

PRELIMINARY

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

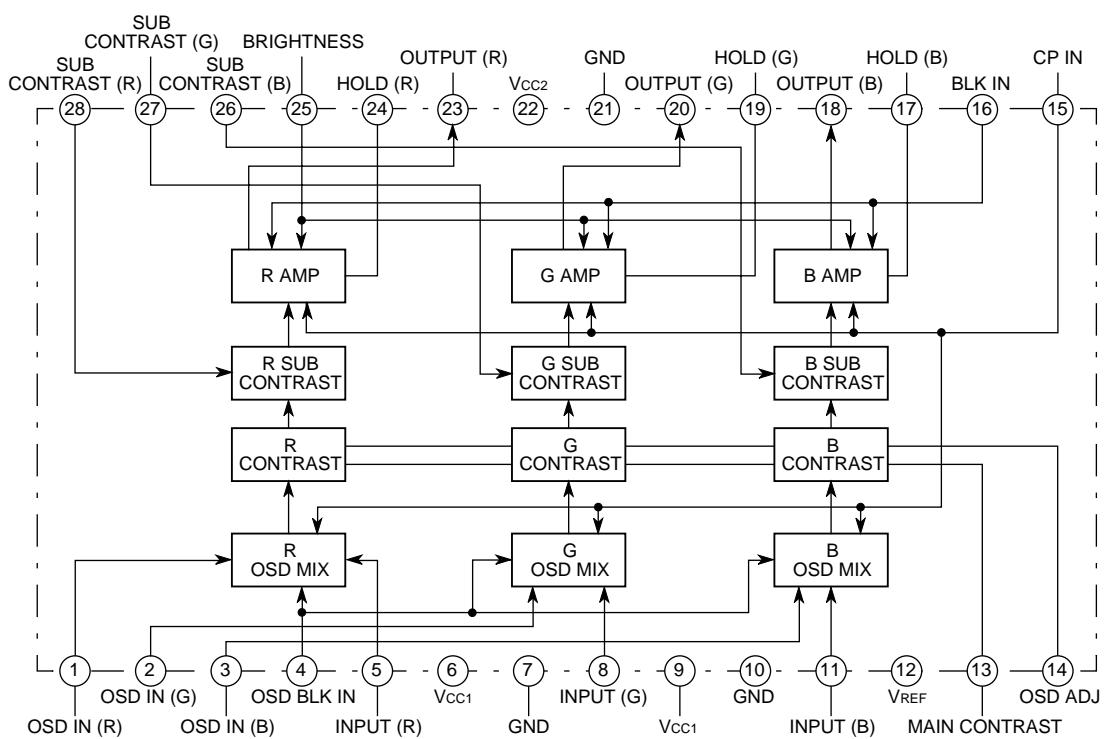
Supply voltage range.....11.4 to 12.6V
Rated supply voltage.....12.0V

PIN CONFIGURATION (TOP VIEW)

| | | | |
|---------------|----|----|------------------|
| OSD IN (R) | 1 | 28 | SUB CONTRAST (R) |
| OSD IN (G) | 2 | 27 | SUB CONTRAST (G) |
| OSD IN (B) | 3 | 26 | SUB CONTRAST (B) |
| OSD BLK IN | 4 | 25 | BRIGHTNESS |
| INPUT (R) | 5 | 24 | HOLD (R) |
| Vcc1 | 6 | 23 | OUTPUT (R) |
| GND | 7 | 22 | Vcc2 |
| INPUT (G) | 8 | 21 | GND |
| Vcc1 | 9 | 20 | OUTPUT (G) |
| GND | 10 | 19 | HOLD (G) |
| INPUT (B) | 11 | 18 | OUTPUT (B) |
| VREF | 12 | 17 | HOLD (B) |
| MAIN CONTRAST | 13 | 16 | BLK IN |
| OSD ADJ | 14 | 15 | CP IN |

Outline 28P4

BLOCK DIAGRAM



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3-CHANNEL VIDEO PREAMPLIFIER WITH OSD MIXING, RETRACE BLANKING**ABSOLUTE MAXIMUM RATINGS**

| Symbol | Parameter | Ratings | Unit |
|--------|--|--------------|------|
| Vcc | Supply voltage | 13 | V |
| Pd | Power dissipation | 2000 | mW |
| Topr | Operating temperature | -20 to 70 | °C |
| Tstg | Storage temperature | -40 to 150 | °C |
| Vopr | Recommended operating supply voltage | 12 | V |
| Vopr' | Recommended operating supply voltage range | 11.4 to 12.6 | V |
| Surge | Electrostatic discharge | ±200 | V |

ELECTRICAL CHARACTERISTICS (Ta=25°C, Vcc1=Vcc2=12V, unless otherwise noted)

| Symbol | Parameter | Test point | Test conditions | Limits | | | Unit |
|--------|---|------------|---|--------|------|------|------|
| | | | | Min. | Typ. | Max. | |
| Icc | Icc | 6, 9, 21 | No input. Measurement of current that flows into 6, 9 and 21 | — | 100 | — | mA |
| Gmax | Maximum gain | 18, 20, 23 | 18, 20, 23 input VSG, 15 input PG V13=4V V26, V27, V28=4V | — | 20 | — | dB |
| ΔGmax | Relative maximum gain | — | — | 0.8 | 1.0 | 1.2 | dB |
| VCR1 | Contrast control characteristics (typical) | 18, 20, 23 | 18, 20, 23 input VSG, 15 input PG V13=2V V26, V27, V28=4V | — | 14 | — | dB |
| VCR2 | Contrast control characteristics (minimum) | 18, 20, 23 | 18, 20, 23 input VSG, 15 input PG V13=0.25V V26, V27, V28=4V | — | 0.25 | — | VP-P |
| VSCR1 | 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 |
| VSCR2 | 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 | — | VP-P |
| VB1 | Brightness control characteristics (maximum) | 18, 20, 23 | 15 input PG V25=10V | — | 8.5 | — | V |
| VB2 | Brightness control characteristics (typical) | 18, 20, 23 | 15 input PG V25=1V | — | 1.1 | — | V |
| VB3 | Brightness control characteristics (minimum) | 18, 20, 23 | 15 input PG V25=0V | — | — | 0.1 | V |
| Fc1 | Frequency characteristics 1 (f=50MHz; maximum) | 18, 20, 23 | 18, 20, 23 input SG | — | 0 | — | dB |
| Fc2 | Frequency characteristics 2 (f=130MHz; maximum) | 18, 20, 23 | 18, 20, 23 input SG | -3 | — | — | dB |
| Tr | Video output rise time | 18, 20, 23 | 18, 20, 23 input PG, 15 input PG | — | 3.0 | — | nsec |
| Tf | Video output fall time | 18, 20, 23 | 18, 20, 23 input PG, 15 input PG | — | 4.0 | — | nsec |
| VthCP | Clamp pulse threshold voltage | 18, 20, 23 | 18, 20, 23 input VSG, 15 input PG | — | 1.2 | — | V |
| OTr | OSD output rise time | 18, 20, 23 | 1, 2, 3 input PG, 15 input PG | — | 4 | — | nsec |
| OTf | OSD output fall time | 18, 20, 23 | 1, 2, 3 input PG, 15 input PG | — | 10 | — | nsec |
| Oaj1 | OSD adjust control (maximum) | 18, 20, 23 | 1, 2, 3 input PG, 15 input PG V14=4V V26, V27, V28=2V | — | 5 | — | VP-P |
| Oaj2 | OSD adjust control (minimum) | 18, 20, 23 | 1, 2, 3 input PG, 15 input PG V14=0V V26, V27, V28=2V | — | 0 | — | VP-P |
| OSDth | OSD input threshold voltage | 18, 20, 23 | 1, 2, 3 input PG, 15 input PG 4 input PG | — | 1.6 | — | V |
| HBLK | Retrace BLK characteristics | 18, 20, 23 | 16 input PG | — | — | 0.5 | V |
| Hvth | 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

