

## Picture improvement circuit for colour TV

**Technology:** Bipolar

### Features

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

**Case:** 18-pin dual inline plastic

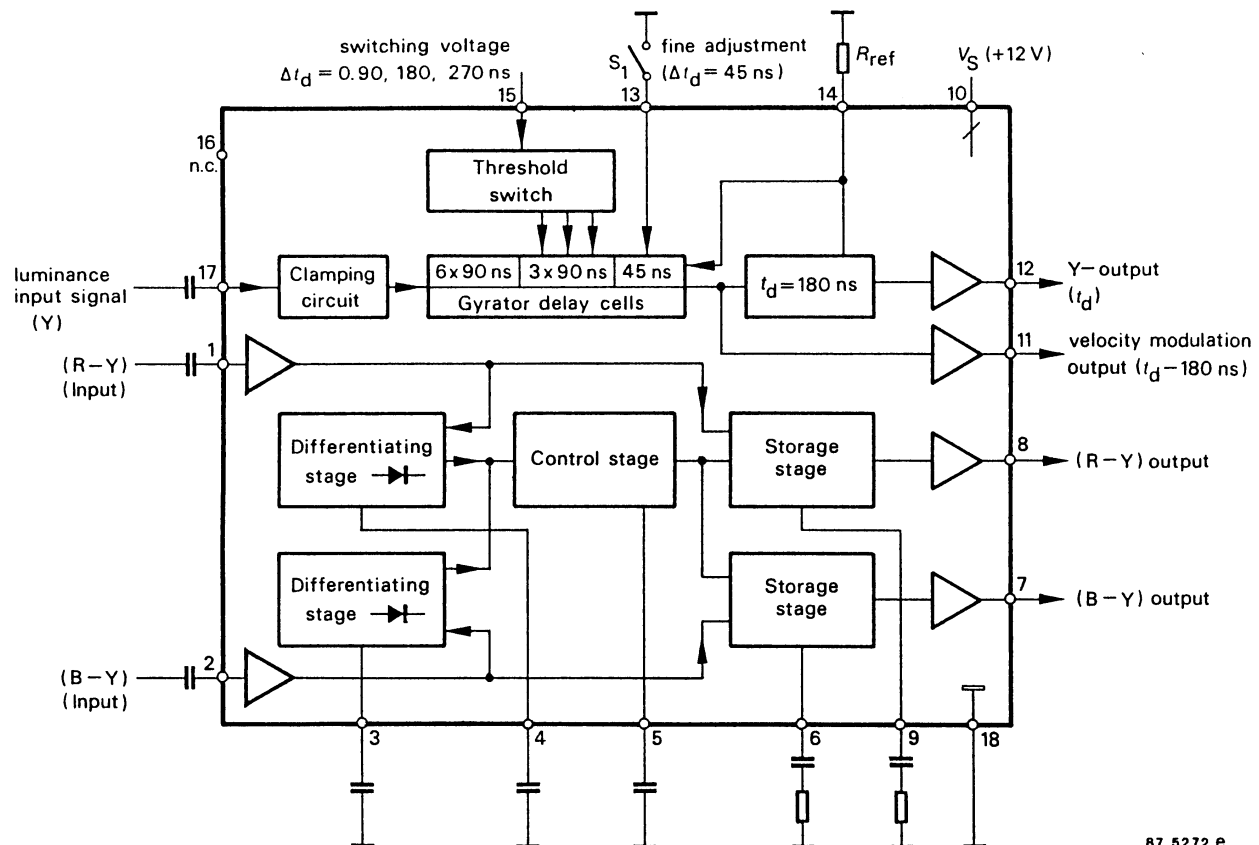


Figure 1 Block diagram

## Absolute Maximum Ratings

Reference point Pin 18, unless otherwise specified

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

## Thermal Resistance

Parameters	Symbol	Maximum	Unit
Junction ambient	$R_{\text{thJA}}$	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
<b>Luminance channel</b>						
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	$\mu\text{A}$
Output current	Pin 11,12	$+I_{11,12}$			0.4	mA
		$-I_{11,12}$			1	mA
Signal attenuation	Pin 11-17	d		8,5		dB
	Pin 12-17	d	5.5		8.0	dB
<b>Frequency response</b> , $V_{15} = 12\text{ V}$ ; $R(\text{pin } 14) = \text{nom. } 1.2\text{ k}$ , Pin 13 n.c.						
	3 MHz, ref. 0.5 MHz	$\Delta v$	0		3.0	dB
	5 MHz, ref. 0.5 MHz	$\Delta v$	-3		2.0	dB
DC voltage at output	Pin 11	$V_{11}$	2.0		2.6	V
DC voltage at output	Pin 12	$V_{12}$	9.8		10.8	V

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

<sup>1)</sup> Delay time is proportional to  $R_{Pin14}$

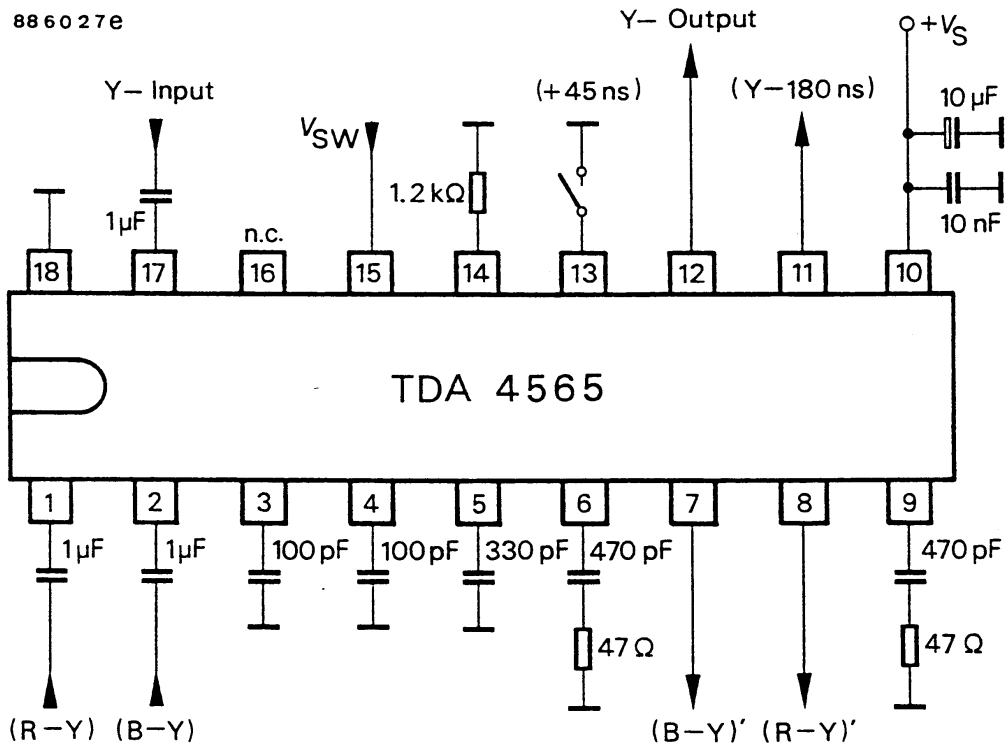
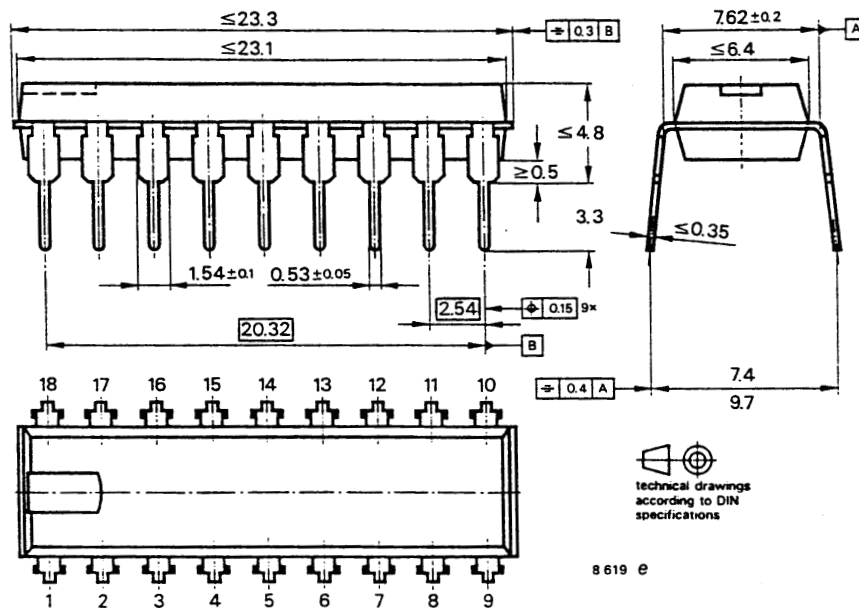


Figure 2 Test circuit

## 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 and
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.

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

The Montreal Protocol (1987) and its London Amendments (1990) will soon 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 any 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 and
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 and do not contain ozone depleting substances.

**We reserve the right to make changes to improve technical design without further notice.**

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