

DATA SHEET

CR6627

Triple video driver hybrid amplifier

Product specification
File under Discrete Semiconductors, SC05

1995 Apr 04

Philips Semiconductors



PHILIPS

Triple video driver hybrid amplifier

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FEATURES

- Typical transition times (10 to 90%) with $C_L = 10$ pF:
 - at 50 V (p-p) swing
 $t_r = 2.7$ ns; $t_f = 2.2$ ns
- Low power consumption
- Minimum small signal bandwidth 110 MHz
- Very fast slew rate; 12000 V/ μ s
- Excellent grey-scale linearity
- Unconditional stability
- Gold metallization ensures excellent reliability.

APPLICATIONS

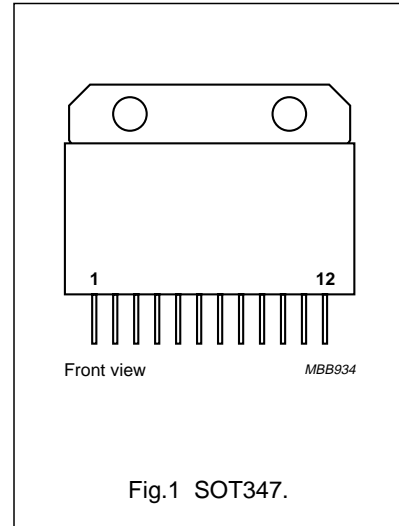
It is designed for application in cathode-ray tube (CRT) drivers in high-resolution colour monitors.

DESCRIPTION

Hybrid amplifier module comprising three video amplifiers in a SOT347 package.

PINNING

| PIN | DESCRIPTION |
|-----|-------------------------------|
| 1 | supply voltage 1 (V_{S1}) |
| 2 | input 1 |
| 3 | ground |
| 4 | output 1 |
| 5 | supply voltage 2 (V_{S2}) |
| 6 | input 2 |
| 7 | ground |
| 8 | output 2 |
| 9 | supply voltage 3 (V_{S3}) |
| 10 | input 3 |
| 11 | ground |
| 12 | output 3 |



LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

| SYMBOL | PARAMETER | MIN. | MAX. | UNIT |
|----------------------|---|------|------|------|
| Per amplifier | | | | |
| V_S | supply voltage (DC) | – | 90 | V |
| T_{mb} | operating mounting base temperature; note 1 | –20 | +100 | °C |
| T_{stg} | storage temperature | –40 | +125 | °C |

Note

1. To ensure proper thermal contact, a layer of heatsink compound should be applied between module and heatsink.

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CHARACTERISTICS

$V_S = 80\text{ V}$; $T_{mb} = 25\text{ °C}$; $C_L = 10\text{ pF}$; $R_1 = 348\text{ }\Omega$; $C_1 = 90\text{ pF}$; $R_2 = 82\text{ }\Omega$; $C_2 = 100\text{ pF}$; 50 V (p-p) output swing with 40 V DC offset (see Fig.6); unless otherwise specified.

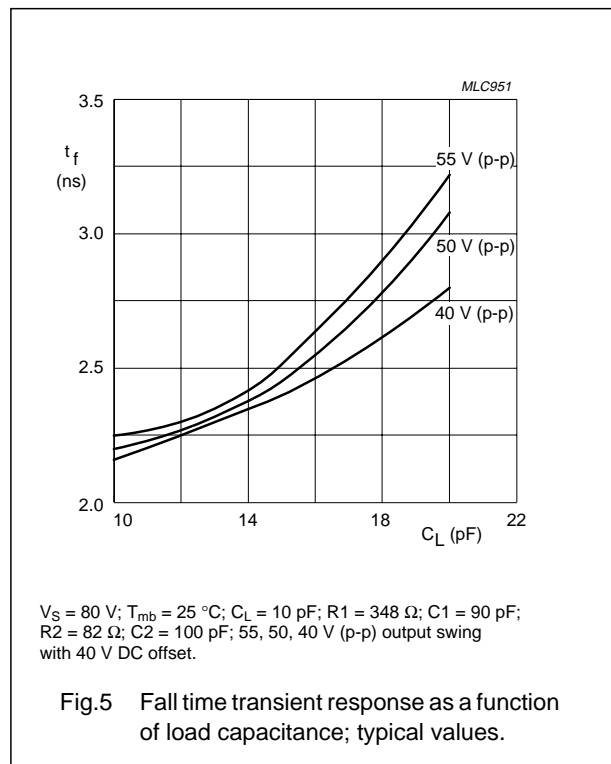
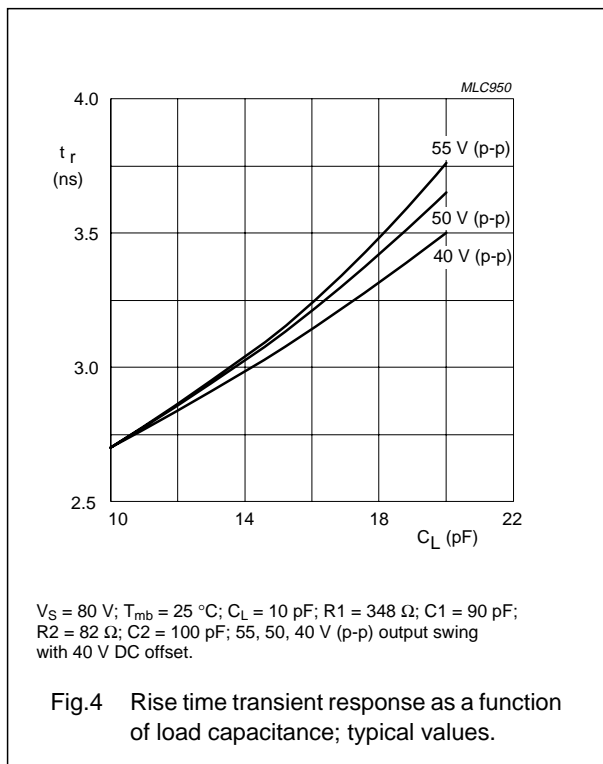
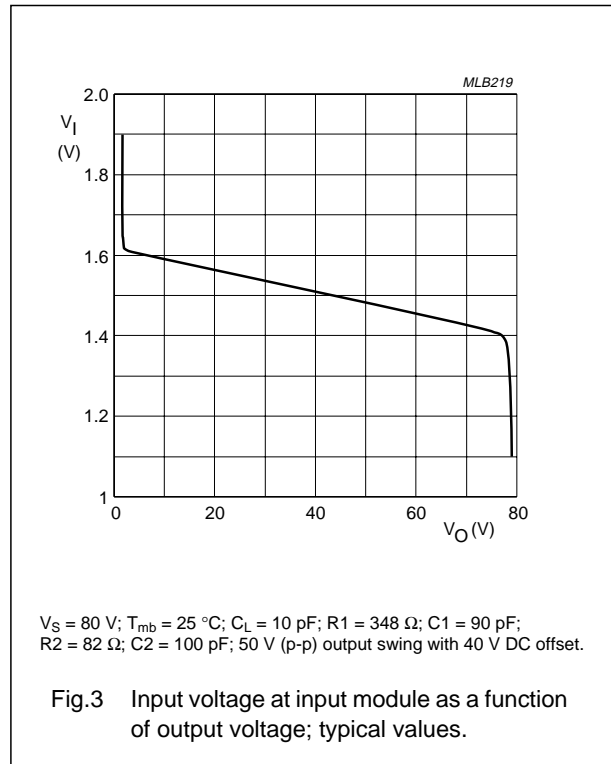
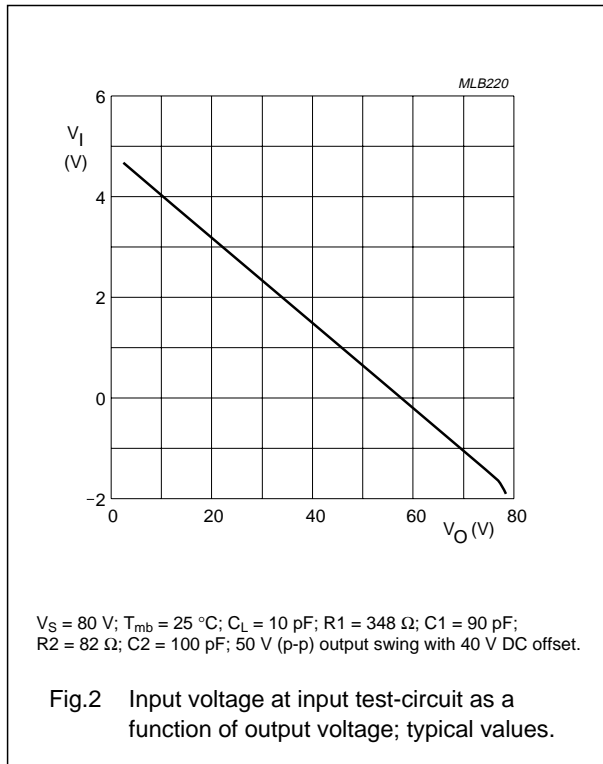
| SYMBOL | PARAMETER | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|----------------------|------------------------------|---------------------------------|------|------|------|------|
| Per amplifier | | | | | | |
| I_S | supply current | input and output open | 19 | 25 | 31 | mA |
| P_{tot} | total power dissipation | 25 MHz square wave | – | 9.6 | 11 | W |
| t_r | rise time transient response | 10 to 90%; note 1 | – | 2.7 | 3.3 | ns |
| t_f | fall time transient response | 10 to 90%; note 1 | – | 2.2 | 2.6 | ns |
| BW | small signal bandwidth | between –3 dB points; note 2 | 110 | 120 | – | MHz |
| V_{tilt} | low frequency tilt voltage | 10 kHz square wave | – | 1.3 | 1.5 | V |
| V_{os} | overshoot voltage | varied by C1 and C2; see Fig.6 | – | 3 | 10 | % |
| NLN | non-linearity | $V_O = 5\text{ to }75\text{ V}$ | – | 2 | 5 | % |
| A_V | DC voltage gain | 50 Ω source; note 3 | 11 | 12 | 13 | |
| V_G | insertion gain | 50 Ω source; note 4 | 350 | 370 | 390 | |

Notes

1. Input signal is a 100 kHz square wave of 4.15 V (p-p), with 1.5 V DC offset (50 Ω source).
2. Sinewave output signal: 1 V (p-p).
3. Measured V_O/V_I (Fig.2) at input test-circuit (see Fig.6).
4. Measured V_O/V_I (Fig.3) at input module (see Fig.6).

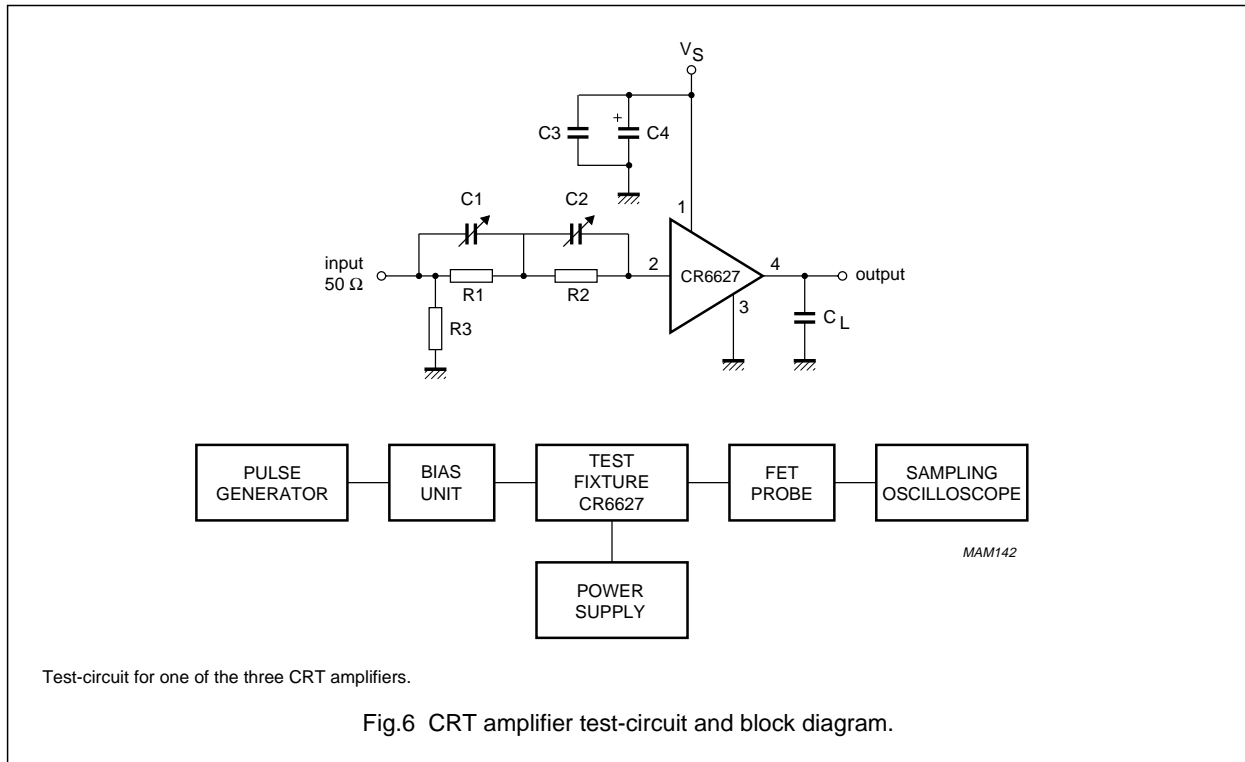
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Components used in test-circuit (see Fig.6)

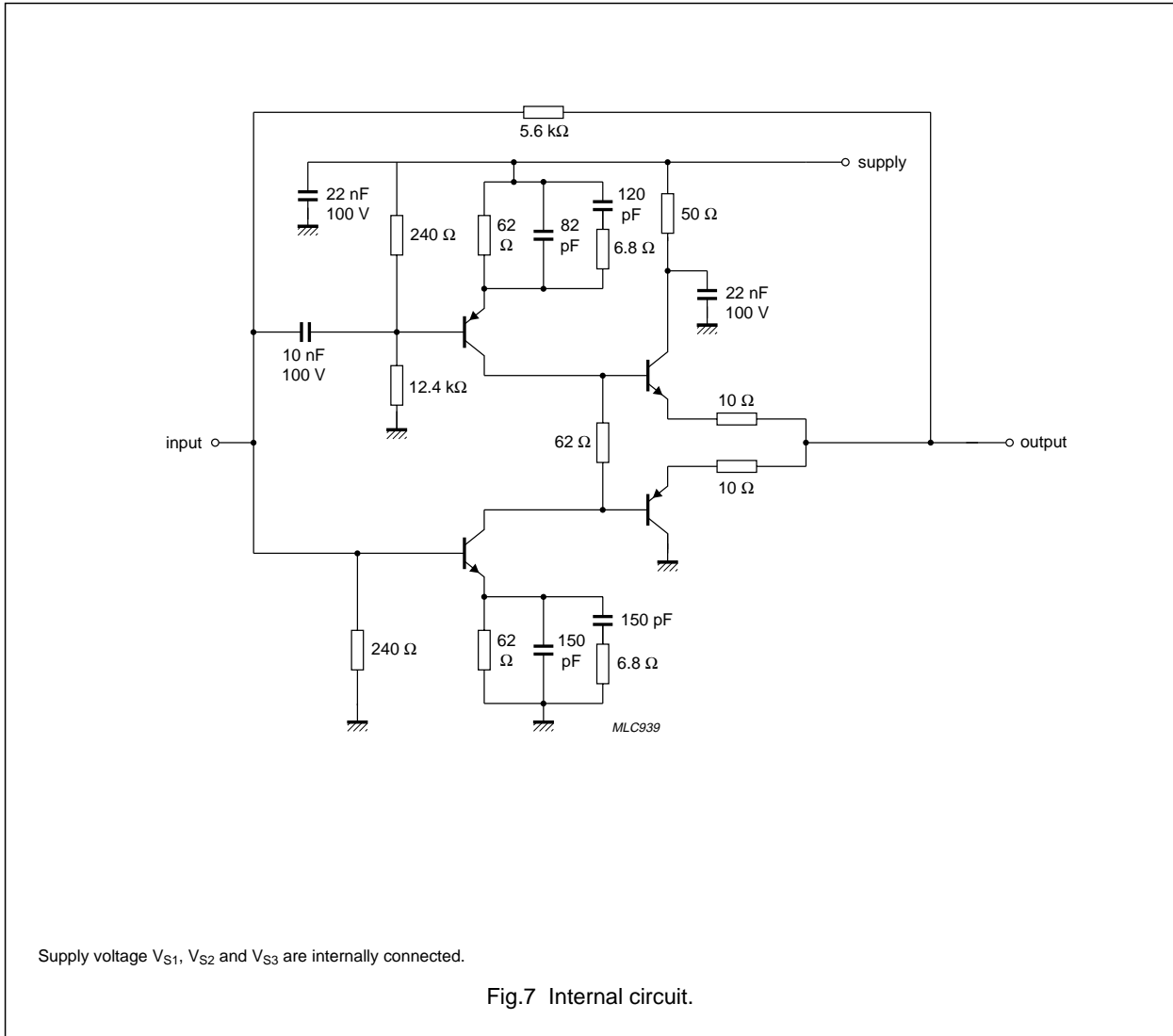
| DESIGNATION | DESCRIPTION | VALUE |
|----------------|------------------------|----------------------------|
| C ₁ | variable capacitor | 10 to 160 pF (typ. 90 pF) |
| C ₂ | variable capacitor | 10 to 160 pF (typ. 100 pF) |
| C ₃ | chip capacitor | 10 nF |
| C ₄ | electrolytic capacitor | 4.7 μF; 160 V |
| R1 | resistor | typ. 348 Ω |
| R2 | resistor | typ. 82 Ω |
| R3 | resistor | 50 Ω |

Equipment used in test-circuit (see Fig.6)

| EQUIPMENT | TYPE DESCRIPTION |
|-----------------------|--|
| Pulse generator | Pico Second; Model 2600B |
| Bias unit | Pico Second; Model 5555 |
| Power supply | Philips; Model PE1541, 80 V |
| FET probe | Philips; Model PM8943, attenuation 100 : 1 |
| Sampling oscilloscope | Tektronix; Model 11803, sampling head SD24 |

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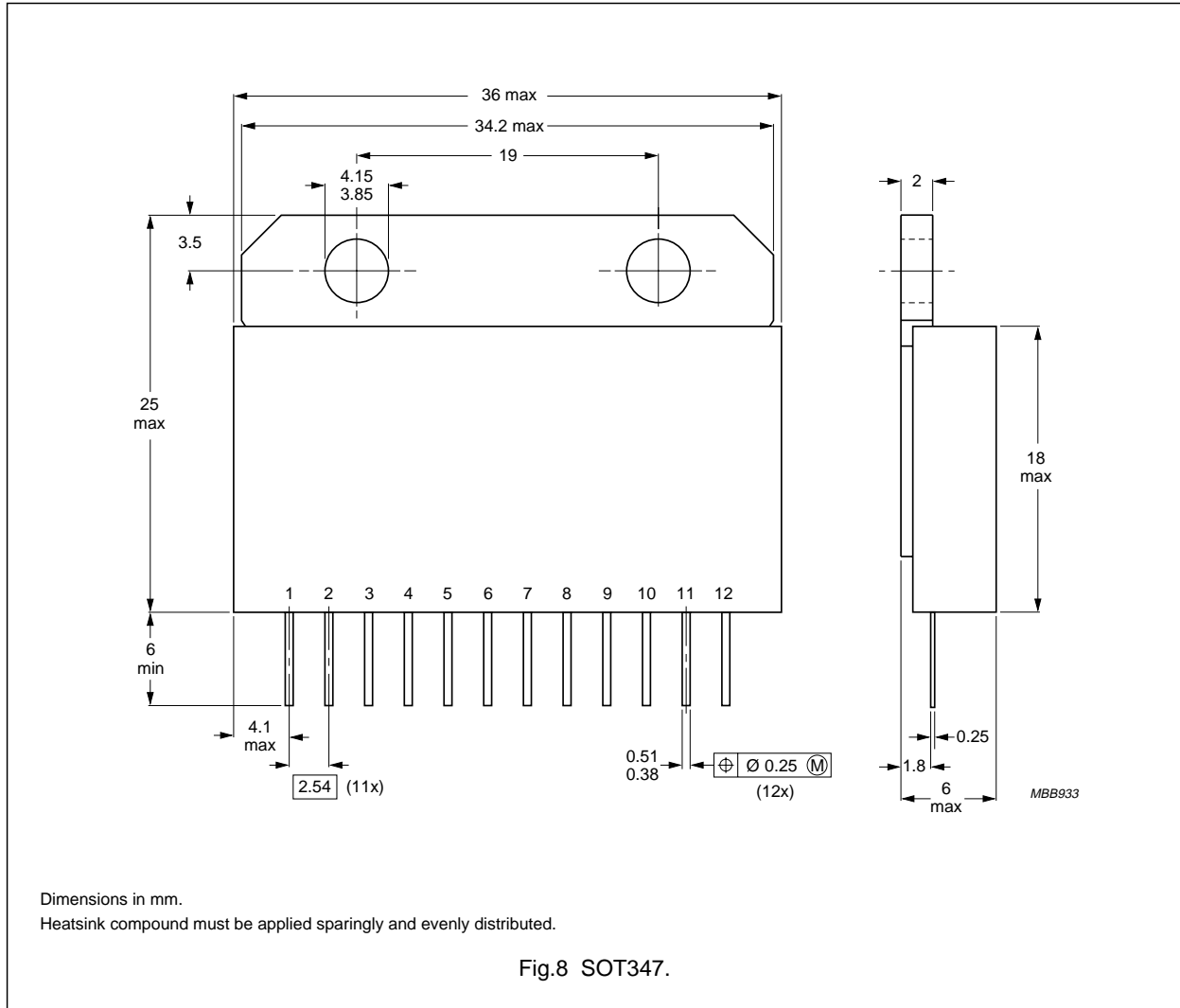
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PACKAGE OUTLINE



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DEFINITIONS

| Data sheet status | |
|---|---|
| Objective specification | This data sheet contains target or goal specifications for product development. |
| Preliminary specification | This data sheet contains preliminary data; supplementary data may be published later. |
| Product specification | This data sheet contains final product specifications. |
| Limiting values | |
| Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability. | |
| Application information | |
| Where application information is given, it is advisory and does not form part of the specification. | |

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NOTES

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