

# PRELIMINARY

# M52738P

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

## 3-CHANNEL VIDEO PREAMPLIFIER WITH OSD MIXING, RETRACE BLANKING

### DESCRIPTION

The M52738P is semiconductor integrated circuit for CRT display monitor.

It includes OSD blanking function, OSD mixing, Wide-band amplifier, Main and sub contrast controls, Brightness control function.

### FEATURES

- Frequency Band Width : RGB.....130MHz (at -3dB)  
OSD.....80MHz
- Input : RGB.....0.7VP-P (typ.)  
OSD.....1.6VP-P minimum (positive)  
OSD BLK.....1.6VP-P minimum (positive)  
Retrace BLK.....1.2VP-P maximum (negative)
- Output : RGB.....4VP-P (min.)  
OSD.....4VP-P (min.)
- Contrast and brightness can be controlled with a main control.  
The Main control changes contrast or brightness of 3-channels simultaneously. The sub control changes contrast of each channel independently.

### STRUCTURE

Bipolar silicon monolithic IC

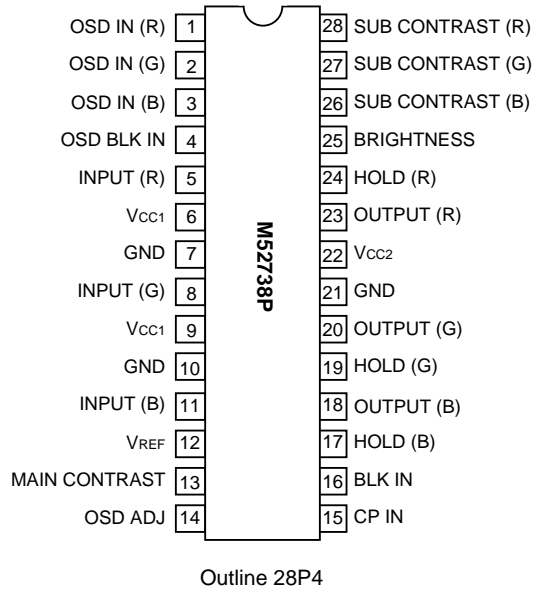
### APPLICATION

CRT display monitor

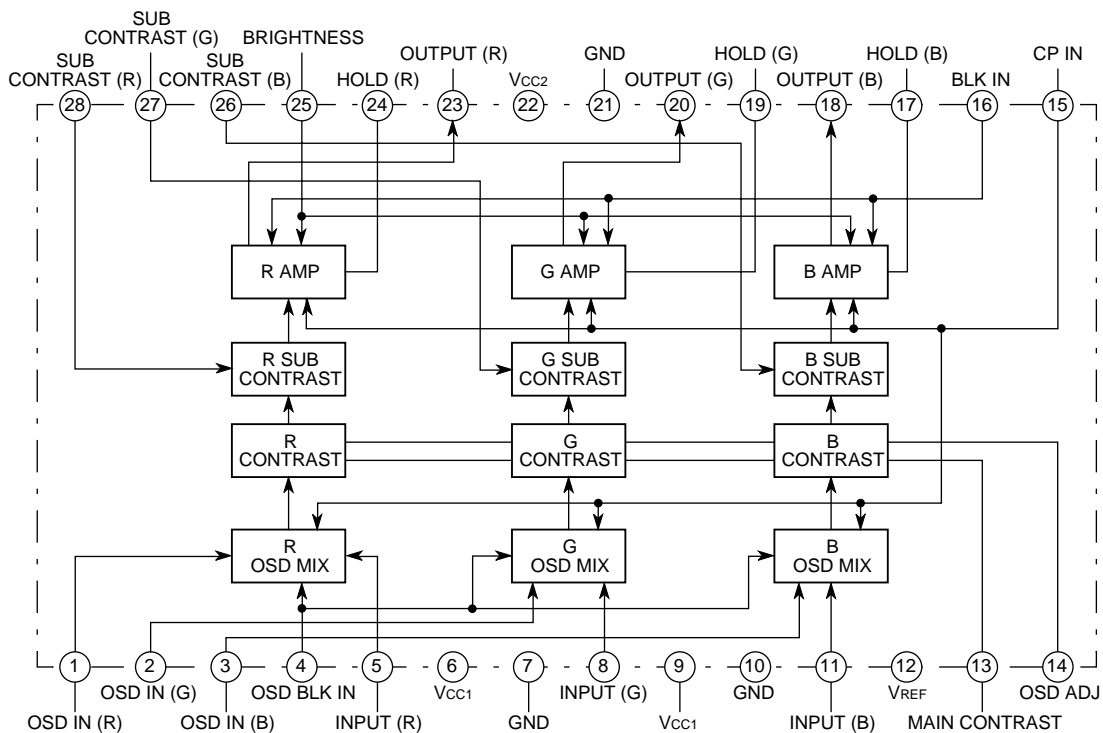
### RECOMMENDED OPERATING CONDITION

Supply voltage range.....11.4 to 12.6V  
Rated supply voltage.....12.0V

### PIN CONFIGURATION (TOP VIEW)



### BLOCK DIAGRAM



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### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Ratings	Unit
V <sub>CC</sub>	Supply voltage	13	V
P <sub>d</sub>	Power dissipation	2000	mW
T <sub>opr</sub>	Operating temperature	-20 to 70	°C
T <sub>stg</sub>	Storage temperature	-40 to 150	°C
V <sub>opr</sub>	Recommended operating supply voltage	12	V
V <sub>opr'</sub>	Recommended operating supply voltage range	11.4 to 12.6	V
Surge	Electrostatic discharge	±200	V

### ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C, V<sub>CC1</sub>=V<sub>CC2</sub>=12V, unless otherwise noted)

Symbol	Parameter	Test point	Test conditions	Limits			Unit
				Min.	Typ.	Max.	
I <sub>CC</sub>	I <sub>CC</sub>	6, 9, 21	No input. Measurement of current that flows into 6, 9 and 21	–	100		mA
G <sub>max</sub>	Maximum gain	18, 20, 23	18, 20, 23 input VSG, 15 input PG V13=4V V26, V27, V28=4V		20		dB
ΔG <sub>max</sub>	Relative maximum gain	–	–	0.8	1.0	1.2	dB
V <sub>CR1</sub>	Contrast control characteristics (typical)	18, 20, 23	18, 20, 23 input VSG, 15 input PG V13=2V V26, V27, V28=4V		14		dB
V <sub>CR2</sub>	Contrast control characteristics (minimum)	18, 20, 23	18, 20, 23 input VSG, 15 input PG V13=0.25V V26, V27, V28=4V		0.25		V <sub>P-P</sub>
V <sub>SCR1</sub>	Sub contrast control characteristics (typical)	18, 20, 23	18, 20, 23 input VSG, 15 input PG V26, V27, V28=2V V13=4V		15.5		dB
V <sub>SCR2</sub>	Sub contrast control characteristics (minimum)	18, 20, 23	18, 20, 23 input VSG, 15 input PG V26, V27, V28=0.25V V13=4V		1.1		V <sub>P-P</sub>
V <sub>B1</sub>	Brightness control characteristics (maximum)	18, 20, 23	15 input PG V25=10V		8.5		V
V <sub>B2</sub>	Brightness control characteristics (typical)	18, 20, 23	15 input PG V25=1V		1.1		V
V <sub>B3</sub>	Brightness control characteristics (minimum)	18, 20, 23	15 input PG V25=0V	–	–	0.1	V
F <sub>C1</sub>	Frequency characteristics 1 (f=50MHz; maximum)	18, 20, 23	18, 20, 23 input SG		0		dB
F <sub>C2</sub>	Frequency characteristics 2 (f=130MHz; maximum)	18, 20, 23	18, 20, 23 input SG	-3	–	–	dB
T <sub>r</sub>	Video output rise time	18, 20, 23	18, 20, 23 input PG, 15 input PG		3.0		nsec
T <sub>f</sub>	Video output fall time	18, 20, 23	18, 20, 23 input PG, 15 input PG		4.0		nsec
V <sub>thCP</sub>	Clamp pulse threshold voltage	18, 20, 23	18, 20, 23 input VSG, 15 input PG		1.2		V
O <sub>Tr</sub>	OSD output rise time	18, 20, 23	1, 2, 3 input PG, 15 input PG		4		nsec
O <sub>Tf</sub>	OSD output fall time	18, 20, 23	1, 2, 3 input PG, 15 input PG		10		nsec
O <sub>aj1</sub>	OSD adjust control (maximum)	18, 20, 23	1, 2, 3 input PG, 15 input PG V14=4V V26, V27, V28=2V		5		V <sub>P-P</sub>
O <sub>aj2</sub>	OSD adjust control (minimum)	18, 20, 23	1, 2, 3 input PG, 15 input PG V14=0V V26, V27, V28=2V		0		V <sub>P-P</sub>
OSD <sub>th</sub>	OSD input threshold voltage	18, 20, 23	1, 2, 3 input PG, 15 input PG 4 input PG		1.6		V
H <sub>BLK</sub>	Retrace BLK characteristics	18, 20, 23	16 input PG	–	–	0.5	V
H <sub>vth</sub>	Retrace BLK input threshold voltage	18, 20, 23	16 input PG		1.2		V

Note 1: The ambient temperature is 25°C.

2: The supply voltage is 12V.

3: The direction of a current that flows toward the IC is regarded as plus.

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### TYPICAL CHARACTERISTICS

