



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 $T_a = 25^\circ\text{C}$

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	CONT, IN	-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.*	400	mW
Operating temperature	T_{opr}		-30 to +85	$^\circ\text{C}$
Storage temperature	T_{stg}		-40 to +150	$^\circ\text{C}$

* Specified circuit board : 20.0mm×10.0mm×0.8mm³, paper-phenol circuit board.

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SANYO Semiconductor Co., Ltd.

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

LV8085CL

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}	IN	$0.6V_{CC}$	V
Low-level input voltage	V_{IL}			-0.3 to $0.2V_{CC}$

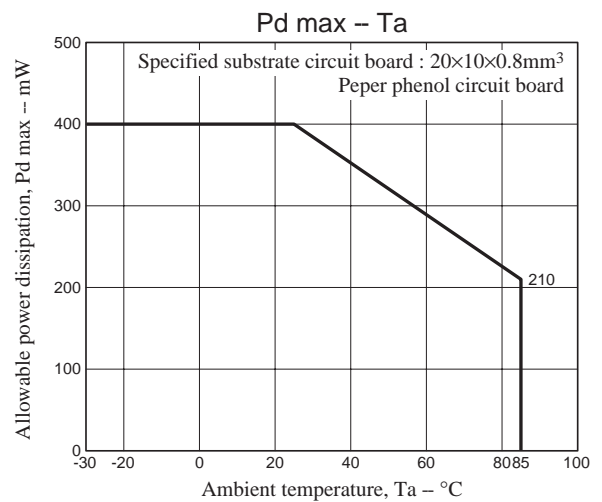
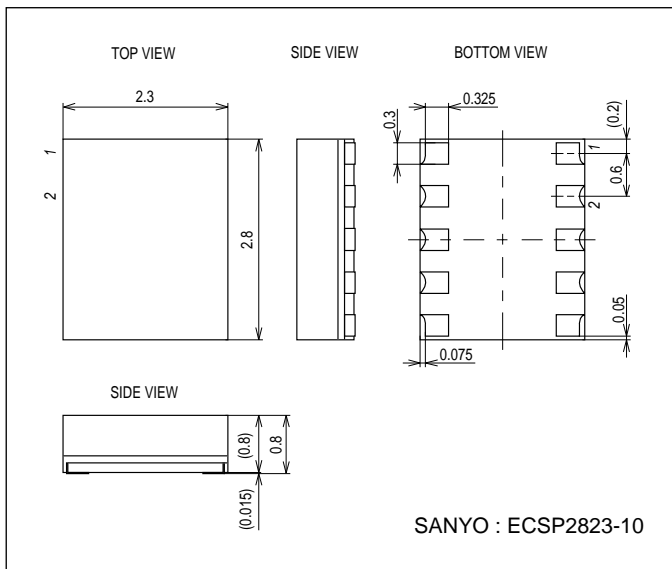
Electrical Characteristics at $T_a = 25^\circ\text{C}$, $V_{CC} = 3.0\text{V}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Quiescent current	I_{CCO}	$I_N = 0\text{V}$		0.1	1	μA
	I_{CCO1}	$I_N = 3\text{V}$		0.45	0.7	mA
Output on resistance	R_{on1}	$V_{CC} = 3.0\text{V}$ (High and low side total) I_{N1} to 4 = 3.0V , $I_{OUT} = 100\text{mA}$		2.1	3.0	Ω
	R_{on2}	$V_{CC} = 5.0\text{V}$ (High and low side total) I_{N1} to 4 = 5.0V , $I_{OUT} = 100\text{mA}$		1.75	2.2	Ω
Output turn-on time	T_{rise}			1.5	3.0	μs
Output turn-off time	T_{fall}			0.2	1.0	μs
Input current	I_{IN}	$V_{IN} = 3\text{V}$		30	70	μA

Package Dimensions

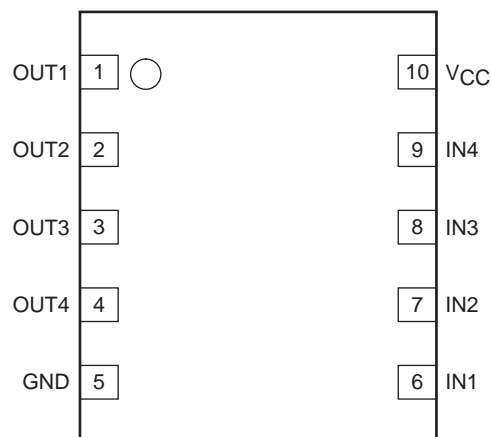
unit : mm (typ)

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Pin Assignment

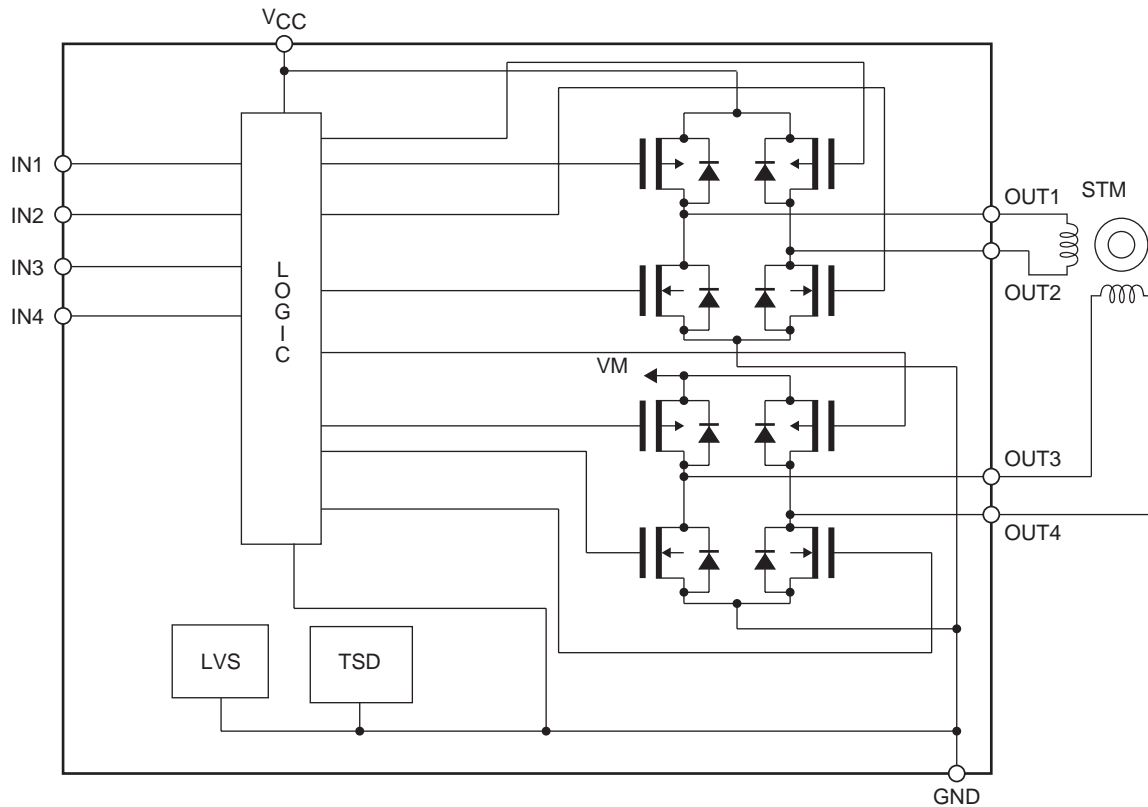
(ECSP2823-10)



(Top View)

LV8085CL

Block Diagram



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Usage Notes

Capacitor for the power supply stability must be connected between VCC and ground.

Truth Table

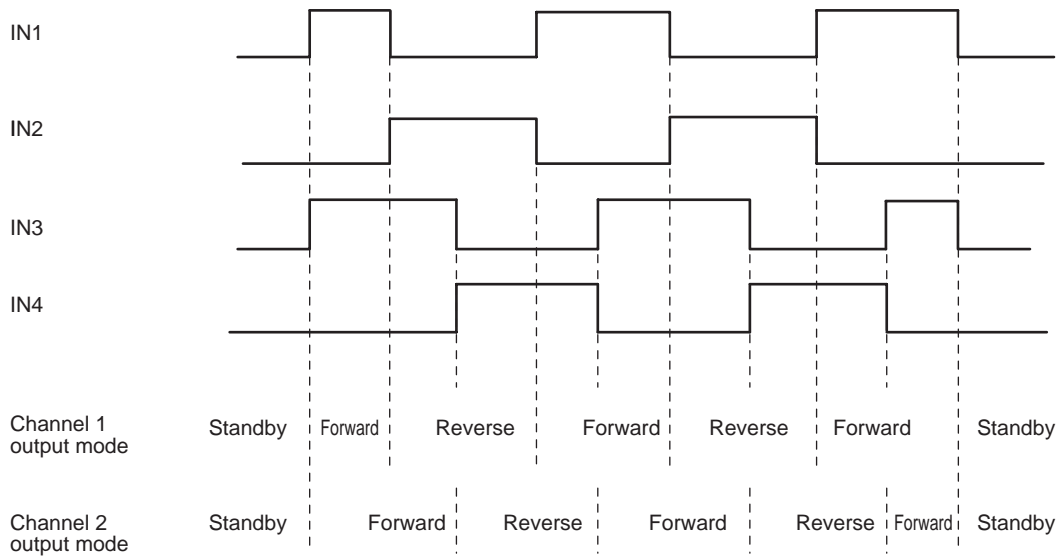
Input				Output				Mode
IN1	IN2	IN3	IN4	OUT1	OUT2	OUT3	OUT4	
Low	Low	Low	Low	Off	Off	Off	Off	Standby mode
Low	High	-	-	Low	High	Off	Off	Channel 1, reverse
High	Low			High	Low			Channel 1, forward
High	High			Low	Low			Channel 1, brake mode
-	-	Low	High	Off	Off	Low	High	Channel 2, reverse
		High	Low	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

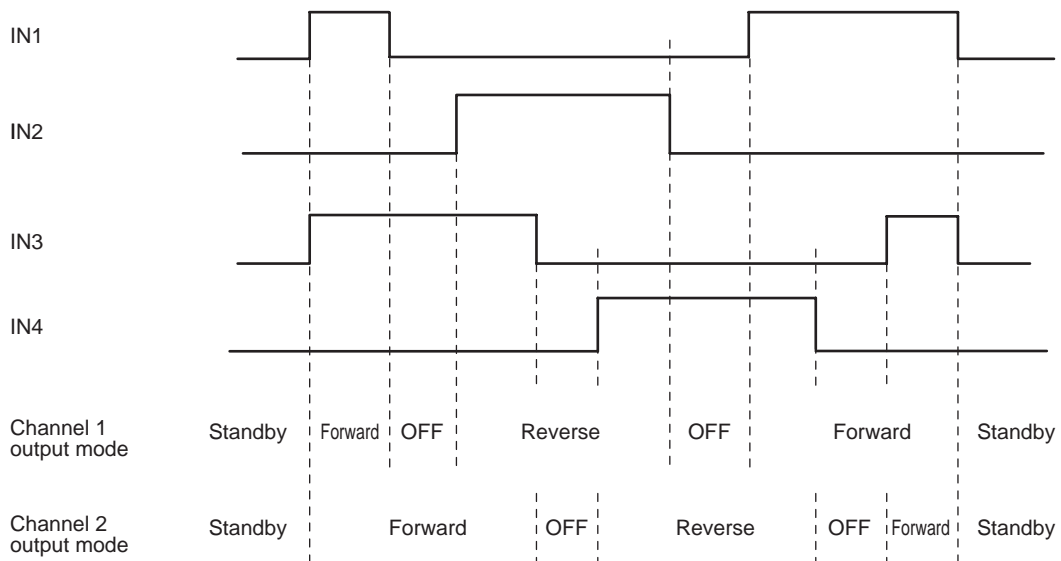
Timing Chart

(1) Stepper motor timing chart
Timing chart for 2-phase drive



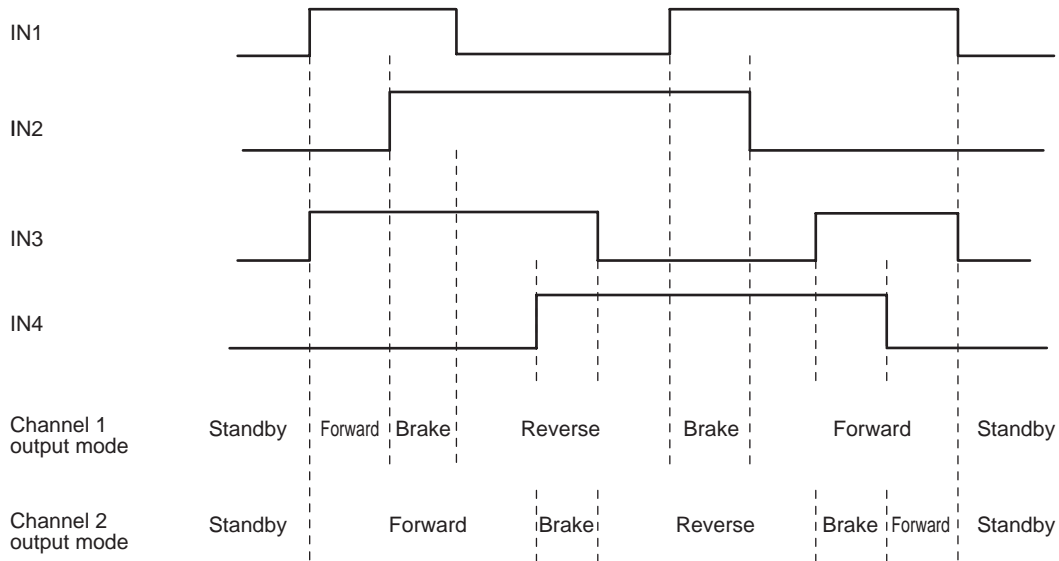
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(2) Timing chart for 1-2 phase drive (Fastdecay mode)



PCA01171

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



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