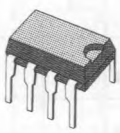
SGS-THOMSON MICROELECTRONICS

TDA4950

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 REDELIVERY
- PARASITIC PARABOLA SUPPRESSION, DURING FLYBACK TIME OF THE VERTICAL SAWTOOTH



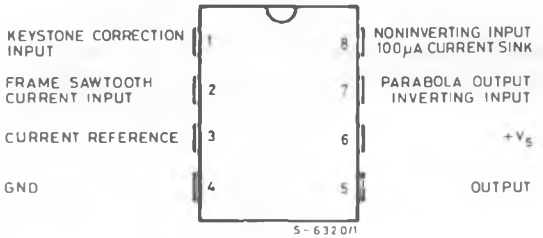
MINIDIP

ORDER CODE : TDA4950

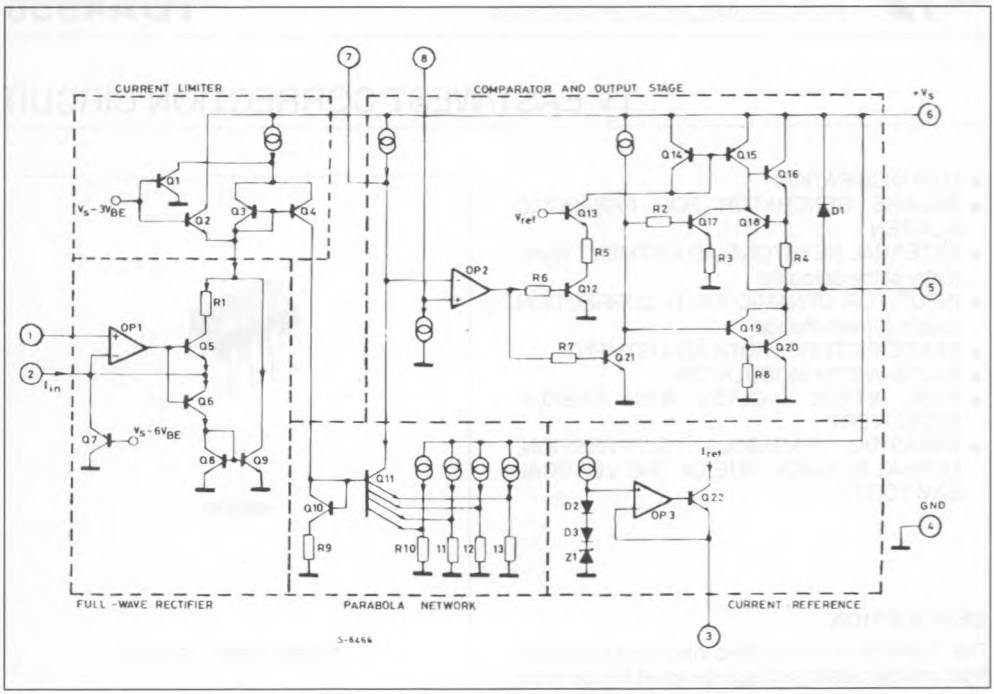
DESCRIPTION

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.

CONNECTION DIAGRAM (top view)



SCHEMATIC 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 °C	800	mW
T_{stg}, T_j	Storage and Junction Temperature	– 25 to 150	°C

THERMAL DATA

$R_{th\ j\text{-}amb}$	Thermal Resistance Junction-ambient	Max	100	°C/W
$R_{th\ j\text{-}case}$	Thermal Resistance Junction-pin 4	Max	70	°C/W

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, V_S = 24 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	$V_{ref}/R3$		0.73		mA
$V_{7(A)}$ (*)	Pin 7 Output Voltage	I_{fr} = 0 µA	15.3	16.0	16.7	V
$V_{7(B)}$ (*)	Pin 7 Output Voltage	I_{fr} = 30 µA		15		V
K1	Parabola Coefficient (*)	$K_1 = \frac{V_{7A} - V_{7B}}{V_{7A} - V_{7C}}$		0.28		
K_2	Parabola Coefficient (*)	$K_2 = \frac{V_{7A} - V_{7C}}{V_{7A} - V_{7D}}$		0.71		
ΔV_7 (*)		$\Delta V_7 = V_{7E} - V_{7F}$	– 40		40	mV
I_8	Current Source	S1 → b		100		µA
V_{SATL}	Saturation Voltage	Io = 400 mA Sink S2 → b		1	2	V
V_{SATH}	Saturation Voltage	Io = 100 mA Source S1 → b S2 → c		0.8	1.5	V
V_F	Forward Voltage	I_o = 400 mA S2 → d S1 → b		1.2	1.7	V
I_{fr}	Frame Sawtooth Current	V_{fr} = 6.6 V_{PP}		6.6		µA

(*) See figure 2.

Figure 1 : Test Circuit.

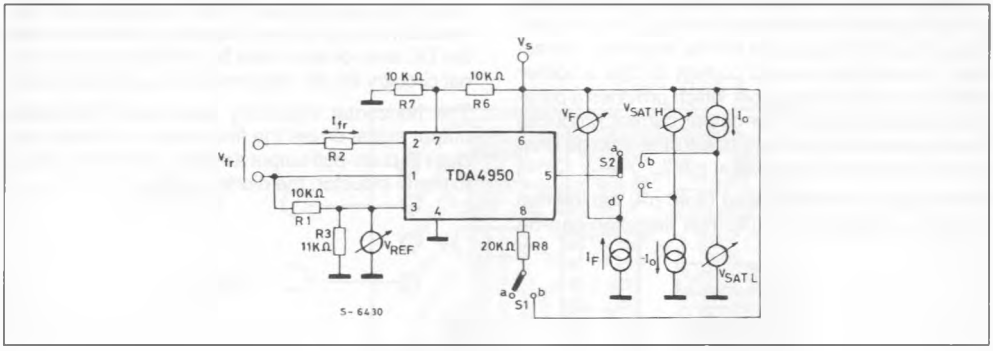
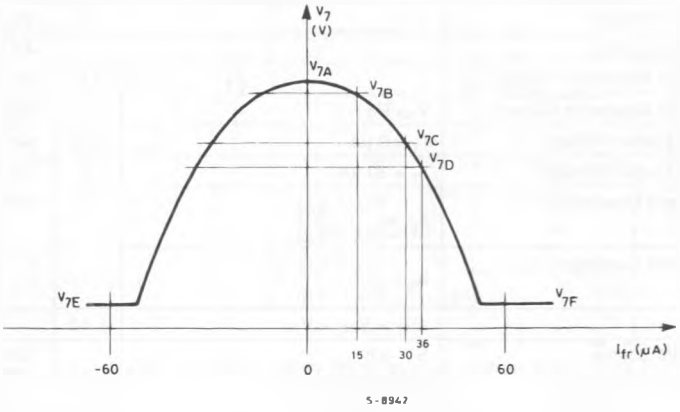


Figure 2 : Parabola Characteristics.



CIRCUIT OPERATION (see the schematic diagram)

A differential amplifier OP1 is driven by a vertical frequency sawtooth current of ± 33 μA 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 μA) the internal current is limited to 40 μA. 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.

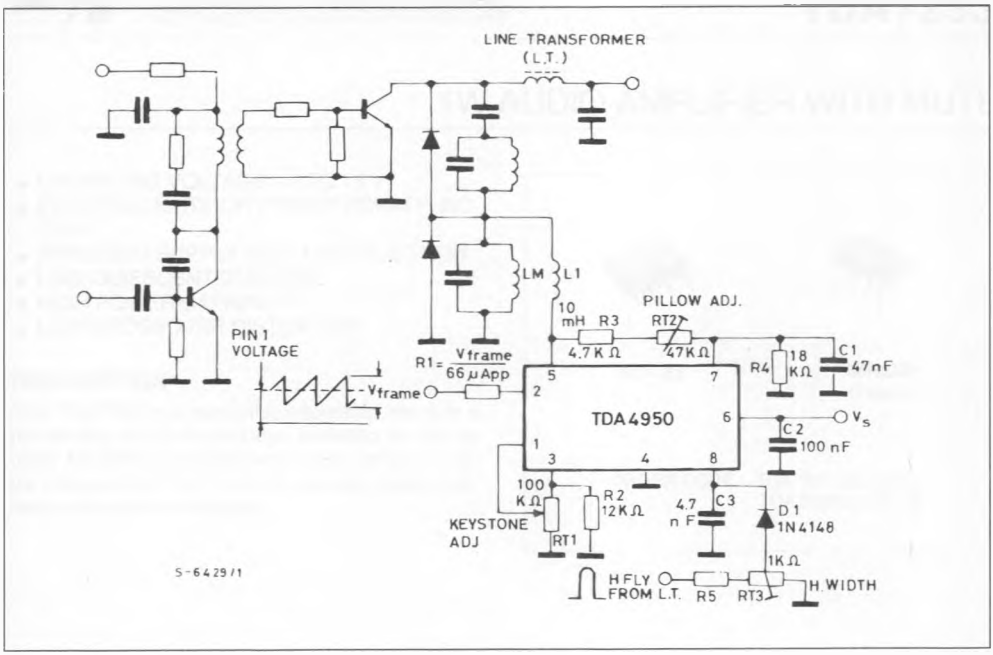
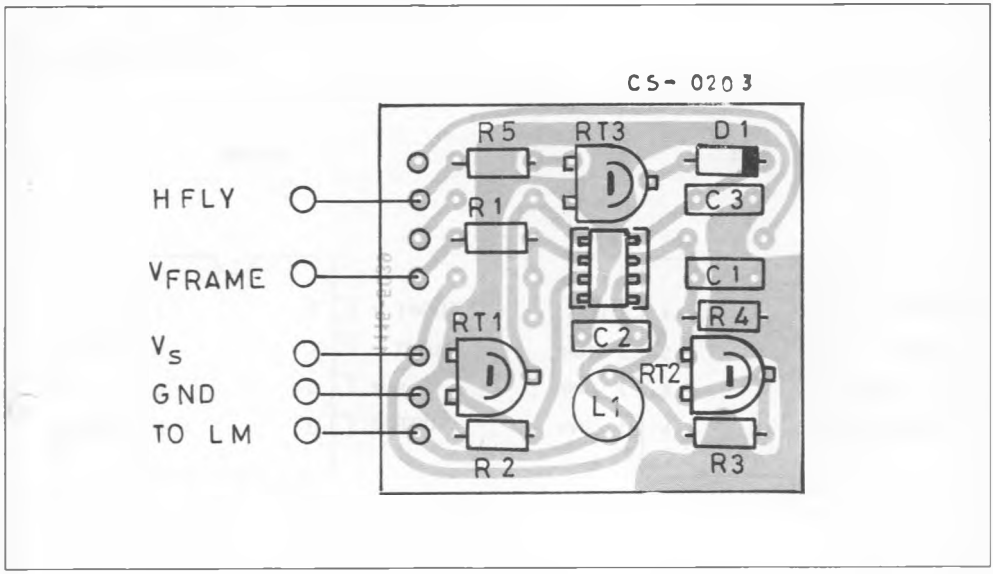


Figure 4 : P.C. Board and component Layout of the circuit of Figure 3 (1 : 1 scale).



SGS-THOMSON MICROELECTRONICS

TDA7233

1W AUDIO AMPLIFIER WITH MUTE

- OPERATING VOLTAGE 1.8 TO 15 V
- EXTERNAL MUTE OR POWER DOWN FUNCTION
- IMPROVED SUPPLY VOLTAGE REJECTION
- LOW QUIESCENT CURRENT
- HIGH POWER CAPABILITY
- LOW CROSSOVER DISTORTION

SO – 8J

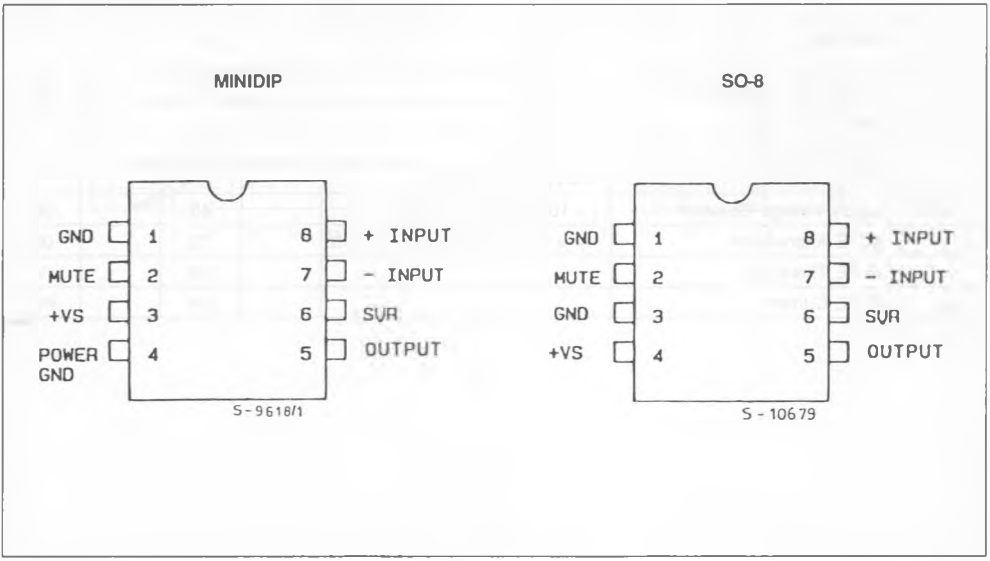
MINIDIP
(Plastic)

ORDER CODE : TDA7233 (Minidip)
TDA7233D (SO – 8)

DESCRIPTION

The TDA7233 is a monolithic integrated circuit in 8 pin Minidip or SO–8 package, intended for use as class AB power amplifier with a wide range of supply voltage from 1.8V to 15V in portable radios, cassette recorders and players.

PIN CONNECTIONS (top views)



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_s	Supply Voltage	16	V
I_o	Output Peak Current	1	A
P_{tot}	Total Power Dissipation at T_{amb} = 50 °C	1	W
T_{stg}, T_j	Storage and Junction Temperature	– 40 to 150	°C

THERMAL DATA

			SO-8	Minidip
$R_{th\ j\text{-}amb}$	Thermal Resistance Junction-ambient	Max	200 °C/W	100 °C/W

ELECTRICAL CHARACTERISTICS (V_s = 6 V, T_{amb} = 25 °C, unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_s	Supply Voltage		1.8		15	V
V_o	Quiescent Out Voltage			2.7		V
		V_s = 3 V		1.2		V
		V_s = 9 V		4.2		V
I_d	Quiescent Drain Current	MUTE HIGH		3.6	9	mA
		MUTE LOW		0.4		
I_b	Input Bias Current			100		nA
P_o	Output Power	d = 10 % f = 1 KHz				
		V_s = 12 V R_L = 8 Ω		1.9		W
		V_s = 9 V R_L = 4 Ω		1.6		W
		V_s = 9 V R_L = 8 Ω		1		W
		V_s = 6 V R_L = 8 Ω		0.4		W
		V_s = 6 V R_L = 4 Ω		0.7		W
		V_s = 3 V R_L = 4 Ω		110		mW
		V_s = 3 V R_L = 8 Ω		70		mW
d	Distortion	P_o = 0.5 W R_L = 8 Ω f = 1 kHz V_s = 9 V		0.3		%
G_v	Closed Loop Voltage Gain	f = 1 kHz		39		dB
R_{IN}	Input Resistance	f = 1 kHz	100			KΩ
e_N	Total Input Noise (R_s = 10 kΩ)	B = Curve A		2		μV
		B = 22 Hz to 22 kHz		3		
SVR	Supply Voltage Rejection	f = 100 Hz, R_g = 10 KΩ		45		dB
	MUTE Attenuation	V_o = 1 V f = 100 Hz to 10 kHz		70		dB
	MUTE Threshold			0.6		V
I_M	MUTE Current			0.4		mA

Figure 1 : Test and Application Circuit.

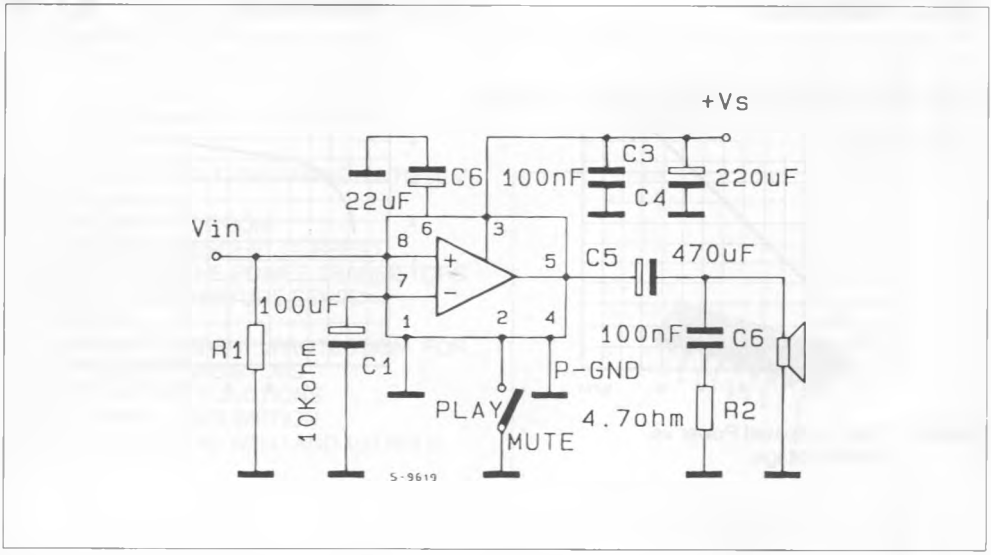


Figure 2 : Output Power vs Supply voltage.

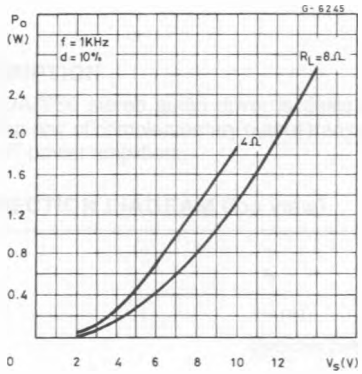


Figure 3 : Supply Voltage Rejection vs. Frequency.

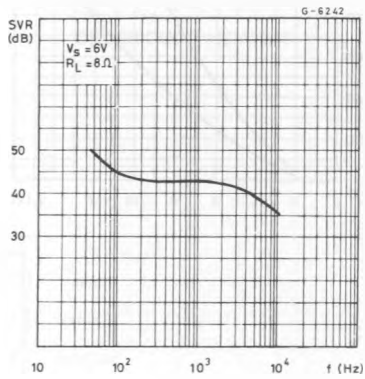


Figure 4 : DC Output Voltage vs Supply voltage.

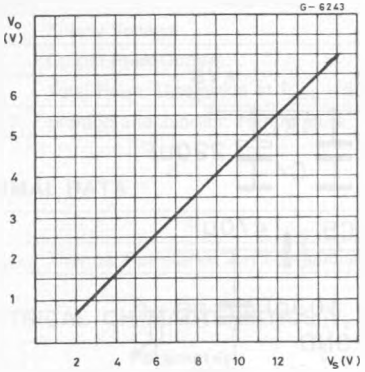


Figure 5 : Quiescent Current vs. Supply voltage.

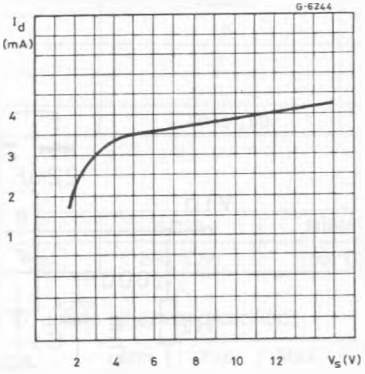


Figure 6 : Total dissipated Power vs. Supply voltage.