

Structure	Silicon Monolithic Integrated Circuit
Product series	PWM Driver for combi drive
Type	BH5510KV
Function	• 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	1.18 #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.

#2 PCB (70mm × 70mm × 1.6mm, occupied copper foil is less than 3%, glass epoxy standard board) mounting.
Reduce power by 9.5mW 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 described in this specification isn't judged whether it applies to COCOM regulations. Please confirm in case of export.
This product isn't designed for protection against radioactive rays.

Application example

The application circuit is recommended for use. Make sure to confirm the adequacy of the characteristics.
When using the circuit with changes to the external circuit constants, make sure to leave an adequate margin for external components including static and transitional characteristics as well as dispersion of the IC.
Note that ROHM cannot provide adequate confirmation of patents.

The product described in this specification is designed to be used with ordinary electronic equipment or devices (such as audio-visual equipment, office-automation equipment, communications devices, electrical appliances, and electronic toys).
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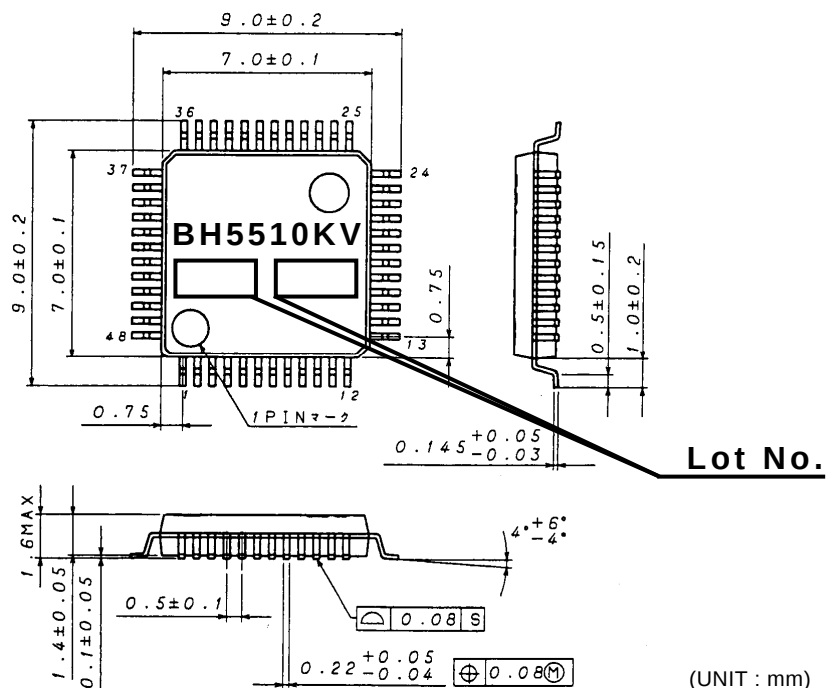
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○Electrical characteristics

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

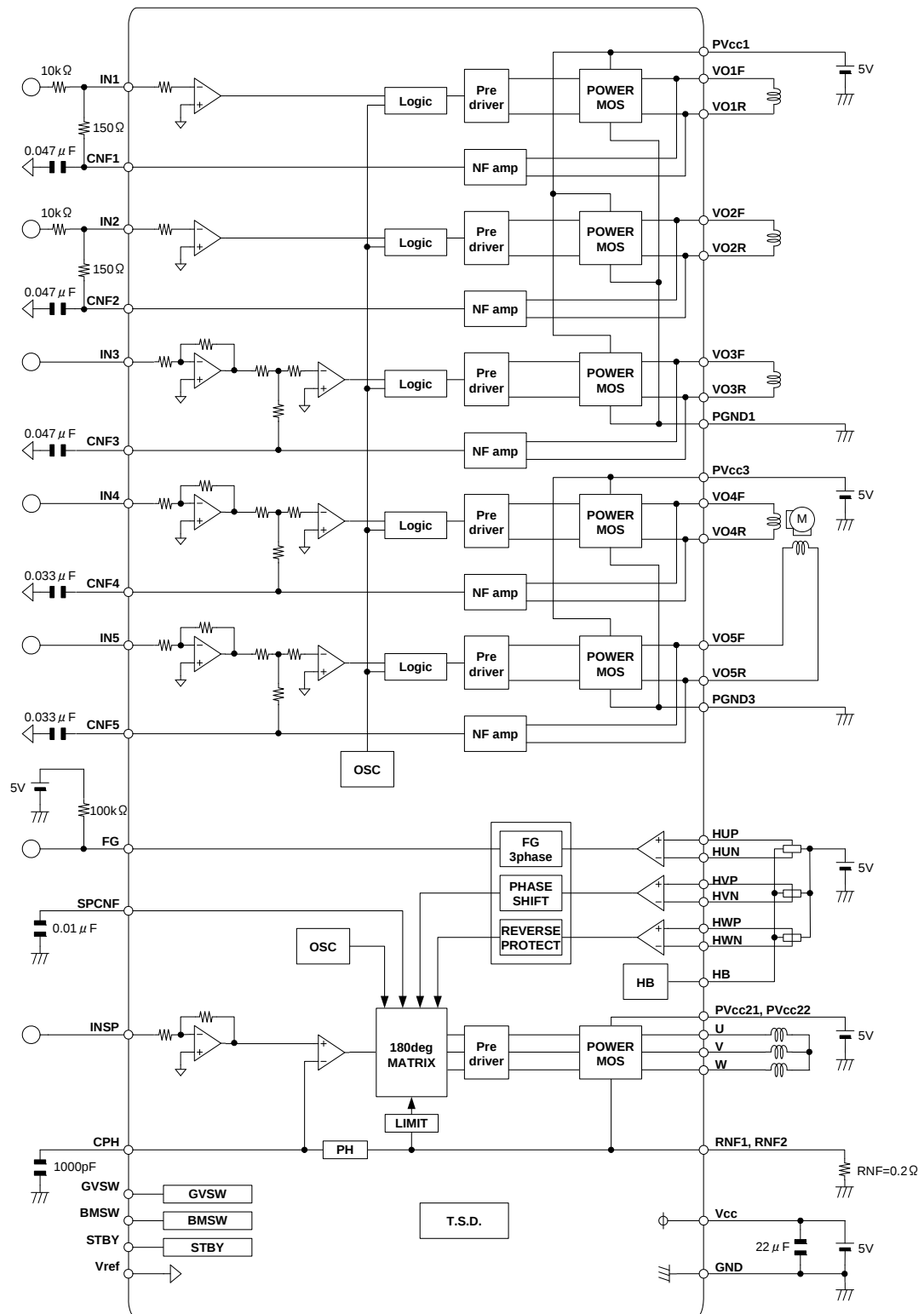
Parameter		Symbol	MIN.	TYP.	MAX.	Unit	Condition
Circuit current	Quiescent current	ICC	—	10.5	20	mA	VST=2.6V
	Current in standby mode	IST	—	—	0.1	mA	VST=1.0V
Stepping driver block	Input dead zone (one side)	VDZSTP4,5	10	30	50	mV	
	Output offset voltage	VOO4,5	-50	—	50	mV	
	Voltage gain	GVC4,5	12.0	14.0	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	GVSW=L
	Input dead zone of gm2(one side)	VDZSP2	10	210	460	mV	GVSW=H
	Input output gain 1	gm1	0.8	1.0	1.2	A/V	SPRNF=0.2Ω GVSW=L
	Input output gain 2	gm2	0.16	0.2	0.24	A/V	SPRNF=0.2Ω GVSW=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. ; EX259-5001-1



Notes

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