Ordering number : ENA0631A

SANYO Semiconductors
DATA SHEET

Bi-CMOS LSI

LV8085CL — Two-channel H-Bridge Driver

Overview

The LV8085CL is a two-channel H-bridge driver that supports low-voltage operation. It is optimal for H-bridge drive of stepping motors (AF and zoom) in portable equipment such as camera cell phones.

Features

- Two-channel H-bridge driver
- Supports both 2-phase drive and 1-2 phase drive.
- Implemented in a low-power MOS IC process.
- Ultraminiature easy to solder ESCP2823-10 package
- 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} max		6.5	V
Output voltage	V_{OUT} max	OUT1, OUT2, OUT3, OUT4	6.5	V
Input voltage	V_{IN} max	CONT, 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.*	400	mW
Operating temperature	Topr		-30 to +85	°C
Storage temperature	Tstg		-40 to +150	°C

* Specified circuit board : 20.0mm×10.0mm×0.8mm^3, paper-phenol 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	$0.6V_{CC}$	V
Low-level input voltage	V_{IL}		-0.3 to $0.2V_{CC}$	V

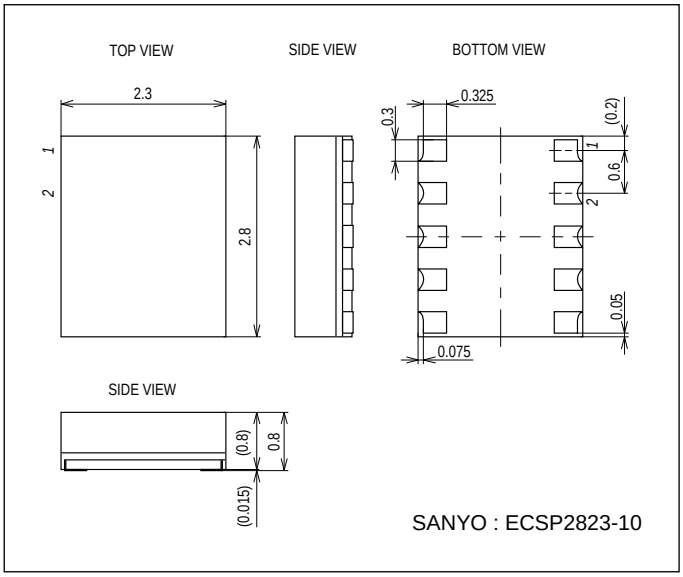
Electrical Characteristics at Ta = 25°C, V_{CC} = 3.0V

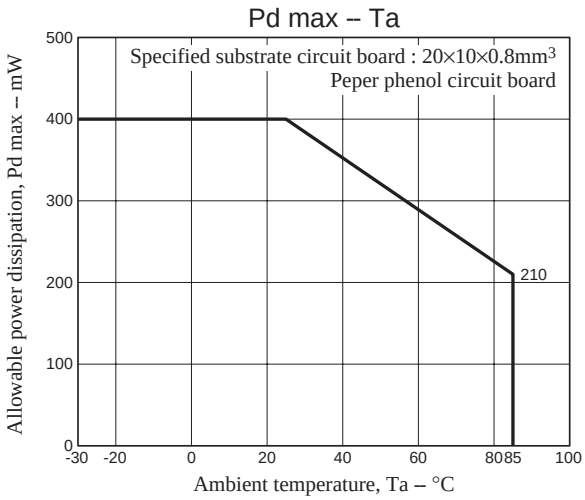
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent current	I_{CCO}	IN = 0V		0.1	1	μA
	$I_{CCO}1$	IN = 3V		0.45	0.7	mA
Output on resistance	Ron1	V_{CC} = 3.0V (High and low side total) IN1 to 4 = 3.0V, I_{OUT} = 100mA		2.1	3.0	Ω
	Ron2	V_{CC} = 5.0V (High and low side total) IN1 to 4 = 5.0V, I_{OUT} = 100mA		1.75	2.2	Ω
Output turn-on time	Trise			1.5	3.0	μs
Output turn-off time	Tfall			0.2	1.0	μs
Input current	I_{IN}	V_{IN} = 3V		30	70	μA

Package Dimensions

unit : mm (typ)

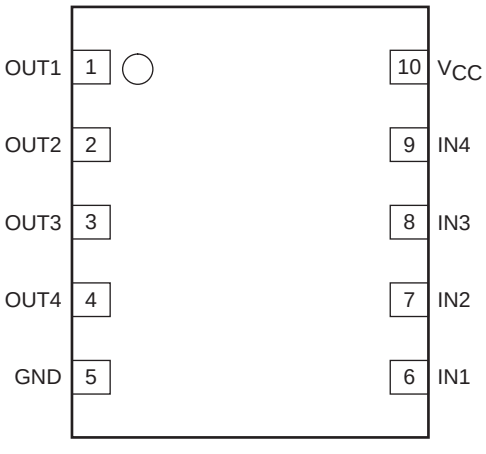
3334





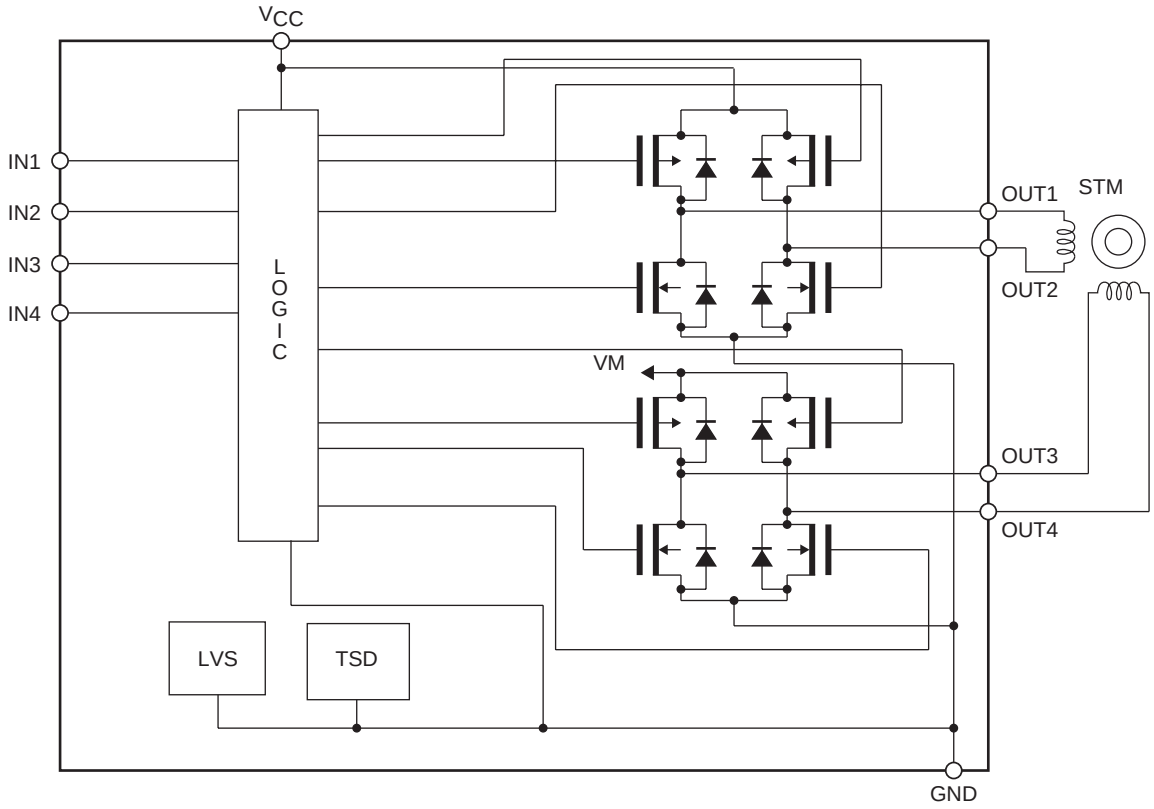
Pin Assignment

(ECSP2823-10)



(Top View)

Block Diagram



Usage Notes

Capacitor for the power supply stability must be connected between V_{CC} and ground.

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	Off	Off	Channel 1, reverse
High	Low			High	Low			Channel 1, forward
High	High			Low	Low			Channel 1, brake mode
-	-	Low	High	Off	Off	Low	High	Channel 2, reverse
		High	Low			High	Low	Channel 2, forward
		High	High			Low	Low	Channel 2, brake mode

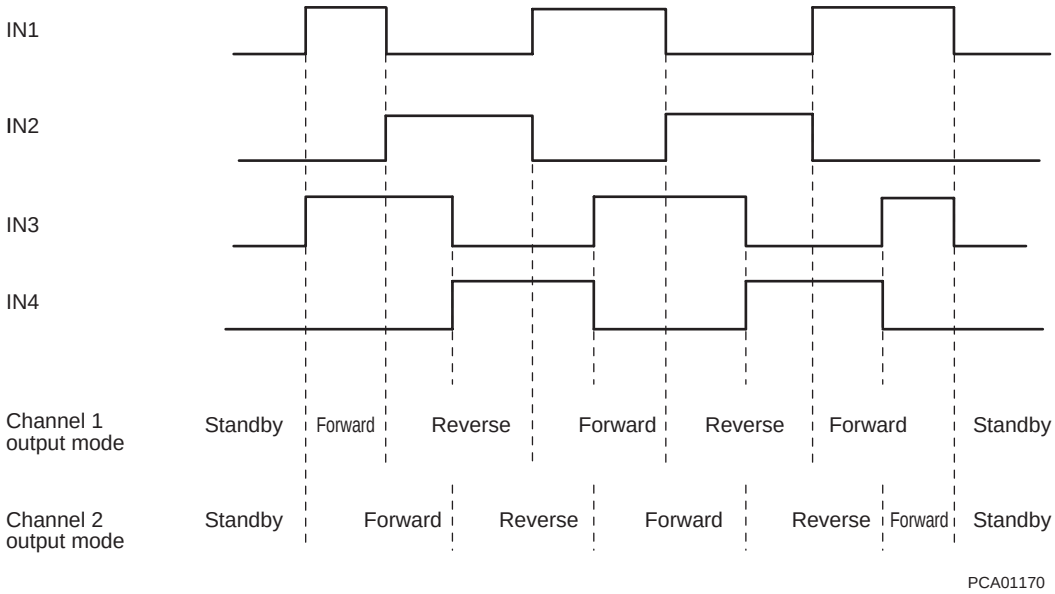
Note : The "-" input unstable state. When off, a high-impedance state.

- The IC goes to the standby state with a low-level input, and to the operating state with a high-level input.

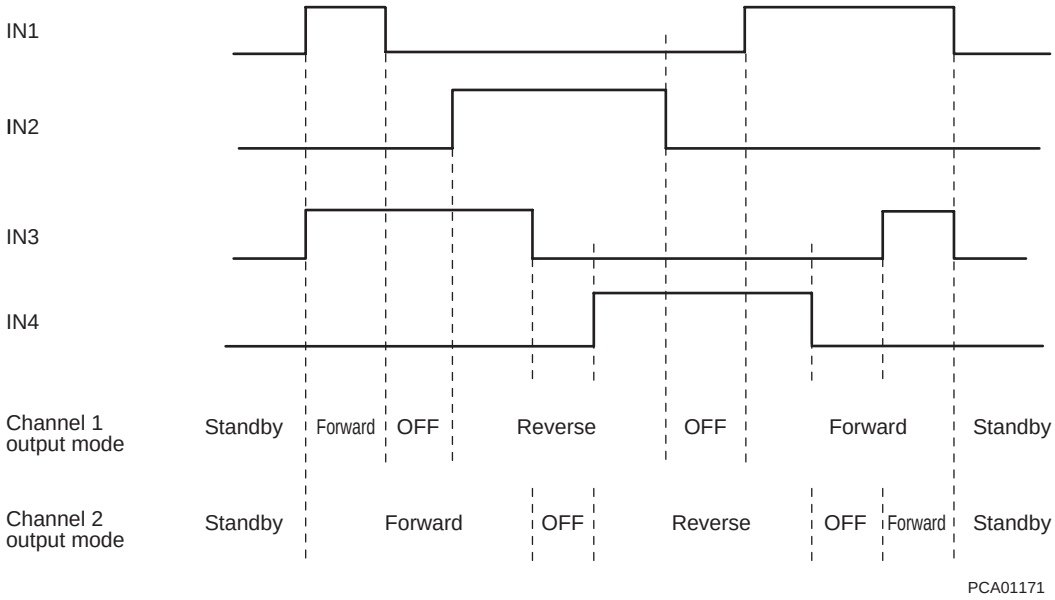
Timing Chart

(1) Stepper motor timing chart

Timing chart for 2-phase drive



(2) Timing chart for 1-2 phase drive (Fastdecay mode)



(3) Timing chart for 1-2 phase drive (Slow decay mode)