

**PRELIMINARY**  
 Notice: this is not final specification.  
 Some parametric limits are subject to change.

MITSUBISHI ICs (Monitor)

# M52757FP

WIDE BAND ANALOG SWITCH

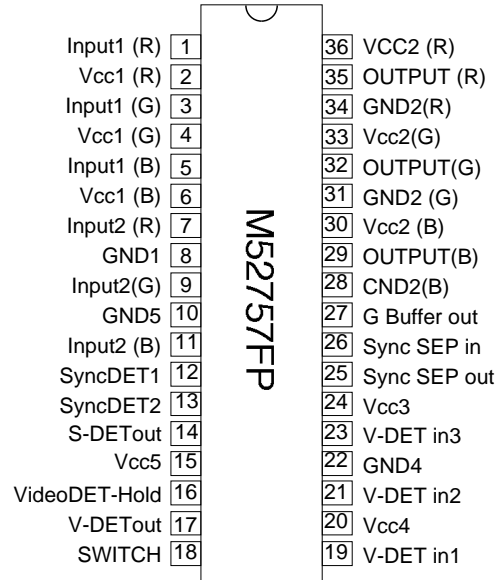
## DESCRIPTION

The M52757FP is a semiconductor integrated circuit for the RGB interface. The device features switching signals input from two types of image sources and outputting the signals to the CRT display, etc. 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. It includes Sync-separator, Video-signal-detector, and Sync-on G detector (SOG-DET.).

## FEATURES

- Frequency band width : R.G.B .....250MHz
- Input level : R.G.B.....0.7Vp-p (Typ.)
- Video signal-detector  
 Responsive frequency..... ~50MHz  
 Input level.....0.7Vpp (Typ.)  
 Detected level.....150mV (Typ.)  
 (Measure bottom to DET.level)
- Only the G channel is provided with buffer video output.
- It is possible to save the consumption current by stopping current supply to Pin 2,4,6,20,24,30,33,35 because SOG-DET can be operated with only Vcc5 (Pin 15) as power save mode.
- Include Sync Separation, Video signal detector, and Sync-on G detector.

## PIN CONFIGURATION (TOP VIEW)



Outline: 36P2R-D

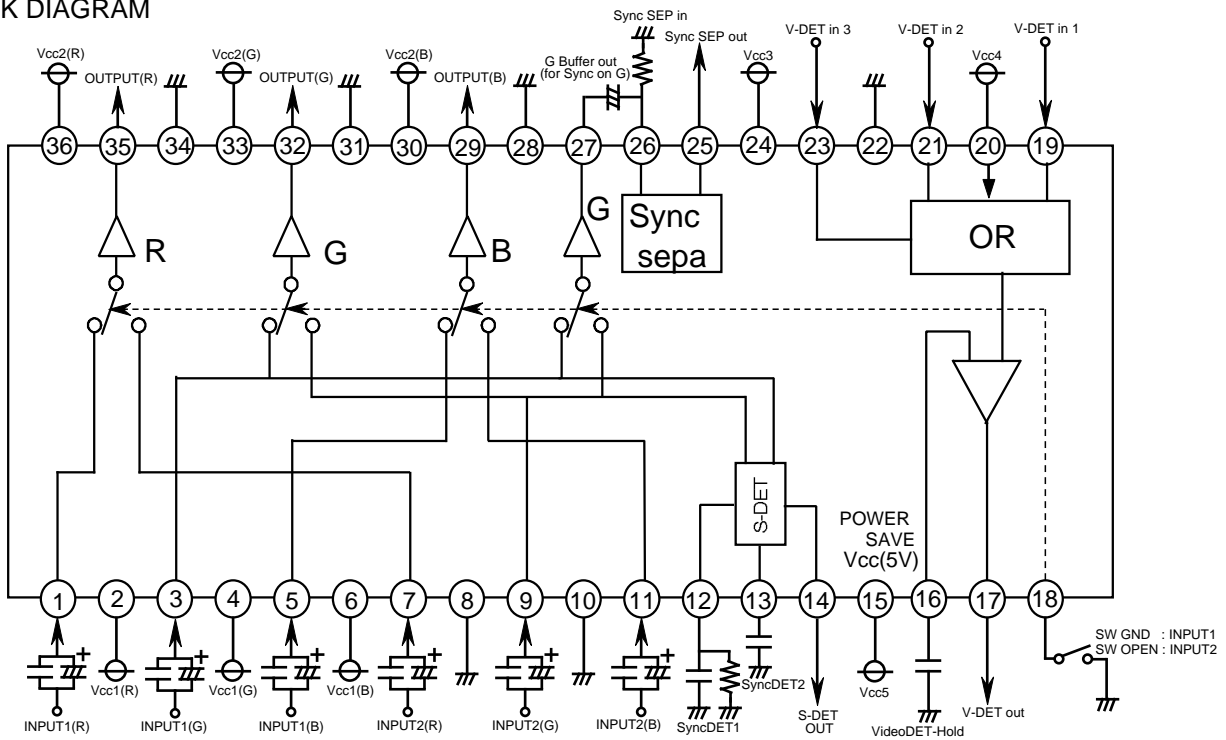
## APPLICATION

Display monitor

## RECOMMENDED OPERATING CONDITION

Supply voltage range 4.75~5.5V  
 Rated voltage 5.0V

## BLOCK DIAGRAM

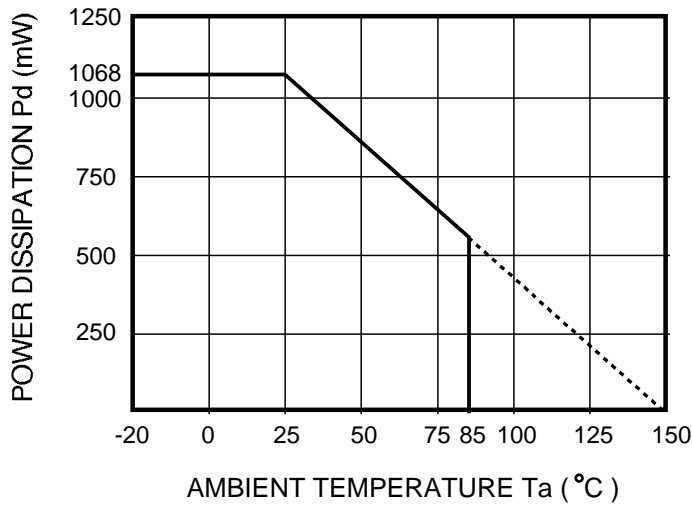


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**ABSOLUTE MAXIMUM RATINGS (Ta=25°C)**

Symbol	Parameter	Ratings	Unit
Vcc	Supply voltage	7.0	V
Pd	Power dissipation	1068	mW
Topr	Operating temperature	-20~+85	°C
Tstg	Storage temperature	-40~+150	°C
Vopr	Recommended operating supply voltage	5.0	V
Vopr'	Recommended operating supply voltage range	4.75~5.5	V
Sarge	Electrostatic discharge	±200	V

**THERMAL DERATING (MAXIMUM RATING)**



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ELECTRICAL CHARACTERISTICS (Vcc=5V, Ta=25 c)

NO.	Parameter	Test conditions	Symbol	Test point (s)	Input	SW18	Limits			Unit
							MIN	TYP	MAX	
1	Circuit current 1		Icc1	A	-	OPN	45	65	85	mA
2	Circuit current 2		Icc5	15	-	OPN	3	5	7	mA

< RGB SW >

NO.	Parameter	Test conditions	Symbol	Test point (s)	Input	SW18	Limits			Unit
							MIN	TYP	MAX	
3	Output DC voltage 1		Vdc1	29,32,35	-	OPN	1.1	1.5	1.9	V
4	Output DC voltage 2		Vdc2	29,32,35	-	GND	1.1	1.5	1.9	V
5	Output DC voltage 3		Vdc3	27	-	OPN	0.5	0.9	1.3	V
6	Output DC voltage 4		Vdc4	27	-	GND	0.5	0.9	1.3	V
7	Maximum allowable input 1		Vimax1	1,3,5	1,3,5	GND	1.4	1.6	-	Vpp
8	Maximum allowable input 2		Vimax2	7,9,11	7,9,11	GND	1.4	1.6	-	Vpp
9	Voltage gain 1		Gv1	29,32,35	1,3,5	GND	-0.1	0.5	1.1	dB
10	Relative voltage gain 1		ΔGv1	Relative to measured values above	Relative to measured values above	OPN	-0.6	0	0.6	dB
11	Voltage gain 2		Gv2	29,32,35	7,9,11	OPN	-0.1	0.5	1.1	dB
12	Relative voltage gain 2		ΔGv2	Relative to measured values above	Relative to measured values above	OPN	-0.6	0	0.6	dB
13	Voltage gain 3		Gv3	27	3	GND	-0.6	0	0.6	dB
14	Voltage gain 4		Gv4	27	9	OPN	-0.6	0	0.6	dB
15	Freq.characteristic 1 (100MHz)		Fc1	29,32,35	1,3,5	GND	-1.0	0	1.0	dB
16	Relative Freq.characteristic 1		ΔFc1	Relative to measured values above	Relative to measured values above	OPN	-1.0	0	1.0	dB
17	Freq.characteristic 2 (100MHz)		Fc2	29,32,35	7,9,11	OPN	-1.0	0	1.0	dB
18	Relative Freq.characteristic 2		Fc2	Relative to measured values above	Relative to measured values above	OPN	-1.0	0	1.0	dB
19	Freq.characteristic 1 (250MHz)		Fc3	29,32,35	1,3,5	GND	-3.0	-1.5	1.0	dB
20	Freq.characteristic 2 (250MHz)		Fc4	29,32,35	7,9,11	OPN	-3.0	-1.5	1.0	dB

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WIDE BAND ANALOG SWITCH

ELECTRICAL CHARACTERISTICS (V<sub>cc</sub>=5V, T<sub>a</sub>=25 °C)

< RGB SW >

NO.	Parameter	Test conditions	Symbol	Test point (s)	Input	SW18	Limits			Unit
							MIN	TYP	MAX	
21	Crosstalk between 2 inputs 1 (10MHz)		CT11	29,32,35	1,3,5	GD~OP	-	-60	-50	dB
22	Crosstalk between 2 inputs 2 (10MHz)		CT12	29,32,35	7,9,11	OP~GD	-	-60	-50	dB
23	Crosstalk between 2 inputs 3 (100MHz)		CT13	29,32,35	1,3,5	GD~OP	-	-40	-35	dB
24	Crosstalk between 2 inputs 4 (100MHz)		CT14	29,32,35	7,9,11	OP~GD	-	-40	-35	dB
25	Crosstalk between channel 1 (10MHz)		CTC1	29,32,35	1,3,5	GND	-	-50	-40	dB
26	Crosstalk between channel 2 (10MHz)		CTC2	29,32,35	7,9,11	OPN	-	-50	-40	dB
27	Crosstalk between channel 3 (100MHz)		CTC3	29,32,35	1,3,5	GND	-	-30	-25	dB
28	Crosstalk between channel 4 (100MHz)		CTC4	29,32,35	7,9,11	OPN	-	-30	-25	dB
29	Pulse characteristic 1		Tr1	29,32,35	1,3,5	GND	-	1.6	2.5	nS
30			Tf1	29,32,35	1,3,5	GND	-	1.6	2.5	nS
31	Pulse characteristic 2		Tr2	29,32,35	7,9,11	OPN	-	1.6	2.5	nS
32			Tf2	29,32,35	7,9,11	OPN	-	1.6	2.5	nS

< SYNC SEP >

33	Sync input min. level		SYrv	25	26	-	0.2	-	-	Vpp
34	Sync-sep output Hi level		SYVH	25	26	-	4.5	4.9	-	V
35	Sync-sep output Low level		SYVL	25	26	-	-	0.2	0.4	V
36	Sync-sep output delay time 1		TdSf	25	26	-	-	60	-	nS
37	Sync-sep output delay time 2		TdSb	25	26	-	-	60	-	nS

< SYNC DET >

38	Min. detectable Sync amplitude		SDETrv	14	3,9	-	0.2	-	-	Vpp
39	Max. detectable Sync width		SDETrt	14	3,9	-	-	4.0	-	μS
40	Sync-DET output Hi level		SDVH	14	3,9	-	4.5	4.9	-	V
41	Sync-DET output Low level		SDVL	14	3,9	-	-	0.2	0.4	V
42	Max. allowable input noise level		SDETrv	14	3,9	-	-	-	0.05	Vpp

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ELECTRICAL CHARACTERISTICS (Vcc=5V, Ta=25 c)

< VIDEO DET >

NO.	Parameter	Test conditions	Symbol	Test point (s)	Input	SW18	Limits		Unit
							MIN	TYP MAX	
43	Allowable input DC range		VDinV	19,21,23	19,21,23	-	2.0	-2.8	V
44	Allowable input amplitude range		VDin	19,21,23	19,21,23	-	-	0.7	1.0
45	Min. detectable input level		VDETrv	17	19,21,23	-	0.15	-	Vpp
46	Max. allowable input noise level		VDEInV	17	19,21,23	-	-	-	0.1
47	Max. input pulse width		VDETrt	17	19,21,23	-	-	10.0	nS
48	Video-DET output Hi level		SDVH	17	19,21,23	-	4.2	4.8	V
49	Video-DET output Low level		SDVL	17	19,21,23	-	-	0.7	1.0