Ordering number:ENN2861A

Monolithic Linear IC

LA7836

Vertical Deflection Output Circuit with Driver for TV Sets and Monitors

Overview

The LA7836 is an IC that contains the vertical deflection output circuit with a driver for color, B/W TV sets, monitors, and display units with a large aperture (maximum deflection current 2.2Ap-p) and is placed in an SIP13H package.

The LA7836 features fewer external parts and low power dissipation. Since both DC feedback and AC feedback can be provided inside the IC, it is easy to design the vertical deflection circuit.

The LA7836 can be used in conjunction with single-chip IC LA7650 series (NTSC), LA7680 series (PAL/NTSC) (VIF, SIF, video, chroma, and deflection circuit) to provide all the functions required for color TV signal processing.

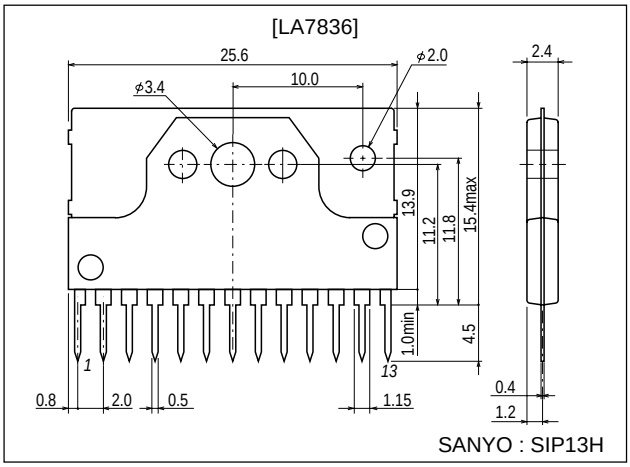
Features

- Low power dissipation because of on-chip pump-up circuit.
- On-chip 50/60Hz vertical amplitude control circuit.
- On-chip ramp generator.
- On-chip driver circuit.
- Vertical output circuit.
- On-chip thermal protection circuit.
- Minimum number of external parts required.

Package Dimensions

unit:mm

3107-SIP13H



Specifications

Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage for driver circuit	$+V_{CC1}$ max		15	V
Supply voltage for pump-up circuit	$+V_{CC7}$ max		30	V
Supply voltage for output curcuit	$+V_{CC12}$ max		62	V
Deflection output current	I_{DEF}		–1.5 to +1.5	Ap-o
Allowable power dissipation	Pd max	With infinite heat sink	8	W
Operating temperature	Topr		–20 to +85	˚C
Storage temperature	Tstg		–40 to +150	˚C
Thermal resistance	θj-c		4	˚C/W

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Operating Supply Voltage Conditions

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage for driver circuit	$+V_{CC1}$		8 to 14	V
Supply voltage for pump-up circuit	$+V_{CC7}$		10 to 27	V

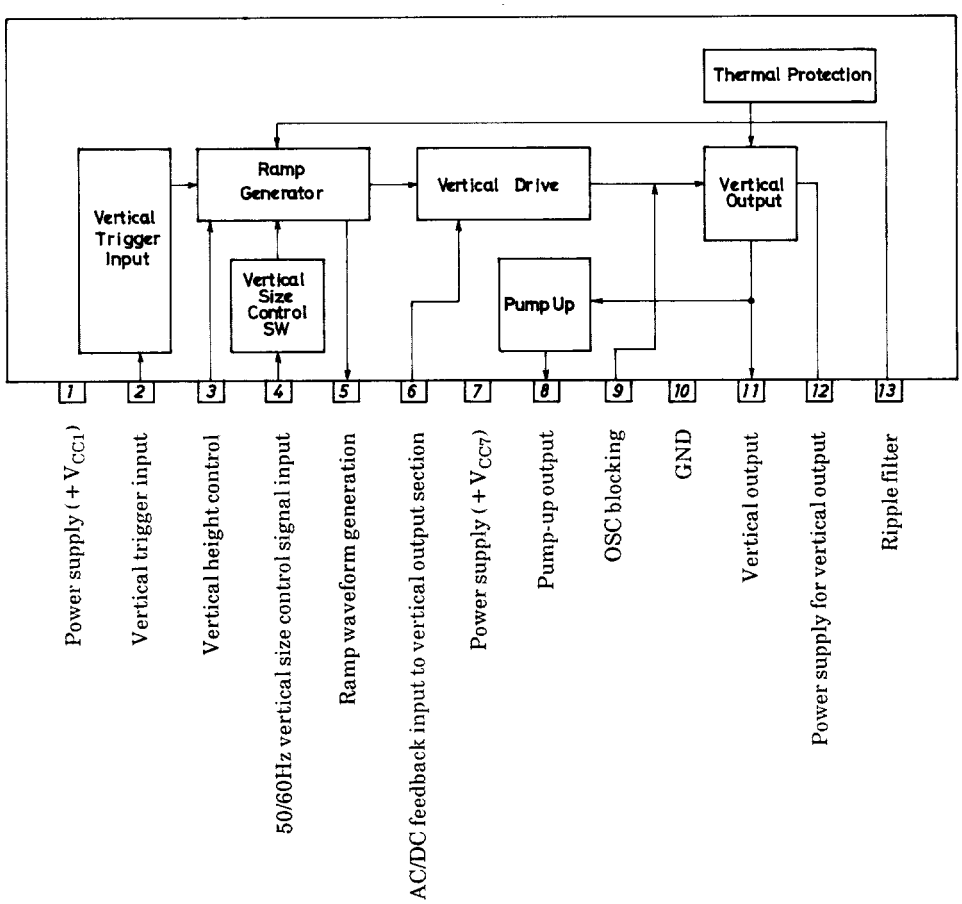
Recommended Operating Conditions

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage for driver circuit	$+V_{CC1}$		(9) 12	V
Supply voltage for pump-up circuit	$+V_{CC7}$		24	V
Deflection output current	I_{11p-p}		2.2 max	Ap-p

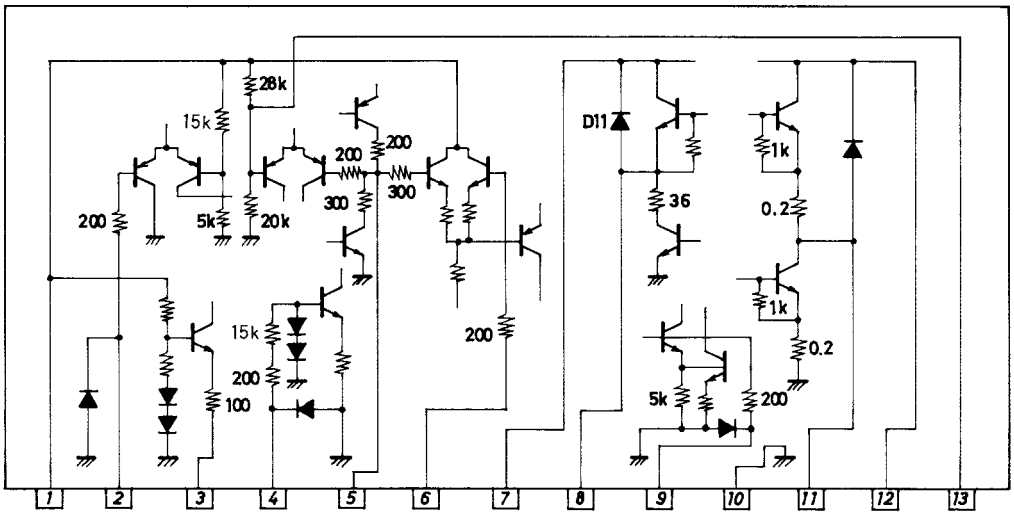
Operating Characteristics at Ta = 25°C, $+V_{CC1}$=12V, $+V_{CC7}$=24V

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent current in driver power supply	I_{CC1}		1.8	2.8	3.8	mA
Trigger input threshold voltage	V_2		2.8	3.1	3.4	V
Voltage on vertical size control pin	V_3		5.9	6.1	6.3	V
Ramp waveform shape start voltage	V_{RAMP}		4.7	5.0	5.3	V
Pump-up charge saturation voltage	V_{S8-10}				1.5	V
Pump-up discharge saturation voltage	V_{S7-8}	I=1.1A			3.2	V
Deflection output saturation voltage (lower)	V_{S11-10}	I=1.1A			1.5	V
Deflection output saturation voltage (upper)	V_{S12-11}	I=1.1A			3.5	V
Idling current			16	22	32	mA
Voltage gain	VG_O	f=1kHz		59		dB

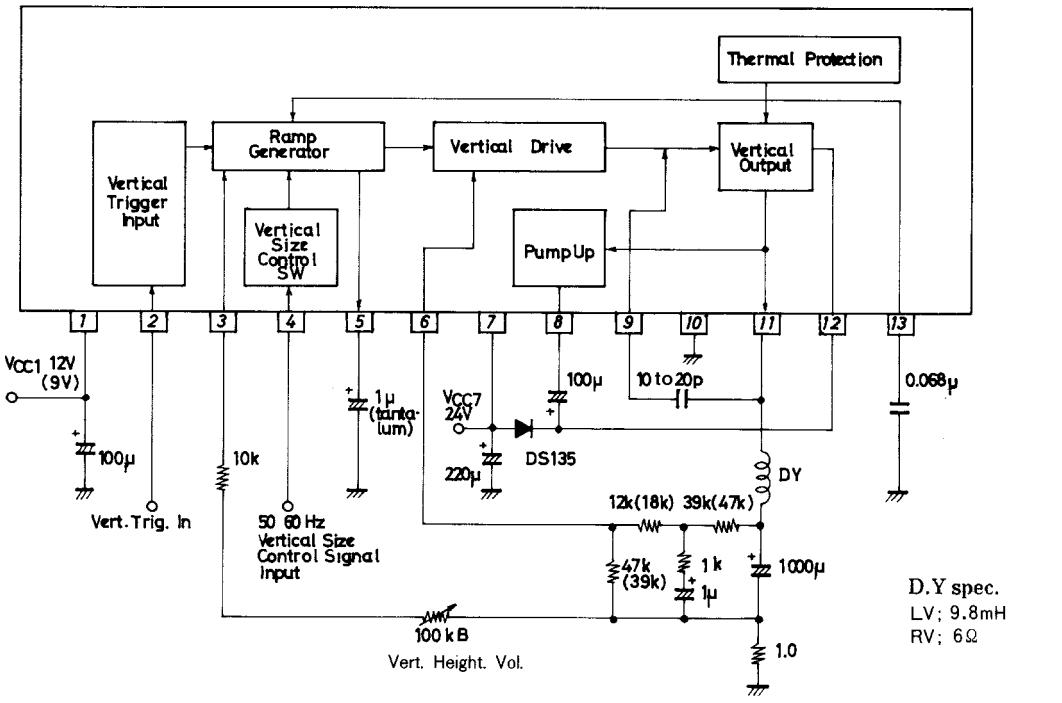
Pin Assignment and Block Diagram



Interface Circuit

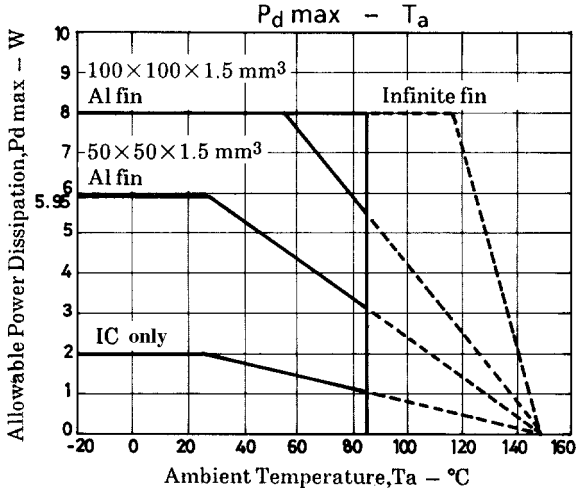


Sample Application Circuit

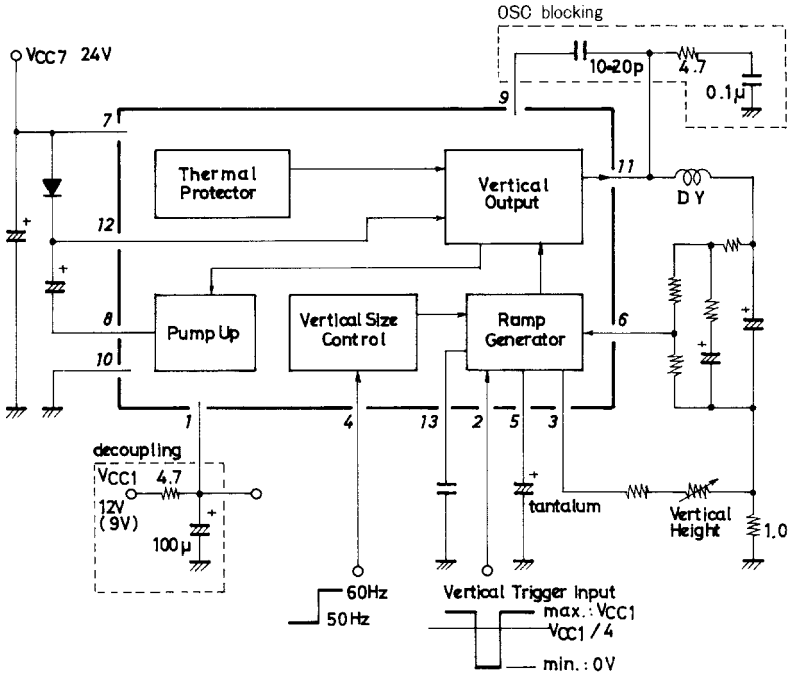


Unit (resistance:Ω, capacitance:F)

Note) The values in parentheses are for a sample application where the $+V_{CC1}$ is 9V.



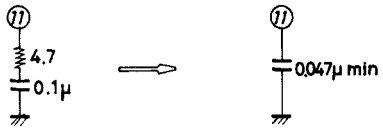
Proper Cares in Using the LA7836



Unit (resistance:Ω, capacitance:F)

Note 1) If horizontal components are mixed into pin 1, causing the interlace characteristic to worsen, provide decoupling as shown above. The resistor value and capacitor value are shown as an example.

2) If oscillation occurs, connect the OSC blocking circuit as shown above.
However, if the deflection current increases, oscillation may not be blocked completely. In this case, change the application circuit as shown below.



3) In some applications, the OSC blocking capacitor across pins 9 and 11 is connected across pin 9 and GND.
4) The threshold voltage on pin 2 is $+V_{CC1}/4$. Set the input trigger level so that it intersects this threshold level. The LA7836 operates on the negative transition of the trigger pulse.
5) Connect the radiator fin to GND.