



STK79315A

Vertical Deflection Processor + Output Amplifier for CRT Displays (I_O max=2A)

Overview

The STK79315A is a vertical deflection output IC that incorporates a vertical signal processor, output amplifier and related functions into a single package.

Applications

- Large screen, ultra-high definition CRT displays

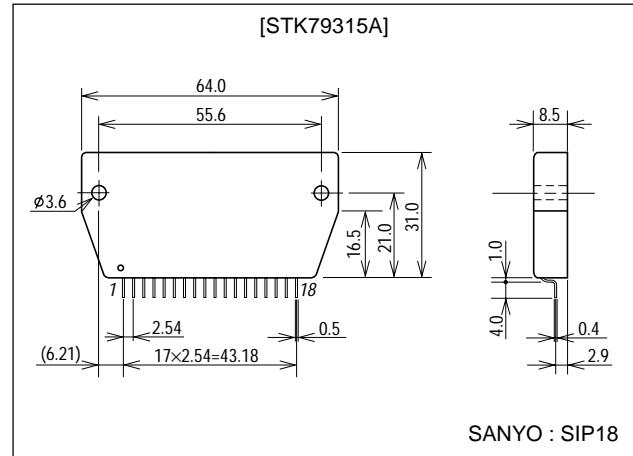
Features

- Vertical deflection basic functions (vertical oscillator, sawtooth waveform generator, output amplifier) built-in
- Vertical centering correction circuit built-in, variable over a wide range, DC controllable
- Pump-up circuit built-in for low power dissipation
- Supply-independent pump-up circuit to cover different trace times
- High-current, high withstand voltage output amplifier (I_{Op-p}max=4A at V_{CC}max=160V)
- Wide vertical pull-in range (> 120Hz), adjustment-free oscillator
- DC controllable vertical amplitude
- Excellent frequency characteristics for an S-curve correction range
- Good interlace characteristics
- Quiescent current adjustment for zero crossover distortion in the output amplifier
- Wide supply range for all loads

Package Dimensions

unit:mm

4144



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Specifications

Maximum Ratings at $T_a = 25^\circ\text{C}$

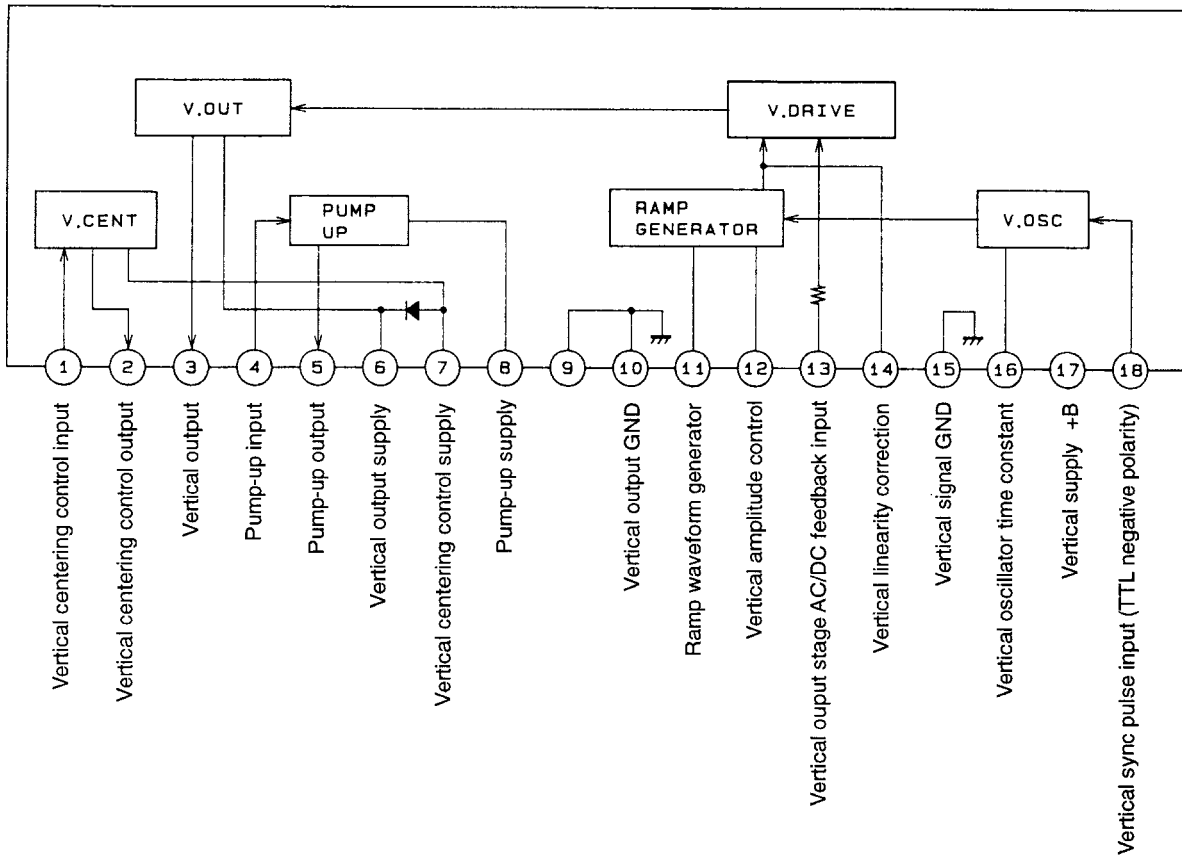
Parameter	Symbol	Conditions	Ratings	Unit
Vertical output block				
Supply voltage	V_{CC6}	Pin 6	160	V
	$V_{CC7, 8}$	Pins 7 and 8	80	V
Deflection current	I_{p-o}	Pin 3	± 2.0	A
Output current	I_O	Pin 2	± 0.7	A
Thermal resistance	$\theta_j\text{-c1}$	Vertical output transistors 11 and 12	6.0	$^\circ\text{C/W}$
	$\theta_j\text{-c2}$	Vertical centering correction transistors 18 and 19	20	$^\circ\text{C/W}$
Deflection signal processor block				
Supply voltage	V_{CC17}	Pin 17	14	V
Junction temperature	T_j		150	$^\circ\text{C}$
Operating substrate temperature	T_c		105	$^\circ\text{C}$
Storage temperature	T_{stg}		-30 to +125	$^\circ\text{C}$

Operating Characteristics at $T_a = 25^\circ\text{C}$, $V_{CC17}=12\text{V}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Deflection processor block						
Pin 17 current consumption	I_{CC17}		10		20	mA
Vertical frequency pull-in range	f_{VP}	V. sync $f=160\text{Hz}$	120			Hz
Vertical free-running oscillator frequency	f_{VOSC}	f_{VOSC} center=55Hz	50		60	Hz
Vertical frequency adjustment voltage characteristic	Δf_{VV}	55Hz at $V_{CC17}=12\pm 1\text{V}$	-0.1		+0.1	Hz
Vertical oscillator start voltage	V_{VOSC}				4.0	V
Vertical frequency temperature characteristic	f_{VT}		-0.028		+0.028	Hz/ $^\circ\text{C}$
Vertical amplitude control pin voltage	V12		5.9	6.1	6.3	V
Ramp waveform generator current	I11		55	60	65	μA
Vertical AC/DC feedback pin voltage	V13		6.0	6.3	6.6	V
Vertical output block						
Idling current	I_{CCO6}	$V_6=V_7=35\text{V}$		30		mA
Neutral voltage	V_{N3}	$V_6=V_7=35\text{V}$		21		V
Deflection output saturation voltage (lower)	V_{sat3-9}	Between pins 3 and 9, $V_6=V_7=35\text{V}$, $I_3=+1.3\text{A}$			2.0	V
Deflection output saturation voltage (upper)	V_{sat6-3}	Between pins 6 and 3, $V_6=V_7=35\text{V}$, $I_3=-1.3\text{A}$			3.2	V
Pump-up charge saturation voltage (1)	V_{sat5-9}	Between pins 5 and 9, $V_8=35\text{V}$, $I_5=+30\text{mA}$			2.0	V
Pump-up charge saturation voltage (2)	V_{sat8-5}	Between pins 8 and 5, $V_8=35\text{V}$, $I_5=-1.3\text{A}$			3.0	V
Center correction saturation voltage (lower)	V_{sat2-9}	Between pins 2 and 9, $V_7=35\text{V}$, $I=-0.7\text{A}$			2.0	V
Center correction saturation voltage (upper)	V_{sat7-2}	Between pins 7 and 2, $V_7=35\text{V}$, $I=-0.7\text{A}$			2.0	V

Note. Supply is of constant-voltage type.

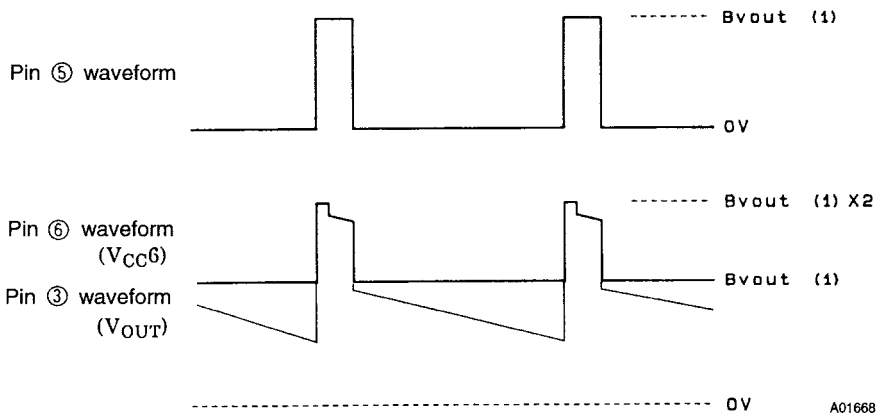
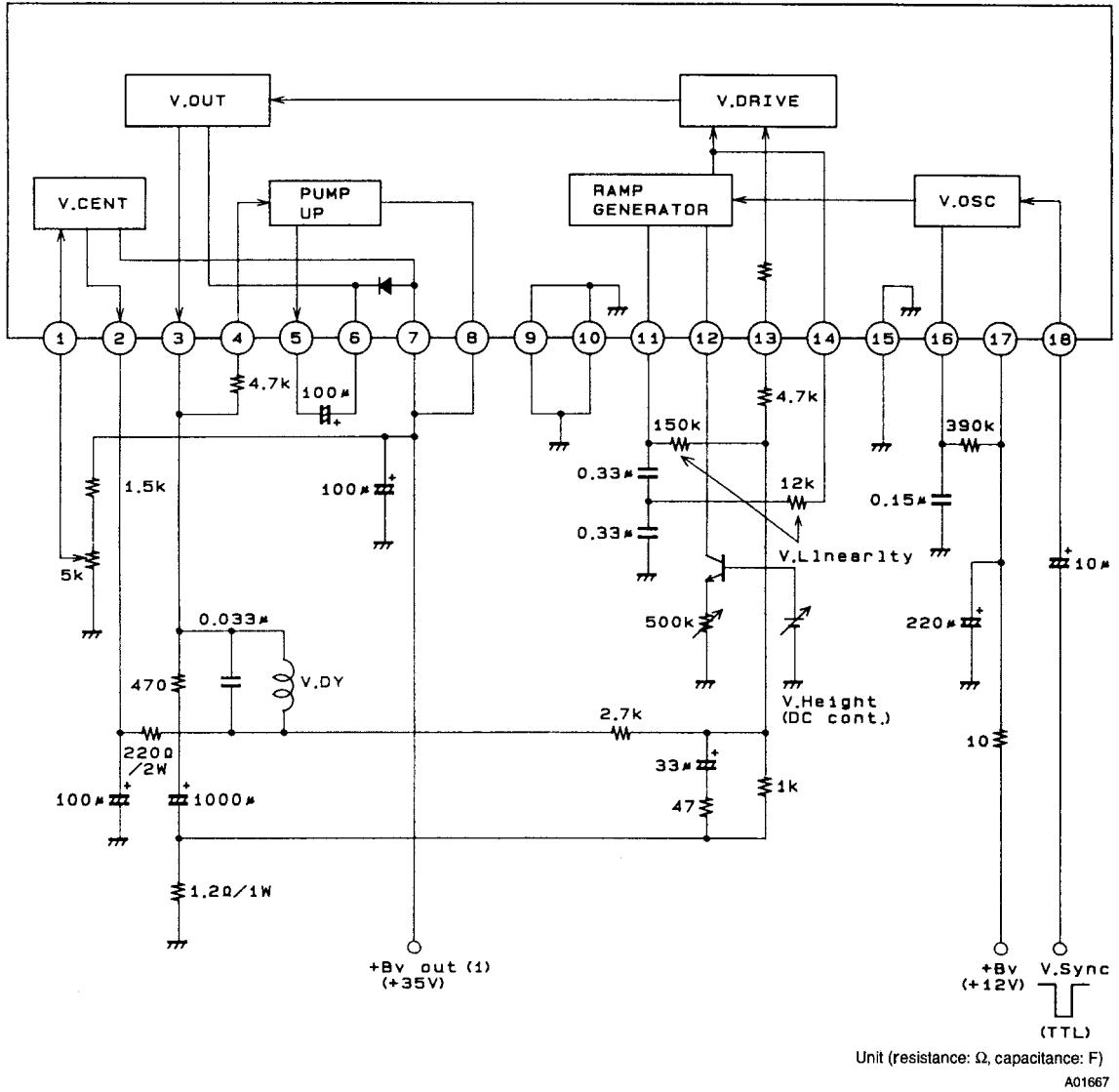
Block Diagram



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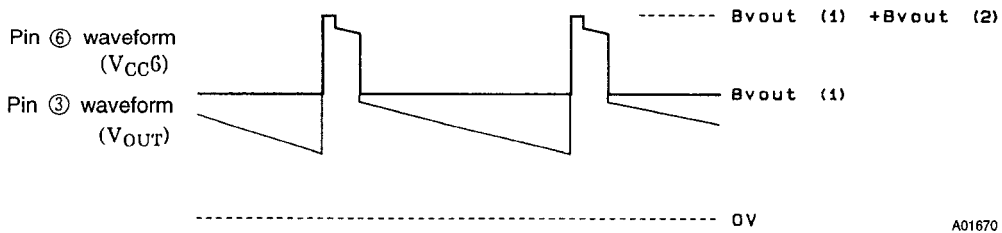
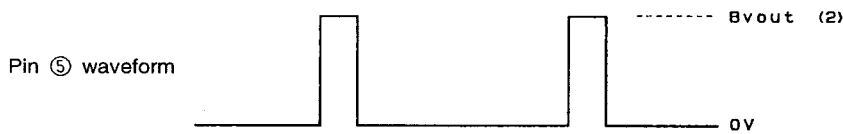
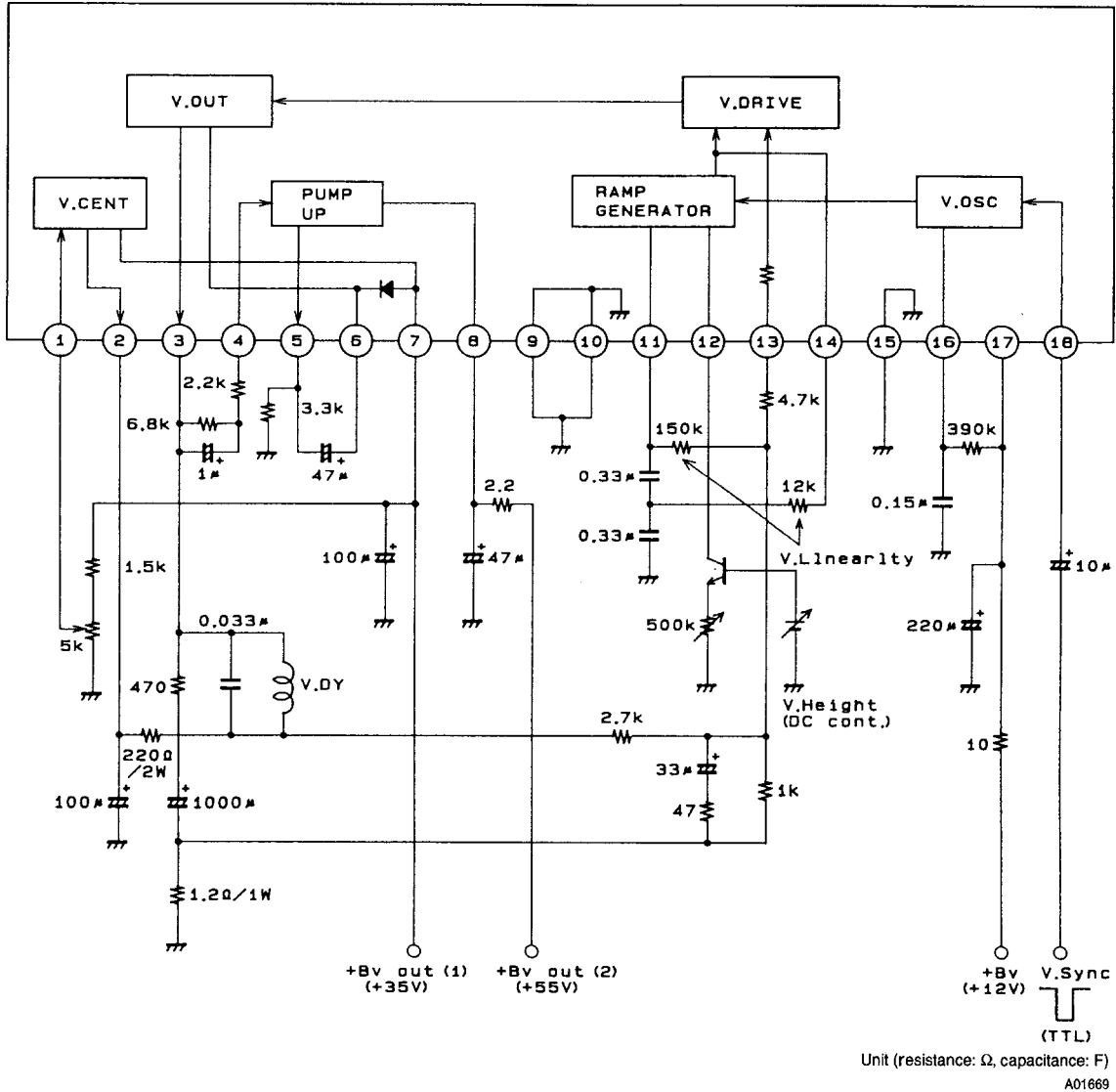
Sample Application Circuit (1)

Single-Supply Vertical Output Stage



Sample Application Circuit (2)

Dual-Supply Vertical Output Stage



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