

AN5532

TV Vertical Deflection Output Circuit

Description

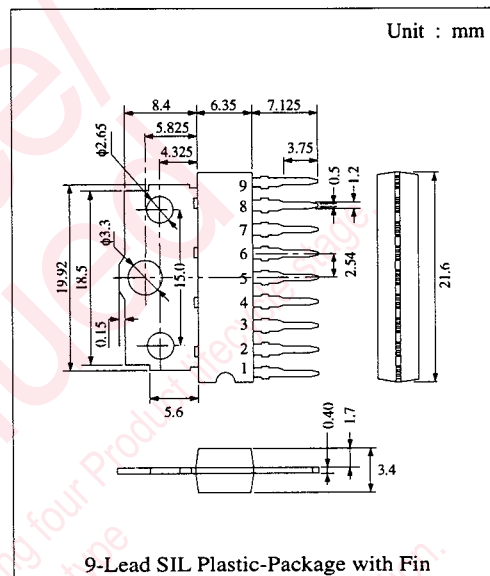
The AN5532 is an integrated circuit designed for TV vertical deflection output circuit.

Features

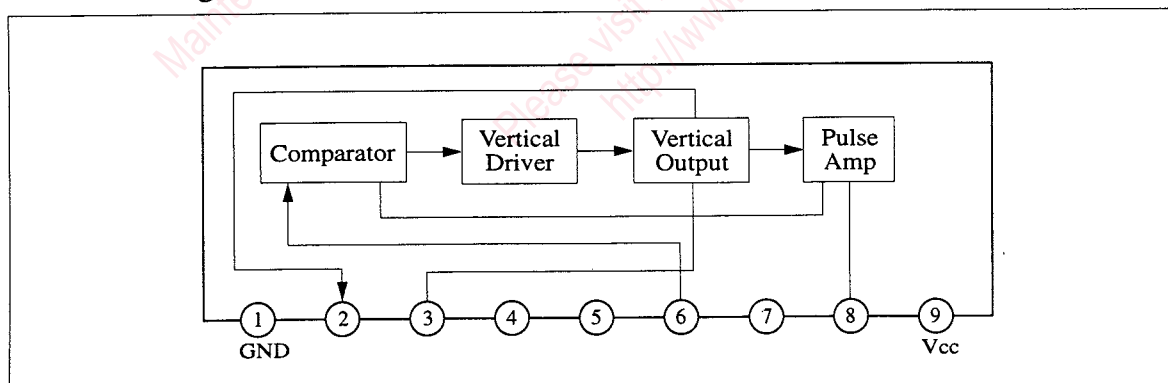
- Incorporates vertical oscillator and vertical driver
- Good display vertical linearity
- Low power consumption
- Supply Voltage : V_{CC1} 9.6 ~ 14.4V
 V_{CC2} 12 ~ 24V

Pin Descriptions

Pin No.	Pin Name
1	GND
2	Vertical Output
3	Power Supply for Vertical Output
4	Filter
5	Ripple Filter
6	Input
7	Power Supply for Comparator
8	Pulse Amplitude
9	Vcc



Block Diagram



■ Absolute Maximum Ratings (Ta=25°C)

Item		Symbol	Rating		Unit
Voltage	Supply Voltage 1	V _{CC1}	14.4		V
	Supply Voltage 2	V _{CC2}	24		V
	Circuit Voltage	V ₂₋₁	0	48	V
		V ₃₋₁	0	48	V
		V ₆₋₁	0	V ₇₋₁	V
Current		Supply Current 1	I _{CC1}	4	
	Supply Current 2	I _{CC2}	360		mA
	Circuit Current	I ₂	-800	800	mA _{O-P}
		I ₈	-800	800	mA _{O-P}
		Power Dissipation		P _D	6.6 (Infinite heat sink)
Operating Ambient Temperature		T _{opr}	-20 ~ +70		°C
Storage Temperature		T _{stg}	-55 ~ +150		°C

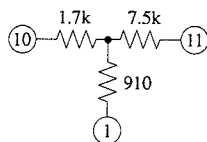
■ Electrical Characteristics (Ta=25°C)

Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Load Short	D. Y. short	1	t=600ms Load short SW ON	No Destruction			
Deflection Current	I _{Y(PP)}	1	Refer to the test circuit	740	800	860	mApp
Intermediate Voltage	V _{MID}	1	I _{Y(PP)} = 700mApp	6.0	6.3	6.6	V
Flyback Pulse Width	W _(FBP)	1	I _{Y(PP)} = 700mApp	29			V
Vertical Amp. Distortion	THD	2	When e ₀ = 11Vpp		0.3	1	%
Vert. Amp. Ref. Voltage (1)	V ₆₋₁		Refer to Table 1	5.2	6.0		V
Vert. Amp. Ref. Voltage (2)	V ₆₋₁		Refer to Table 1		6.0	6.8	V
Idling Current	I ₃		V ₂ = 12V	10	16	26	%
Output Tr. Sat. Voltage (1)	V ₃₋₂		V ₂ = 12V		3.0	4.0	V
Output Tr. Sat. Voltage (2)	V ₂₋₁		V ₂ = 12V		1.0	2.0	V
V _{CE(sat.)} (T21)	V ₈₋₁		V ₂ = 12V			0.5	V
Temp. Drift of Deflection Current	ΔI _Y (Ta)	1	Ta = -20 ~ 70°C	-1.5		1.5	V
Display Vert. Linearity			Cross hatch with actual set. At receiving time, $\frac{(x_i - \bar{x})}{\bar{x}} \times 100$	0	3	5	V
Thermal Resistance	R _{th(j-c)}					12	°C/W

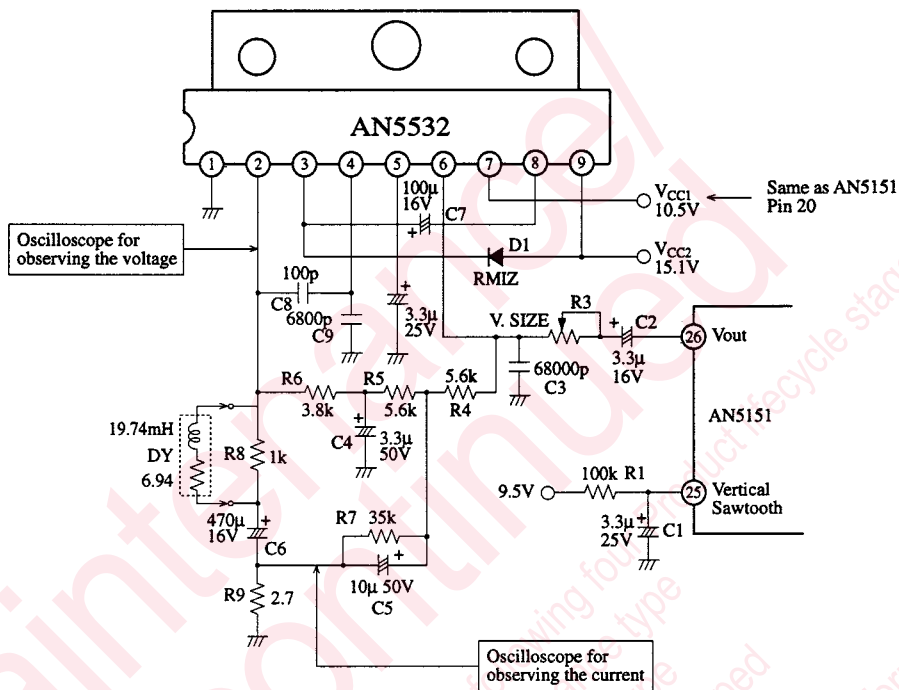
Table 1

Item	Symbol	Measuring Pin	Pin No								
			1	2	3	4	5	6	7	8	9
Vert. Amp. Ref. Voltage (1)	V ₆₋₁	4	0V		(9)			5.2V	12V		24V
Vert. Amp. Ref. Voltage (2)	V ₆₋₁	4	0V		(9)			6.8V	12V		24V
Idling Current	I ₃	3	0V	10V	24V	(11)					24V
Output Tr. Sat. Voltage (1)	V ₃₋₂	3	0V	33Ω 0V	(9)			3V	12V		24V
Output Tr. Sat. Voltage (2)	V ₂₋₁	2	0V	33Ω 24V	(9)			9V	12V		24V
V _{CE(sat.)} (T21)	V ₈₋₁	8	0V		(9)			7.2V	12V	1.2kΩ 2.1V	24V

Note :



■ Application Circuit



[AN5151]

- R1 and C1 of Pin 25 generate saw wave
- Sawtooth wave output from Pin 26

[AN5532]

- R3 → for vertical size adjustment
- R5, R6, C4 → for DC feedback
- R7, C5 → for AC feedback
- R8 → Damping resistor
- C3, C8, C9 → for preventing oscillation
- C10 → for preventing ripple
- C7 → for generating flyback pulse
- D1 → for separating flyback from power supply

Deflection current and voltage waveform of Pin 2 based on the constants

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