Ordering number : EN 4613

Thick Film Hybrid IC

No.4613

STK79315A

Vertical Daflection 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

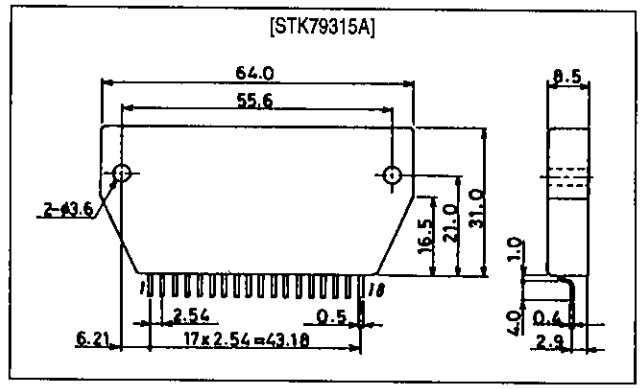
Features

- 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 ($I_{Op\text{-}p}$ 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 Ta = 25°C

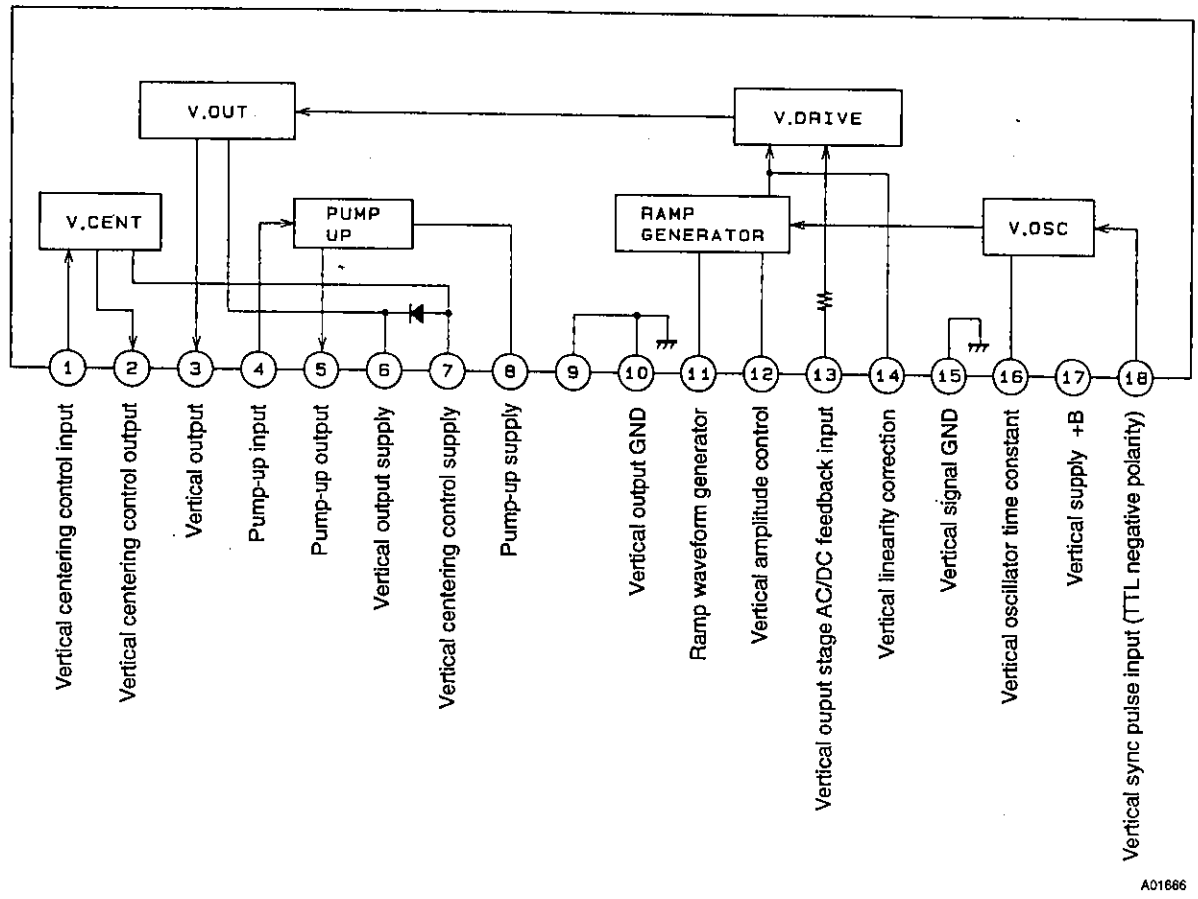
Parameter	Symbol	Conditions	Ratings	Unit
Vertical output block				
Supply voltage	$V_{CC}6$	Pin 6	160	V
	$V_{CC}7,8$	Pins 7 and 8	80	V
Deflection current	I_{P-O}	Pin 3	±2.0	A
Output current	I_O	Pin 2	±0.7	A
Thermal resistance	θj-c1	Vertical output transistors 11 and 12	6.0	°C/W
	θj-c2	Vertical centering correction transistors 18 and 19	20	°C/W
Deflection signal processor block				
Supply voltage	$V_{CC}17$	Pin 17	14	V
Junction temperature	Tj		150	°C
Operating substrate temperature	Tc		105	°C
Storage temperature	Tstg		–30 to +125	°C

Operating Characteristics at Ta = 25°C, $V_{CC}17$ = 12V

Parameter	Symbol	Conditions	min	typ	max	Unit
Deflection processor block						
Pin 17 current consumption	$I_{CC}17$		10	–	20	mA
Vertical frequency pull-in range	f_{VP}	V. sync f = 160Hz	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 $V_{CC}17 = 12 \pm 1V$	–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/°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	$I_{CCO}6$	V6 = V7 = 35V	–	30	–	mA
Neutral voltage	V_N3	V6 = V7 = 35V	–	21	–	V
Deflection output saturation voltage (lower)	$V_{sat}3\text{-}9$	Between pins 3 and 9, V6 = V7 = 35V, I3 = +1.3A	–	–	2.0	V
Deflection output saturation voltage (upper)	$V_{sat}6\text{-}3$	Between pins 6 and 3, V6 = V7 = 35V, I3 = –1.3A	–	–	3.2	V
Pump-up charge saturation voltage (1)	$V_{sat}5\text{-}9$	Between pins 5 and 9, V8 = 35V, I5 = +30mA	–	–	2.0	V
Pump-up charge saturation voltage (2)	$V_{sat}8\text{-}5$	Between pins 8 and 5, V8 = 35V, I5 = –1.3A	–	–	3.0	V
Center correction saturation voltage (lower)	$V_{sat}2\text{-}9$	Between pins 2 and 9, V7 = 35V, I = +0.7A	–	–	2.0	V
Center correction saturation voltage (upper)	$V_{sat}7\text{-}2$	Between pins 7 and 2, V7 = 35V, I = –0.7A	–	–	2.0	V

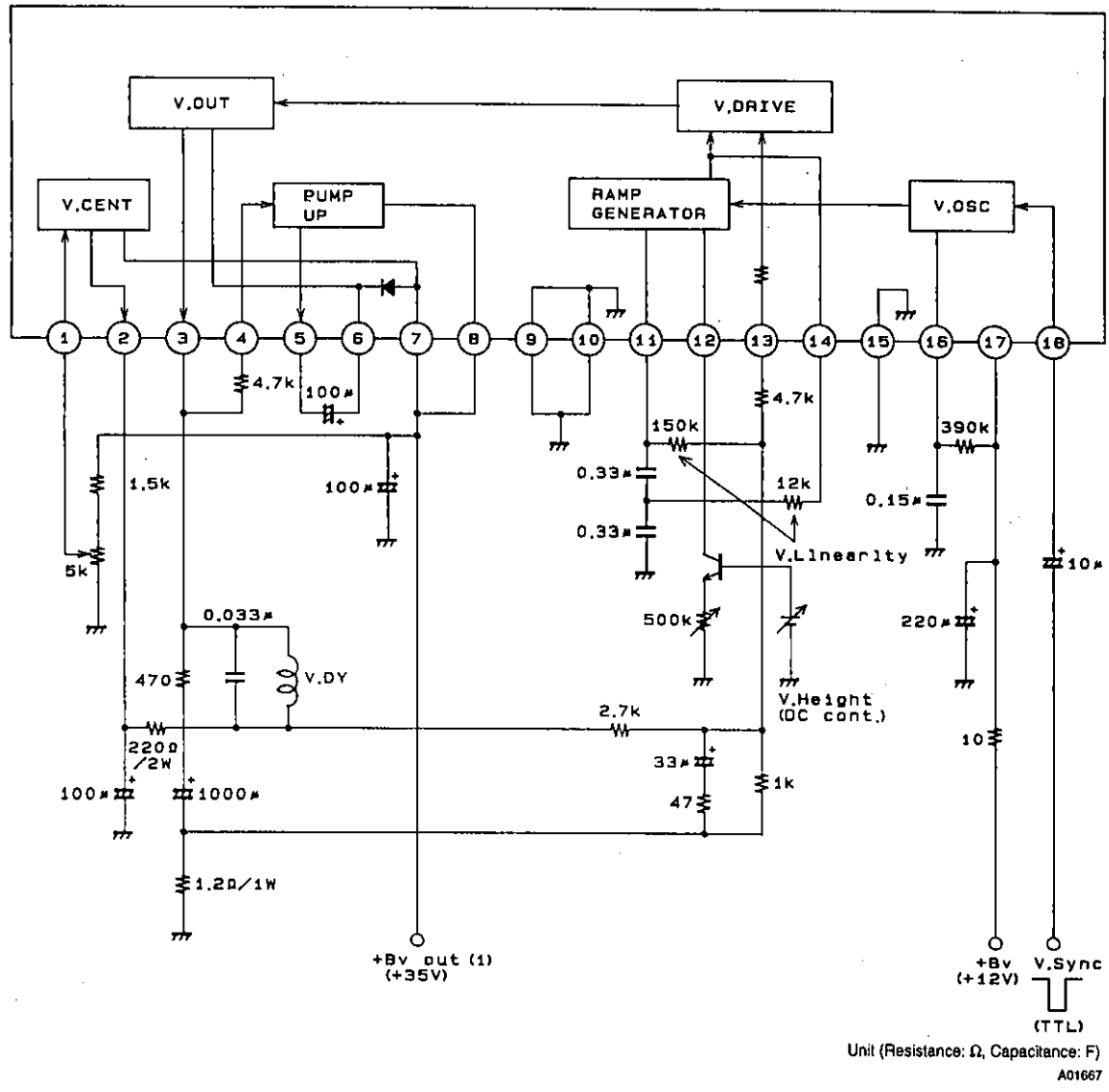
Note. Supply is of constant-voltage type.

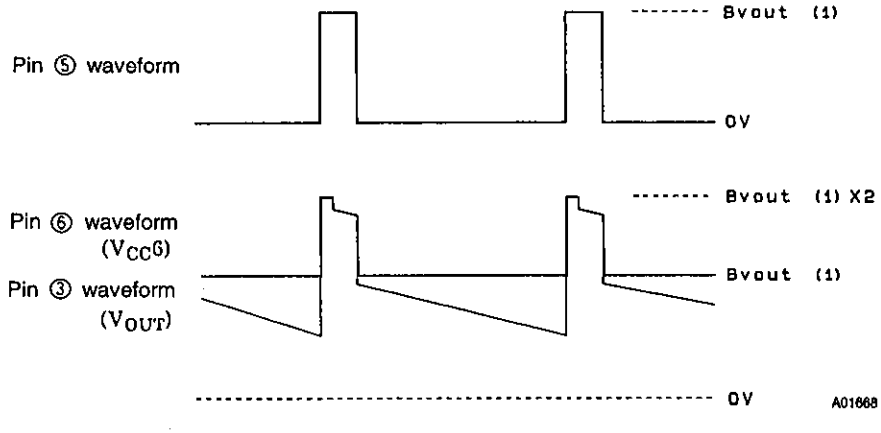
Block Diagram



Sample Application Circuit (1)

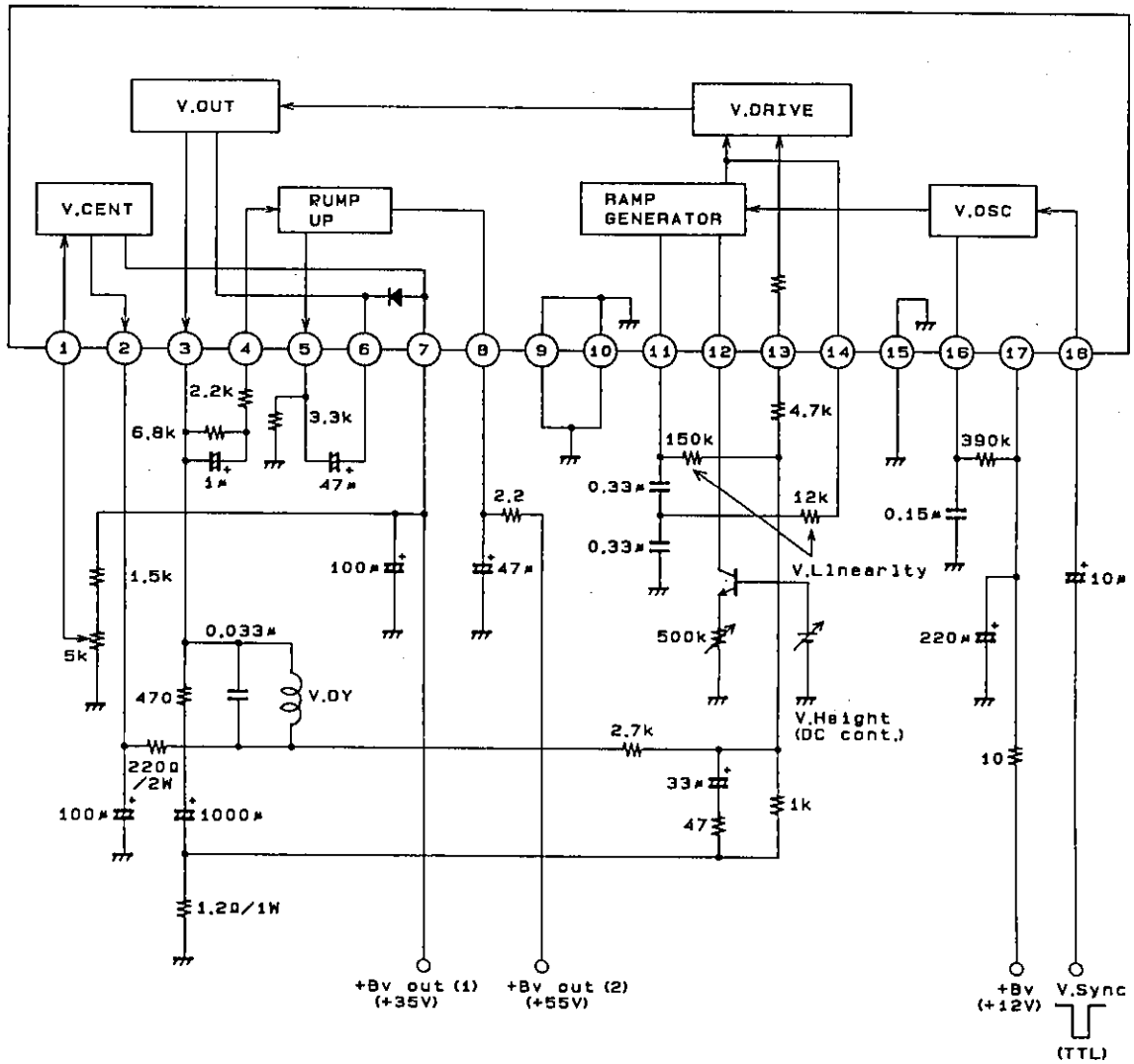
Single-Supply Vertical Output Stage





Sample Application Circuit (2)

Dual-Supply Vertical Output Stage



Unit (Resistance: Ω, Capacitance: F)

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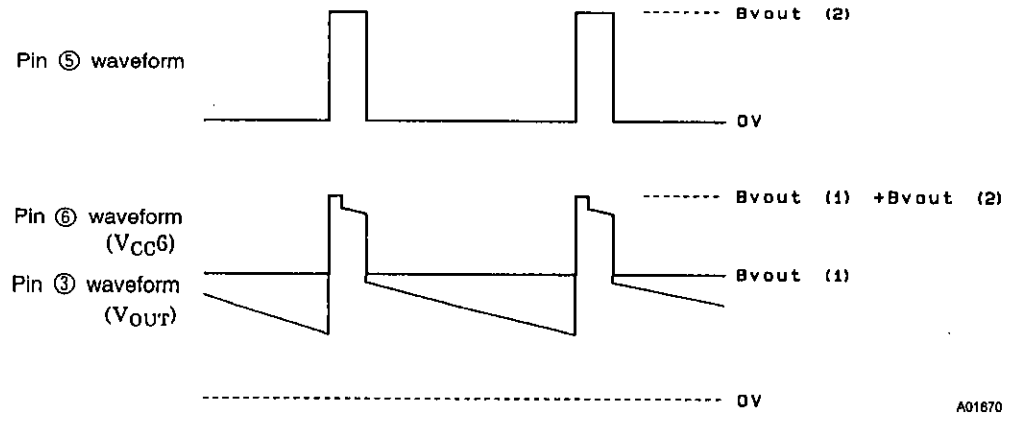

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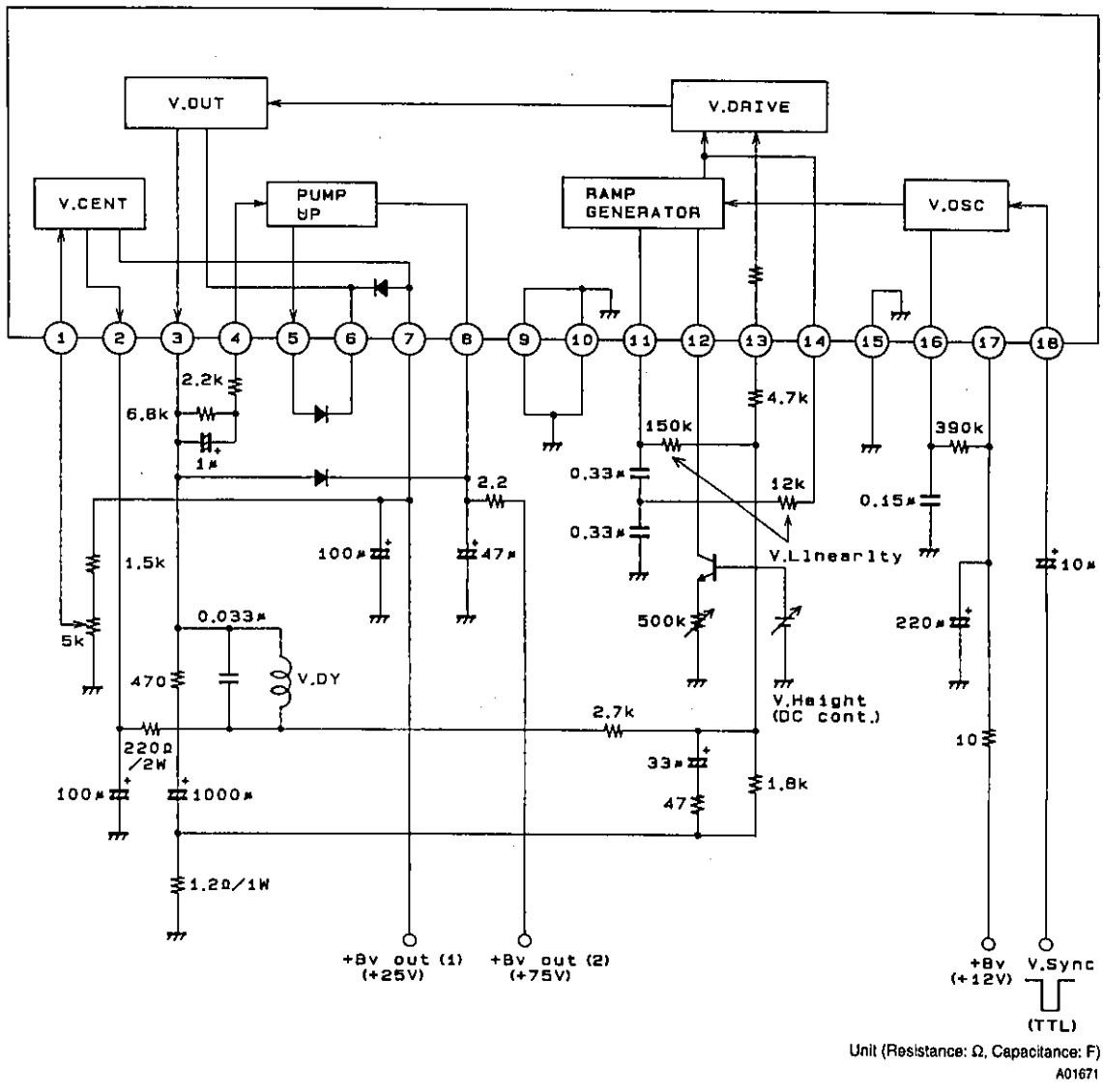
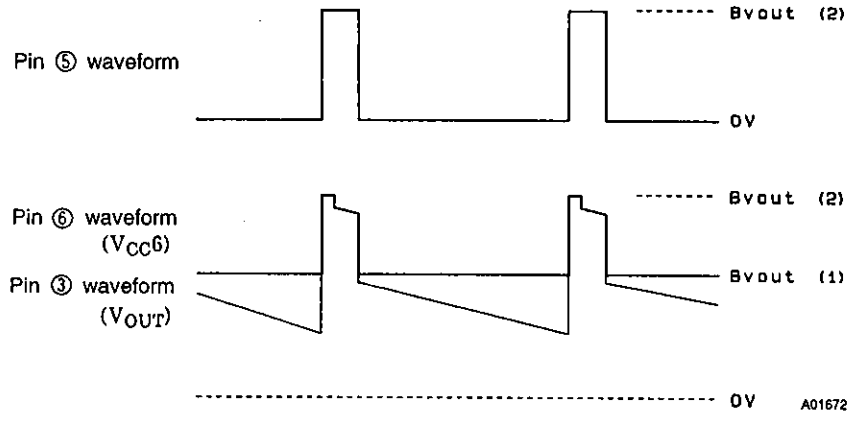
Sample Application Circuit (3)

Dual-Supply Switching Vertical Output Stage



Unit (Resistance: Ω, Capacitance: F)

A01671



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