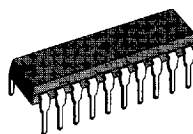


5 CHANNELS VIDEO SWITCH

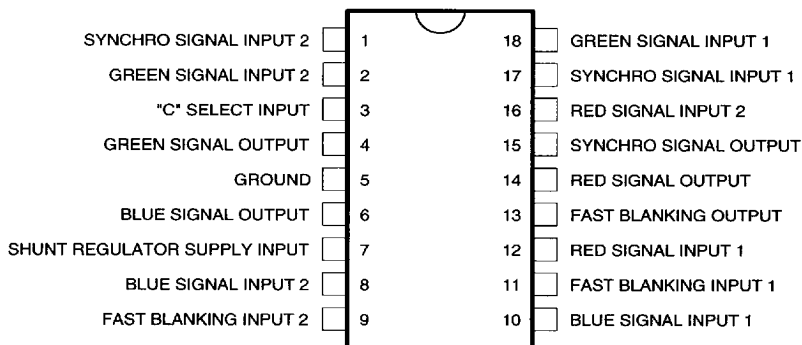
- EACH CHANNEL EXCEPT FAST BLANKING HAS 6dB GAIN
- R, G, B AND VIDEO SIGNALS ARE CLAMPED TO THE SAME REFERENCE VOLTAGE IN ORDER TO HAVE NO OUTPUT DIFFERENTIAL VOLTAGE WHEN SWITCHING
- ALL INPUT LEVELS COMPATIBLE WITH NFC 92250 AND EN 50049 NORMS
- 30MHz BAND WIDTH FOR R, G, B SIGNALS
- INTERNAL 6.7V SHUNT REGULATOR FOR :
 - LOW IMPEDANCE LOADS,
 - POWER DISSIPATION LIMITATION
- THE FIVE CHANNELS ARE SIMULTANEOUSLY SWITCHED BY ONLY ONE SELECT INPUT



DIP18
(Plastic Package)

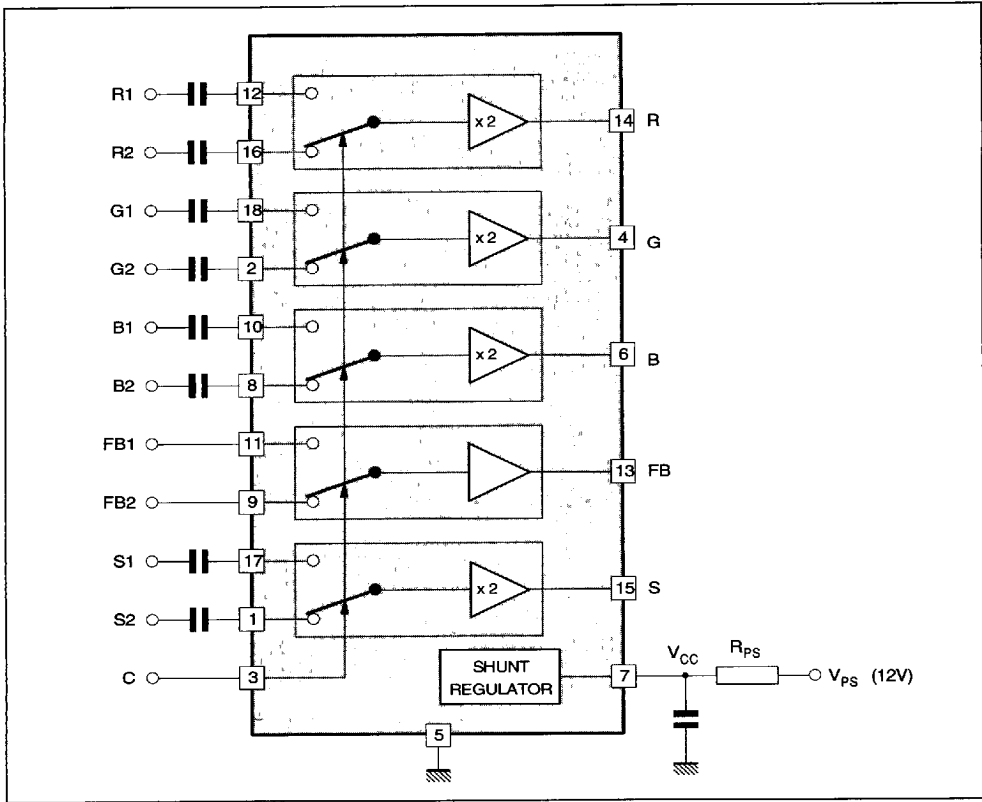
ORDER CODE : TEA5116

PIN CONNECTIONS



5116-01 ERS

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
I _{CC}	Supply Current (see note)	150	mA
V _{in}	Input Voltage (all inputs)	- 0.5 to V _{CC} + 0.5	V
T _{oper}	Operating Temperature Range	0, 70	°C
T _j	Junction Temperature	- 40, + 150	°C
T _{stg}	Storage Temperature	- 40, + 150	°C

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

THERMAL DATA

Symbol	Parameter	Value	Unit
R _{th (j-a)}	Junction-ambient Thermal Resistance	70	°C/W

ELECTRICAL CHARACTERISTICS

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

(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 mA	6.3	6.7	7.2	V
		I _{CC} = 90 mA	6.2		7.3	V
		I _{CC} = 150 mA	6.2		7.3	V

R, G, B Switches (pins 4, 6, 14) (Time Measurement Conditions : Δ inputs RGB = 0.7 V_{pp} ; C pulse amplitude = 3 V)

V_C	DC Output Voltage (no input voltage)	$T_{junction} = 25^{\circ}\text{C}$ $T_{junction}$ stabilized		0.9 1.2	1.25	V
V_{AC}	Max Output Swing Voltage		2	4		V_{pp}
B	Bandwidth (-3 dB) (input voltage $0.7V_{pp}$)		20	30		MHz
A_v	Gain of Each Channel (input voltage $0.7V_{pp}$; $f = 1\text{ MHz}$)		5.5	6	6.5	dB
A_{dc}	Gain Difference between any two R, G, B Channels (input voltage $0.7V_{pp}$; $f = 1\text{ MHz}$)			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 $R_{load} = 300\Omega$			10		Ω
	Crosstalk between any inputs (R1 and R2 or B1 and B2 or G1 and G2) (input voltage $0.7V_{pp}$; $f = 1\text{ MHz}$)		45	55		dB
	Crosstalk between any outputs (input voltage $0.7V_{pp}$; $f = 1\text{ MHz}$)		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 (input signal on RGB1)			45		ns
t_{sf1}	Switching Fall Time between FB1 Input Signal and R, G, B Output Signal (input signal on RGB1)			25		ns
t_{sr2}	Switching Rise Time between FB2 Input Signal and R, G, B Output Signal (input signal on RGB2)			55		ns
t_{sf2}	Switching Fall Time between FB2 Input Signal and R, G, B Output Signal (input signal on RGB2)			25		ns

Fast Blanking Switch (pin 13)

(time measurement conditions : FB input pulse amplitude = 2 V , C pulse amplitude = 3 V)

V_{IL}	Low Level Input Voltage	-0.5			0.4	V
V_{IH}	High Level Input Voltage	1			$V_{CC}+0.5$	V
V_{OL}	Low Level Output Voltage				$V_{CC}+0.5$	V
V_{OH}	High Level Output Voltage	$T_{junction} = 25^{\circ}\text{C}$ $T_{junction}$ stabilized	1.4 1.5	1.7 1.9	3.5	V
	Dynamic Output Impedance : with $R_{load} = 300\Omega$			10		Ω
t_{FB1r}	Delay Rise Time between FB1 Input and FB Output			60	110	ns
t_{FB1f}	Delay Fall Time between FB1 Input and FB Output			40	60	ns
t_{FB2r}	Delay Rise Time between FB2 Input and FB Output			60		ns
t_{FB2f}	Delay Fall Time between FB2 input and FB Output			40		ns
t_{SFB1r}	Switching Rise Time between C Input and FB Output (input signal on FB1 input)			75		ns
t_{SFB1f}	Switching Fall Time between C Input and FB Output (input signal on FB1 input)			50		ns
t_{SFB2r}	Switching Rise Time between C Input and FB Output (input signal on FB2 input)			85		ns
t_{SFB2f}	Switching Fall Time between C Input and FB Output (input signal on FB2 input)			50		ns

5116-03 TBL

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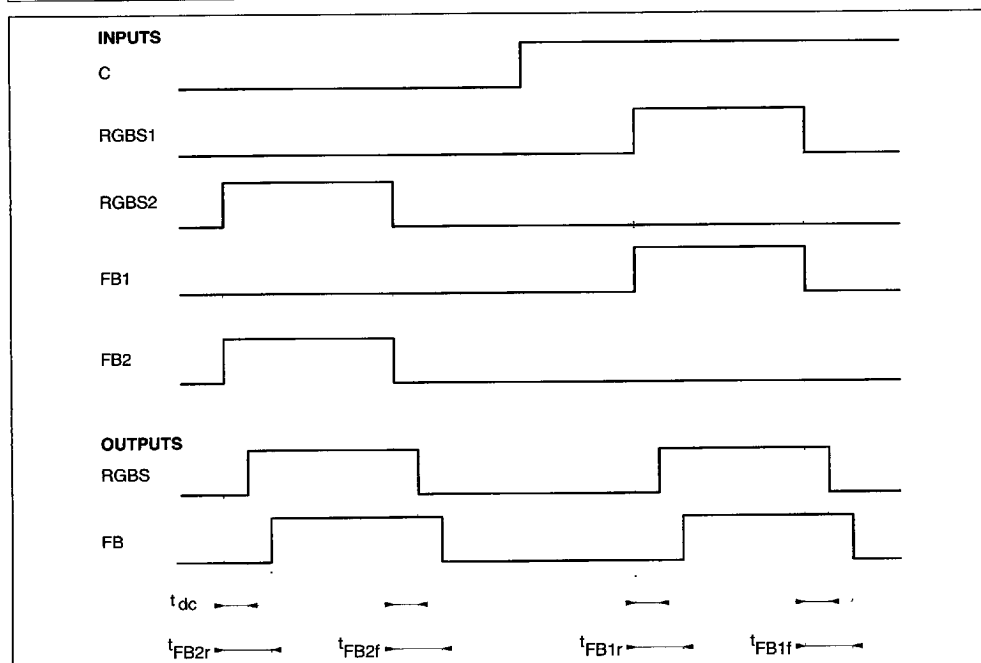
ELECTRICAL CHARACTERISTICS (continued)

Symbol	Parameter	Min.	Typ.	Max.	Unit
Video (or synchro) Signal Switch (pin 15) - time measurement conditions : (C pulse amplitude = 3V)					
V_S	DC Output Voltage (no input voltage) $T_{\text{junction}} = 25^{\circ}\text{C}$ T_{junction} stabilized		0.9 1.2	1.25	V V V _{pp}
V_{AS} Z_{ic}	Max Output Swing Voltage DC Input Impedance	2.6	10		k Ω
Z_{oc}	Dynamic Output Impedance (input voltage 1V _{pp} ; f = 1MHz) with $R_{load} = 300\ \Omega$		10		Ω
A_V B	Gain (input voltage 1 V _{pp} ; f = 1MHz) Bandwidth (- 3 dB) (input voltage 1 V _{pp})	5.5 15	6 20	6.5	dB MHz
	Input Swing		1V $\pm$ 3 dB		
t_{dc}	Delay Time between S Input and S Output (Δ input : 0.7V _{pp})		10		ns
t_{sr1}	Switching rise time between C input signal and S output signal (input signal on S1)		45		ns
t_{sf1}	Switching fall time between C input signal and S output signal (input signal on S1)		25		ns
t_{sr2}	Switching Rise time between C input signal and S output signal (input signal on S2)		55		
t_{sf2}	Switching fall time between C input signal and S output signal (input signal on S2)		25		

Select Input "C" (pin 3)

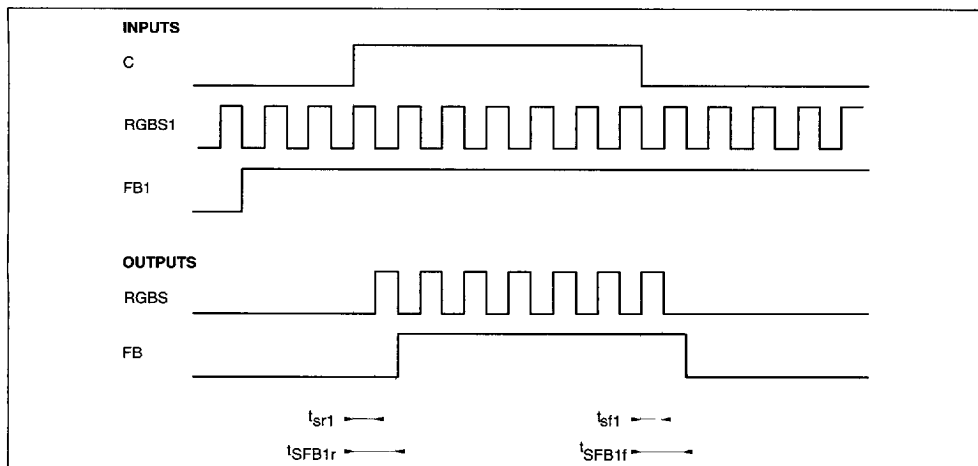
V_{IL}	Low Level Input Voltage	-0.5		1	V
V_{IH}	High Level Input Voltage	2		$V_{CC}+0.5$	V
I_{IL}	Low Level Input Current ($V_{IL} = 1\text{ V}$)	-0.6		-0.1	mA
I_{IH}	High Level Input Current ($V_{IH} = 3\text{ V}$)			0.5	mA

5116-04 TEL



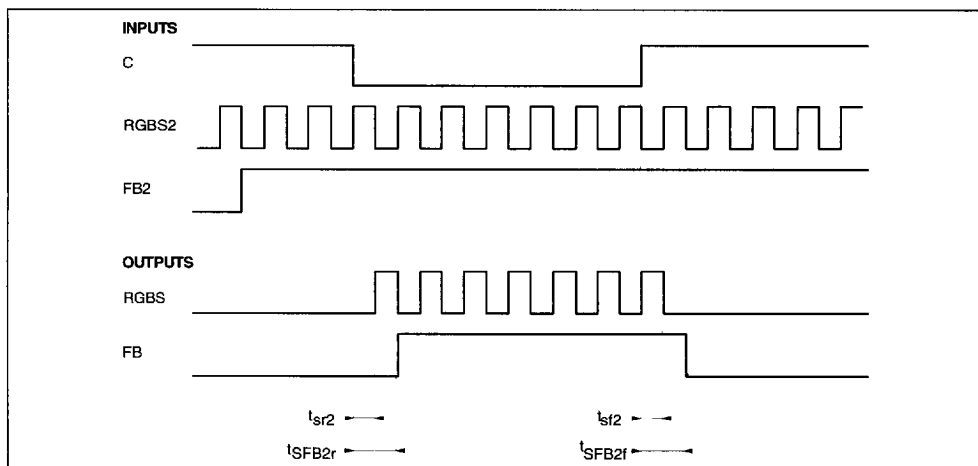
5116-05 EPS

RGS2 = 0, FB2 = 0



5116-04 EPS

RGS1 = 0, FB1 = 0



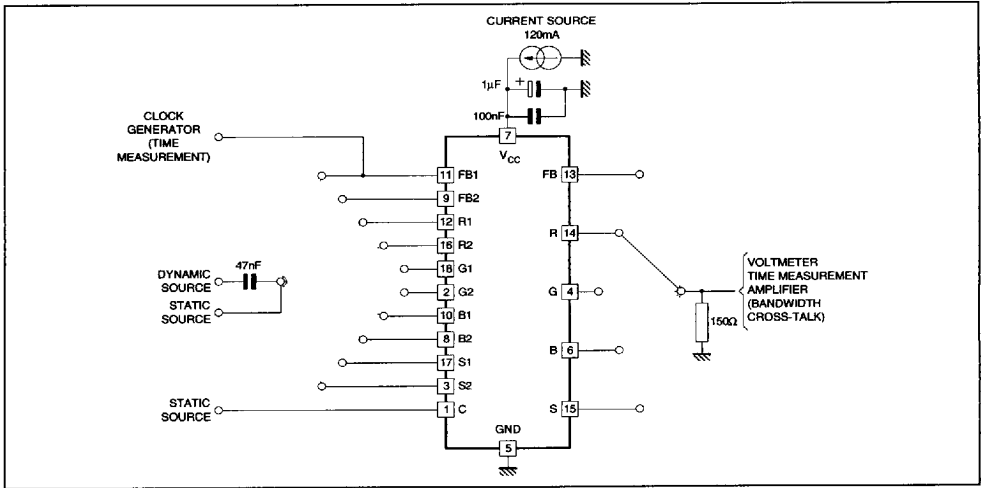
5116-05 EPS

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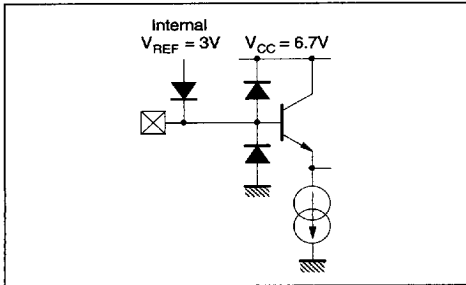
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TEST CIRCUIT

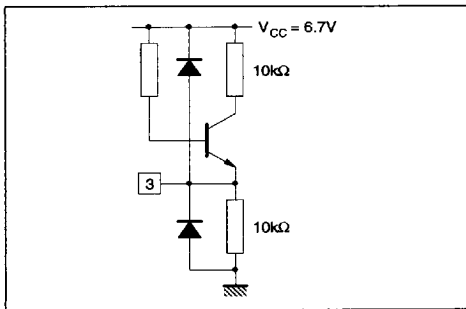


INPUTS/OUTPUTS EQUIVALENT INTERNAL DIAGRAMS

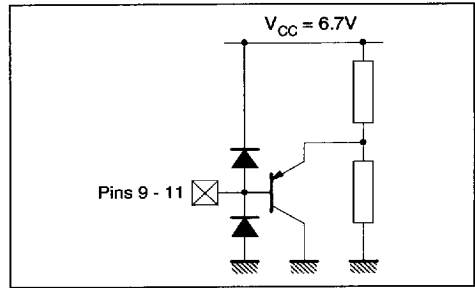
R, G, B, S inputs (pins 1, 2, 8, 10, 12, 16, 17, 18)



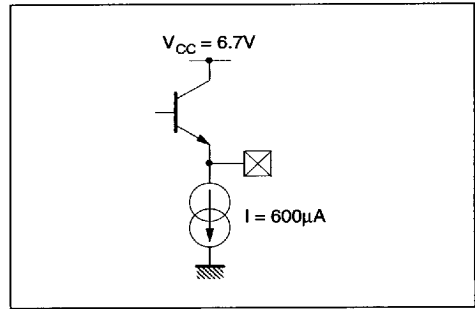
C input (pin 3)

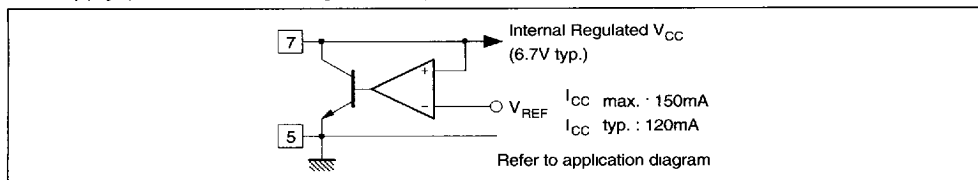


FB inputs (pins 9, 11)

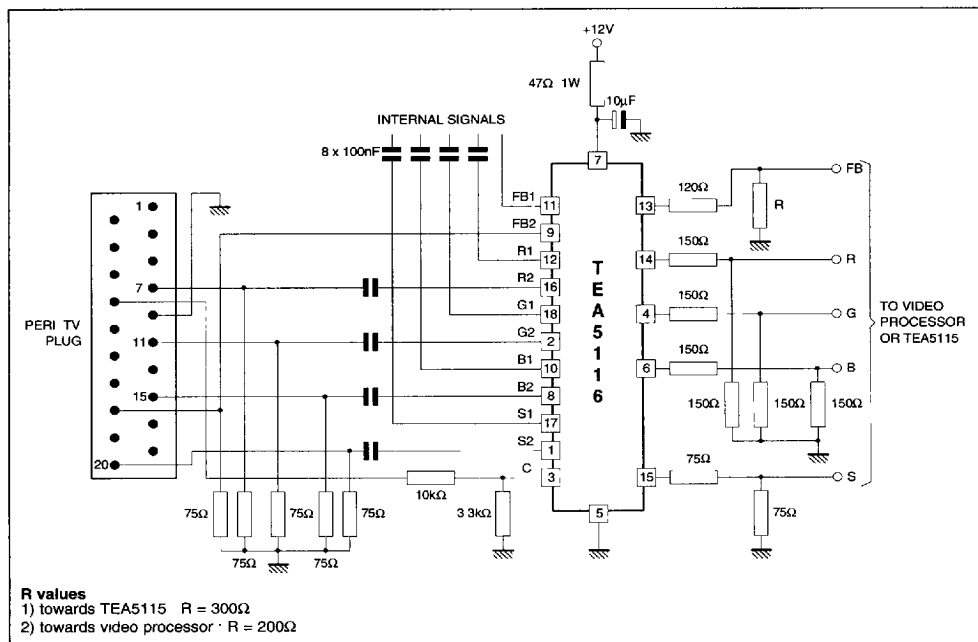


All Outputs (pins 4, 6, 13, 14, 15)



INPUTS/OUTPUTS EQUIVALENT INTERNAL DIAGRAMS (continued)I_{CC} Supply (shunt transistor regulation system) (Pin 7)

5116-11 EPS

TYPICAL APPLICATION DIAGRAM

5116-12 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.

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