit		đb	Яþ	В	Яþ	Яþ	đb	В	dВ	nsec	usec	nsec	nsec
q	MAX	-50	-50	-30	-30	-40	-40	-25	-25	2.0	2.0	2.0	2.0
Standard	ТҮР	-60	-60	-40	-40	-50	-50	-30	-30	1.0	1.0	1.0	1.0
St	MIN				Ι	I	I	I		Ι	Ι	I	Ι
sw	SW15S wich	GND ♦	OPEN ♦ GND	GND ↓ OPEN	OPEN ♦ GND	b GND	a OPEN	b GND	a OPEN	d GND	d DD	a OPEN	a OPEN
s.se p	SW20 S.Sepin	۱۵	ы	۱۵	า ช	a	ا ع	ы	σI	n n	σI	υ	I Ю
	SW14 VZin	٩	а I	٩	- 9	- q	q	ام	ا م	ا م	ا م	ا م	۹I
	SW1 3H2in	۹I	а I	ا ۵	- а	q	ч Ч	ч Ч	ا م	٩	ا ۵	ا م	۹I
	SW12 GZin	а I	b a bb b a SG3 SG3	٩I	b b a SG4	q	b a bb b a SG3 SG3	ч Ч	bba SG4	٩	ا م	a SG6	a SG6
	SW10 BZin	р Г	a b bb a bb SG3 SG3 S	٩	b a bb b a SG4 SG4	а I	b a bb l SG3 S(	ا ۵	b a ba b bb b a SG4 SG4 SG4	ا گ	ا گ	a SG6	a SG6
Input	SW8 RZin	а Г	a b bl SG3	Ч	a b bl SG4	q	a b bb SG3 S	г q	bab SG4	q	ا ۵	a SG6	a SG6
	SW7 V1in	р Г	۹I	ا ۵	ч Ч	q	٩	ч Ч	ا م	ا ۵	ا ۵	ا م	۹I
	SW6 H1in	ا ۵	ا م	ا م	ا م	۹I	ا گ	ا م	ا م	ا م	ا م	ا م	ا م
	SW5 G1in	b b a SG3	۹I	b b a SG4	۹ı	b a bb b a SG3 SG3	ا گ	b b a SG4	ا م	a SG6	a SG6	ا م	ا ۵
	SW3 B1in	o a b SG3	۹I	o a b SG4	۹I	b a bb b SG3 SG	ا م	b a b b b SG4 SG	ا م	a SG6	a SG6	ا م	۱۵
	SW1 R1in	a b bb SG3 S	ا م	a b bl SG4	ا م	a b b k SG3	ا م	a b b SG4	ا م	a SG6	a SG6	ا م	ا م
	SW11 Vcc5V	a 5V	а 5V	a 5V	a 5V	а 5V	a 5V	а 5V	а 5V	а 5V	а 5V	а 5V	a 5V
5V)	SW9 Vcc5V	a 5V	a 5V	a 5V	а 5V	a 5V	а 5V	а 5V	a 5V	a 5V	а 5V	a 5V	a 5V
Vcc (5V)	SW4 Vcc5V	a 5V	a 5V	a 5V	a 5V	а 5V	a 5V	а 5V	a 5V	a 5V	a 5V	а 5V	a 5V
	SW2 Vcc5V	a 5V	а 5V	a 5V	а 5V	а 5V	а 5V	а 5V	а 5V	а 5V	а 5V	а 5V	а 5V
Voc (V)	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
Test	Point(s)	T.P.29 T.P.265,12 T.P.23	T P 29	T.P.29 T.P.265,12 T.P.23	T.P.29 T.P.265,12 T.P.23	T.P.29 T.P.265,12 T.P.23	T P 29 T P 26 T P 23	T.P.29 T.P.26 T.P.26	T P 29	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 T.P.26 T.P.23
	symbol	C.T.I.1	C.T.I.2	C.T.I.3	C.T.I.4	C.T.C1	C.T.C2	C.T.C3	CT.04	μT	Lth	Tr2	Tf2
Conditions	parameter	Crosstalk between two inputs 1 (10MHz)	Crosstalk between two inputs 2 (10MHz)	Crosstalk between two inputs 3 (100MHz)	Crosstalk between two inputs 4 (100MHz)	Crosstalk between channels 1 (10MHz)	Crosstalk between channels 2 (10MHz)	Crosstalk between channels 3 (100MHz)	Crosstalk between channels 4 (100MHz)	Pulse	characteristic 1	Pulse	characteristic 2
		c	מ	C F	2	T T		10			۲. ۲	2	





# M52756SP

<b></b>	HV SW																							
QN	Conditions		Test	Vcc (V)		Vcc (5V)	ĺ,						Input	nt				S.Sep	sw		Standard	Þ		
	parameter	Symbo	Symbol Point(s)	2 C	SW2 Vcc5V	SW2 SW4 Vcc5V Vcc5V	SW9 S Voc5V V	SW11 8 Vcc5V h	SW1 S	SW3 8 B1in (	SW5 S G1in F	SW6 S H1in V	SW7 SV V1in R2	SWB SW R2in B2	SW10 SW12 BZin GZin	rt2 SW13 Bin H2in	rt3 SW14 in V2in	4 SW20 7 S.Sepin	) SW15 In Swich	MIM	ТҮР	MAX		
7	High level output voltage 1	VoH1	T.P.17 T.P.18	5,12	5V a	5V a	5 C a	5 Va	ا م	ا م	ی تن م	ab t 5.0V 5.	ba t 5.0V	<u>م</u> ا	а I а I	<u>م</u> ا	ں <u>م</u>	n I	d GND	4.5	5.0		>	note14
<u>t</u>	High level output voltage 2	VoH2	T.P.17 T.P.18	5,12	5 Va	5 Va	5 <sup>2</sup> a	5 <sup>∑</sup> a	ا م	۵ı	ا م	۵ı	<u>ہ م</u>	ب <u>م</u> ا م	ه ا م ا	- 5.0V	b ba 0V5.0V	ן מ < .	a OPEN	4.5	5.0	I	>	note14
ц ц	Low level output voltage 1	VoL1	T.P.17 T.P.18	5,12	5 V a	5 S a	5 <sup>2</sup> a	5 Va	ا م	ا م	مه ۲	a o o o o o	a S a	<u>ہ ہ</u>	аı аı		<u>ه</u> ا	ו ש	d DD		0.2	0.5	>	note15
2	Low level output voltage 2	Vol2	Т.Р.17 Т.Р.18	5,12	5 V a	a 5V	5 Va	5 Va	ا م	ا م	ا م	ا م	ب <u>م</u> ا م	<u>م</u> ا	аı аı	o V ab	o ba V	I G	a OPEN		0.2	0.5	^	note15
4	Input selectional voltage 1	Vith1	T.P.6 T.P.7	5,12	5 Va	5 S a	5 <sup>a</sup>	5 <sup>7</sup> a	۵ı	۵ı	رة م	ab t	ba t Voltage -	<u>ه</u> ا	ه ا م ا			n n	d DD	1.2	1.6	2.0	>	note16
2	Input selectional voltage 2	Vith2	T P 13 T P 14	5,12	5 C a	5 Va	5 Va	5 S a	ا م	ا م	ا م	ا م	١٩	<u>ه</u> ا	ه ا م ا	í í	ab ba votage Votage	l a	a OPEN	1.2	1.6	2.0	>	note16
1	Rising delay time 1	Trd1	T.P.17 T.P.18 5,12	5,12	5 V a	a 5V	5 Va	5 Va	ا م	ا م	ري س ا ک	ab t SG7 Sc	ba SG7	<u>م</u> ا	а I а I	۱ <u>م</u>	<u>ا م</u>	ן ש	d GND		100	150	nsec	nsec note17
2	Rising delay time 2	Trd2	T.P.17 T.P.18	5,12	5V 5V	5V a	5 C a	5 Sa	۵ı	ا م	ا م	ا م	ا ع	ا م	۵ ا ۵ ا	- SG7	b ba a7 SG7	<u>га</u> 7.	a OPEN		100	150	nsec	<b>NSec</b> note17
ά	Falling delay time 1	Tfd1	T.P.17 T.P.18 5,12	5,12	a 5V	a 5V	5 Va	5 Va	٦١	ا م	رة م	ab b SG7 S(	ba t SG7 -	<u>م</u> ا	а I а I	۱ <u>م</u>	<u>م</u> ا	n n	d GND		50	100	nsec	nsec note18
2	Falling delay time 2	Tfd2	Т.Р.17 Т.Р.18	5,12	а 5V	a 5V	5 Va	a 5V	٦١	ا م	٦١	ا ۵	а I	а I	а I а I	ab - SG7	b ba a7 SG7	- u - u	a OPEN		50	100	bec	<b>NSeC</b> note18
61	Switching selectional Vsth1 T.P.15 5,12 voltage 1	Vsth1	T.P.15	5,12	a 5V	a 5V	5V 5V	a 5V	a SG1S	a SG1 S	a SG1 S	a SG7 Se	a t SG7 -	4   9	а I а I	а I о -	а I о -	ן מ	a Voltage	0.5	1.7	2.0	Λ	note19
2	Switching selectional Vsth2 voltage 2	Vsth2	T.P.15	5,12	5 V	5<	5 2	5< a	ا ۵	ا ۵	ا ۵	ا ۵	ري م	a SG1 S(	a a SG1SG	a a SG1 SG7	a a7 SG7	۲ ۱ ه	<b>a</b> Voltage	0.5	1.7	2.0	>	note19





# M52756SP

WIDE BAND ANALOG SWITCH

	Remark	10te20	note21	note22	note22	note23	note23
: -		, dd	Vpp note21	>	>	nsec note23	nsec note23
		0.03 Vpp note20			0.5	100 1	200
Standard	түрмах			4.9	0.3	50	120
St.	MIM	I	0.2	4.5	I	I	
SW	SW15S wich	ا گ	Q I	ا گ	q	q	ا م
S.Sep	SW20 S.Sepin	b SG8	b SG8	b SG8	b SG8	b SG8	b SG8
	SW13 SW14 H2in V2in	ا م	q	٩	q	q	ا ک
	SW13 H2in	ا م	٩	ا گ	٩I	٩I	ا م
	SW12 G2in	ا م	ا گ	ا گ	ا م	ا گ	ا م
	SW10 BZin	ا م	ا ۵	ا م	ا م	ا گ	ا م
Input	SW8 RZin	ا م	٩	ا گ	۹I	ا م	ا م
	SW7 V1in	ا م	٩	ا م	٩I	ا ۵	ا م
	SW6 H1in	ا م	ΩI	ا م	۱۵	ا ۵	ا م
	SW5 G1in	ا م	٩I	ا گ	۹ı	٩I	ا گ
	SW3 B1in	ا م	a I	ا م	۱۵	۹I	ا م
	SW1 R1in	ا م	٩I	ا م	ا م	ا م	ا م
	SW11 Vcc5V	5 Va	5V a	5 Va	5V 5V	5V 8	2́a
(5V)	SW4 SW9 Voc5V Voc5V	5 <sup>2</sup> a	5V 5V	5 Va	5V 5V	5 Va	5 S a
Vcc (5V)		5 <a< td=""><td>5V a</td><td>5 Va</td><td>5V 5</td><td>5V 8</td><td>5 S{a</td></a<>	5V a	5 Va	5V 5	5V 8	5 S{a
	SW2 Vcc5V	2́Sa	5 V a	5 Va	5 V a	5 <sup>7</sup> a	5 ∑a
§∑	, Vcc	5,12	5,12	5,12	5,12	5,12	5,12
Test	Symbol Point(s)	SSNV T.P.19	SSSV T.P.19 5,12	VSH T.P.19 5,12	Т.Р.19 5,12	Tdsf T.P.19 5,12	Tdsr T.P.19
	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
		50	21	50	1	73	2

SYNC SEP





- 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

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

- 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.
- ∆Gv1=Gv1R-Gੱv1Ď,Gv1B-Gv1G,Gv1G-Gv1R
- 6. Set SW15 to OPEN, measure Gv2,  $\Delta$ Gv2 in the same way.
- note5') Voltage gain  $\Delta Gv'$  is

#### $\Delta$ Gv'=Gv1R-Gv2R,Gv1G-Gv2G,Gv1B-Gv2B

- 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.
  - 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.
- 6. Set SW15 to OPEN, measure Fc2, $\Delta$ 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

$$C.T.I.1=20 \text{ LOG} \frac{V_{\text{OR3}'} [\text{Vp-p}]}{V_{\text{OR3}} [\text{Vp-p}]} \text{ [dB]}$$

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





MITSUBISHI ICs (Monitor) M52756SP

WIDE BAND ANALOG SWITCH

- 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<sup>1</sup>. Measure the amplitude output from T.P.29. The amplitude is as Vor5.
  - 3. Next, measure T.P.26, T.P.23 in the same state, and the amplitude is as Vog 5, Vog 5.
  - 4. The crosstalk between channels C.T.C.1 is

$$C.T.C1=20 \text{ LOG } \frac{V_{OG5} \text{ or } V_{OB5}}{V_{OR5}} \text{ [dB]}$$

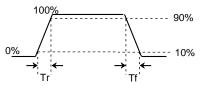
- 5. Measure the crosstalk between channels when SG3 is as the input signal of Pin 3, Pin 5.
- 6. Next, set SW15 to OPEN, SG3 as the input signal of Pin8, measure the amplitude output from T.P.29. The amplitude is as Vor6.
- 7.Next, measure the amplitude output from T.P.26, T.P.23 in the same state.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

as

Vog6, Vog6. 8. The crosstalk between channels C.T.C.2 is C.T.C2= 20 LOG  $\frac{V_{0G6} \text{ or } V_{0B6}}{V_{0B6}}$  [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



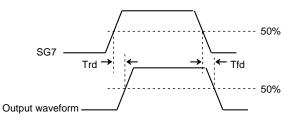
$$Tr1(Tr2) = \sqrt{(Tro)^2 - (Tri)^2}$$
 (nsec)  $Tf1(Tf2) = \sqrt{(Tfo)^2 - (Tfi)^2}$  (nsec)

- 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).

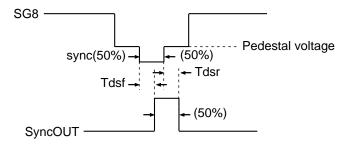




note17, note18) The condition is as table 1. Set SW15 to GND (OPEN), SG7 is as the input signal of input terminal, measure the waveform of output. Rising delay time is as Trd1 (Trd2). Falling delay time is as Tfd1(Tfd2). Reference to the Fig. as shown below.



- 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.
  - 3. 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).







# M52756SP

Symbol	Input Signal
	Sine wave ( f = 60 kHz, 0.7Vp-p, amplitude variable )
SG1	0.7Vp-p(amplitude variable)
SG2	Sine wave ( f = 1 MHz, amplitude 0.7Vp-p )
SG3	Sine wave ( f = 10 MHz, amplitude 0.7Vp-p )
SG4	Sine wave ( f = 100 MHz, amplitude 0.7Vp-p )
SG5	Sine wave ( f = 250 MHz, amplitude 0.7Vp-p )
SG6	Pulse with amplitude 0.7Vp-p ( f = 60 kHz, duty 80% )
SG7	Square wave ( Amplitude 5.0 Vo-p TTL, f = 60 KHz, duty 50% )
SG8	Video signal (luminance 100%,0%) 60KHz Video width of 12.5µsec(75%) Luminance 100% or 0% variable 0.7Vp-p Sync level is variable





#### Note how to use this IC

When GND When OPEN :

0~0.5V 2~5 V

- 1. R, G, B input signal is 0.7Vp-p of standard video signal.
- 2. H, V input is 2.0V(minimum) TTL type.

When the switch is being used as Fig.5

- 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 Signal output from input 1 Signal output from input 2

Signal output from input 1 Signal output from input 2

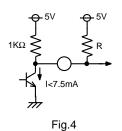


Fig.5

# It is not allowable to set voltage higher than Vcc.

#### 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.

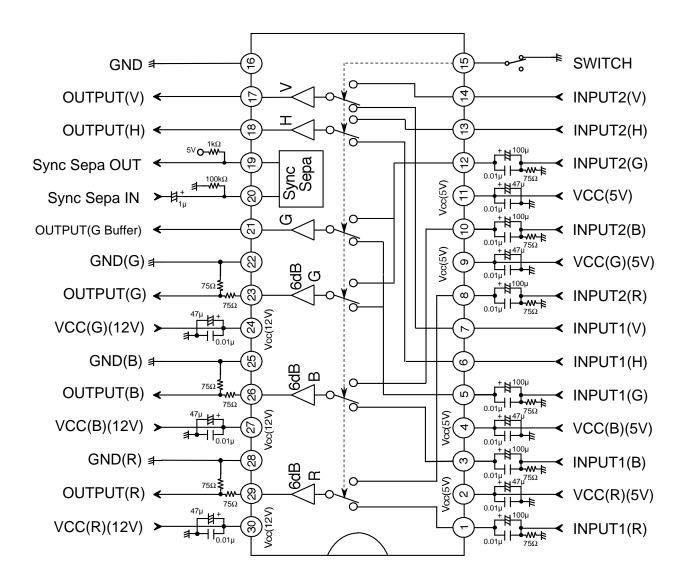




MITSUBISHI ICs (Monitor) M52756SP

WIDE BAND ANALOG SWITCH

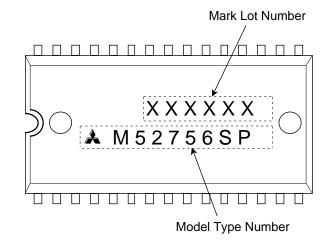
#### Attached Fig.6 Application Example



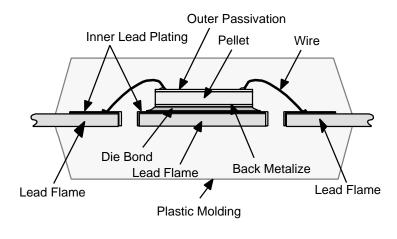




## Marking



#### Structure



#### **Material**

•	Mold Material	: Ероху
	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

