

Structure	Silicon Monolithic Integrated Circuit
Product series	PWM Driver for combi drive
Type	BH5510KVT
Function	<ul style="list-style-type: none"> • Super silent spindle drive by S!PWM^{×2} technology. • Built in 2mode of spindle driver's gain for low-speed stability rotation.

○Absolute maximum ratings

Parameter	Symbol	Limits	Unit
Power MOS supply voltage	PVcc	6	V
Control circuit power supply voltage	Vcc	6	V
Maximum driver output current	IoMAX	3 #1	A
Power dissipation	Pd	1.37 #2	W
Operating temperature range	Topr	-40~85	°C
Storage temperature range	Tstg	-55~150	°C
Joint part temperature	Tjmax	150	°C

#1 The current is guaranteed 3.0A in case of the current is turned on/off in a duty-ratio of less than 1/10 with a maximum on-time of 5msec and when short brake.

#2 PCB (70mm × 70mm × 1.6mm, occupied copper foil is less than 3%, glass epoxy standard board) mounting. Reduce power by 11.0mW for each degree above 25°C.

○Recommended operating conditions(Ta=-10~+70°C)

[Set the power supply voltage taking allowable dissipation into considering]

Parameter	Symbol	MIN.	TYP.	MAX.	Unit
Power MOS supply voltage	PVcc	3.0	5.0	5.5	V
Control circuit power supply voltage	Vcc	4.0	5.0	5.5	V

This product isn't designed for protection against radioactive rays.

Status of this document

The Japanese version of this document is the formal specification.

A customer may use this translation version only for a reference to help reading the formal version.

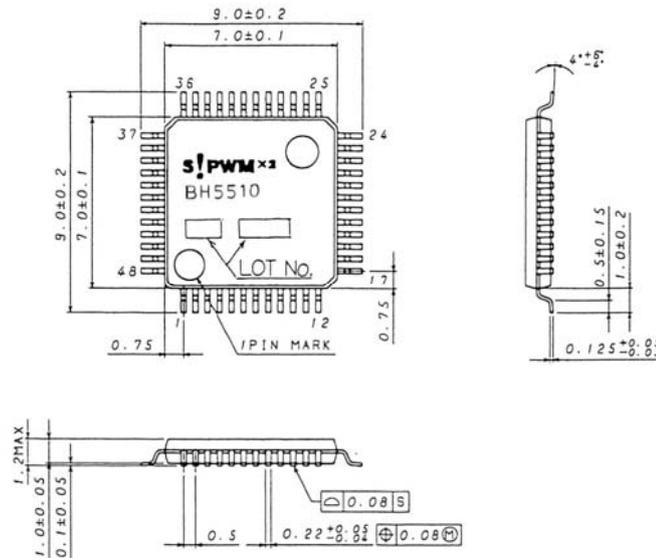
If there are any differences in translation version of this document , formal version takes priority.

○Electrical characteristics

(Unless otherwise noted Ta=25°C, Vcc=PVcc=5V, Vref=1.25V, RL(act)=8Ω+47μH, RL(SP)=2Ω+47μH, SPRNF=0.2Ω)

Parameter		Symbol	MIN.	TYP.	MAX.	Unit	Condition
Circuit current	Quiescent current	ICC	—	10.5	20	mA	VST=2.6V
	Current in standby mode	IST	—	—	0.1	mA	VST=1.0V
Stepping driver block	Input dead zone (one side)	VDZSTP4,5	10	30	50	mV	
	Output offset voltage	VOO4,5	-50	—	50	mV	
	Voltage gain	GVC4,5	12.0	14.0	16.0	dB	
	Output On resistor (top and bottom)	RON4,5	—	1.5	2.3	Ω	Io=500mA
	PWM frequency	f4,5CH	240	300	360	kHz	
Spindle driver block	Input dead zone of gm1(one side)	VDZSP1	2	50	100	mV	GVSWS=L
	Input dead zone of gm2(one side)	VDZSP2	10	210	460	mV	GVSWS=H
	Input output gain 1	gm1	0.8	1.0	1.2	A/V	SPRNF=0.2Ω GVSWS=L
	Input output gain 2	gm2	0.16	0.2	0.24	A/V	SPRNF=0.2Ω GVSWS=H
	Output On resistor (top and bottom)	RONSP	—	0.6	1.2	Ω	Io=500mA
	Output limit voltage	VLIMSP	0.16	0.20	0.24	V	SPRNF=0.2Ω
	PWM frequency	fSP	60	80	100	kHz	
Actuator driver block	Input dead zone (one side)	VDZACT1,2,3	—	—	3	mV	Value of design guarantee
	Output offset voltage	VOO1,2,3	-50	—	50	mV	
	Voltage gain	GVC1,2,3	12.0	14.0	16.0	dB	
	Output On resistor (top and bottom)	RON1,2,3	—	1.3	2.0	Ω	Io=500mA
	PWM frequency	f1,2,3CH	240	300	360	kHz	
Others	Vref drop mute ON threshold voltage	VMVref	—	0.7	1.0	V	
	Vcc drop mute ON threshold voltage	VMVcc	3.2	3.6	4.0	V	
	Standby High level voltage range	VSTH	2.6	—	3.3	V	
	Standby Hi-Z level voltage range	VSTHZ	1.6	—	2.0	V	OPEN(Hi-z) is also available.
	Standby Low level voltage range	VSTL	0	—	1.0	V	

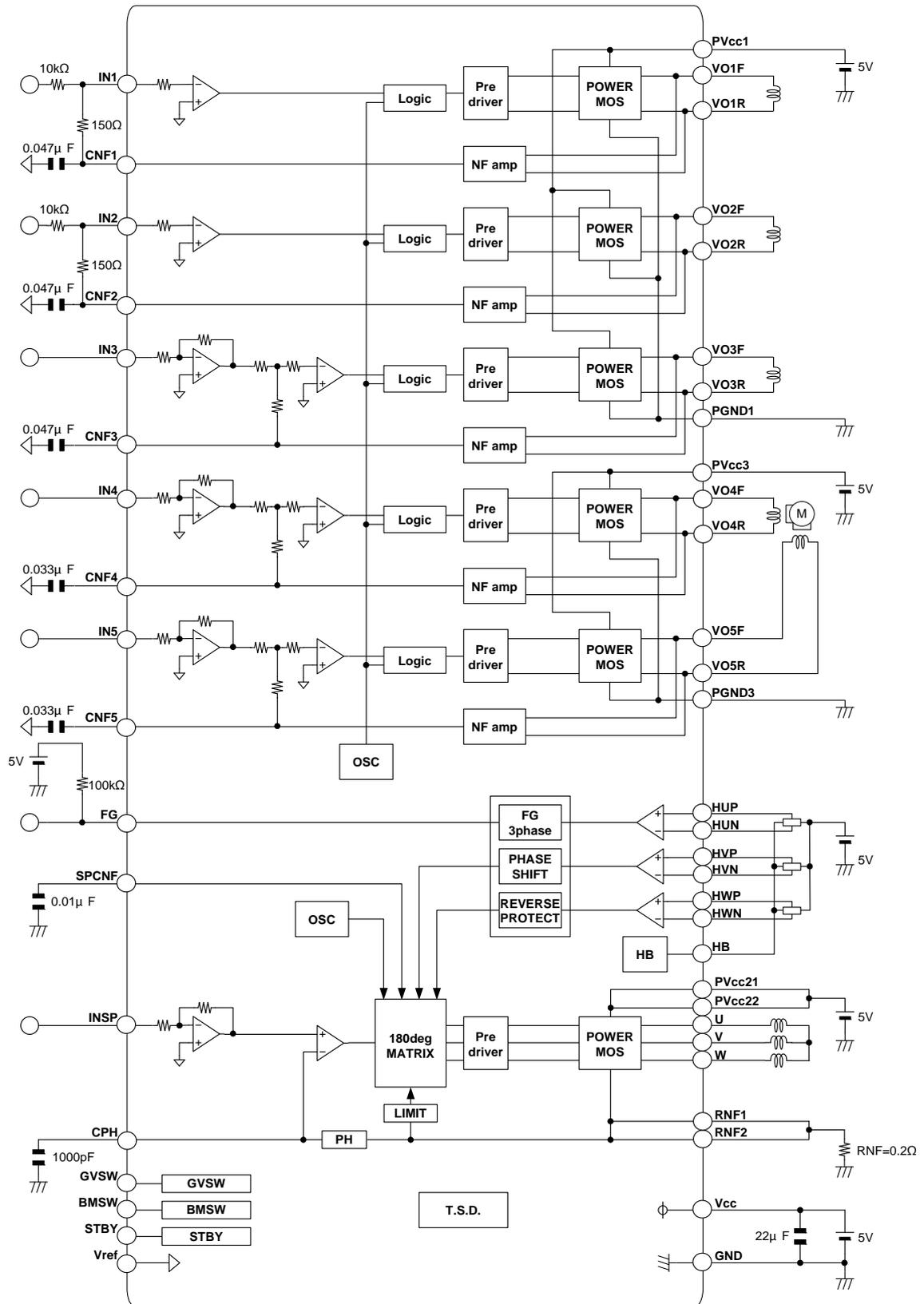
○Package outlines



(UNIT : mm)

Figure No ; EX290-6001

Block diagram / Application circuit



Notes

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