Ordering number : ENA0650A

SANYO Semiconductors
DATA SHEET

Bi-CMOS LSI

LV8082LP — Two Constant-current H-Bridge Driver channels

Overview

The LV8082LP is a two-channel constant-current driver that supports low-voltage operation. It is optimal for constant-current drive of stepping motors (AF and Shutter) in portable equipment such as camera cell phones.

Features

- Two constant-current H-bridge driver channels
- Built-in power supply switch and position detection comparator for use with a photoreflector
- Supports both 2-phase drive and 1-2 phase drive.
- Implemented in a low-power MOS IC process.
- Ultraminiature easy to solder VCT16 package (2.6 × 2.6mm)
- Built-in thermal protection and low-voltage sensing circuits

Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC}, VM max		6.5	V
Output voltage	V_{OUT} max	OUT1, OUT2, OUT3, OUT4	6.5	V
Input voltage	V_{IN} max	IN	-0.3 to +6.5	V
Ground pin source current	IGND	Per channel	400	mA
Allowable power dissipation	Pd max	Mounted on a circuit board.*	700	mW
Operating temperature	Topr		-30 to +85	°C
Storage temperature	Tstg		-40 to +150	°C

* Specified circuit board : 50×40×0.8mm^3 : 4-layer (2S2P) glass epoxy printed circuit board

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Allowable Operating Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V_{CC}		2.5 to 6.0	V
High-level input voltage	V_{IH}	IN	0.53V_{CC} or more	V
Low-level input voltage	V_{IL}		Up to 0.2V_{CC}	V

Electrical Characteristics at Ta = 25°C, V_{CC} = 3.0V

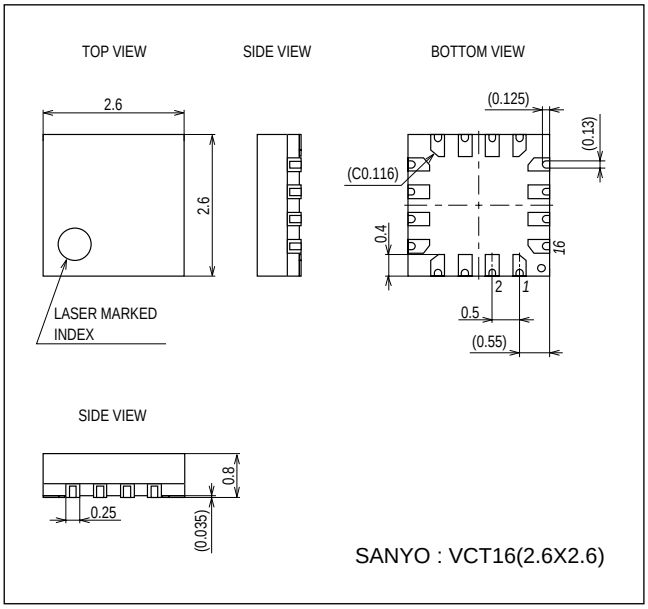
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Current drain	I_{CCO}	IN = 0V		0.1	1	μA
	$I_{CCO}1$	IN = 3V		0.7	1	mA
Output on resistance	Ron1	V_{CC} = 3.0V (High and low side total) IN = 3.0V, I_{OUT} = 100mA		2.0	3.0	Ω
	Ron2	V_{CC} = 5.0V (High and low side total) IN = 5.0V, I_{OUT} = 100mA		1.50	2.0	Ω
Constant-voltage output 1	$V_{OUT}1$	VC = 1V, V_{CC} = 3.0V	1.94	2.0	2.06	V
Constant-current output 1	$I_{OUT}1$	Between RFG and ground : 1Ω	95	100	105	mA
Constant-current output 2	$I_{OUT}2$	Between RFG and ground : 0.5Ω (Design specification)	190	200	210	mA
Output turn-on time	Traise	With RFG1 and RFG2 shorted to ground (Design specification)		1.5	3	μs
Output turn-off time	Tfall	With RFG1 and RFG2 shorted to ground (Design specification)		0.2	0.65	μs
Comparator threshold high-level voltage	V_H			1.3	1.37	V
Comparator threshold Low-level voltage	V_L		0.86	0.91		V
Comparator hysteresis	Vhys			0.39		V
Input current	I_{IN}	V_{IN} = 3V		15	30	μA

Note : The design specification items are design guarantees and are not measured.

Package Dimensions

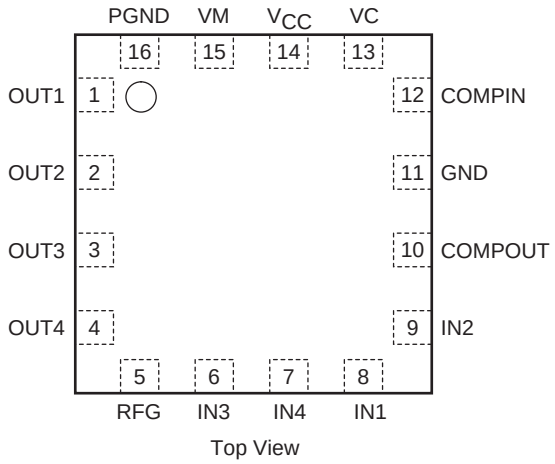
unit : mm (typ)

3318



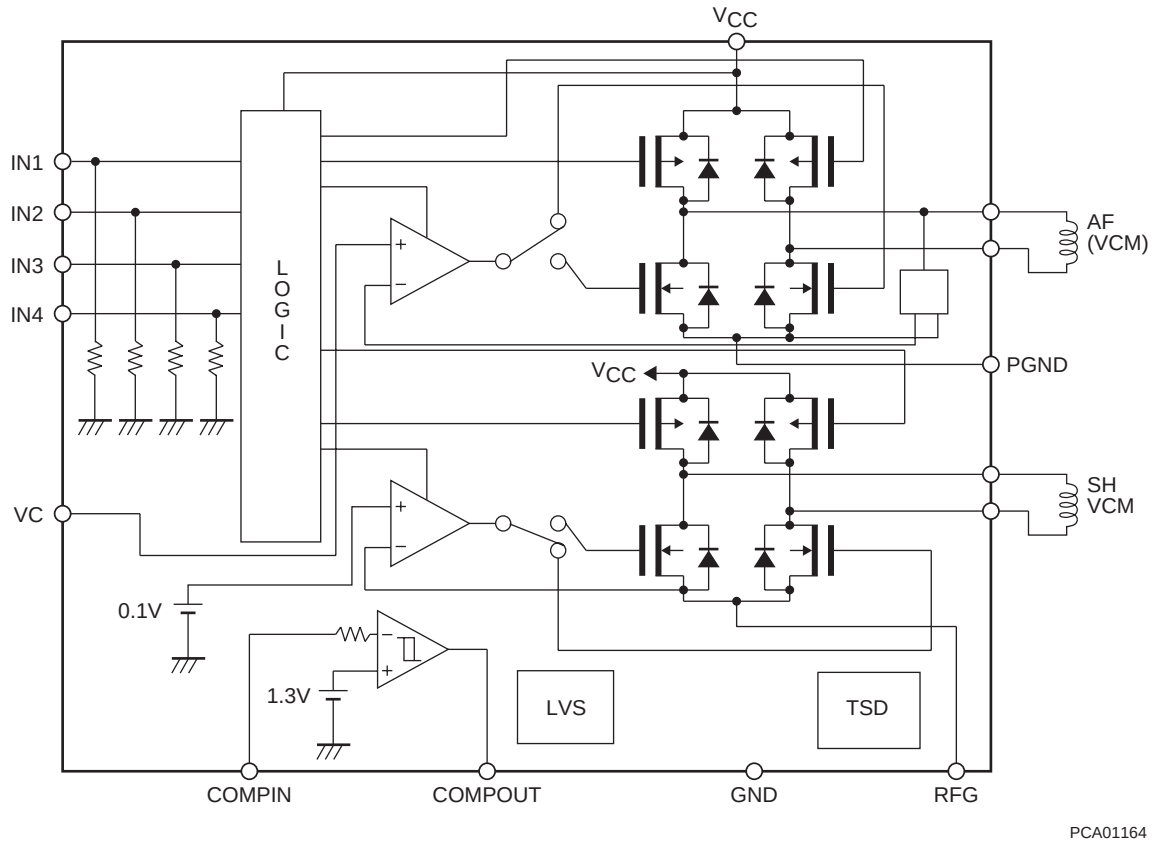
Pin Assignment

(VCT16)



Top View

Block Diagram



Constant-voltage calculation : V_{OUT} = VC × 2 Example : When an V_{OUT} of 2V is required, VC must be 1V

Constant-current calculation : I_{OUT} = 0.1 ÷ RF Example : When an I_{OUT} of 100mA is required, RF must be 1Ω.

Usage Notes

The constant current is set by the resource RF connected between RFG and ground according to the formula shown above.

Truth Table

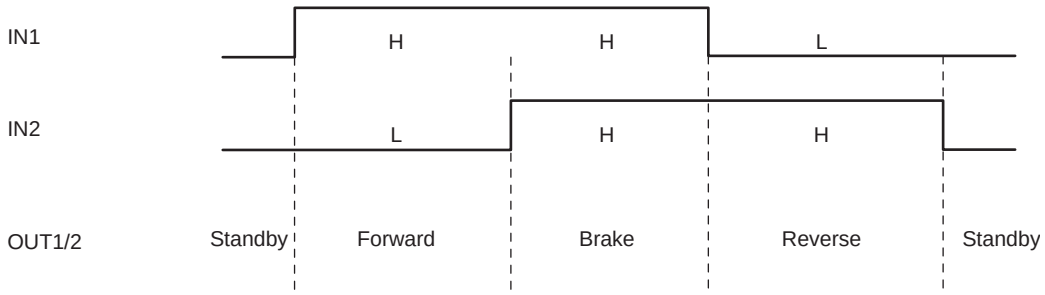
Input				Output				Mode
IN1	IN2	IN3	IN4	OUT1	OUT2	OUT3	OUT4	
Low	Low	Low	Low	Off	Off	Off	Off	Standby mode
Low	High			Low	High			Channel 1, constant voltage, reverse
High	Low			High	Low			Channel 1, constant voltage, forward
High	High			Low	Low			Channel 1, brake mode
Low	Low	Low	Low	Off	Off	Off	Off	Standby mode
		Low	High			Low	High	Channel 2, constant voltage, reverse
		High	Low			High	Low	Channel 2, constant voltage, forward
		High	High			Low	Low	Channel 2, brake mode

Note : When off, a high-impedance state.

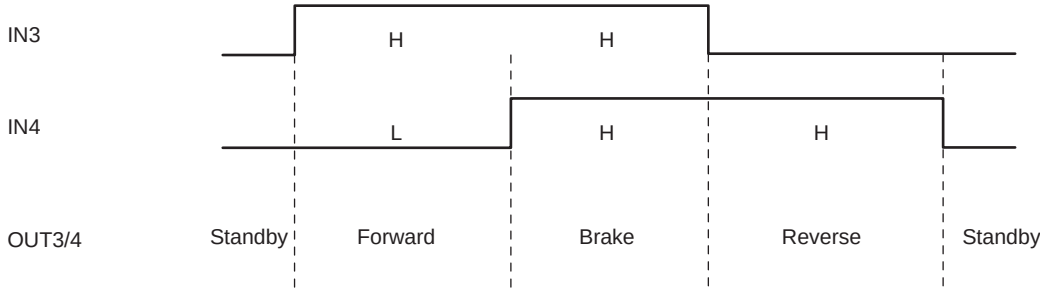
- Channel 1 functions as a constant voltage block (OUT1 and OUT2). Channel 2 functions as a constant-current block (OUT3 and OUT4).
- The IC goes to the standby state with a low-level input, and to the operating state with a high-level input.
- When the control inputs are both high, the IC switches to brake mode.

Timing Chart

(1) Constant voltage channel timing chart

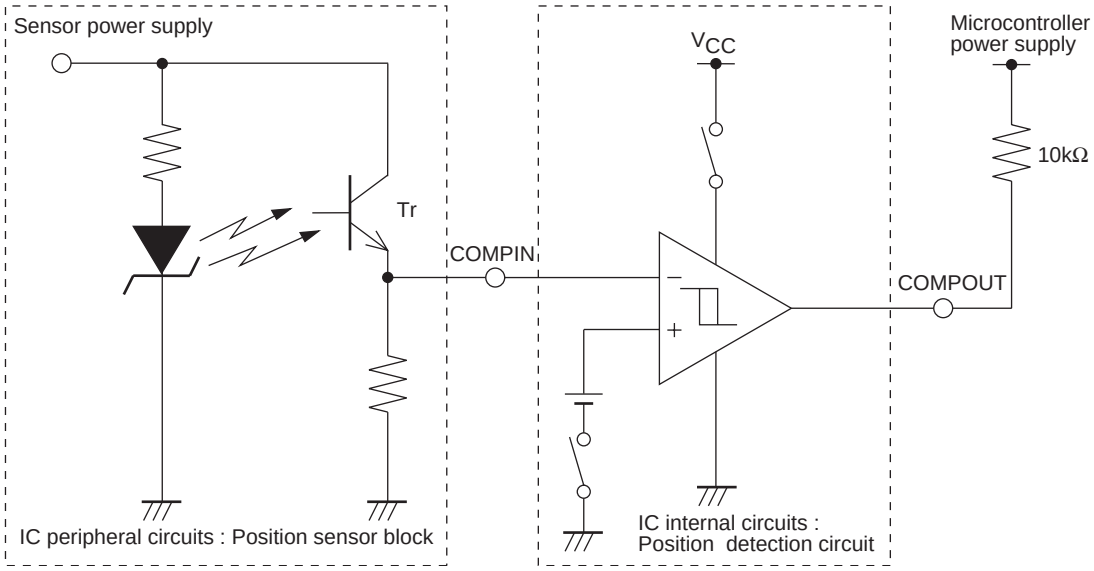


(2) Constant current channel timing chart

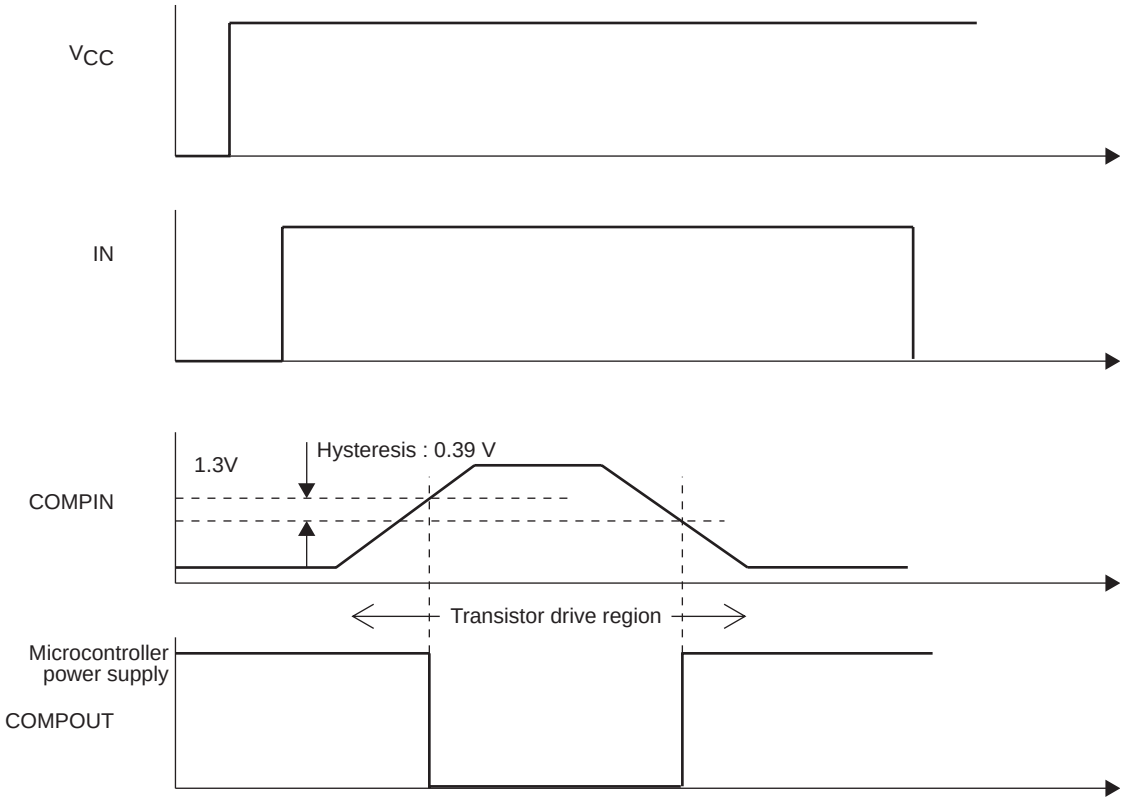


Photosensor Position Detection Application Circuit Example

(a) Application circuit



(b) Timing chart



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