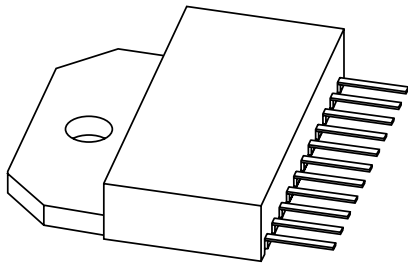


# DATA SHEET



**CR6929A**

Triple video driver hybrid amplifier

Product specification  
Supersedes data of 1998 Aug 06

1998 Sep 21

# Triple video driver hybrid amplifier

# CR6929A

### FEATURES

- Transition times (10 to 90%) with 45 V (p-p) swing and  $C_L = 10$  pF:
  - rise time (typ.) 2.5 ns
  - fall time (typ.) 2.1 ns
- Small 11-pin package
- Optimized for low supply voltages up to 90 V
- Design optimized for excellent smearing performance
- Low power consumption: 12 W with 25 MHz square wave
- Gold metallization ensures excellent reliability.

### DESCRIPTION

The CR6929A is a 3-channel hybrid RGB-amplifier module in an 11-pin SOT451A package. Being an Active Load amplifier, the CR6929A combines a high bandwidth with a relatively low and constant dissipation. It is the pin-compatible 11-pin successor to the 12-pin CR6928A and CR6727A modules.

An optimized design, together with innovative application recommendations, ensure excellent smearing performance.

A member of the '29-family' of active loads, the CR6929A is intended for the highest monitor performance. Other '29-family' members are intended for lower static dissipation (CR6929) or lower supply voltages (CR6729A).

### APPLICATIONS

- High-end CRT monitors with pixel frequencies up to 250 MHz.

### PINNING

PIN	DESCRIPTION
1	input 1
2, 6, 10	ground
3	output 1
4, 8	supply voltage ( $V_S$ )
5	input 2
7	output 2
9	input 3
11	output 3

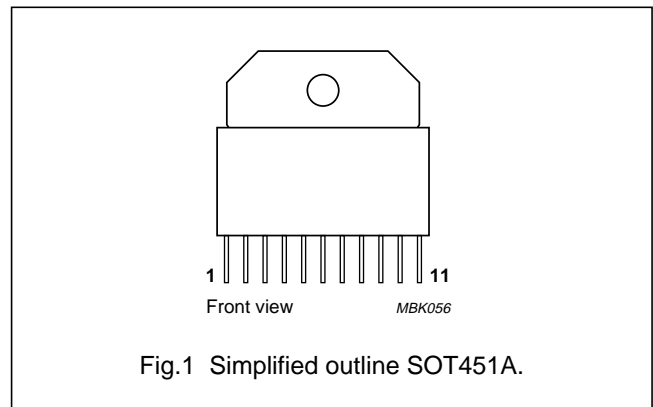


Fig.1 Simplified outline SOT451A.

### LIMITING VALUES

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

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
$V_S$	supply voltage (DC)	–	110	V
$T_{mb}$	operating mounting base temperature	–20	+110	°C
$T_{stg}$	storage temperature	–40	+125	°C

### RECOMMENDED OPERATING CONDITIONS

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

# Triple video driver hybrid amplifier

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## CHARACTERISTICS

$V_S = 85\text{ V}$ ;  $T_{mb} = 25\text{ }^\circ\text{C}$ ;  $C_L = 10\text{ pF}$ ; output swing = 45 V (p-p) with 42.5 V DC offset (see Fig.3); unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
<b>Per amplifier</b>						
$I_S$	supply current	open input and open output	97	112	127	mA
$P_{tot}$	total power dissipation	25 MHz square wave	–	12	12.5	W
$t_r$	rise time transient response	10 to 90%; note 1	–	2.5	3.1	ns
$t_f$	fall time transient response	10 to 90%; note 1	–	2.1	2.5	ns
BW	small signal bandwidth	between –3 dB points; note 2	140	150	–	MHz
$V_{tilt}$	low frequency tilt voltage	10 kHz square wave	–	1.3	1.5	V
$V_{os}$	overshoot voltage (rise and fall time)	adjustable by C1 and C2; see Fig.3	–	3	10	%
NLN	non-linearity	$V_O = 10\text{ to }75\text{ V}$	–	2	5	%
$A_V$	DC voltage gain	50 $\Omega$ source; note 3	10.8	12.0	13.2	V/V
$V_G$	insertion gain	50 $\Omega$ source; note 4	253	273	293	V/V

## Notes

1. Input signal is a 100 kHz square wave of 3.5 V (p-p) with 850 mV DC offset (50  $\Omega$  source), without  $R_{level}$ .
2. Sinewave output signal: 1 V (p-p).
3. Measured  $V_O/V_I$  at input test circuit.
4. Measured  $V_O/V_I$  at input module.

## APPLICATION NOTES

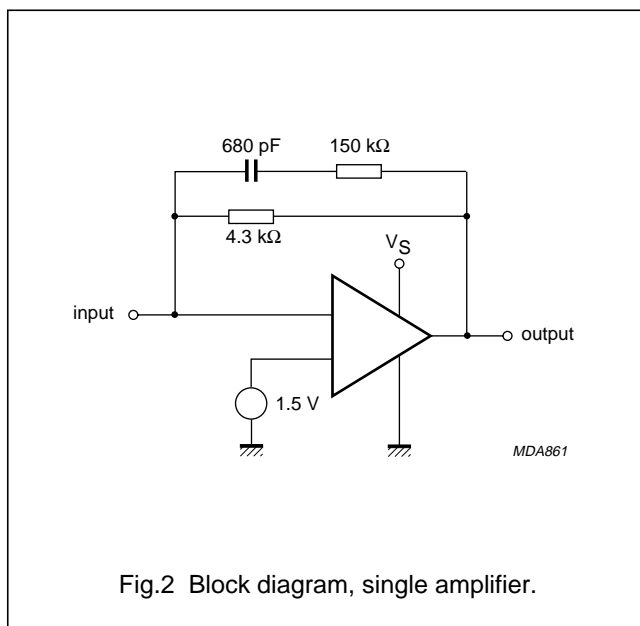
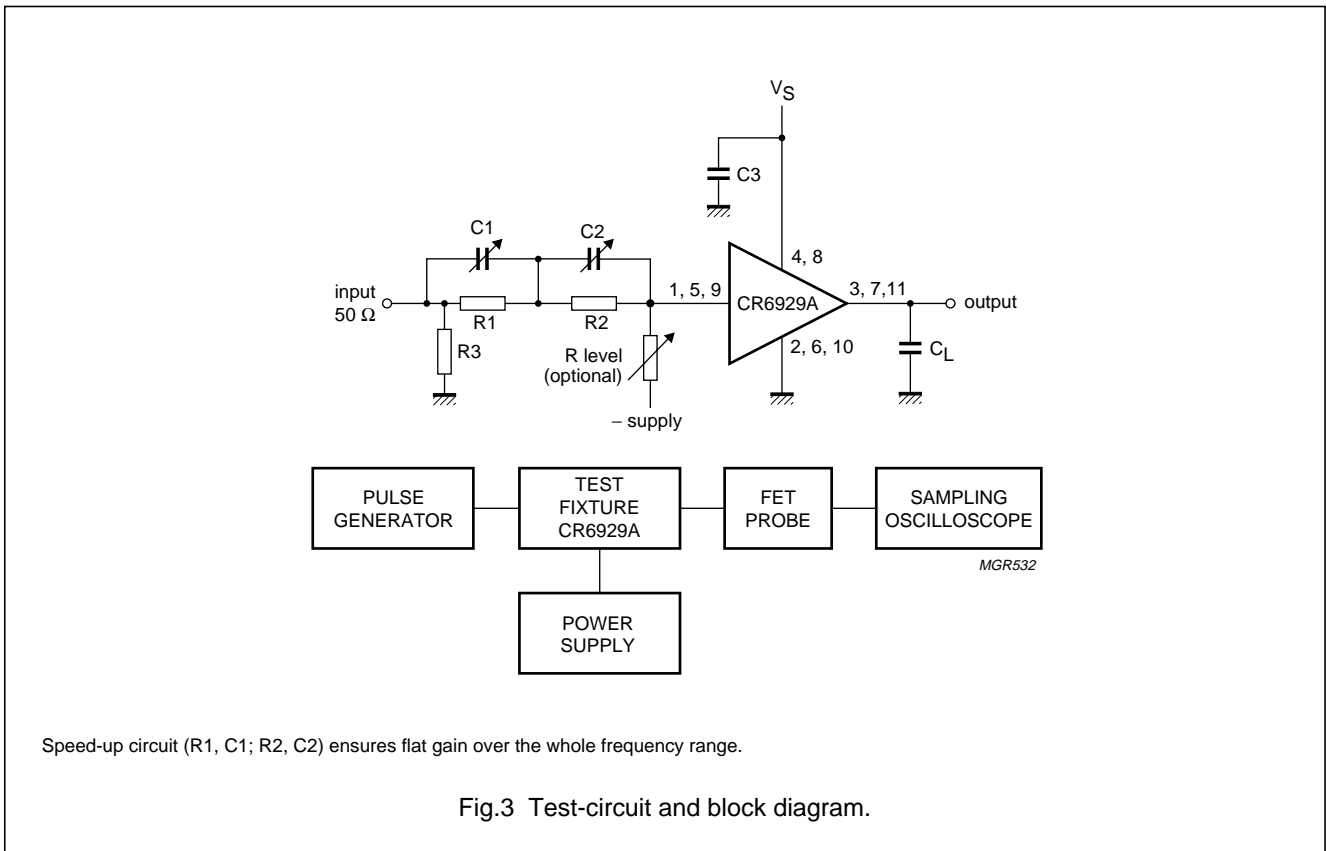


Fig.2 Block diagram, single amplifier.

Triple video driver hybrid amplifier

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Components used in test-circuit (see Fig.3)

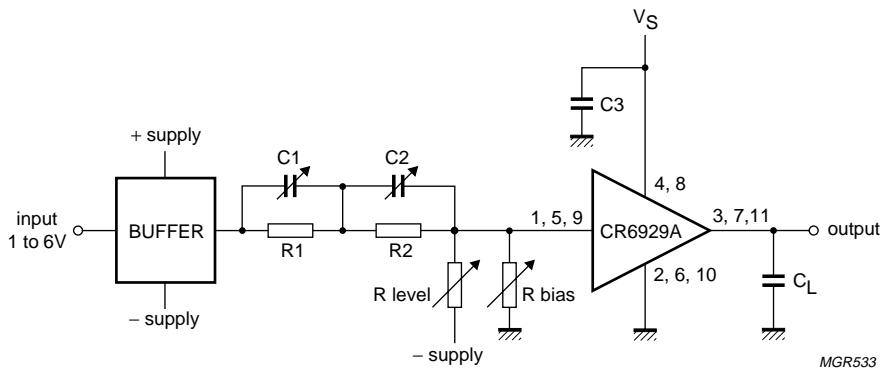
COMPONENT	DESCRIPTION	VALUE
C1	variable capacitor	10 to 160 pF (typ. 50 pF)
C2	variable capacitor	10 to 160 pF (typ. 82 pF)
C3	chip capacitor and electrolytic capacitor	10 nF and 4.7 μF; 160 V
R1	resistor	275 Ω
R2	resistor	62 Ω
R3	resistor	50 Ω

Test equipment used in test-circuit (see Fig.3)

EQUIPMENT	TYPE DESCRIPTION
Pulse generator	Le Croy; model 9210 with unit 9211
	Philips; model PM5785B (125 MHz) with internal DC offset
Power supply	Philips; model PE1542, 80 V
FET probe	Philips; model PM8943, attenuation 100 : 1
Sampling oscilloscope	Tektronix; model 11801B, sampling head SD26

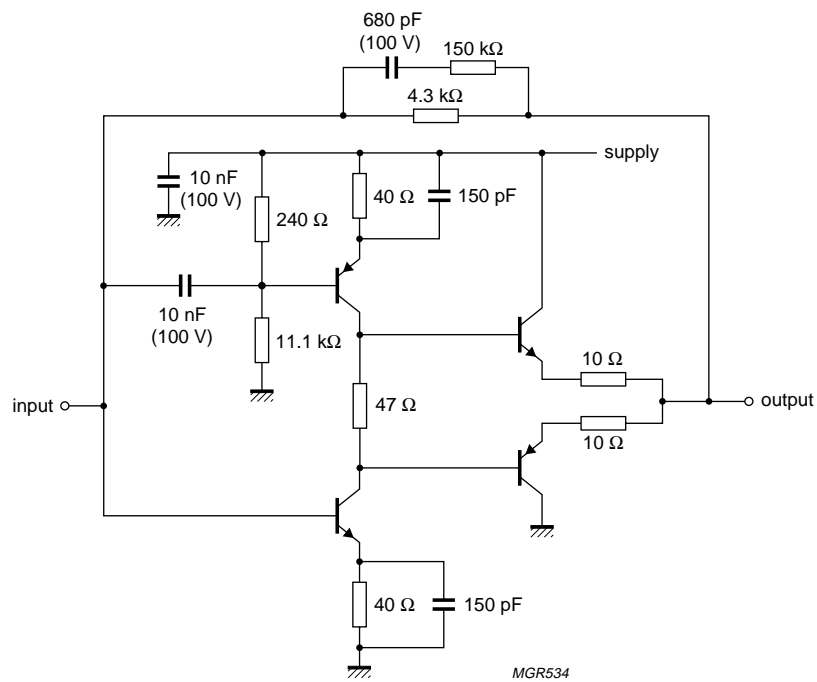
Triple video driver hybrid amplifier

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$R_{level}$  and  $R_{bias}$  are intended to achieve the required output level and to optimize the frequency smearing performance.  
 $R_{level}$  has to be adjusted to the required output level (approximately 2 k $\Omega$  at  $V_S = -12$  V).  
 $R_{bias}$  has to be tuned for the best high frequency smearing performance (200 MHz burst).

Fig.4 Application test-circuit.



Supply voltages are internally connected.

Fig.5 Internal circuit, single amplifier.

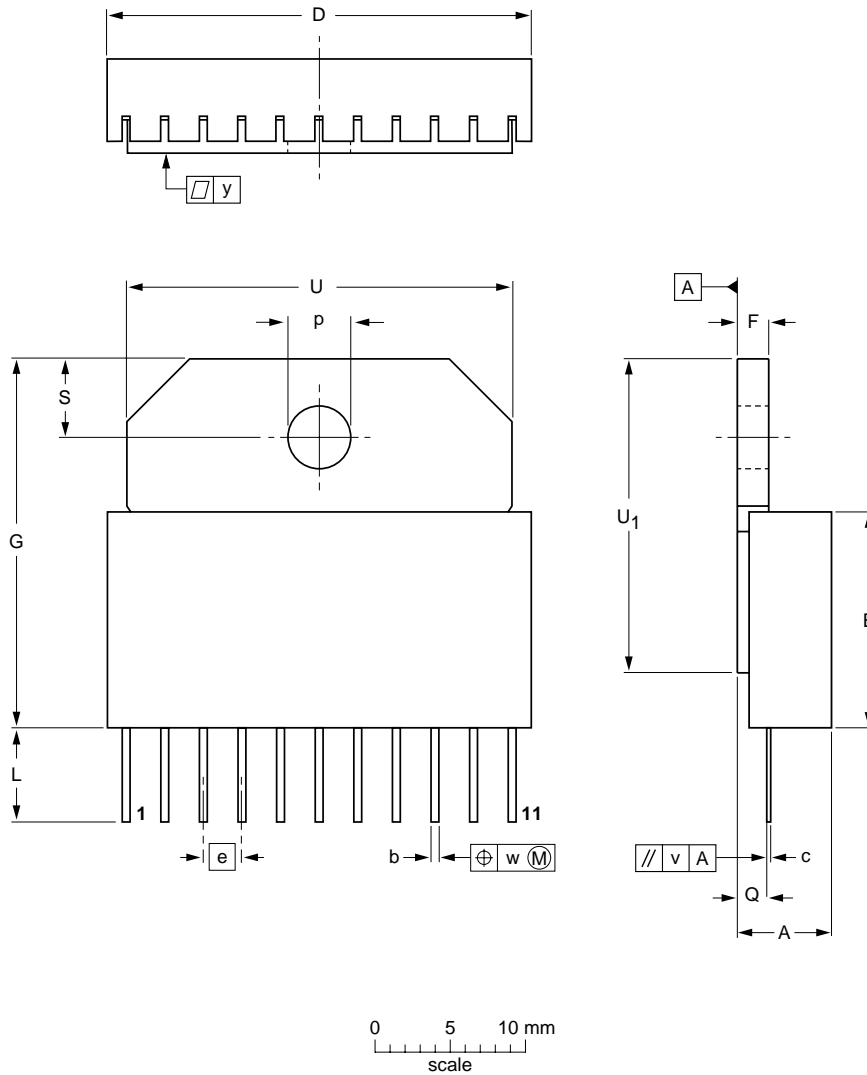
Triple video driver hybrid amplifier

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PACKAGE OUTLINE

Ceramic single-ended flat package; heatsink mounted; 1 mounting hole; 11 in-line gold-metallized leads

SOT451A



DIMENSIONS (mm are the original dimensions)

UNIT	A	b	c	D	E	e	F	G	L	p	Q	S	U	U <sub>1</sub>	v	w	y
mm	5.9 5.5	0.56 0.46	0.25	28.3 27.9	13.9 13.5	2.54	2.2 1.8	23.8 23.4	6.2 5.8	4.2 3.8	2.0 1.6	5.2 4.8	25.4 25.0	20.4 20.0	0.3	0.25	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT451A						97-06-26

## Triple video driver hybrid amplifier

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**DEFINITIONS**

<b>Data sheet status</b>	
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.
<b>Limiting values</b>	
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.	
<b>Application information</b>	
Where application information is given, it is advisory and does not form part of the specification.	

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Printed in The Netherlands

125102/00/05/pp8

Date of release: 1998 Sep 21

Document order number: 9397 750 04304

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