Ordering number:ENN2863

Monolithic Linear IC

LA7835

Vertical Deflection Output Circuit with Driver for Color TV Use

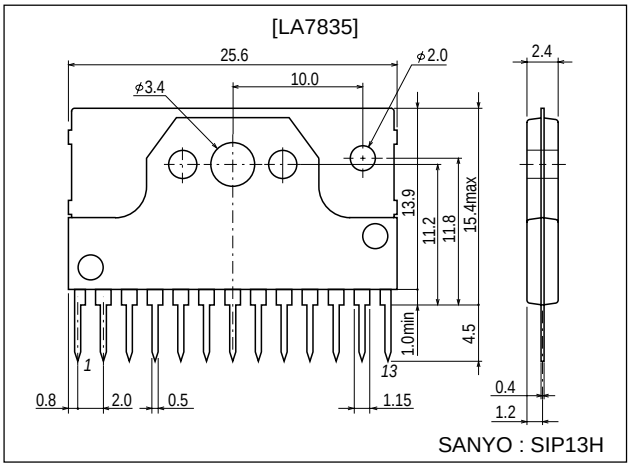
Overview

The LA7835 is an IC that contains the vertical deflection output circuit with a driver for small-aperture (maximum deflection current 1.8Ap-p) color/B&W TV, monitor/display use and is placed in a SIP13H package. The LA7835 has such features as greatly reduced number of 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 LA7835 can be used in conjunction with single-chip IC LA7650 (NTSC), LA7680 series (PAL/NTSC) (VIF, SIF, video, chroma, and deflection circuit) to provide all the functions required for color TV signal processing.

Package Dimensions

unit:mm

3107-SIP13H



Features

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

Specifications

Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Driver power supply voltage	$+V_{CC1}$ max		15	V
Pump-up power supply voltage	$+V_{CC7}$ max		30	V
Output power supply voltage	$+V_{CC12}$ 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
Driver supply voltage	$+V_{CC1}$		8 to 14	V
Pump-up supply voltage	$+V_{CC7}$		10 to 27	V

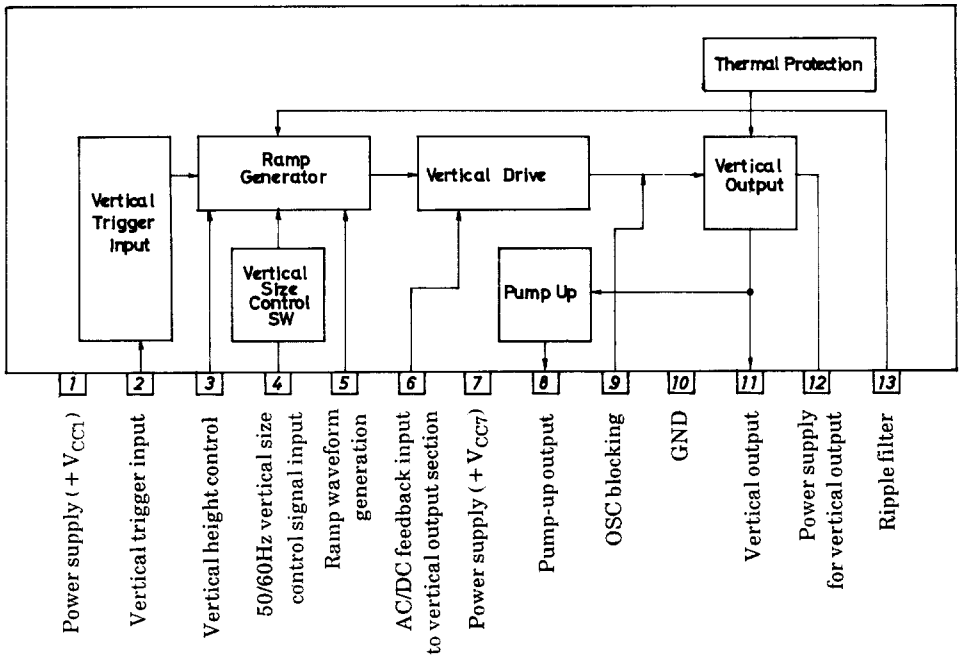
Recommended Operating Conditions

Parameter	Symbol	Conditions	Ratings	Unit
Driver supply voltage	$+V_{CC1}$		(9) 12	V
Pump-up supply voltage	$+V_{CC7}$		24	V
Deflection output current	I_{11p-p}		up to 1.8	Ap-p

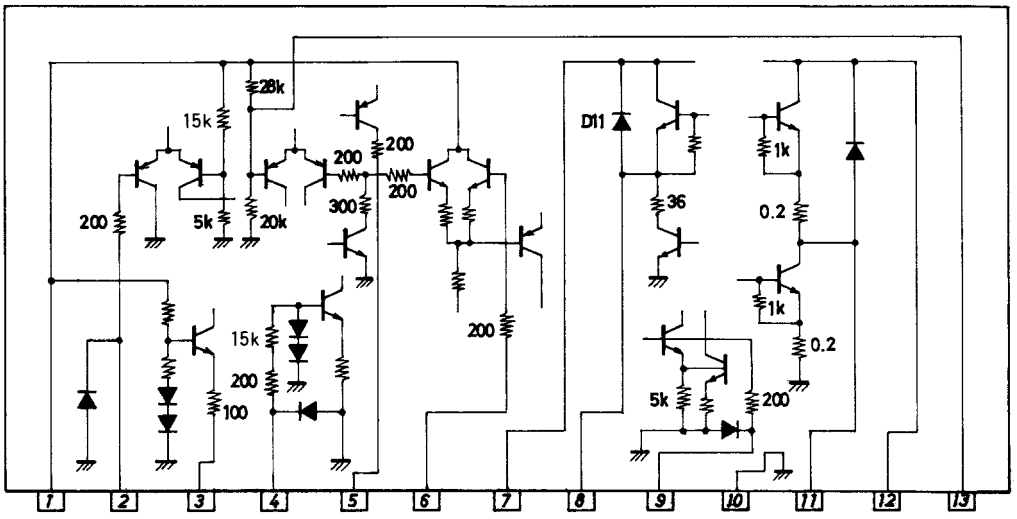
Operating Characteristics at Ta = 25°C, $+V_{CC1}$=12V, $+V_{CC7}$=24V

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Driver power supply quiescent current	I_{CC1}		1.8	2.8	3.8	mA
Trigger input threshold voltage	V_2		2.8	3.1	3.4	V
Vertical size control pin voltage	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=0.9A			3.0	V
Deflection output saturation voltage (lower)	V_{S11-10}	I=0.9A			1.2	V
Deflection output saturation voltage (upper)	V_{S12-11}	I=0.9A			3.2	V
Idling current			16	22	32	mA
Voltage gain	VG_O	f=1kHz		59		dB

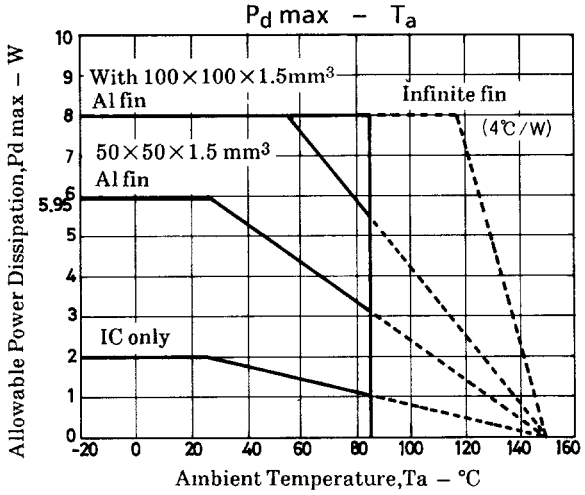
Pin Assignment and Block Diagram



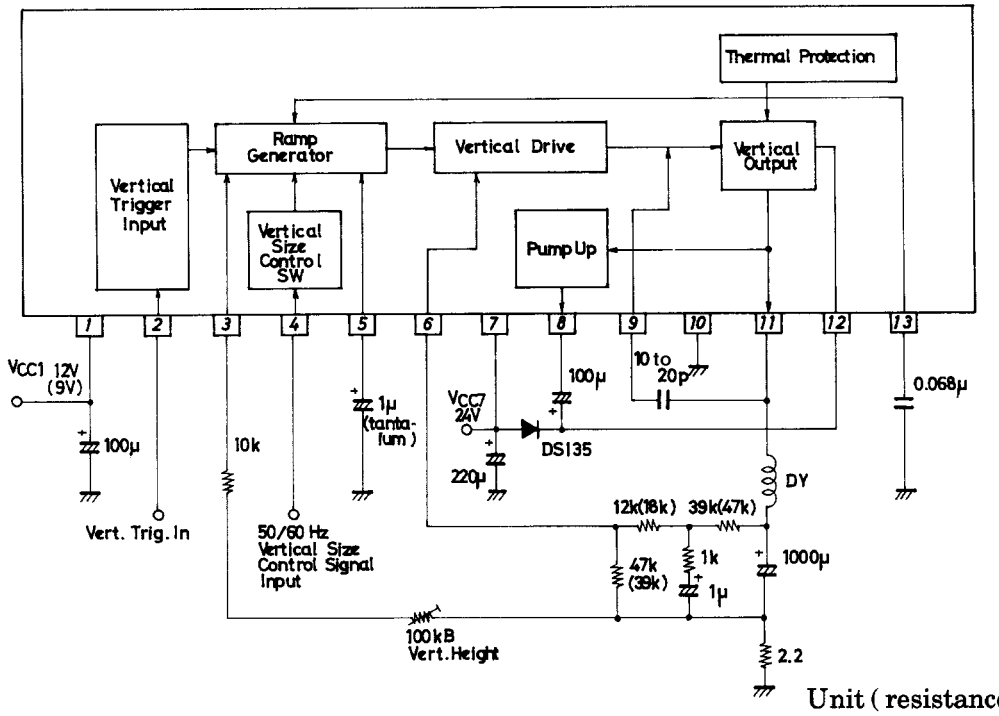
Equivalent Circuit



Unit (resistance:Ω, capacitance:F)



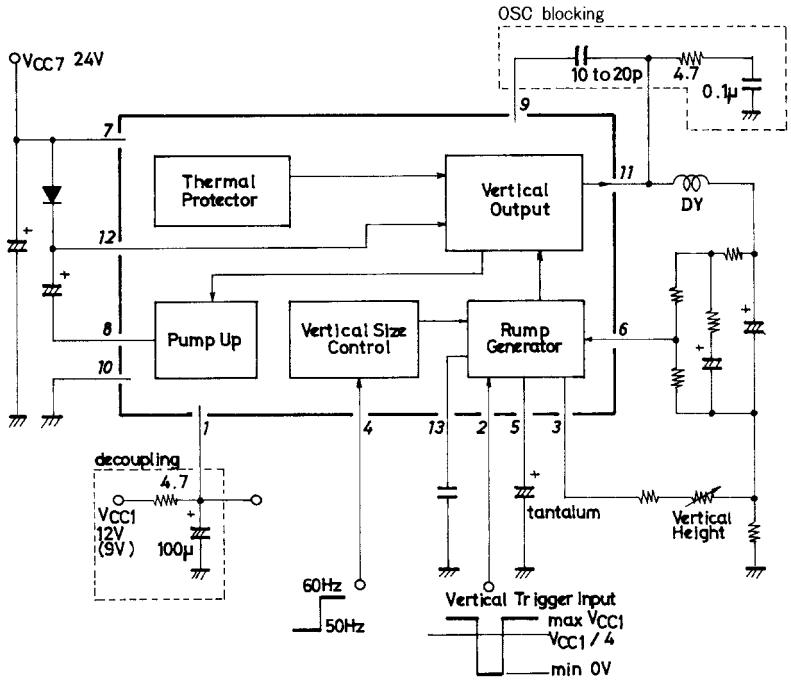
Sample Application Circuit



Unit (resistance:Ω, capacitance:F)

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

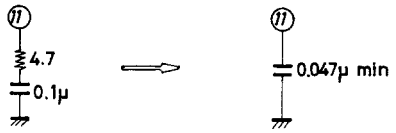
Proper Cares in Using the LA7835



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 $+V_{CC1}1/4$. Set the input trigger level so that it intersects this threshold level. The LA7835 operates on the negative transition of the trigger pulse.

5) Connect the radiator fin to GND.

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