

Picture Improvement Circuit for Color TV

Technology: Bipolar

Features

- Integrated, matchable gyrator chain, adjustable in steps of 45 ns from 730 to 1045 ns
- Steepens the slope of the color difference signals (R-Y) and (B-Y), suitable for pos. and neg. color difference signals
- Y-output with less delay for applications with future features (i.e., modulation of horizontal deflection)

Case: 18-pin dual inline plastic

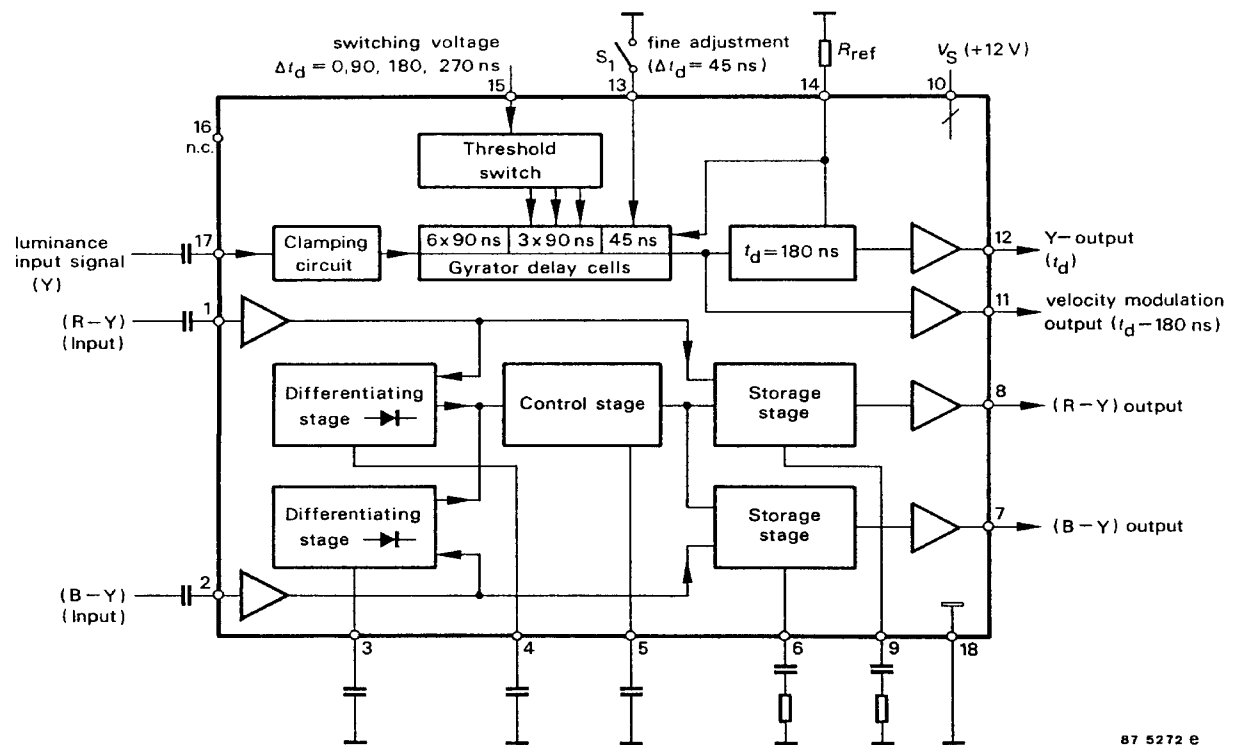


Figure 1. Block diagram

Absolute Maximum Ratings

Reference point Pin 18, unless otherwise specified

Parameters	Symbol	Value	Unit
Supply voltage Pin 10	V_S	13.2	V
Voltages Pins 1, 2, 12 and 15	$V_7 - V_6$ $V_8 - V_9$ V_{11} V_{17}	V_S 5 5 $V_S - 3\text{ V}$ 0 to 7	V
No dc-voltages at Pins 3, 4, 5, 6, 9, 13 and 14			
Currents Pin 6 Pin 9	I_6 I_9	± 10 ± 10	mA
Maximum power dissipation	P_{tot}	1.1	W
Ambient temperature range	T_{amb}	0 to +70	°C
Storage temperature range	T_{stg}	-25 to +125	°C

Thermal Resistance

Parameters	Symbol	Maximum	Unit
Junction ambient	R_{thJA}	70	K/W

Electrical Characteristics

$V_S = 12\text{ V}$, $T_{\text{amb}} = 25^\circ\text{C}$, test circuit figure 2, reference point Pin 18, unless otherwise specified

Parameters	Test Conditions / Pins	Symbol	Min.	Typ.	Max.	Unit
Supply voltage range	Pin 10	V_S	10.8	12	13.2	V
Supply current	Pin 10	I_S		35	50	mA
Luminance channel						
Composite input signal	Pin 17	$V_{17(\text{pp})}$		1.0	1.4	V
DC clamping level	Pin 17	V_{17}	1.3	1.5	1.7	V
Sweep input current	Pin 17	I_{17}			12	μA
Output current	Pin 11,12	$+I_{11,12}$ $-I_{11,12}$			0.4 1	mA
Signal attenuation	Pin 11–17 Pin 12–17	d	5.5	8,5	8.0	dB
Frequency response , $V_{15} = 12\text{ V}$, $R_{14} = 1.2\text{ k}\Omega$, Pin 13 n.c.						
Frequency response	3 MHz, ref. 0.5 MHz 5 MHz, ref. 0.5 MHz	Δv	0 -3		3.0 2.0	dB
DC voltage at output	Pin 11 Pin 12	V_{11} V_{12}	2.0 9.8		2.6 10.8	V

Parameters	Test Conditions / Pins	Symbol	Min.	Typ.	Max.	Unit
Signal delay , ($R_{14} = 1.2 \text{ k}\Omega$; Pin 13 n.c.)						
Signal delay ¹⁾	Pin 17–12	t_d				
	$V_{15} = 0 \text{ to } 2.5 \text{ V}$		670	730	790	ns
	$V_{15} = 3.5 \text{ to } 5.5 \text{ V}$		760	820	880	
	$V_{15} = 6.5 \text{ to } 8.5 \text{ V}$		850	910	970	
	$V_{15} = 9.5 \text{ to } 12 \text{ V}$		940	1000	1060	
Fine adjustment	Pin 13 grounded	Δt_d	30	45	70	ns
Luminance delay	Pin 11			$t_d - 180 \text{ ns}$		
Delay time temperature coefficient				0.001		1/K
Delay time supply voltage coefficient				-0.03		1/V
Input current	Pin 15	$-I_{15}$				
	$V_{15} = 0 \text{ to } 2.5 \text{ V}$				25	μA
	$V_{15} = 3.5 \text{ to } 5.5 \text{ V}$				16	
	$V_{15} = 6.5 \text{ to } 8.5 \text{ V}$				8	
	$V_{15} = 9.5 \text{ to } 12 \text{ V}$				1	
Colour difference stages						
Input level	Pin 1, 2	$V_{1,2}$	3.8		4.8	V
Input resistance	Pin 1, 2	$R_{1,2}$	8	12	16	$\text{k}\Omega$
Input signal	(R–Y) Pin 1	$V_{1(pp)}$		1.05	1.50	V
	(B–Y) Pin 2	$V_{2(pp)}$		1.33	1.90	
Channel amplification	(R–Y) Pin 8–1	v_{8-1}	-1	0	1	dB
	(B–Y) Pin 7–2	v_{7-2}	-1	0	1	
Output resistance	Pin 7, 8	$R_{7,8}$		100		Ω
Output current	Pin 7, 8	$+I_{7,8}$			400	μA
		$-I_{7,8}$			1	mA
Output voltage	Pin 7, 8	$V_{7,8}$	3.8		4.8	V
Rise time	Pin 7, 8	t_r		150	210	ns

¹⁾ Delay time is proportional to R_{14}

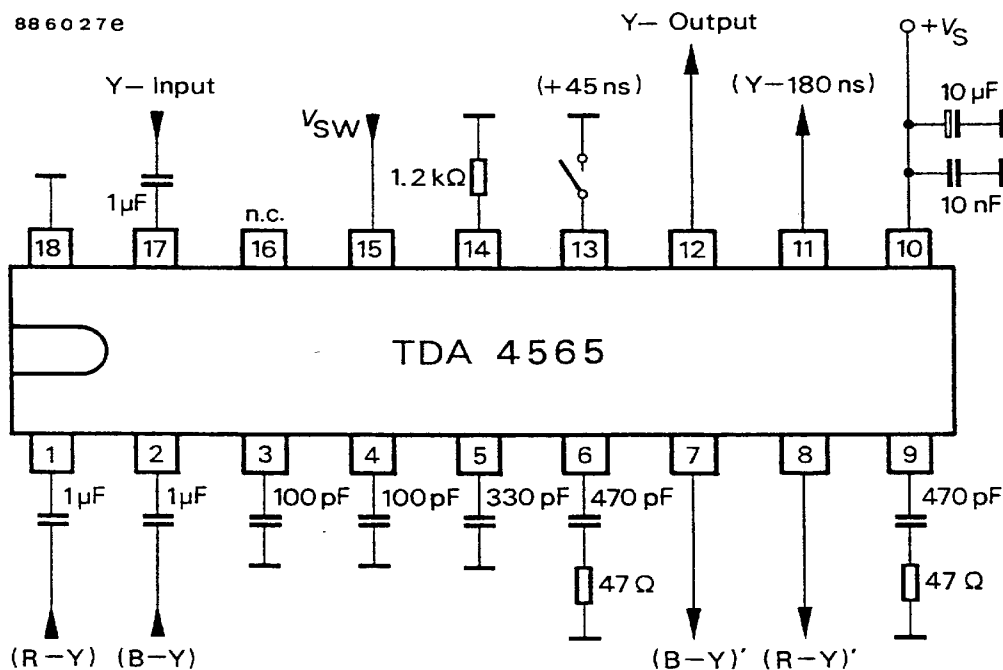
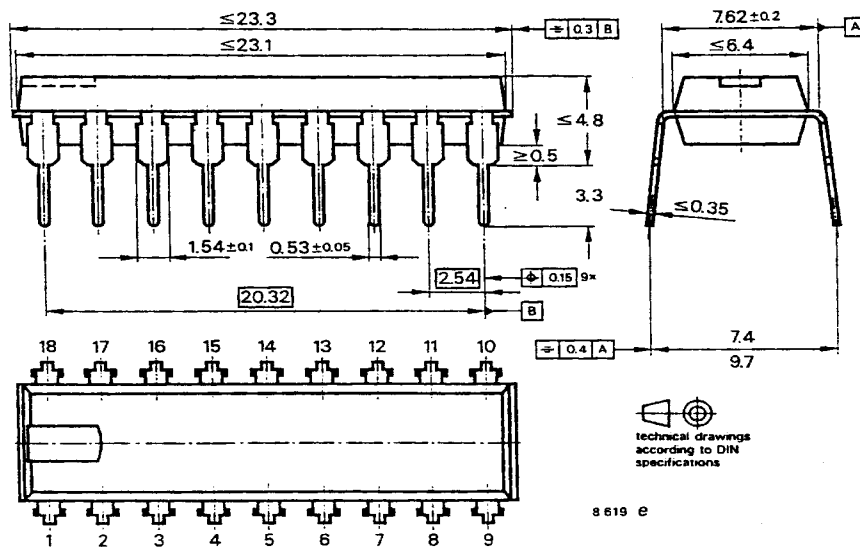


Figure 2. Test circuit

Dimensions in mm



Case:
DIP 18-leads

Ozone Depleting Substances Policy Statement

It is the policy of **TEMIC TELEFUNKEN microelectronic GmbH** to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

TEMIC TELEFUNKEN microelectronic GmbH semiconductor division has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

TEMIC can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

We reserve the right to make changes to improve technical design and may do so without further notice.

Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer. Should the buyer use TEMIC products for any unintended or unauthorized application, the buyer shall indemnify TEMIC against all claims, costs, damages, and expenses, arising out of, directly or indirectly, any claim of personal damage, injury or death associated with such unintended or unauthorized use.

TEMIC TELEFUNKEN microelectronic GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany
Telephone: 49 (0)7131 67 2831, Fax number: 49 (0)7131 67 2423