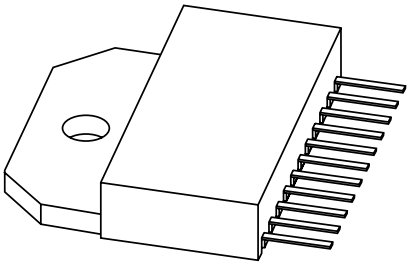
DATA SHEET



CR5427
Triple video driver hybrid amplifier

Product specification
File under Discrete Semiconductors, SC05

1997 Oct 21

Philips
Semiconductors

PHILIPS

Triple video driver hybrid amplifier CR5427

FEATURES

- Transition times (10 to 90%) with 45 V (p-p) swing and C_L = 10 pF: rise time (typ.) 3 ns fall time (typ.) 3 ns
- Very low power consumption: 7 Watt with 25 MHz square wave
- Minimum small signal bandwidth: 100 MHz
- Very fast slew rate 12000 V/µs
- Excellent grey-scale linearity
- Internal supply decoupling per channel for optimum EMI performance and minimal crosstalk
- Gold metallization ensures excellent reliability
- No negative supply required in the final stage.

APPLICATIONS

- Cathode-ray tube (CRT) drivers in high-resolution colour monitors
- For 1280 x 1024 pixels (good picture quality) with single PNP buffer
- For 1024 x 768 pixels (acceptable picture quality) when directly driven from the video pre-amp IC.

DESCRIPTION

Hybrid amplifier module comprising three video amplifiers in a SOT451A package.

PINNING - SOT451A

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

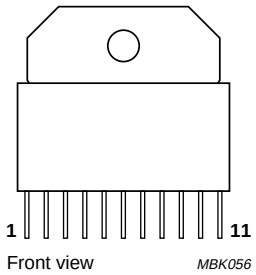


Fig.1 Simplified outline.

LIMITING VALUES

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

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
Per amplifier				
V_S	supply voltage (DC)	–	80	V
T_{mb}	operating mounting base temperature	–20	+100	°C
T_{stg}	storage temperature	–40	+125	°C

CHARACTERISTICS

V_S = 75 V; T_C = 25 °C; C_L = 10 pF; output swing = 45 V (p-p) with 32.5 V DC offset (see Fig.3); unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_S	supply current	open input and open output	50	60	75	mA
P_{tot}	total power consumption	25 MHz square wave	–	7	8	W
t_r	rise time transient response	10 to 90%; note 1	–	3	4	ns
t_f	fall time transient response	10 to 90%; note 1	–	3	4	ns
BW	small signal bandwidth	between –3 dB points; note 2	100	120	–	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 to 60 V	–	2	5	%
A_V	DC voltage gain	50 Ω source; note 3	11	12.5	14	
V_G	insertion gain	50 Ω source; note 4	110	130	150	

Notes

1. Input signal is a 100 kHz square wave of 3.5 V (p-p) with 3.5 V DC offset (50 Ω source).
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

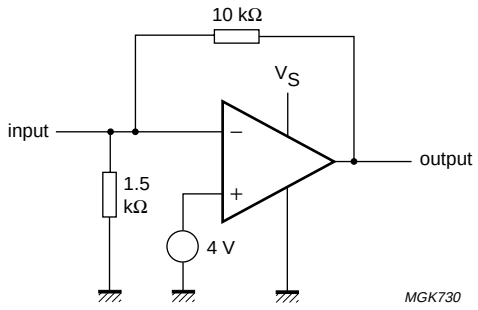
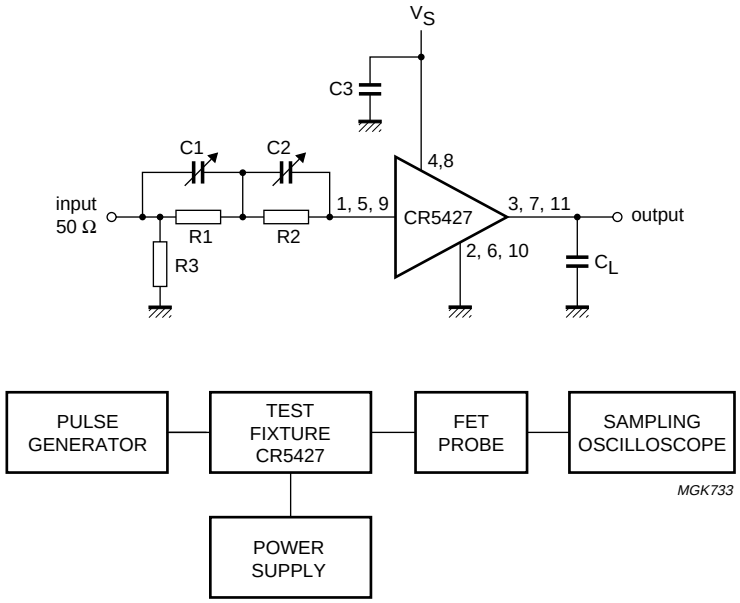


Fig.2 Block diagram; single amplifier.



Speed-up circuit (R1, C1; R2, C2) ensures flat gain over the whole frequency range.

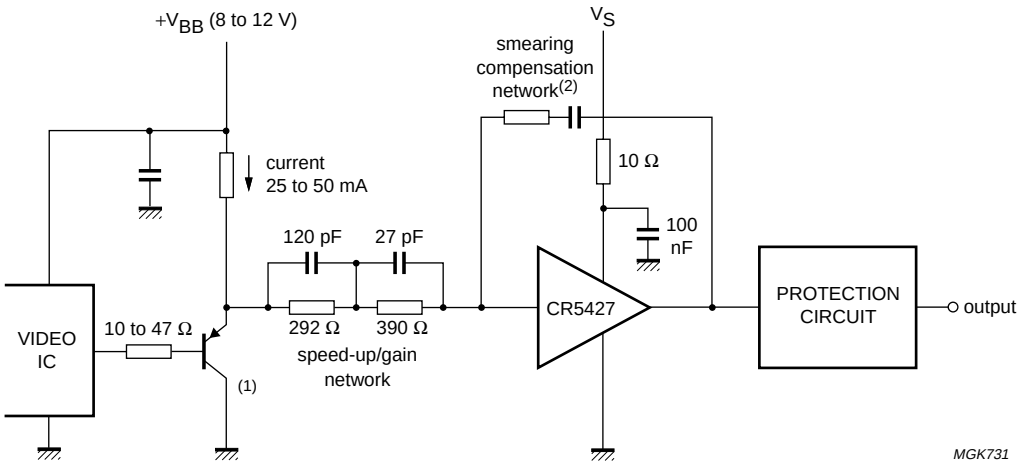
Fig.3 Application test circuit and block diagram.

Components used in test circuit (see Fig.3)

COMPONENT	DESCRIPTION	VALUE
C1	variable capacitor	10 to 160 pF (typ. 120 pF)
C2	variable capacitor	10 to 160 pF (typ. 27 pF)
C3	chip capacitor plus electrolytic capacitor	10 nF plus 4.7 μF; 160 V
R1	resistor	292 Ω
R2	resistor	390 Ω
R3	resistor	100 Ω

Test equipment (see Fig.3)

EQUIPMENT	TYPE DESCRIPTION
Pulse generator	Le Croy; model 9210 with unit 9212
	Philips; model PM5785B (125 MHz) with internal DC offset
Power supply	Philips; model PE1541, 80 V
FET probe	Philips; model PM8943, attenuation 100 : 1
Sampling oscilloscope	Tektronix; model 11803, sampling head SD24

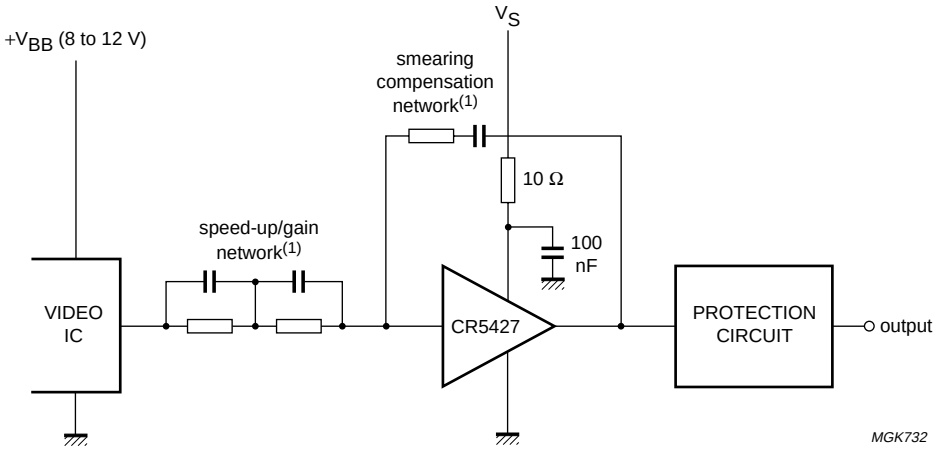


t_r, t_f < 4 ns (determined by current drive capability of the video IC).

(1) f_T > 3 GHz; I_{Cmax} > 100 mA.

(2) Component values dependent on CRT.

Fig.4 Application circuit with buffer stage for maximum performance.



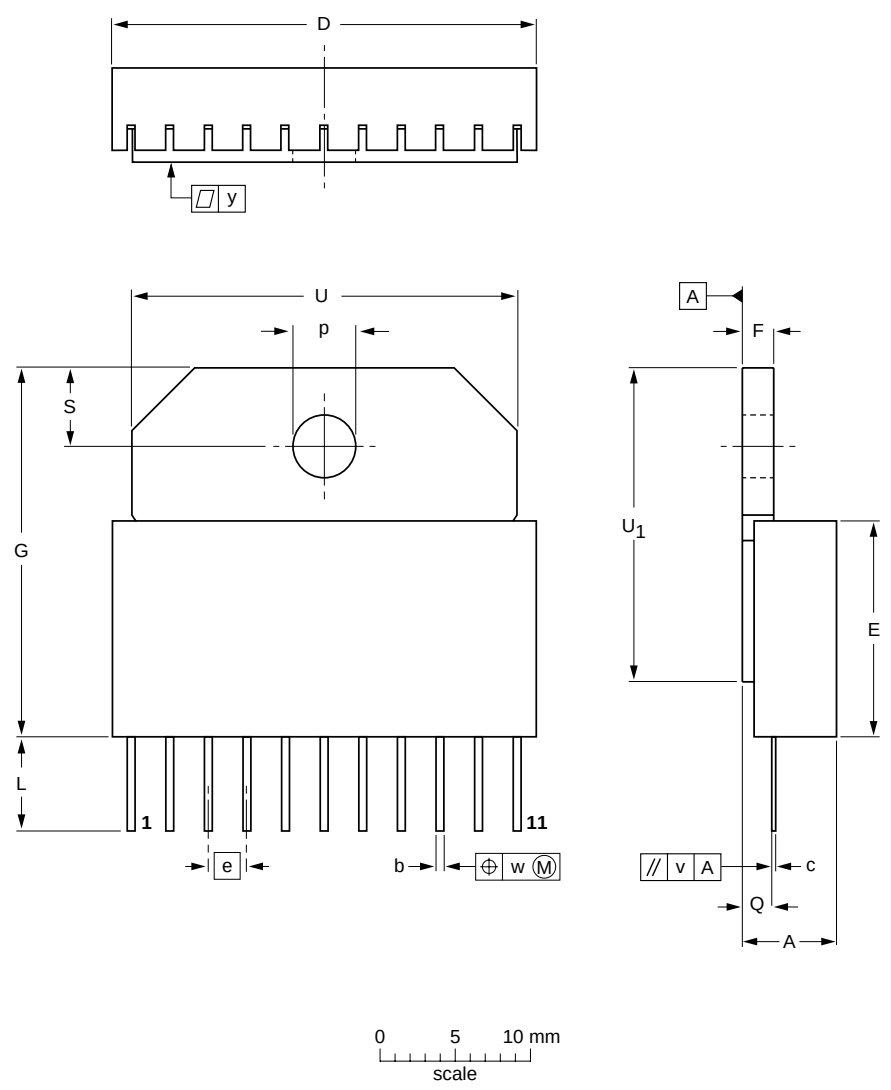
t_r, t_f < 7 ns (determined by current drive capability of the video IC).

(1) Component values dependent on video IC and CRT.

Fig.5 Application circuit without buffer stage for economy.

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_1	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

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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