



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

Bi-CMOS LSI

## LV8082LP — Constant-voltage 1ch + Constant-current 1ch H-Bridge

### Overview

The LV8082LP is a Constant-voltage 1ch + Constant-current 1ch driver that supports low-voltage operation. It is optimal for constant-voltage and constant-current drive of voice coil motors (AF and Shutter) in portable equipment such as camera cell phones.

### Features

- Constant-voltage 1ch + Constant-current 1ch H-bridge driver
- Built-in power supply switch and position detection comparator for use with a photoreflector
- 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  $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC}$ max		6.5	V
Output voltage	$V_{OUT}$ max	OUT1, OUT2, OUT3, OUT4	6.5	V
Input voltage	$V_{IN}$ max	IN1, IN2, IN3, IN4	-0.3 to +6.5	V
Ground pin source current	IGND	Per channel	400	mA
Allowable power dissipation	$P_d$ max	Mounted on a circuit board.*	700	mW
Operating temperature	$T_{opr}$		-30 to +85	$^\circ\text{C}$
Storage temperature	$T_{stg}$		-40 to +150	$^\circ\text{C}$

\* Specified circuit board : 50×40×0.8mm<sup>3</sup> : 4-layer (2S2P) glass epoxy printed circuit board

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# LV8082LP

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

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	$V_{CC}$		2.5 to 6.0	V
High-level input voltage	$V_{IH}$	IN1, IN2, IN3, IN4	$0.53V_{CC}$ or more	V
Low-level input voltage	$V_{IL}$		Up to $0.2V_{CC}$	V

## Electrical Characteristics at $T_a = 25^\circ\text{C}$ , $V_{CC} = 3.0\text{V}$

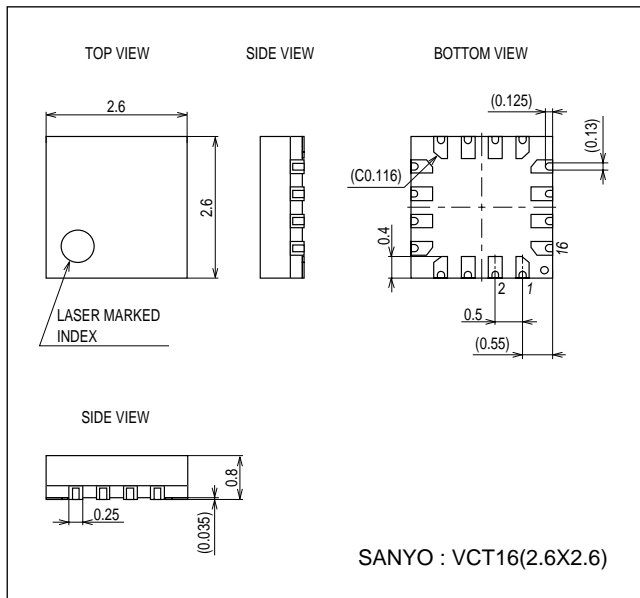
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Current drain	$I_{CCO}$	IN = 0V		0.1	1	$\mu\text{A}$
	$I_{CCO1}$	IN = 3V		0.7	1	mA
Output on resistance	Ron1	$V_{CC} = 3.0\text{V}$ (High and low side total) IN = 3.0V, $I_{OUT} = 100\text{mA}$		2.0	3.0	$\Omega$
	Ron2	$V_{CC} = 5.0\text{V}$ (High and low side total) IN = 5.0V, $I_{OUT} = 100\text{mA}$		1.50	2.0	$\Omega$
Constant-voltage output 1	$V_{OUT1}$	VC = 1V, $V_{CC} = 3.0\text{V}$	1.94	2.0	2.06	V
Constant-current output 1	$I_{OUT1}$	Between RFG and ground : $1\Omega$	95	100	105	mA
Constant-current output 2	$I_{OUT2}$	Between RFG and ground : $0.5\Omega$ (Design specification)	190	200	210	mA
Output turn-on time	Trise	With RFG shorted to ground (Design specification)		1.5	3	$\mu\text{s}$
Output turn-off time	Tfall	With RFG shorted to ground (Design specification)		0.2	0.65	$\mu\text{s}$
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	$V_{hys}$			0.39		V
Input current	$I_{IN}$	$V_{IN} = 3\text{V}$		15	30	$\mu\text{A}$

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

## Package Dimensions

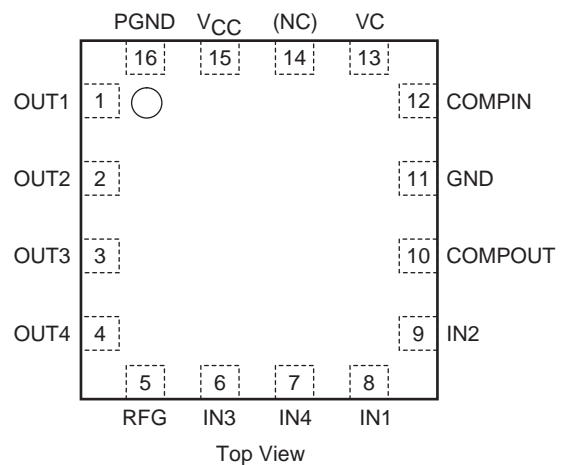
unit : mm (typ)

3318



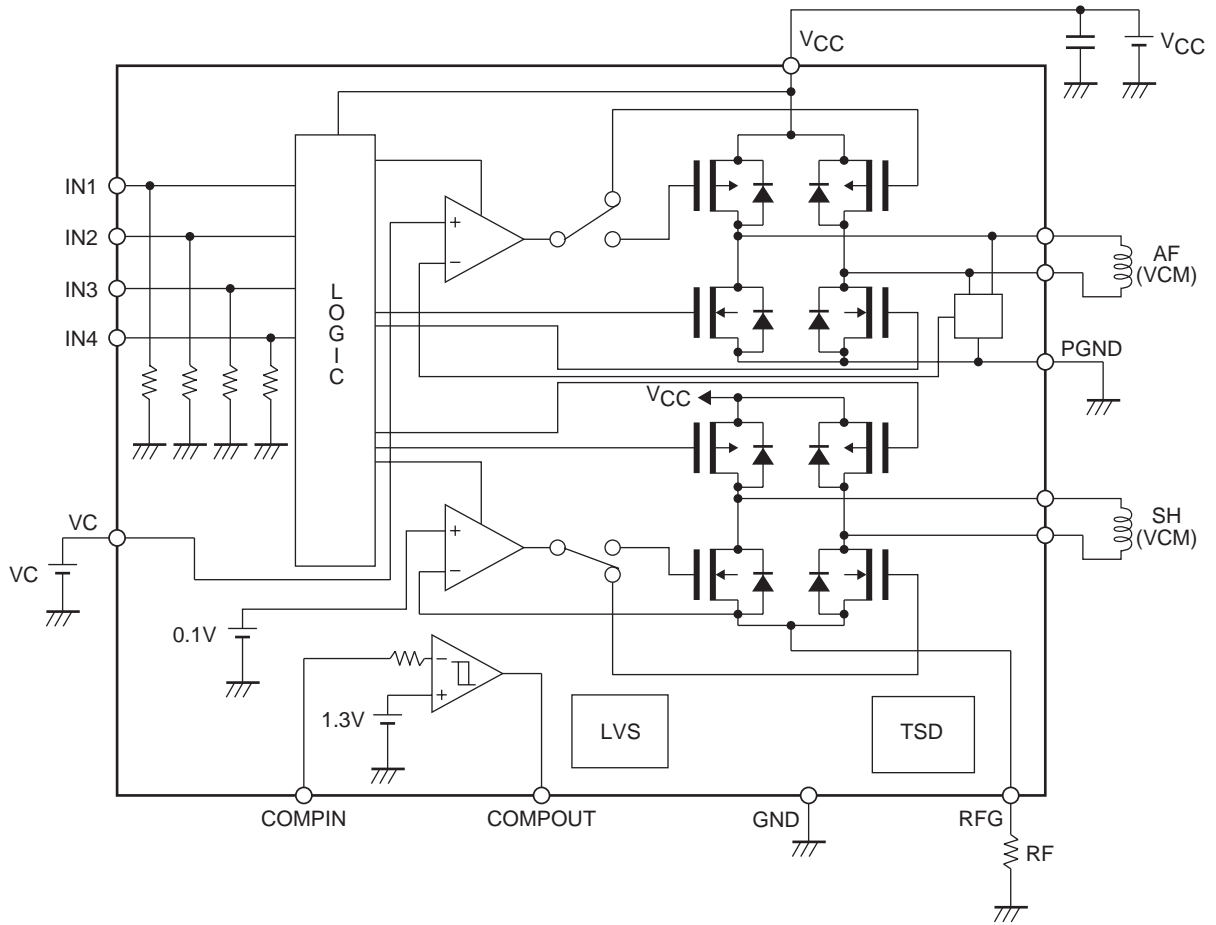
## Pin Assignment

(VCT16)



# LV8082LP

## Block Diagram



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

Constant-current calculation :  $I_{OUT} = 0.1 \div RF$  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

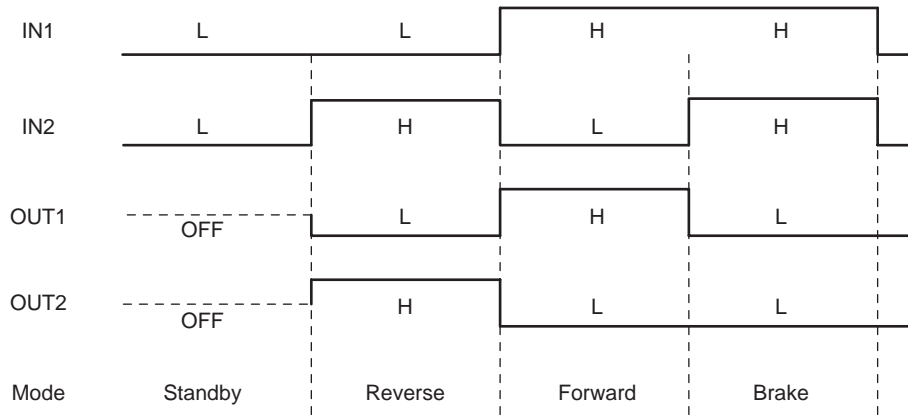
Input				Output				Mode		
IN1	IN2	IN3	IN4	OUT1	OUT2	OUT3	OUT4			
Low	Low	Low	Low	Off	Off	Off	Off	Standby mode		
Low	High			Low	High			Channel 1, constant voltage, reverse		
High	Low			High	Low			Channel 1, constant voltage, forward		
High	High			Low	Low			Channel 1, brake mode		
Low	Low	Low	Low	Off	Off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

Note : When off, a high-impedance state.

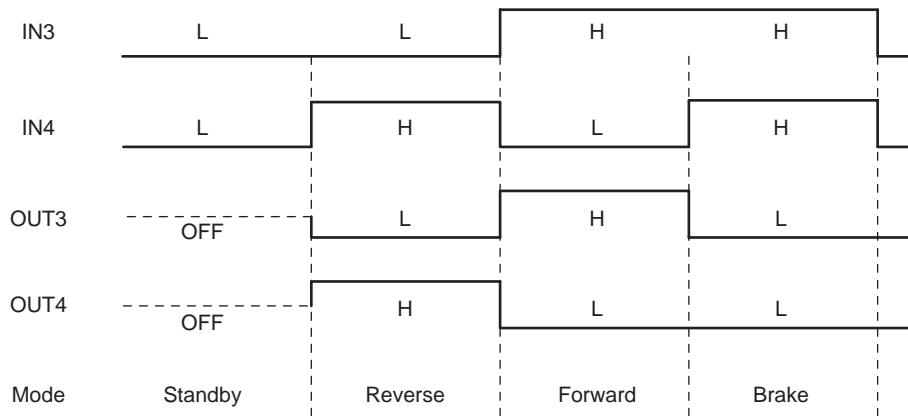
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## Timing Chart

(1) Constant voltage channel timing chart

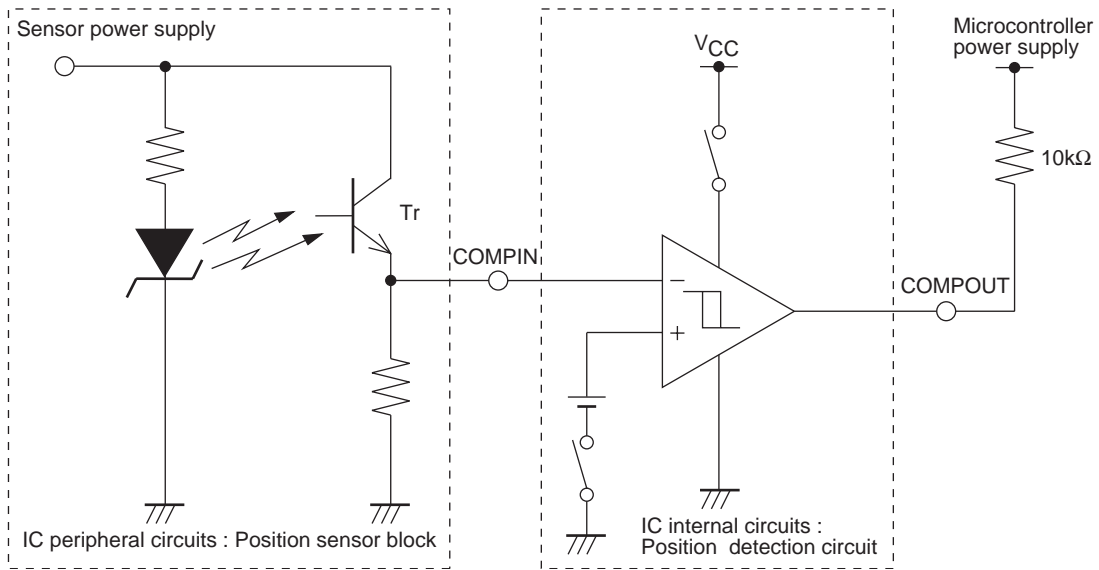


(2) Constant current channel timing chart

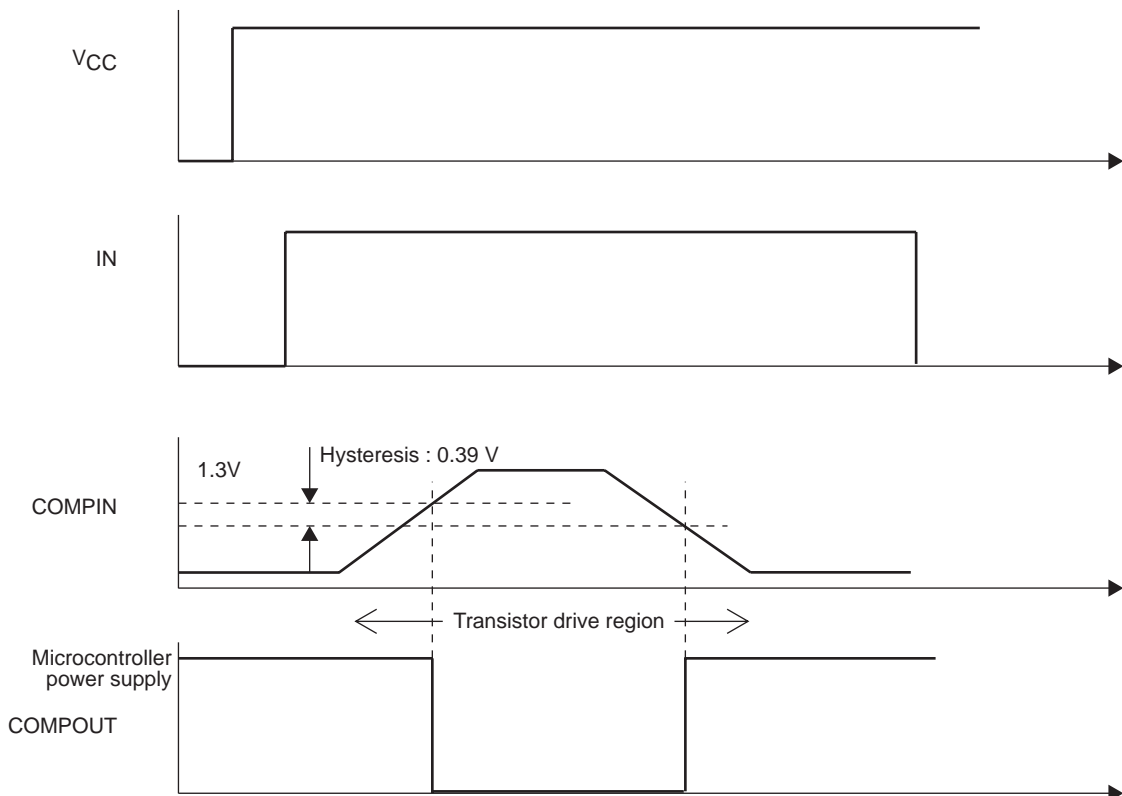


Photosensor Position Detection Application Circuit Example

(a) Application circuit



(b) Timing chart



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