



# LA7875N, 7876N

## Vertical Deflection Output Circuit

### Overview

The LA7875N, LA7876N are designed for use in internet TVs and high-resolution CRT monitors that require a narrow vertical return period. These ICs succeed in achieving a narrow vertical return period by adopting a new 3× pump-up technique in the voltage pump-up circuit. Since this allows the use of a reference voltage lower than that used with the 2× pump-up technique, the LA7875N, LA7876N achieve a significant reduction in power dissipation. Also, since the bus control system signal-processing IC can control these ICs and these ICs can directly drive the deflection yoke for all frequencies down to DC from the sawtooth wave output, shift operation, which is required for wide aspect ratio television, can be controlled from the bus. Since the LA7875N has a maximum deflection output current of 2.2 A p-p, it is appropriate for use in medium-size CRTs. Since the LA7876N has a maximum deflection output current of 3 A p-p, it is appropriate for use in larger CRTs.

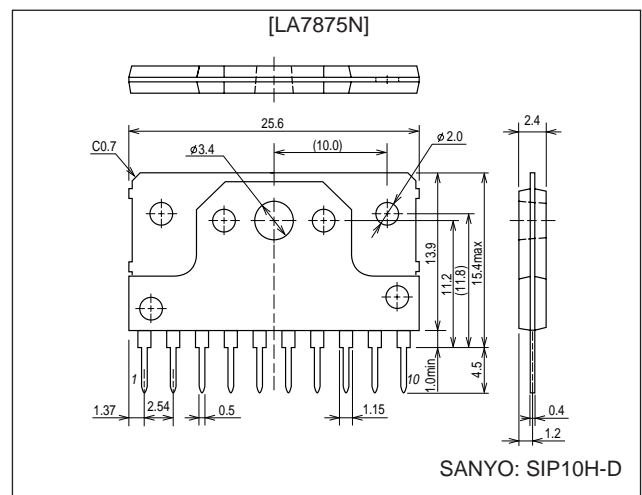
### Features

- 3× voltage pump-up circuit
- Low power dissipation
- Operational amplifier type vertical output circuit
- Capable of direct DC drive of the deflection yoke
- Excellent crossover characteristics

### Package Dimensions

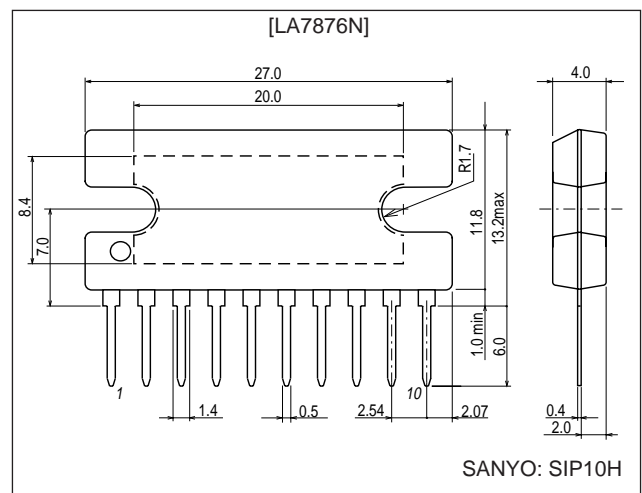
unit: mm

#### 3248-SIP10H-D



unit: mm

#### 3024A-SIP10H



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**SANYO Electric Co.,Ltd. Semiconductor Company**

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

## Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
First pump-up supply voltage	$V_{CC7max}$		35	V
Second pump-up supply voltage	$V_{CC9max}$		72	V
Output block supply voltage	$V_{CC4max}$		110	V
Allowable power dissipation	$P_{dmax}$	With an arbitrarily large heat sink	12	W
Deflection output current	$I_{3max}$		-1.5 to +1.5 (-1.9 to +1.9)	Ap-o
Thermal resistance	$\theta_{j-c}$		4 (3)	$^\circ\text{C/W}$
Operating temperature	$T_{opr}$		-20 to +85	$^\circ\text{C}$
Storage temperature	$T_{stg}$		-40 to +150	$^\circ\text{C}$

Note: Values in parentheses apply to the LA7876N.

### Operating Conditions at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	$V_{CC7}$		30	V
Operating supply voltage range	$V_{CC7op}$		16 to 33	V
Recommended deflection output current	$I_{3p-p}$		Up to 2.2 (Up to 3)	Ap-p

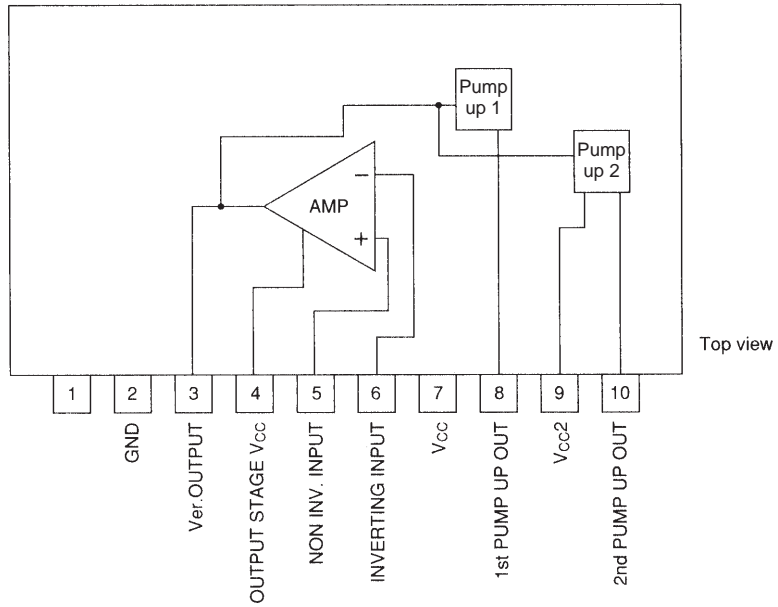
Note: Values in parentheses apply to the LA7876N.

### Operating Characteristics at $T_a = 25^\circ\text{C}$ , $V_{CC8} = 30\text{ V}$

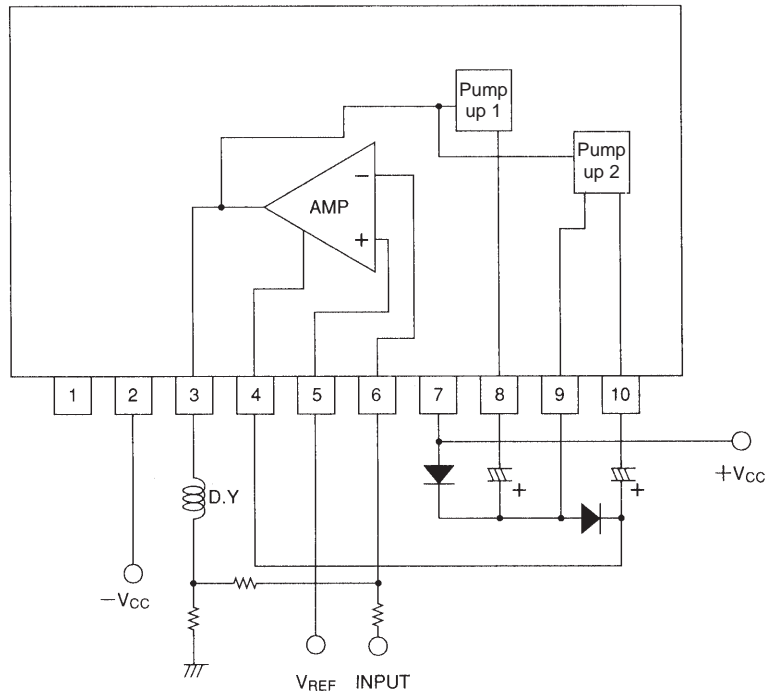
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Pump-up circuit 1 charge saturation voltage	$V(\text{sat})_{8-2}$	$I_8 = 20\text{ mA}$			1.8	V
Pump-up circuit 1 discharge saturation voltage	$V(\text{sat})_{7-8}$	$I_8 = -1.1\text{ A} (-1.5\text{ A})$			3.2	V
Pump-up circuit 2 charge saturation voltage	$V(\text{sat})_{10-2}$	$I_{10} = 20\text{ mA}$			1.8	V
Pump-up circuit 2 discharge saturation voltage	$V(\text{sat})_{9-10}$	$I_{10} = -1.1\text{ A} (-1.5\text{ A})$			3.2	V
Deflection output saturation voltage (lower)	$V(\text{sat})_{3-2}$	$I_3 = 1.1\text{ A} (1.5\text{ A})$			1.5 (1.7)	V
Deflection output saturation voltage (upper)	$V(\text{sat})_{4-3}$	$I_3 = -1.1\text{ A} (-1.5\text{ A})$			3.5 (3.9)	V
Idling current	IDL		35		70	mA
Midpoint voltage	$V_{MID}$		14	15	16	V

Note: Values in parentheses apply to the LA7876N.

Pin Assignment and Block Diagram



Sample Application Circuit (using both positive and negative power supply voltages)



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