



SANYO Semiconductors DATA SHEET

LV8222W — Bi-CMOS IC CD / MD System Motor Driver

Overview

The LV8222W is a CD / MD system motor driver.

Features

- PWM H-bridge motor driver (3ch) and direct PWM sensorless motor driver.

Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Power supply voltage	V _{CC} max		6.0	V
Output block power supply voltage	V _S max		6.0	V
Pre-drive voltage (gate voltage)	V _G max		9.5	V
Output current	I _O max		0.8	A
Power dissipation 1	Pd max1	Independent IC	0.5	W
Power dissipation 2	Pd max2	Glass epoxy board : 114.3mm×76.1mm×1.6mm	1.5	W
Operating temperature	T _{opr}		-20 to +85	°C
Storage temperature	T _{stg}		-55 to +150	°C

Recommended operating voltage at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Power supply voltage	V _{CC}		2.1 to 5.5	V
Output block power supply voltage	V _S		0 to 5.5	V
Pre-drive voltage (gate voltage)	V _G	V _G ≤ 9.5V	V _S +3.5 to V _S +4.5	V

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Electrical Characteristics at $T_a = 25^\circ\text{C}$, $V_{CC} = 2.4\text{V}$, $V_S = 2.4\text{V}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Power supply current 1	I_{CC1}	S/S pin H, MUTE pin H (when operating)		1.5	2.0	mA
Power supply current 2	I_{CC2}	S/S pin L (standby mode)			20	μA
[Charge pump output]						
Output voltage	VG	$V_S = 2.4\text{V}$	5.9	6.4	6.9	V
[VG regulator output]						
Output voltage	VGREG		3.5	4.0	4.5	V
[Overheat protection circuit]						
Thermal protection circuit operating temperature	TSD	*Design target	150	180		$^\circ\text{C}$
Hysteresis width	ΔTSD	*Design target		40		$^\circ\text{C}$
[Power supply monitor]						
Monitor output voltage	VSMON	$V_S = 2.4\text{V}$	1.1	1.2	1.3	V
Actuator block						
[Actuator input pin]						
"H" level input voltage range	VAIH		$V_{CC}-0.5$		V_{CC}	V
"L" level input voltage range	VAIL		0		0.5	V
[Output block]						
Output ON resistance	Ron1,2,3	$I_O = 0.5\text{A}$, sum of upper and lower outputs		1.5	2.5	Ω
Output transmission delay time (H-bridge)	TRISE	*Design target		0.1		μs
	TFALL	*Design target		0.1		μs
Minimum input pulse width	Tmin	Ch1, ch2 output pulse width is 2/3 tmin or more *Design target	200			ns
[MUTE pin]						
"H" level input voltage range	VMUH	MUTE OFF	$V_{CC}-0.5$		V_{CC}	V
"L" level input voltage range	VMUL	MUTE ON	0		0.5	V
Spindle motor driver side						
[Output side ON resistance]						
SOURCE1	Ron(H1)	$I_O = 0.5\text{A}$, $V_S = 1.2\text{V}$, $V_G = 5.2\text{V}$, forward TR		0.5	1.0	Ω
SOURCE2	Ron(H2)	$I_O = 0.5\text{A}$, $V_S = 1.2\text{V}$, $V_G = 5.2\text{V}$, reverse TR		0.5	1.0	Ω
SINK	Ron(L)	$I_O = 0.5\text{A}$, $V_S = 1.2\text{V}$		0.5	1.0	Ω
SOURCE+SINK	Ron(H+L)	$I_O = 0.5\text{A}$, $V_S = 1.2\text{V}$, $V_G = 5.2\text{V}$		1.0	2.0	Ω
[Position detection comparator]						
Input offset voltage	VSOFS	*Design target	-9		+9	mV
[VCO pin]						
VCO "H" level voltage	VCOH		0.6	0.8	1.0	V
VCO "L" level voltage	VCOL		0.3	0.5	0.7	V
[S/S pin]						
"H" level input voltage range	VSSH	Start	$V_{CC}-0.5$		V_{CC}	V
"L" level input voltage range	VSSL	Stop	0		0.5	V
[Current limiter]						
Limiter voltage	VRF		0.17	0.19	0.21	V
[BREAK pin]						
"H" level input voltage range	VBRH	Brake ON	$V_{CC}-0.5$		V_{CC}	V
"L" level input voltage range	VBRL	Brake OFF	0		0.5	V
[PWM pin]						
"H" level input voltage range	VPWMH		$V_{CC}-0.5$		V_{CC}	V
"L" level input voltage range	VPWML		0		0.5	V
PWM input frequency	VPWMIN				150	kHz
[CLK pin]						
"H" level input voltage range	VCLKH		$V_{CC}-0.5$		V_{CC}	V
"L" level input voltage range	VCLKL		0		0.5	V

* Design target value and no measurement is performed.

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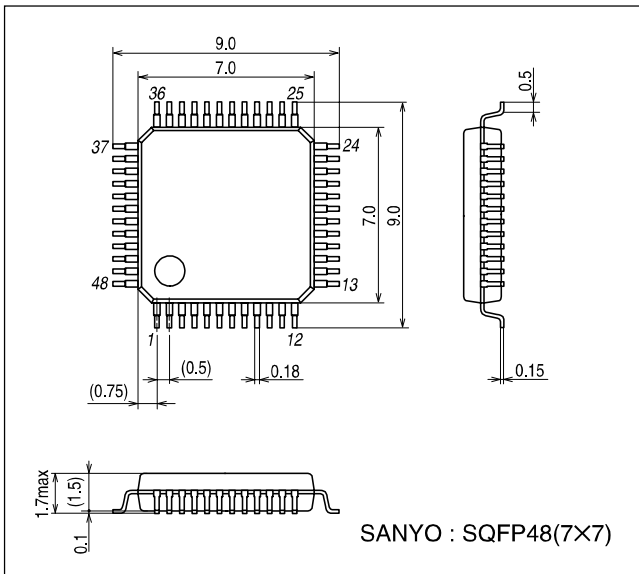
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[FG output pin]						
"H" level output voltage	VFGH	$I_O = -0.5\text{mA}$	$V_{CC}-0.5$		V_{CC}	V
"L" level output voltage	VFGL	$I_O = 0.5\text{mA}$	0		0.5	V
[MODE 1/2 pin]						
"H" level output voltage	VMDH		$V_{CC}-0.5$		V_{CC}	V
"L" level output voltage	VMDL		0		0.5	V

Package Dimensions

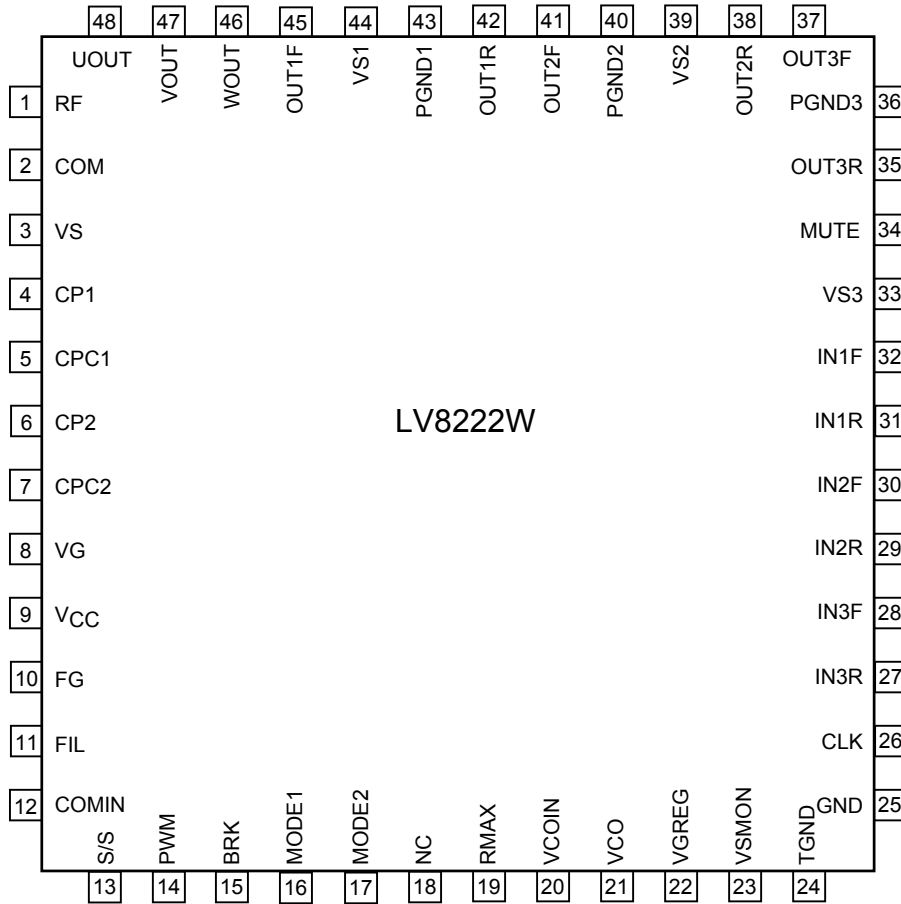
unit : mm

3163B



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Pin Assignment



Top view

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