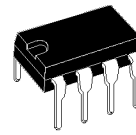




## TV EAST/WEST CORRECTION CIRCUIT

- LOW DISSIPATION
- SQUARE GENERATOR FOR PARABOLIC CURRENT
- EXTERNAL KEYSTONE ADJUSTMENT (symmetry of the parabola)
- INPUT FOR DYNAMIC FIELD CORRECTION (beam current change)
- STATIC PICTURE WIDTH ADJUSTMENT
- PULSE-WIDTH MODULATOR
- FINAL STAGE D-CLASS WITH ENERGY RE-DELIVERY
- PARASITIC PARABOLA SUPPRESSION, DURING FLYBACK TIME OF THE VERTICAL SAWTOOTH



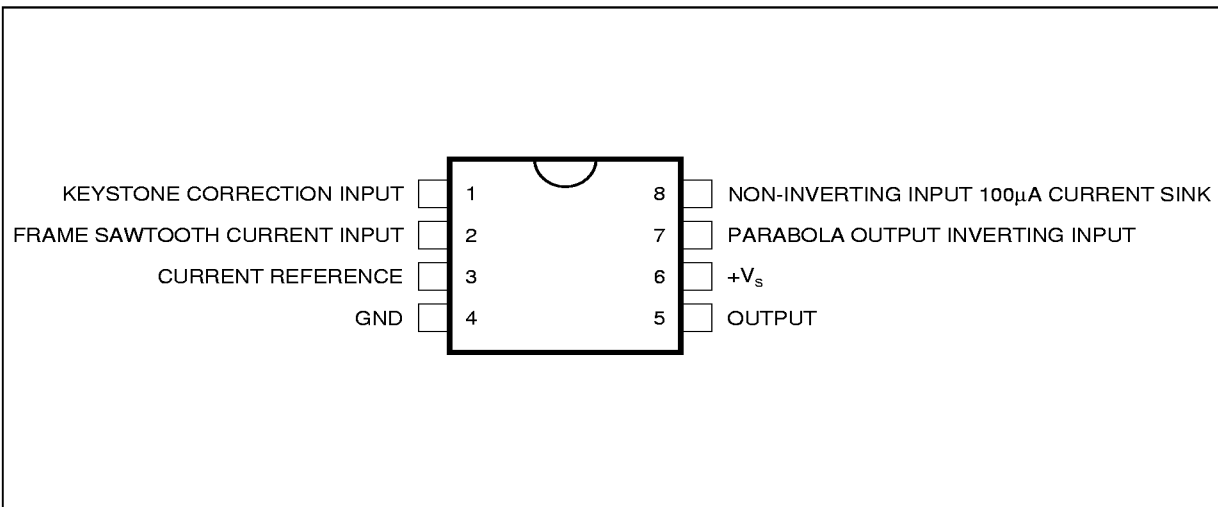
**POWERDIP8** (Th = 0.4mm)  
(Plastic Package)

**ORDER CODE : TDA4950**

### DESCRIPTION

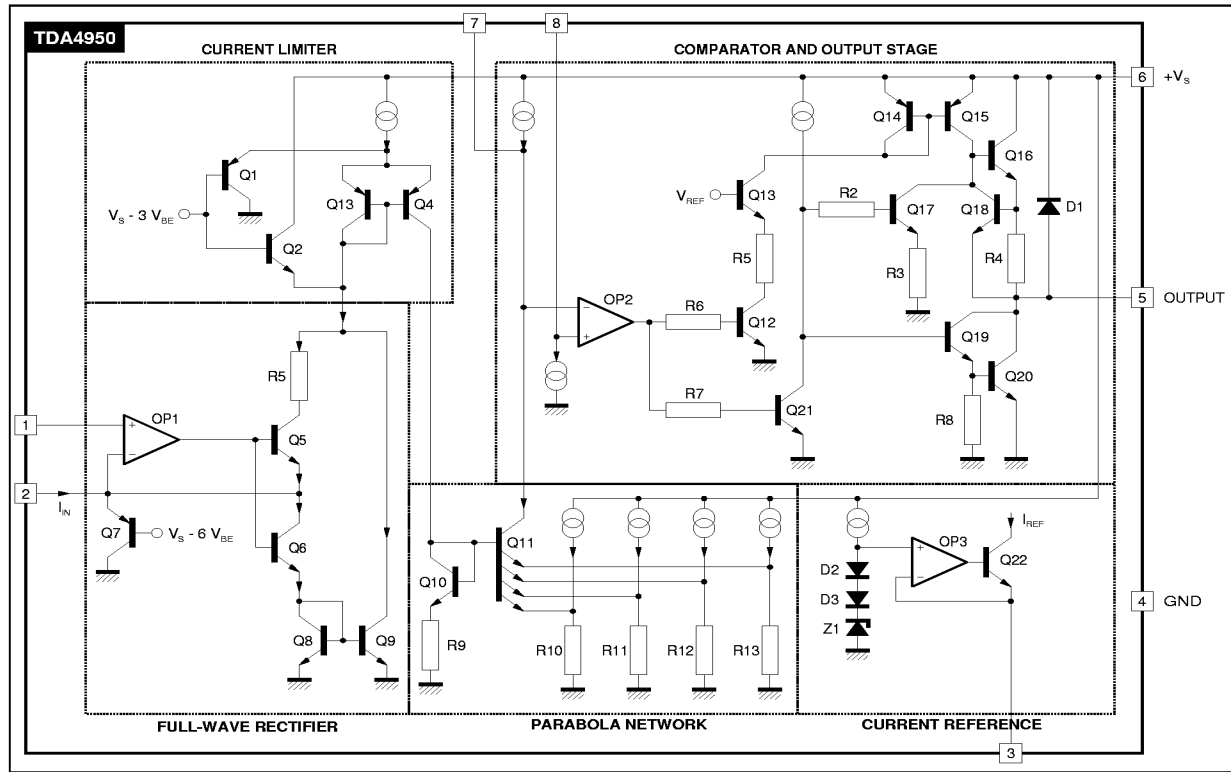
The TDA4950 is a monolithic integrated circuit in a 8 pin minidip plastic package designed for use in the east-west pin-cushion correction by driving a diode modulator in TV and monitor applications.

### PIN CONNECTIONS



# TDA4950

## BLOCK DIAGRAM



## ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_S$	Supply Voltage	35	V
$I_S$	Supply Current	500	mA
$P_{tot}$	Power Dissipation at $T_{amb} = 70^\circ\text{C}$	800	mW
$T_{stg}, T_j$	Storage and Junction Temperature	-25, +150	$^\circ\text{C}$

## THERMAL DATA

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Thermal Resistance Junction-ambient Max.	100	$^\circ\text{C/W}$
$R_{th(j-c)}$	Thermal Resistance Junction-pin (4) Max.	70	$^\circ\text{C/W}$

**ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25^\circ\text{C}$ ,  $V_S = 26\text{ V}$ ,  $V_{fr} = 0$ , S1 and S2 in "a" position, refer to test circuit unless otherwise specified)

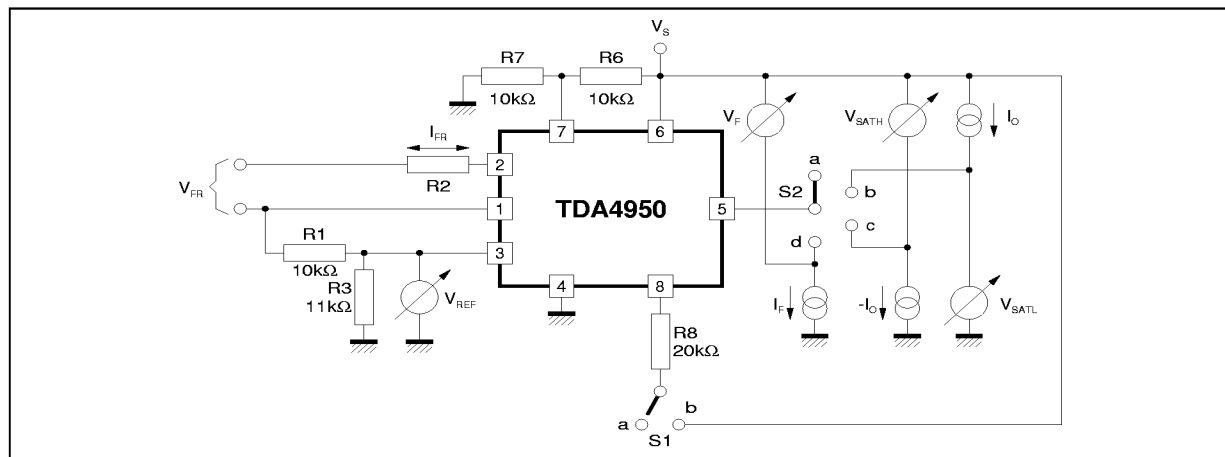
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_S$	Supply Voltage		17	24	30	V
$I_S$	Supply Current			4.5	7	mA
$V_{ref}$	Internal Reference Voltage		7.6	8.0	8.8	V
$-I_{ref}$	Internal Reference Current	$V_{ref}/R_3$		0.73		mA
$V_{7(A)}$	Pin 7 Output Voltage	$I_{fr} = 0\ \mu\text{A}$ , see Figure 2	15.3	16.0	16.7	V
$V_{7(B)}$	Pin 7 Output Voltage	$I_{fr} = 30\ \mu\text{A}$ , see Figure 2		15		V

**ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25^{\circ}C$ ,  $V_S = 26 V$ ,  $V_{fr} = 0$ , S1 and S2 in "a" position, refer to test circuit unless otherwise specified) (continued)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
K1	Parabola Coefficient	$K_1 = \frac{V_{7A} - V_{7B}}{V_{7A} - V_{7C}}$ , see Figure 2		0.28		
K2	Parabola Coefficient	$K_2 = \frac{V_{7A} - V_{7C}}{V_{7A} - V_{7D}}$ , see Figure 2		0.71		
$\Delta V_7$ (*)		$\Delta V_7 = V_{7E} - V_{7F}$ , see Figure 2	-40		40	mV
$I_8$	Current Source	S1 $\rightarrow$ b		100		$\mu A$
$V_{SATL}$	Saturation Voltage	$I_o = 400 mA$ Sink S2 $\rightarrow$ b		1	2	V
$V_{SATH}$	Saturation Voltage	$I_o = 100 mA$ Source S2 $\rightarrow$ c S1 $\rightarrow$ b		0.8	1.5	V
$V_F$	Forward Voltage	$I_o = 400 mA$ S2 $\rightarrow$ d S1 $\rightarrow$ b		1.2	1.7	V
$I_{fr}$	Frame Sawtooth Current	$V_{fr} = 6.6 V_{PP}$		66		$\mu A$

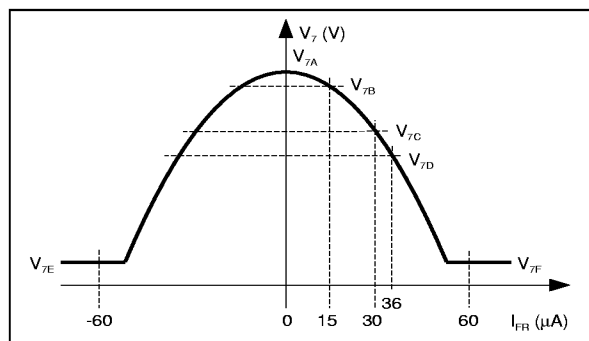
4950-04.TBL

**Figure 1 : Test Circuit**



4950-03.EPS

**Figure 2 : Parabola Characteristics**



4950-04.EPS

**CIRCUIT OPERATION**

(see the schematic diagram)

A differential amplifier OP1 is driven by a vertical frequency sawtooth current of  $\pm 33\mu A$  which is produced via an external resistor from the sawtooth voltage. The non-inverting input of this amplifier is connected with a reference voltage corresponding

to the DC level of the sawtooth voltage. This DC voltage should be adjustable for the keystone correction. The rectified output current of this amplifier drives the parabola network which provides a parabolic output current. This output current produces the corresponding voltage due to the voltage drop across the external resistor at pin 7.

If the input is overmodulated ( $> 40\mu A$ ) the internal current is limited to  $40\mu A$ . This limitation can be used for suppressing the parasitic parabolic current generated during the flyback time of the frame sawtooth.

A comparator OP2 is driven by the parabolic current. The second input of the comparator is connected with a horizontal frequency sawtooth voltage the DC level of which can be changed by the external circuitry for the adjustment of the picture width.

The horizontal frequency pulse-width modulated output signal drives the final stage. It consists of a class D push-pull output amplifier that drives, via an external inductor, the diode modulator.



Figure 3 : Application Circuit with Keystone Correction

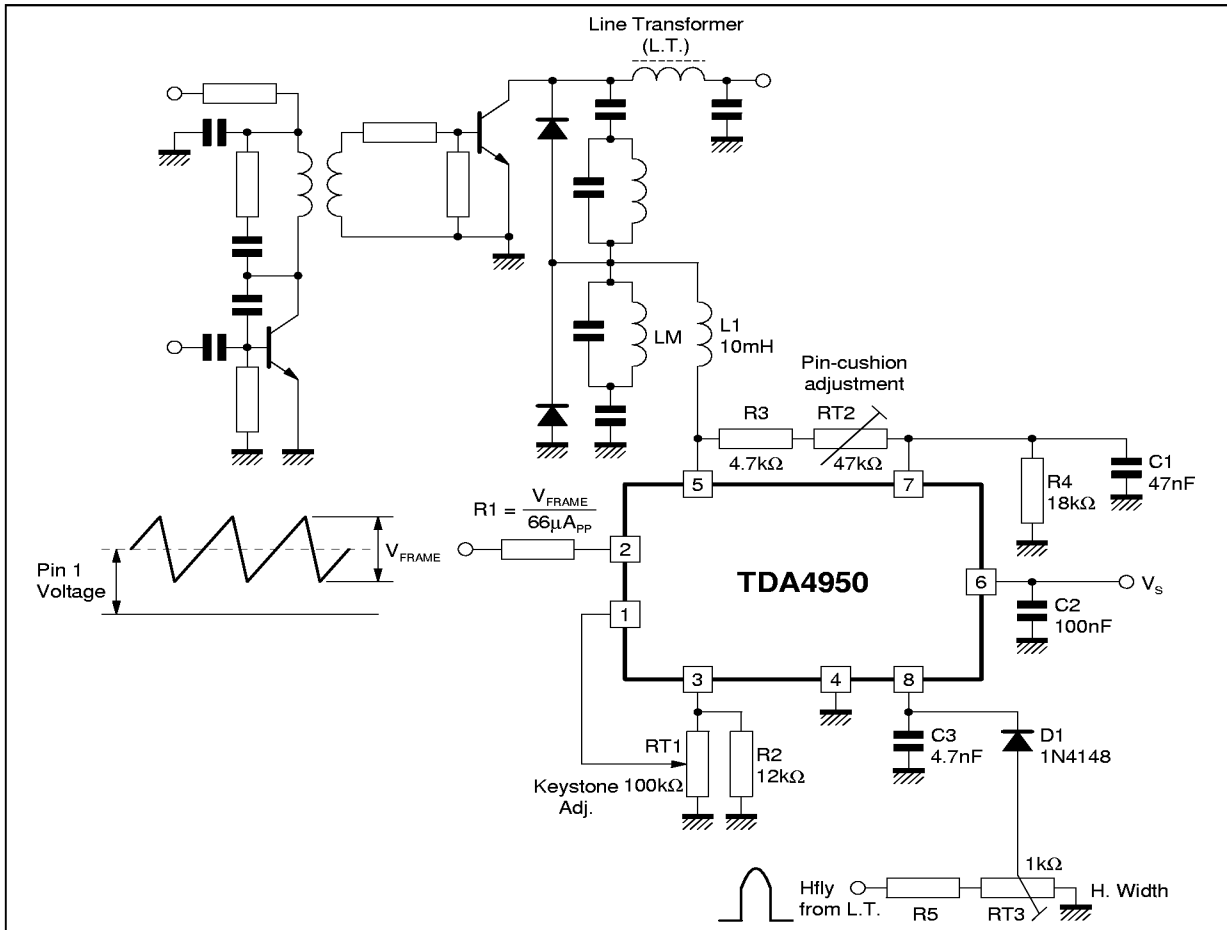
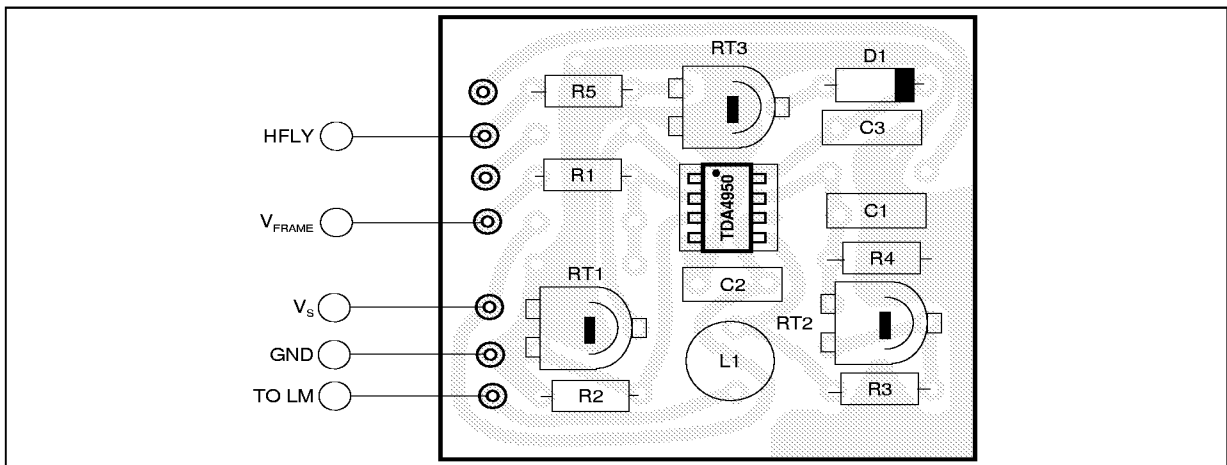
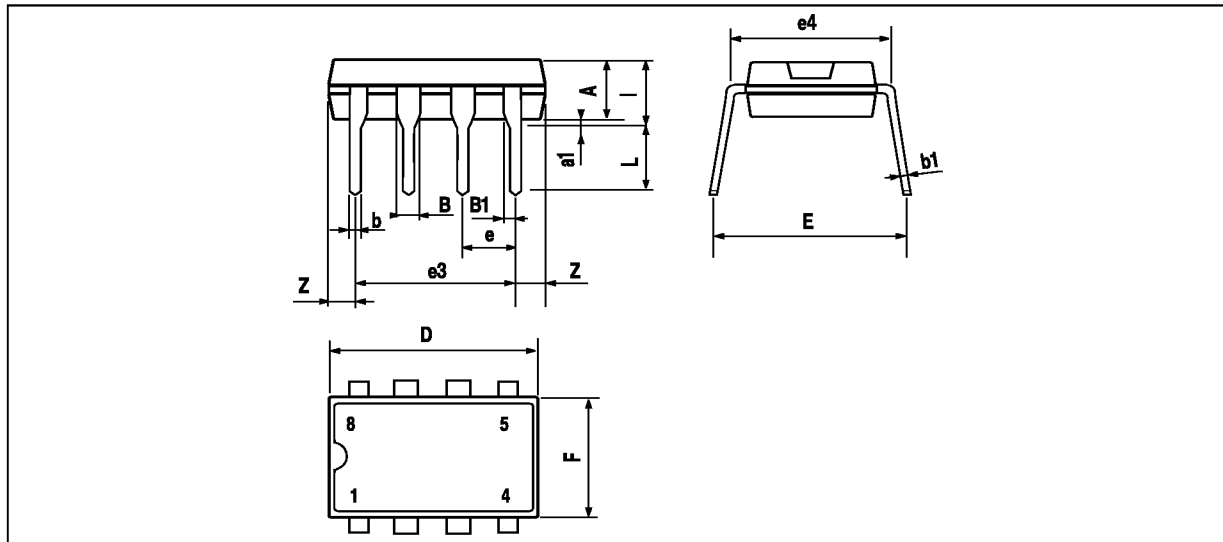


Figure 4 : P.C. Board and Component Layout of the Circuit of Figure 3 (1:1 scale)



**PACKAGE MECHANICAL DATA**  
8 PINS - PLASTIC POWERDIP



Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A		3.3			0.130	
a1	0.7			0.020		
B	1.39		1.65	0.055		0.065
B1	0.91		1.04	0.036		0.041
b		0.5			0.020	
b1	0.38		0.5	0.015		0.020
D			9.8			0.386
E		8.8			0.346	
e		2.54			0.100	
e3		7.62			0.300	
e4		7.62			0.300	
F			7.1			0.280
L			4.8			0.189
L		3.3			0.130	
Z	0.44		1.6	0.017		0.063

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