

Data sheet	
status	Preliminary specification
date of issue	June 1990

TDA4680

Video control combination with automatic cut-off and white balance control

GENERAL DESCRIPTION

The TDA4680 has been designed to perform the video control functions in television receivers which have a colour difference interface. The device operates in conjunction with a multistandard colour decoder such as the TDA4650 or the TDA4555.

Application is also possible with the colour transient IC (TDA4565) or the picture signal improvement IC (TDA4660).

The required input signals are luminance and negative colour difference $-(R-Y)$ and $-(B-Y)$, a 2 or 3-level sandcastle pulse (for timing control) and I²C-bus for various control functions.

Two fully controlled analog RGB signals can be inserted thereby fulfilling the peritelevision connector specification. RGB output signals are available for driving the video output stages. This circuit provides automatic cut-off and white balance control of the picture tube.

FEATURES

- Capacitive coupling of the colour difference, luminance and RGB input signals with black level clamping
- Two fully controlled analog RGB inputs enabled via fast switches or I²C-bus
- Saturation, contrast and brightness control acts on all selected signals via the I²C-bus
- Equal black level for television and inserted signals
- Clamping, horizontal and vertical blanking, timing of automatic cut-off and white balance control is controlled by a 2 or 3-level sandcastle pulse
- Automatic cut-off control with compensation for leakage current of picture tube
- Automatic white balance control with digital storage or simple white control via I²C-bus
- Measuring pulses for PAL, SECAM and NTSC/PAL-M appear in last 3 or 4 lines within selectable blanking intervals via I²C-bus
- Prepared for progressive scan and 100 Hz application via I²C-bus
- Two switch-on delays for run-in without discolouration
- Average beam current limiting
- Adjustable peak drive limiting via I²C-bus
- PAL/SECAM - NTSC matrix for colour difference signals via I²C-bus
- Three adjustable references for automatic cut-off control and automatic white balance control via I²C-bus
- Bandwidth 12 MHz (typ.) for luminance and RGB signals
- Emitter follower outputs for driving the RGB output stages
- DAC for hue setting of TDA4555 or TDA4650



ORDERING AND PACKAGE INFORMATION

EXTENDED TYPE NUMBER	PACKAGE			
	PINS	PIN POSITION	MATERIAL	CODE
TDA4680	28	DIL	plastic	SOT117

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TDA4680

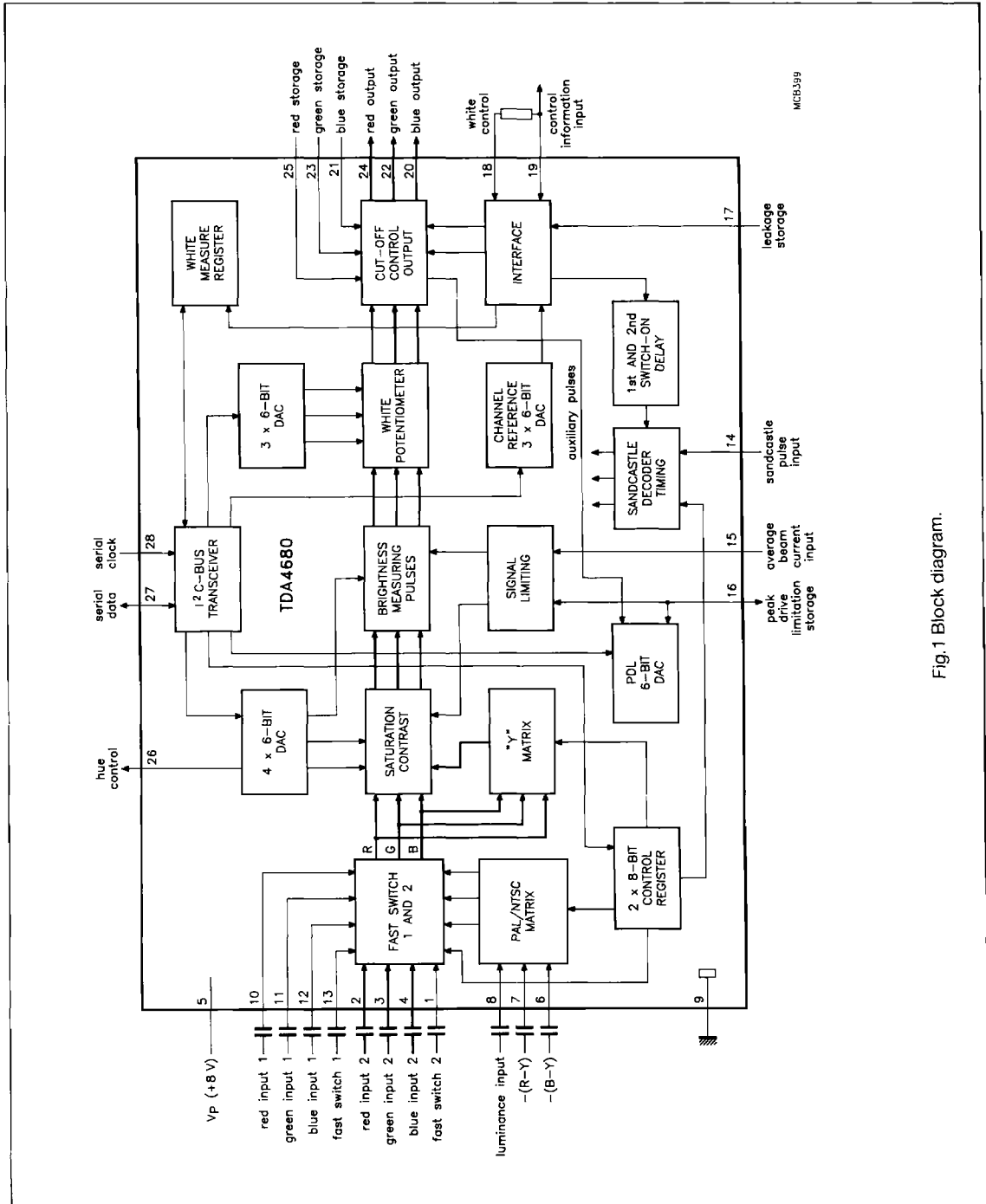


Fig.1 Block diagram.

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TDA4680

QUICK REFERENCE DATA

SYMBOL	PARAMETER	MIN.	TYP.	MAX.	UNIT
V_P	supply voltage (pin 5)	7.2	8.0	8.8	V
I_P	supply current (pin 5)	-	90.0	-	mA
$V_{8(p-p)}$	luminance input (VBS) (peak-to-peak value)	-	0.45	-	V
	colour difference input signals (peak-to-peak value)				
$V_{6(p-p)}$	-(B-Y)	-	1.33	-	V
$V_{7(p-p)}$	-(R-Y)	-	1.05	-	V
$V_{2,3,4}$	inserted RGB2 signals (black-to-white value)	-	0.7	-	V
$V_{10,11,12}$	inserted RGB1 signals (black-to-white value)	-	0.7	-	V
V_{14}	three-level sandcastle pulse	-	2.5 4.5 8.0	-	V

LIMITING VALUES

In accordance with the Absolute Maximum System (IEC 134)

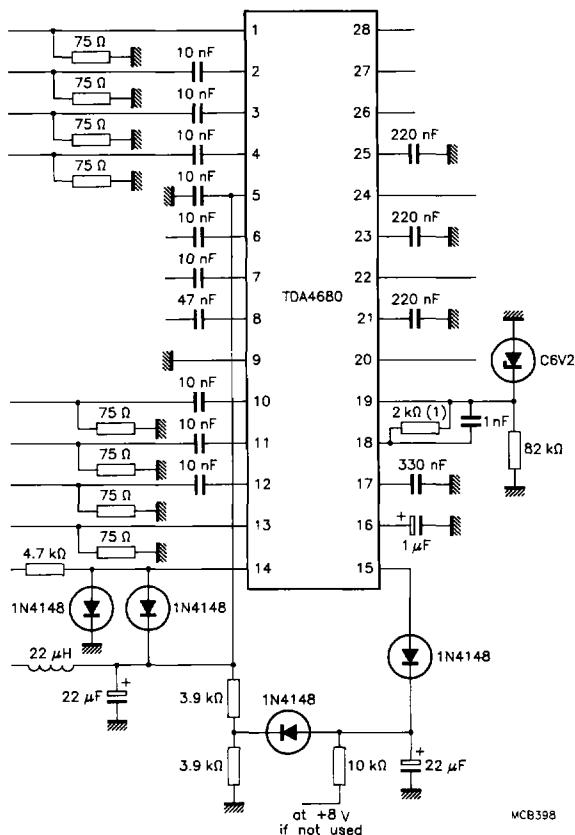
SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V_P	supply voltage range (pin 5)	0	8.8	V
V_n	supply voltage range at pins 1 to 4, 6 to 8, 10 to 13, 16, 21, 23, 25, 27 and 28	0	V_P	V
$V_{14,15,18,19}$	voltage range	-0.7	$V_P+0.7$	V
I_{18}	input current	-	-2	mA
$I_{20,22,24}$	output current (average)	-	-10	mA
$I_{20,22,24}$	output current (peak)	-	-20	mA
I_{26}	output current	-	-8	mA
P_{tot}	total power dissipation	-	1.2	W
T_{stg}	storage temperature range	-20	+150	°C
T_{amb}	operating ambient temperature range	0	+70	°C

THERMAL RESISTANCE

SYMBOL	PARAMETER	TYP.	MAX.	UNIT
$R_{th\ j-a}$	from junction to ambient in free air	-	60	K/W

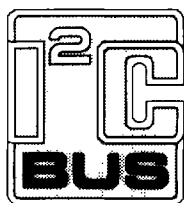
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(1) Value depends on video amplifier and CRT.

Fig.2 Application diagram.



Purchase of Philips' I²C components conveys a license under the Philips' I²C patent to use the components in the I²C-system provided the system conforms to the I²C specifications defined by Philips.