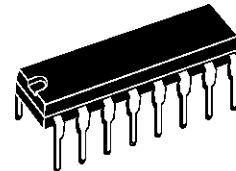


RGB SWITCHING CIRCUIT

- 25MHz BANDWIDTH
- CROSSTALK : 55dB
- SHORT CIRCUIT TO GROUND OR V_{CC} PROTECTED
- ANTI SATURATION GAIN CHANGING
- VIDEO SWITCHING



DIP16
(Plastic Package)

ORDER CODE : TEA5114A

DESCRIPTION

This integrated circuit provides RGB switching allowing connections between peri TV plug, internal RGB generator and video processor in a TV set.

The input signal black level is tied to the same reference voltage on each input in order to have no differential voltage when switching two RGB generators.

An AC output signal higher than 2 Vpp makes gain going slowly down to 0dB to protect the TV set video amplifier from saturation.

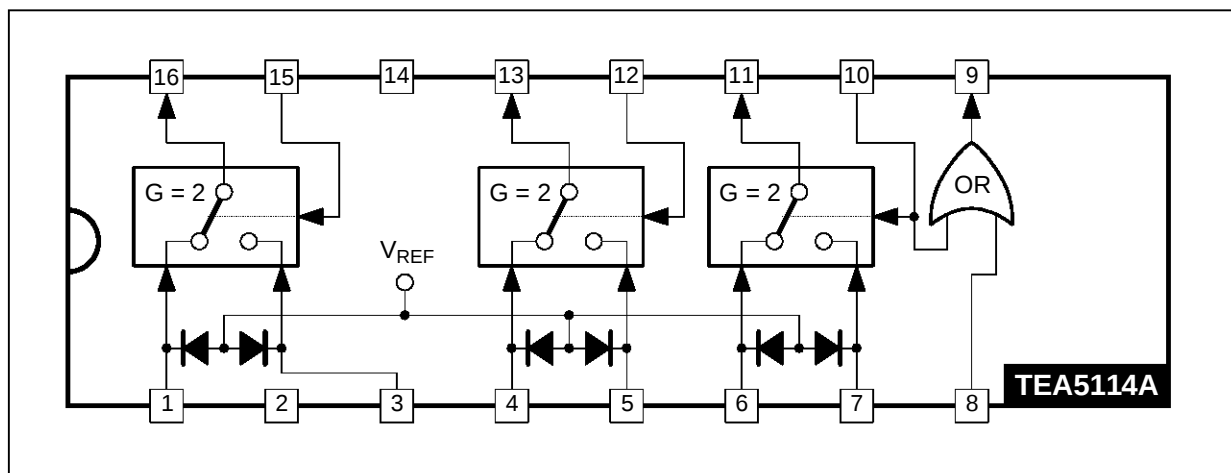
Fast blanking output is a logical OR between FB1 (Pin 8) and FB2 (Pin 10).

PIN CONNECTIONS

R_1 INPUT	1	16	R OUTPUT
GND	2	15	FB_R INPUT
R_2 INPUT	3	14	V_{CC}
G_1 INPUT	4	13	G OUTPUT
G_2 INPUT	5	12	FB_G INPUT
B_1 INPUT	6	11	B OUTPUT
B_2 INPUT	7	10	$FB_2 + FB_B$ INPUT
FB_1 INPUT	8	9	FB OUTPUT

5114A-01.EPS

BLOCK DIAGRAM



5114A-02.EPS

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage	18	V
T_j	Junction Temperature	– 40 to 150	°C
T_{stg}	Storage Temperature	– 40 to 150	°C
Z_L	Minimum Load Resistor on Each Output $V_{CC} = 12\text{ V}$ $V_{CC} = 10\text{ V}$	300 150	Ω
T_{amb}	Operating Ambient Temperature	0 to 70	°C

5114A-01.TBL

THERMAL DATA

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction-ambient Thermal Resistance	80	°C/W

5114A-02.TBL

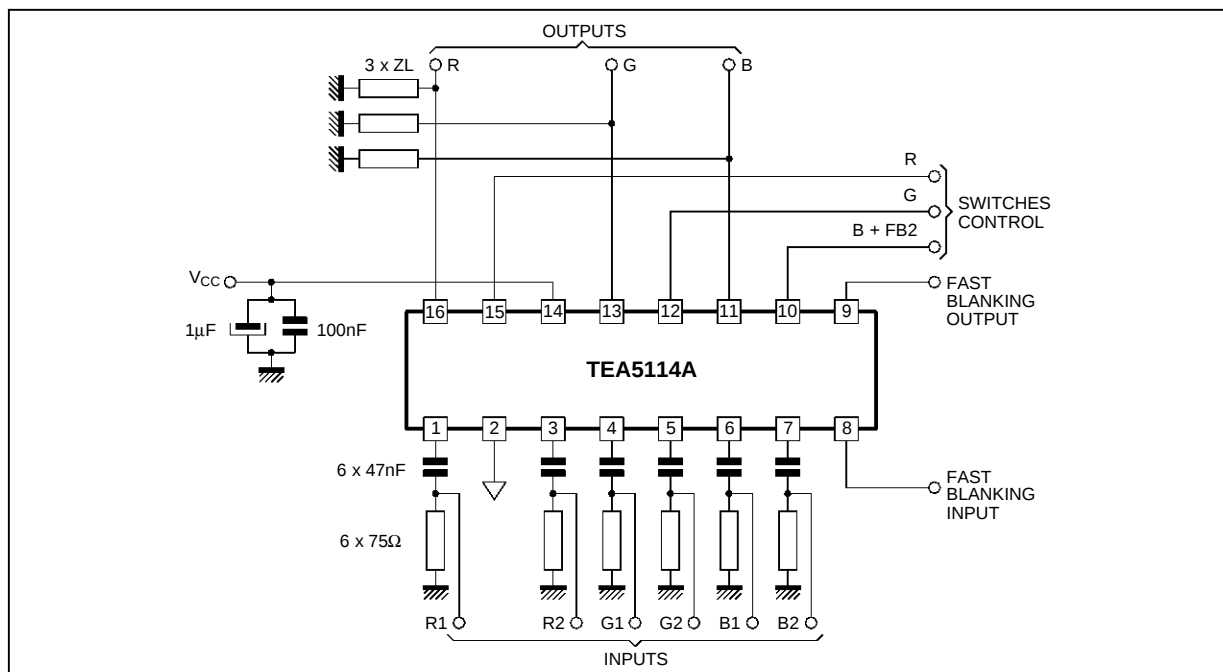
ELECTRICAL OPERATING CHARACTERISTICS

 $T_{amb} = 25\text{ °C}$, $V_{CC} = 12\text{ V}$, $Z_L\text{ (RGB)} = 300\text{ }\Omega$ $V_{CC} = 10\text{ V}$, $Z_L\text{ (RGB)} = 150\text{ }\Omega$ (unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{CC}	Supply Voltage	9	12	13.2	V
I_{CC}	Supply Current without Load $V_{CC} = 12\text{ V}$	20	30	40	mA
V_{ON}	Black Level Output Voltage (on pins 11, 13, 16 square wave output signal 1 kHz - 1 Vpp) $T_j = 25\text{ °C}$ (5mV/°C typical variation)	1.8	2.5	2.9	V
G_{RGB}	Gain of Each Channel Pins 11, 13, 16 $F = 1\text{ MHz}$, $V_{in} = 0.5\text{ V}_{pp}$	5	5.5	6	dB
B_{RGB}	Bandwidth (– 3 dB) $V_O = 1\text{ V}_{pp}$	18	22		MHz
V_{GC}	Threshold Output Voltage for Gain Changing (– 0.5 dB)	2			V_{pp}
V_R	Video Rejection between Two Inputs R, G or B $F = 1\text{ MHz}$ Sinus $V_O = 1\text{ V}_{pp}$	50	55		dB
Z_{IRGB}	Input Impedance on Pins 1, 3, 4, 5, 6, 7 $V_O = 1\text{ V}_{pp}$	10			k Ω
Z_{ORGB}	R, G, B Output Impedance on Pins 11, 13, 16			15	Ω
T_{FB}	FB rising and falling time on pin 9. 1 Vpp Input Voltage Pins 8, 10		20		ns
V_{IHFB}	FB High Level Input Voltage on Pins 8, 10, 12, 15	1		4	V
V_{ILFB}	FB Low Level Input Voltage on Pins 8, 10, 12, 15	0		0.4	V
Z_{IFB}	Input Impedance on Pins 8, 10, 12, 15	0.7	1	1.3	k Ω
V_{OHFB}	High Level FB Output Voltage (pin 9) Input 1 V on Pins 8, 10	0.8	1	1.2	V
V_{OLFB}	Low Level FB Output (pin 9) Input 0 V on Pins 8, 10			0.3	V
Z_{OFB}	FB Output Impedance Pin 9 High Level			30	Ω
T_{dFBRGB}	Delay Time between FB Inputs and R, G, B Switching		20		ns

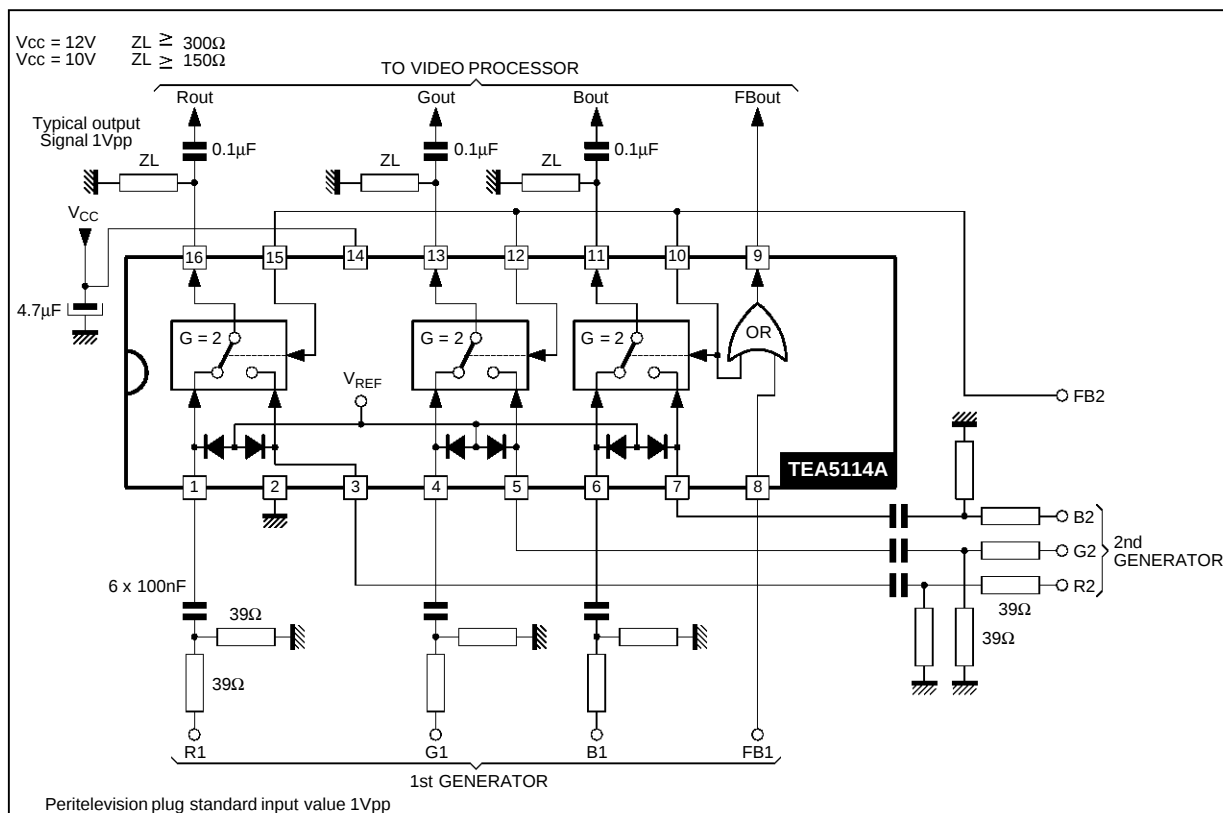
5114A-03.TBL

TEST DIAGRAM



5114A-03.EPS

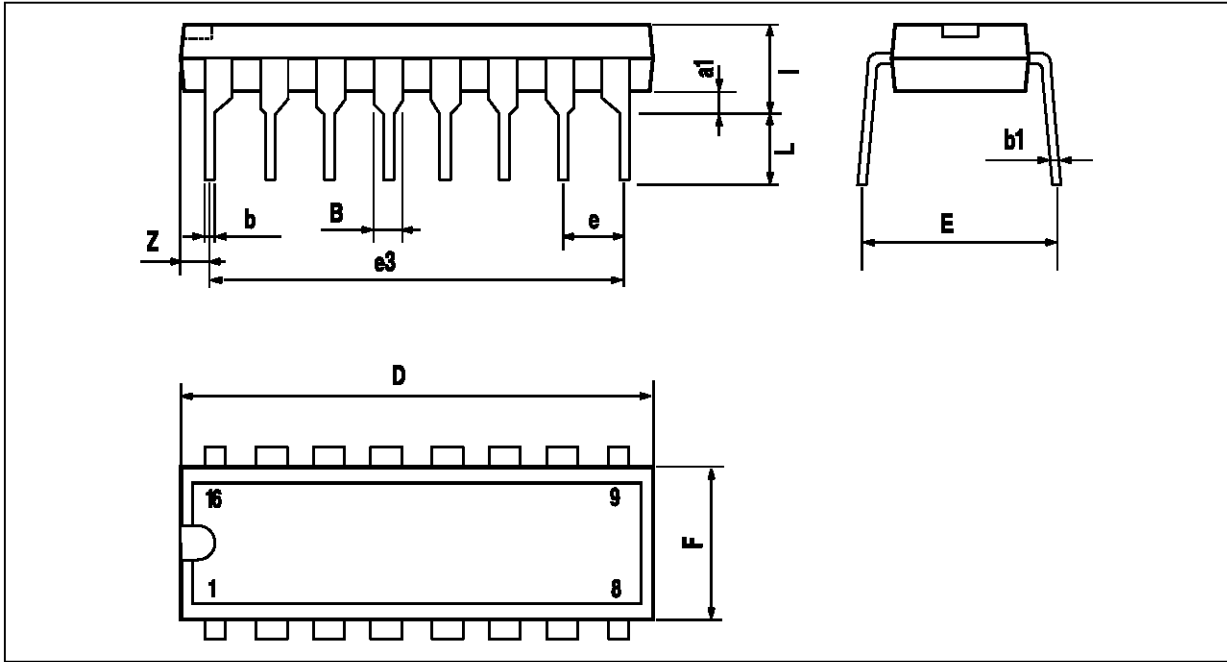
TYPICAL R, G, B SWITCHING APPLICATION



5114A-04.EPS

PACKAGE MECHANICAL DATA

16 PINS – PLASTIC DIP



PM-DIP16.EPS

Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
a1	0.51			0.020		
B	0.77		1.65	0.030		0.065
b		0.5			0.020	
b1		0.25			0.010	
D			20			0.787
E		8.5			0.335	
e		2.54			0.100	
e3		17.78			0.700	
F			7.1			0.280
I			5.1			0.201
L		3.3			0.130	
Z			1.27			0.050

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