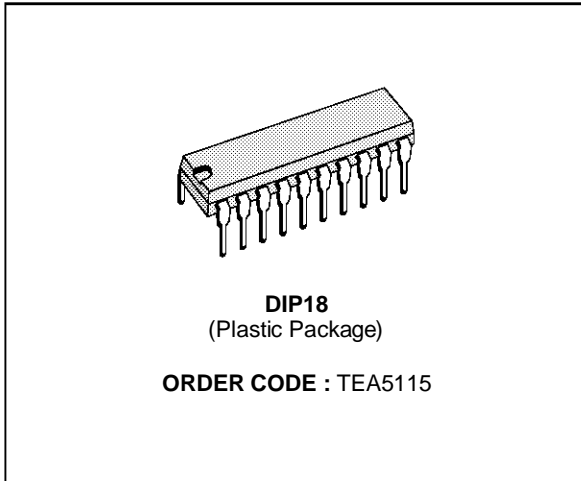
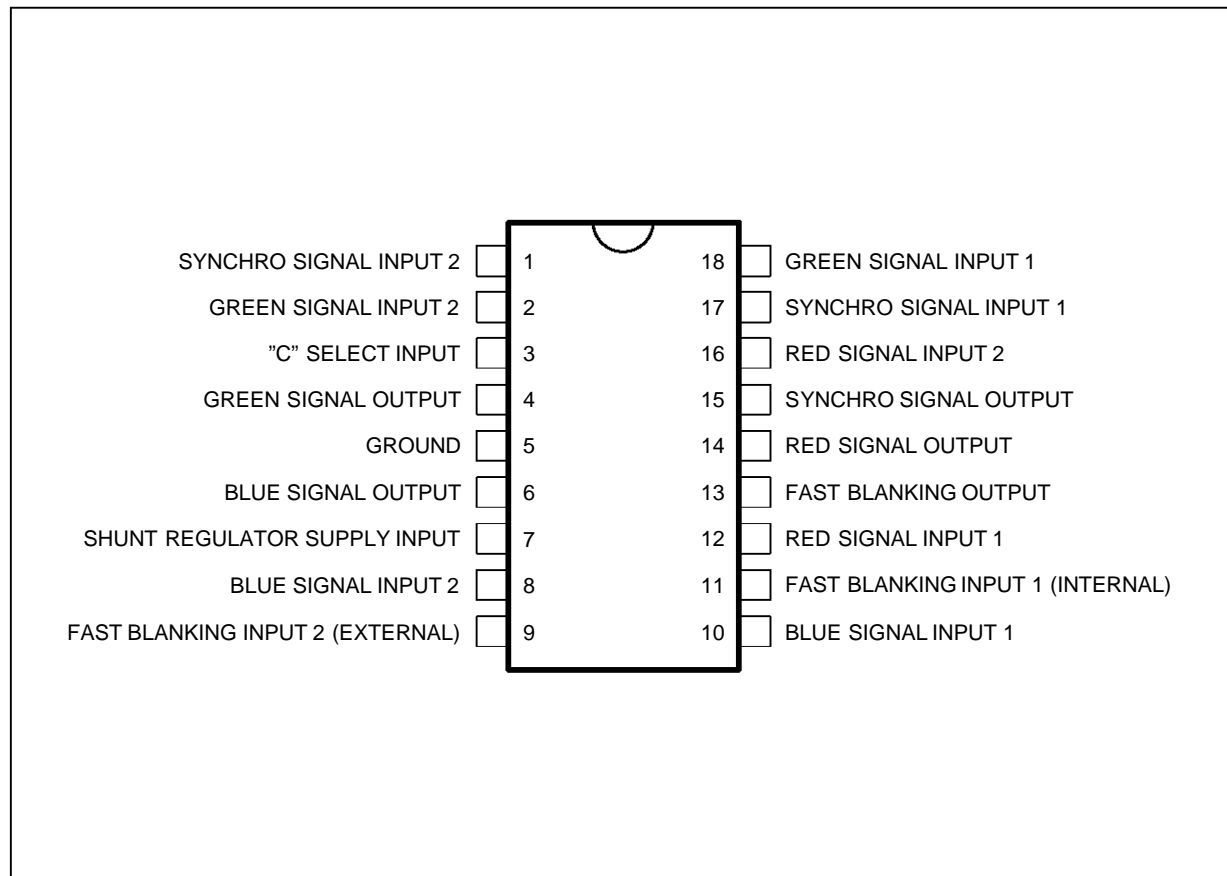


**5 CHANNELS VIDEO SWITCH**

- EACH CHANNEL EXCEPT FAST BLANKING HAS 6dB GAIN
- R, G, B AND VIDEO SIGNALS ARE CLAMPED TO THE SAME REFERENCE VOLTAGE IN ORDER TO HAVE NO OUTPUT DIFFERENTIAL VOLTAGE WHEN SWITCHING
- ALL INPUT LEVELS COMPATIBLE WITH NFC 92250 AND EN 50049 NORMS
- 30MHz BAND WIDTH FOR R, G, B SIGNALS
- INTERNAL 6.7V SHUNT REGULATOR FOR :
  - \_ LOW IMPEDANCE LOADS,
  - \_ POWER DISSIPATION LIMITATION
- INDEPENDANT VIDEO OR SYNCHRONIZING SIGNAL SELECTION
- SIMULTANEOUS SWITCHING OF R, G, B AND FB SIGNALS BY FB1 INPUT (internal)



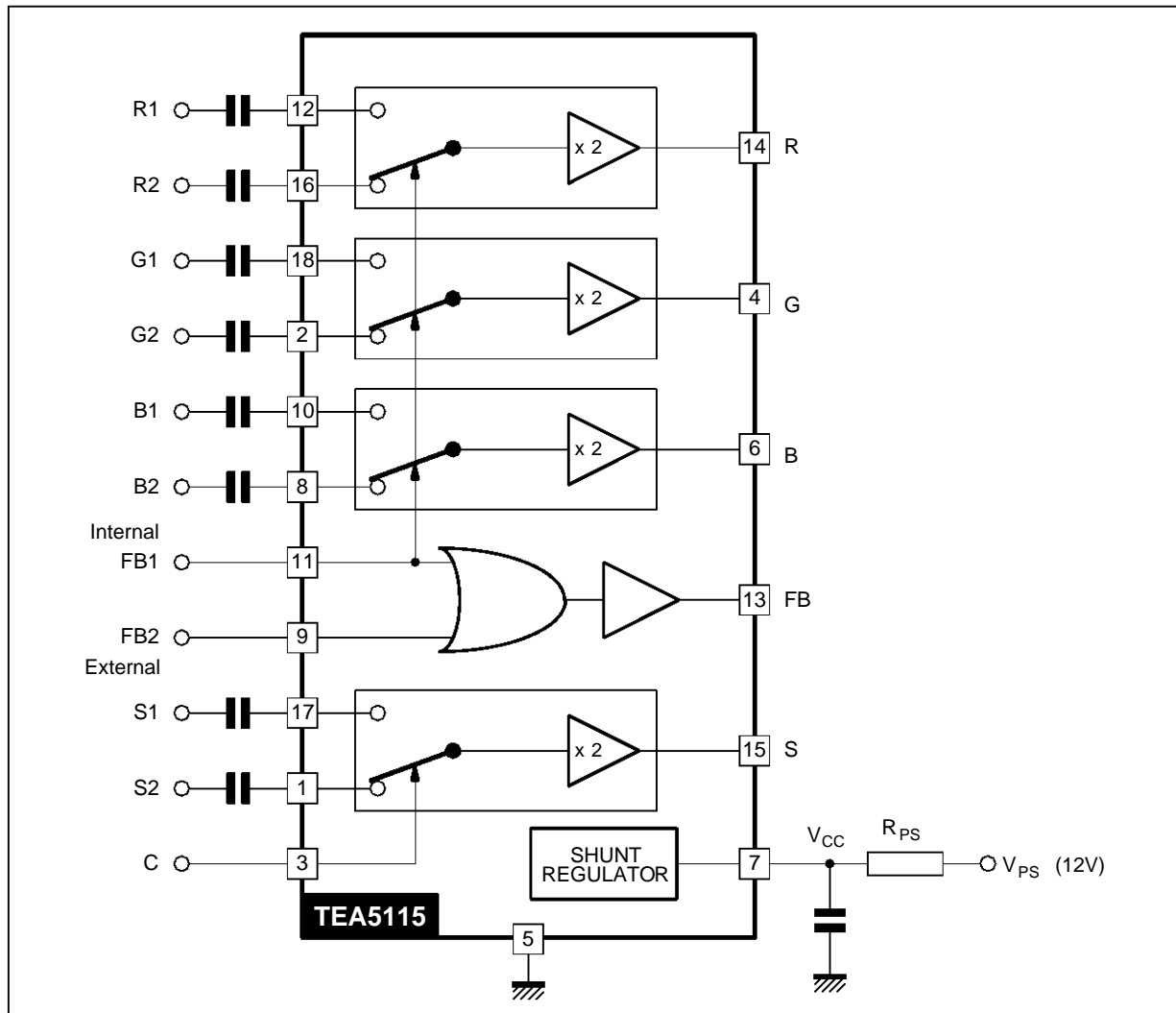
**PIN CONNECTIONS**



5115-01.EPS

# TEA5115

## BLOCK DIAGRAM



## ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
I <sub>CC</sub>	Supply Current (see note)	150	mA
V <sub>in</sub>	Input Voltage (all inputs)	- 0.5 to V <sub>CC</sub> + 0.5	V
T <sub>oper</sub>	Operating Temperature Range	0 to 70	°C
T <sub>j</sub>	Junction Temperature	- 40 to + 150	°C
T <sub>stg</sub>	Storage Temperature	- 40 to + 150	°C

Note : Minimum output load is 300 Ω in case of all outputs loaded.

## THERMAL DATA

Symbol	Parameter	Value	Unit
R <sub>th (j-a)</sub>	Junction-ambient Thermal Resistance	70	°C/W

**ELECTRICAL CHARACTERISTICS**

$T_{amb} = + 25\text{ }^{\circ}\text{C}$ ,  $I_{CC} = 120\text{ mA}$  ; Load value =  $150\text{ }\Omega$

(sequentially switched) (unless otherwise specified, refer to test circuit page 7)

Symbol	Parameter	Min.	Typ.	Max.	Unit	
$V_{CC}$	Internal Shunt Regulator	$I_{CC} = 120\text{ mA}$	6.3	6.7	7.2	V
		$I_{CC} = 90\text{ mA}$	6.2		7.3	V
		$I_{CC} = 150\text{ mA}$	6.2		7.3	V

**R, G, B Switches** (pins 4, 6, 14) (Time Measurement Conditions :  $\Delta$  inputs RGB =  $0.7 V_{pp}$  ;  
FB input pulse amplitude =  $2\text{ V}$ )

$V_C$	DC Output Voltage (no input voltage)	$T_{junction} = 25\text{ }^{\circ}\text{C}$ $T_{junction}$ stabilized		0.9 1.2	1.25	V
$V_{AC}$	Max Output Swing Voltage		2	4.0		$V_{pp}$
B	Bandwidth ( $-3\text{ dB}$ ) (input voltage $0.7 V_{pp}$ )		20	30		MHz
$A_v$	Gain of Each Channel (input voltage $0.7 V_{pp}$ ; $f = 1\text{ MHz}$ )		5.5	6	6.5	dB
$A_{dc}$	Gain Difference Between any two R, G, B Channels (input voltage $0.7 V_{pp}$ ; $f = 1\text{ MHz}$ )			0.1	0.5	dB
	Input Swing			$0.7\text{ V} \pm 3\text{ dB}$		
$Z_{ic}$	DC Input Impedance			10		$k\Omega$
$Z_{oc}$	Dynamic Output Impedance (input voltage $0.7 V_{pp}$ ; $f = 1\text{ MHz}$ ) with $R_{load} = 300\text{ }\Omega$			10		$\Omega$
	Crosstalk between any inputs (R1 and R2 or B1 and B2 or G1 and G2) (input voltage $0.7 V_{pp}$ ; $f = 1\text{ MHz}$ ).		45	55		dB
	Crosstalk between any outputs (input voltage $0.7 V_{pp}$ ; $f = 1\text{ MHz}$ ).		40	55		dB
$t_{dc}$	Delay time between R, G, B inputs and RGB outputs.			10		ns
$t_{sr1}$	Switching rise time between FB1 input signal and R, G, B output signal.			60	110	ns
$t_{sf1}$	Switching fall time between FB1 input signal and R, G, B output signal.			10	40	ns
$t_{sr2}$	Switching rise time between FB2 input signal and R, G, B output signal.			10		ns
$t_{sf2}$	Switching fall time between FB2 input signal and R, G, B output signal.			10		ns
$t_{d11}$ $t_{d12}$	R1, G1, B1 Decay Time			30 60		ns ns
$t_{d21}$ $t_{d22}$	R2, G2, B2 Decay Time			45 40		ns ns

**Fast Blanking Switch** (pin 13)

(time measurement conditions : FB input pulse amplitude =  $2\text{ V}$ )

$V_{IL}$	Low Level Input Voltage FB1 and FB2		-0.5		0.45	V
$V_{IH}$	High Level Input Voltage FB2 External		1		$V_{CC}+0.5$	V
$V_{IH}$	High Level Input Voltage FB1 Internal		1.2		$V_{CC}+0.5$	V
$V_{OL}$	Low Level Output Voltage				0.6	V
$V_{OH}$	High Level Output Voltage	$T_{junction} = 25\text{ }^{\circ}\text{C}$ $T_{junction}$ stabilized	1.4 1.5	1.7 1.9	3.5	V V
	Input Current (without load)			1.5		$\mu\text{A}$
	Dynamic Output Impedance : with $R_{load} = 300\text{ }\Omega$			10		$\Omega$
$t_{FB1r}$	Switching rise time between FB1 input and FB output.			120	160	ns
$t_{FB1f}$	Switching fall time between FB1 input and FB output.			25	60	ns
$t_{FB2r}$	Switching rise time between FB2 input and FB output.			70		ns
$t_{FB2f}$	Switching fall time between FB2 input and FB output.			35		ns
$d_{tr}$	Delay Between RGB Output Signal and FB Output Signal (rise time)			50	100	ns
$d_{tf}$	Delay Between RGB Output Signal and FB Output Signal (fall time)			20	40	ns

5115-03.TBL

**ELECTRICAL CHARACTERISTICS** (continued)

T<sub>amb</sub> = + 25 °C, I<sub>cc</sub> = 120 mA ; Load value = 150 Ω

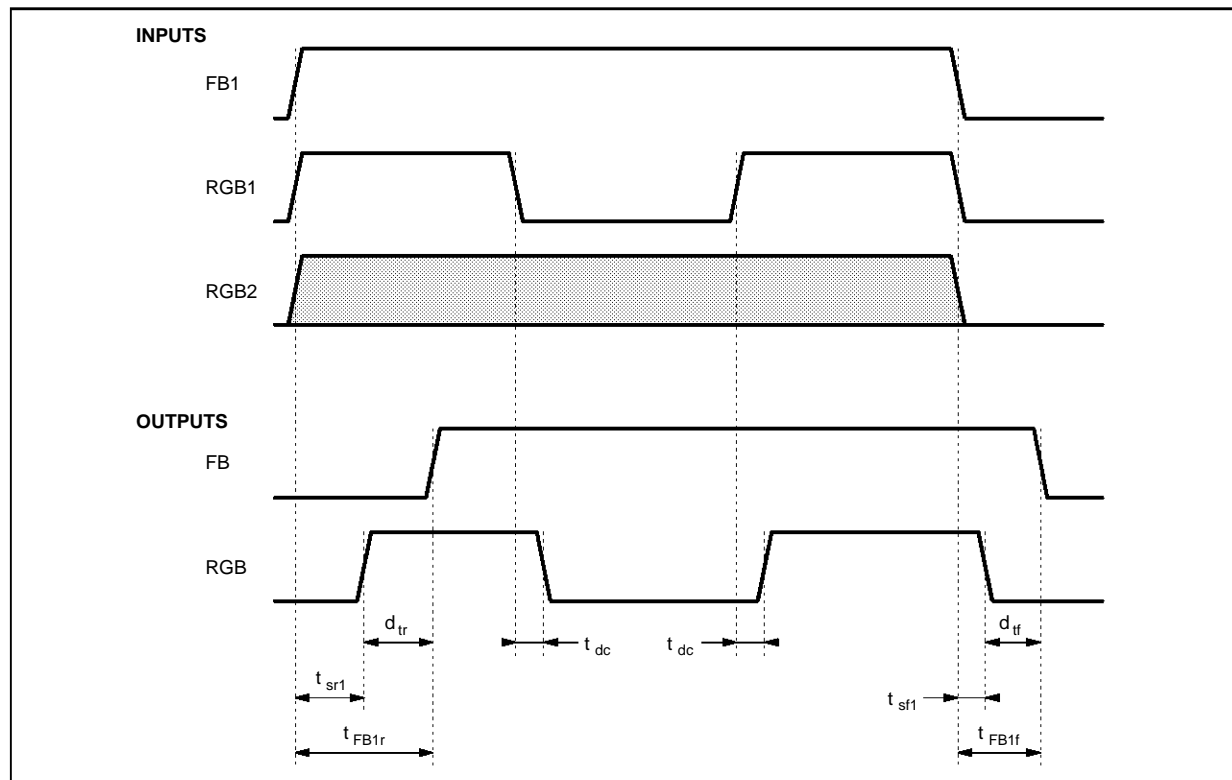
(sequentially switched) (unless otherwise specified, refer to test circuit page 7)

Symbol	Parameter	Min.	Typ.	Max.	Unit
<b>Video (or synchro) Signal Switch (pin 15)</b>					
V <sub>s</sub>	DC Output Voltage (no input voltage)		0.9	1.25	V
	Max Output Swing Voltage		1.2		V
	DC Input Impedance	2.6	10		V <sub>pp</sub> kΩ
	Dynamic Output Impedance (input voltage 1V <sub>pp</sub> ; f = 1MHz) with R <sub>load</sub> = 300 Ω		10		Ω
	Gain (input voltage 1 V <sub>pp</sub> ; f = 1MHz)	5.5	6	6.5	dB
	Bandwidth ( - 3 dB) (input voltage 1 V <sub>pp</sub> )	15	20		MHz
	Input Swing		1V ± 3 dB		
t <sub>cr</sub>	Switching rise time between C input signal and S output signal (C pulse amplitude 3 V).		30		ns
t <sub>cf</sub>	Switching fall time between C input signal and S output signal (C pulse amplitude 3 V).		10		ns
t <sub>dc</sub>	Delay Time Between S Input and S Output (Δ input 0.7 V <sub>pp</sub> )		10		ns

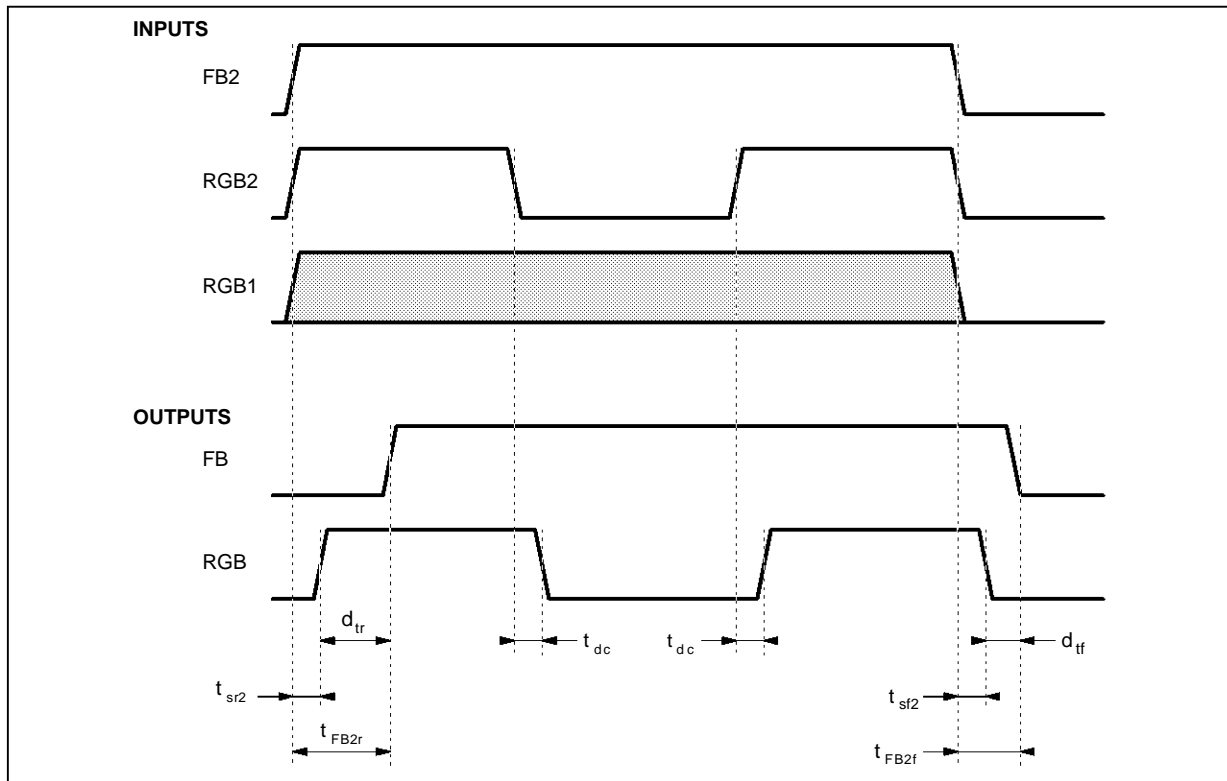
**Select Input "C" (pin 3)**

V <sub>IL</sub>	Low Level Input Voltage	- 0.5		1	V
V <sub>IH</sub>	High Level Input Voltage	2		V <sub>CC</sub> +0.5	V
I <sub>IL</sub>	Low Level Input Current (V <sub>IL</sub> = 1 V)	- 0.6		- 0.1	mA
I <sub>IH</sub>	High Level Input Current (V <sub>IH</sub> = 3 V)			0.5	mA

FB2 = 0

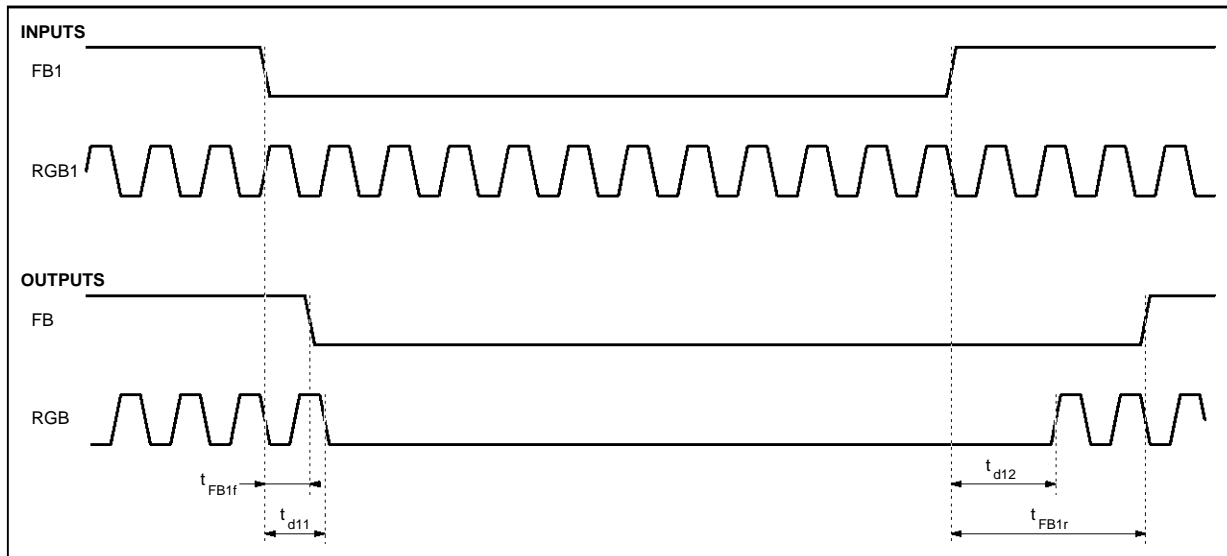


FB1 = 0



5115-04.EPS

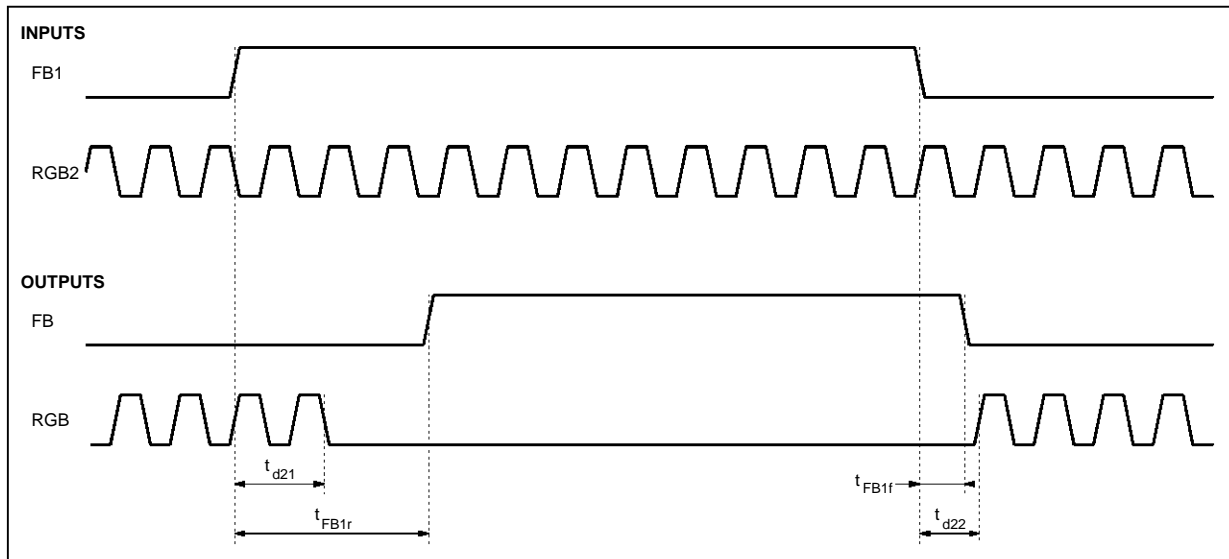
RGB2 = 0, FB2 = 0



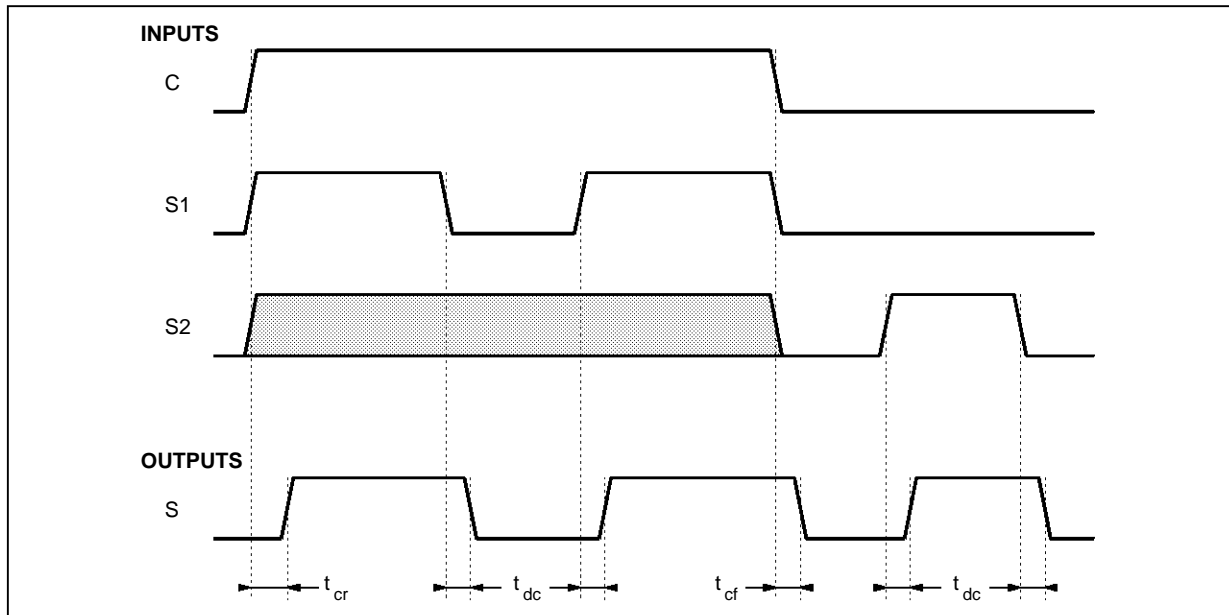
5115-05.EPS

# TEA5115

RGB1 = 0, FB2 = 0

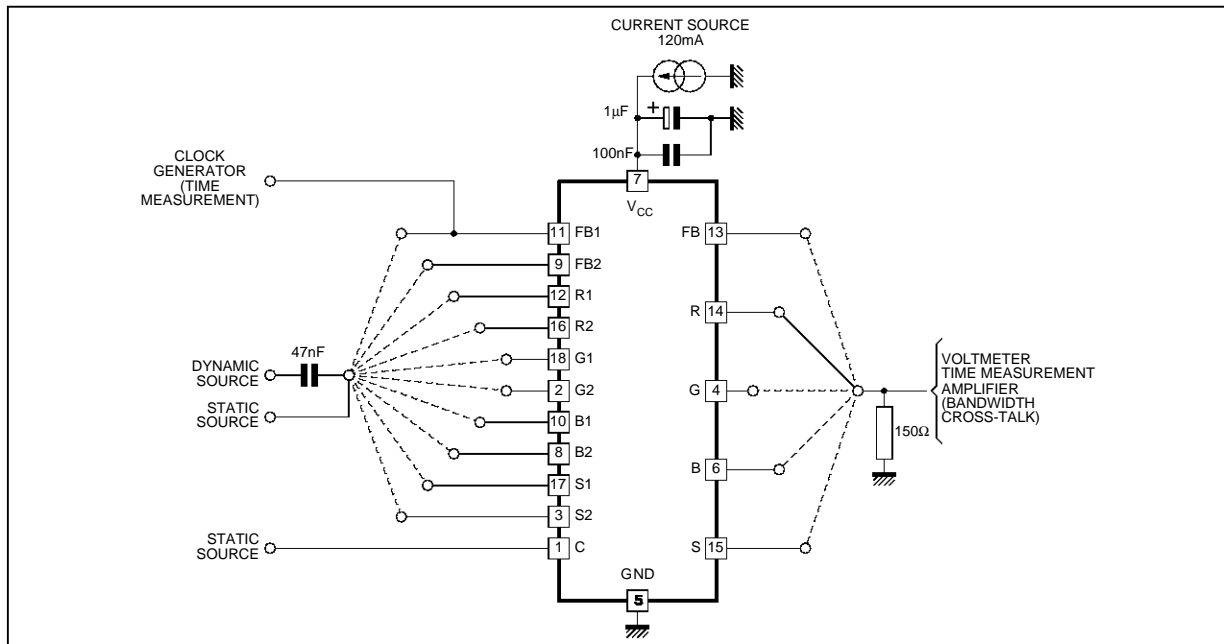


5115-06.EPS



5115-07.EPS

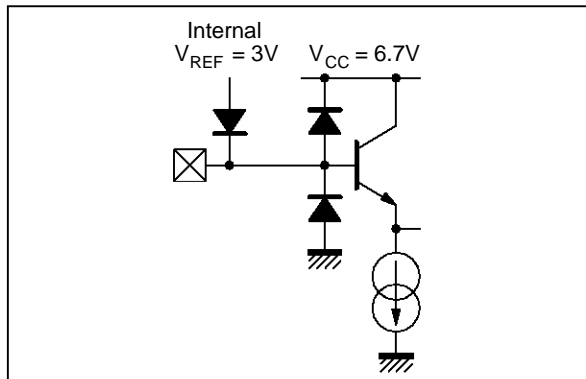
TEST CIRCUIT



5115-08.EPS

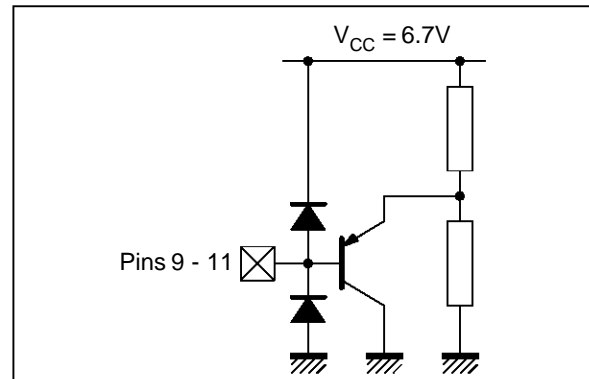
INPUTS/OUTPUTS EQUIVALENT INTERNAL DIAGRAMS

R, G, B, S inputs (pins 1, 2, 8, 10, 12, 16, 17, 18)



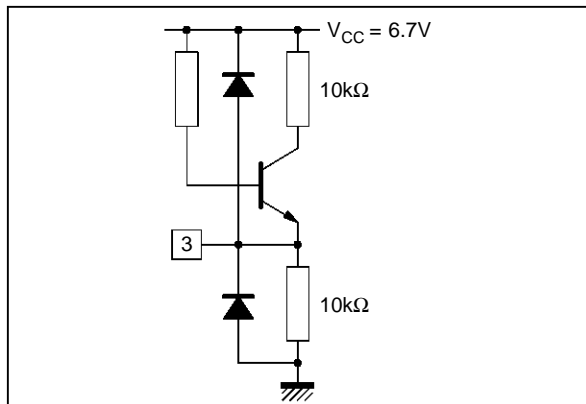
5115-09.EPS

FB inputs (pins 9, 11)



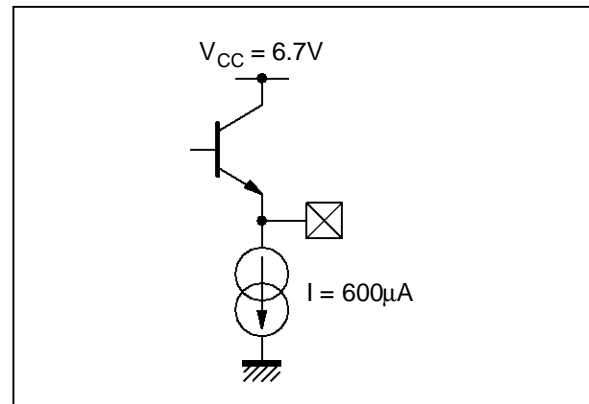
5115-10.EPS

C input (pin 3)



5115-11.EPS

All Outputs (pins 4, 6, 13, 14, 15)

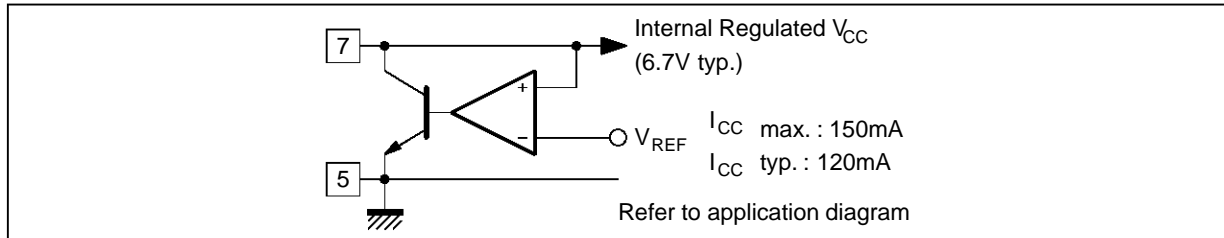


5115-12.EPS

# TEA5115

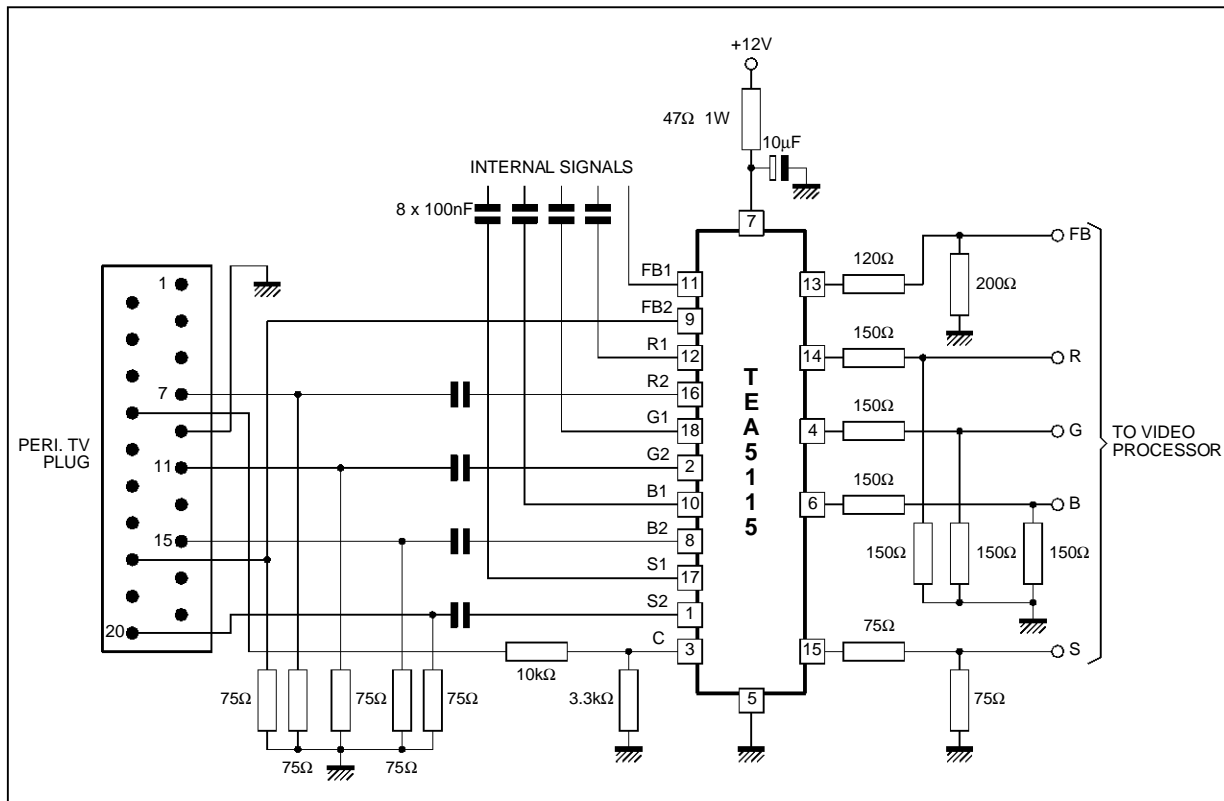
## INPUTS/OUTPUTS EQUIVALENT INTERNAL DIAGRAMS (continued)

I<sub>CC</sub> Supply (shunt transistor regulation system) (Pin 7)



5115-13.EPS

## TYPICAL APPLICATION DIAGRAM

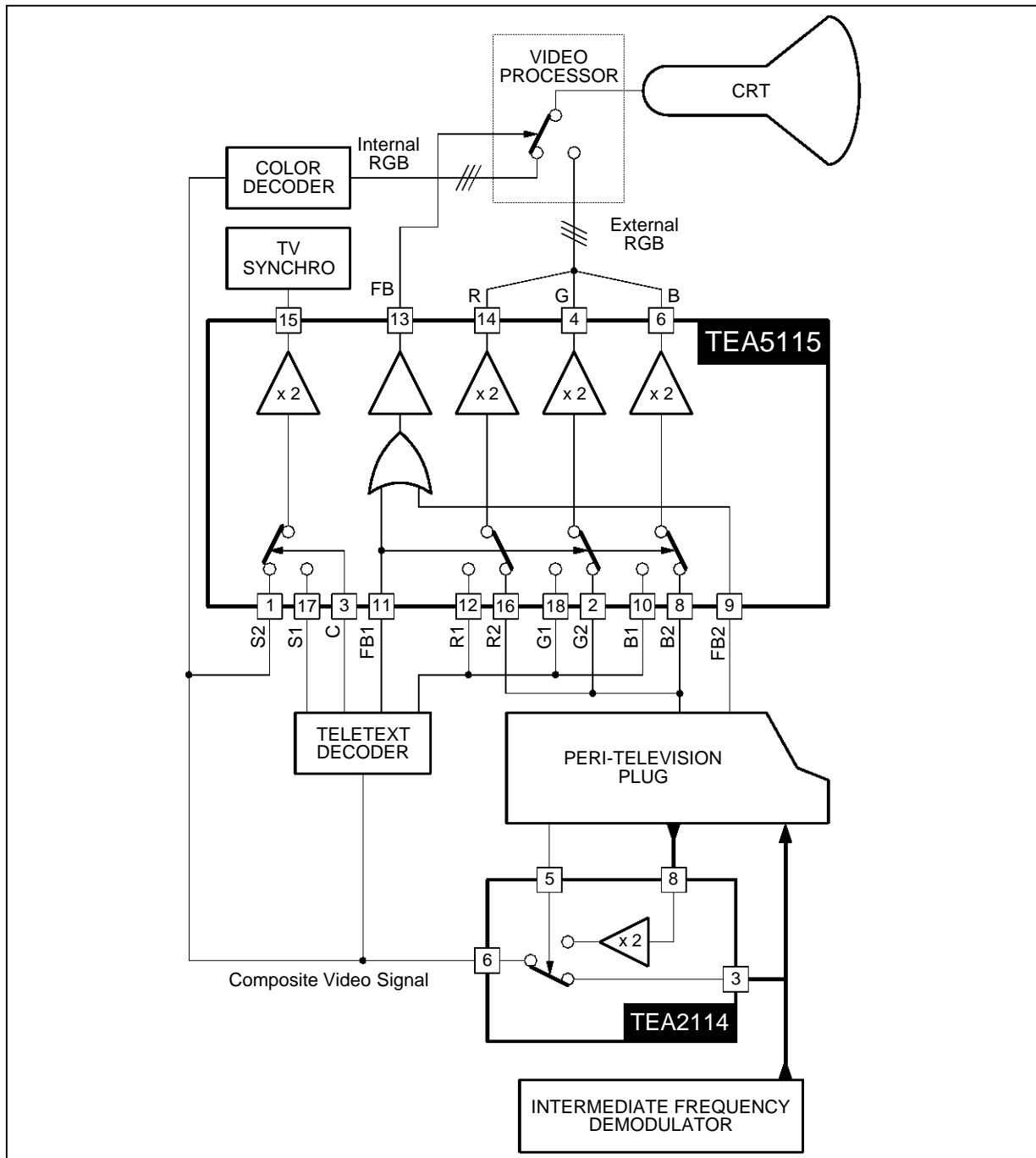


5115-14.EPS

- Above given output load values are minimum values, in case of all output loading.
- Minimum output load is 150 Ω individually, provided that total supply current is less than 150 mA.

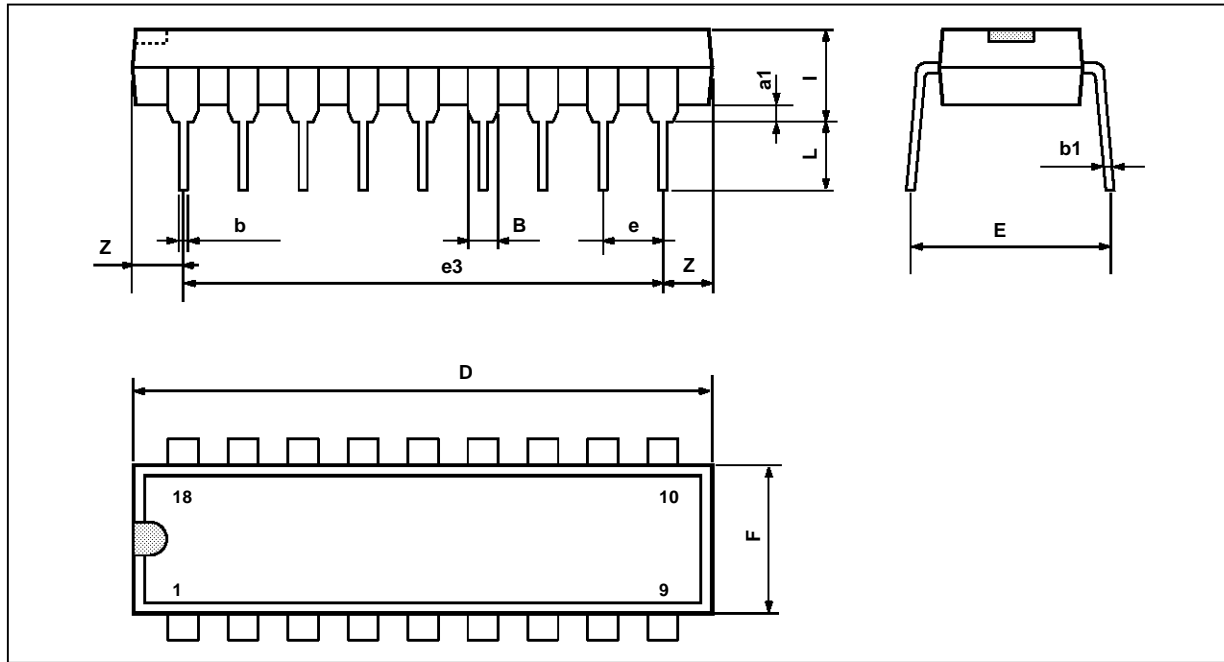


TELETEXT SWITCHING APPLICATION WITH TEA5115 AND TEA2114



5115-15.EPS

**PACKAGE MECHANICAL DATA**  
18 PINS – PLASTIC DIP



PM-DIP18EPS

Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
a1	0.254			0.010		
B	1.39		1.65	0.055		0.064
b		0.46			0.018	
b1		0.25			0.010	
D			23.24			0.914
E		8.5			0.335	
e		2.54			0.100	
e3		20.32			0.800	
F			7.1			0.280
i			3.93			0.155
L		3.3			0.130	
Z		1.27	1.59		0.050	0.062

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