

Structure	Silicon Monolithic Integrated Circuit
Product series	PWM Driver for combi drive
Type	BH5511KV
Function	<ul style="list-style-type: none"> • Super silent spindle drive by S!PWM^{^2} technology. • Built in 3mode 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	-30~85	°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).
Should you intend to use this product with equipment or devices which require an extremely high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

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○ Electrical characteristics

(Unless otherwise noted Ta=25°C, Vcc=PVcc=5V, Vref=1.65V, RL(act)=8Ω+47μH, RL(SP)=2Ω+47μH, RNF=0.33Ω)

Parameter		Symbol	MIN.	TYP.	MAX.	Unit	Condition
Circuit current	Quiescent current	ICC	—	12	20	mA	VST=2V VIN=3.3V
	Current in standby mode	IST	—	—	0.1	mA	VST=0.5V
Spindle driver block	Input dead zone of L (one side)	VDZSPL	2	150	300	mV	gain L (GVSW=H)
	Input dead zone of M (one side)	VDZSPM	2	75	150	mV	gain M (GVSW=M)
	Input dead zone of H (one side)	VDZSPH	2	50	100	mV	gain H (GVSW=L)
	Input output gain L	gmL	0.12	0.17	0.22	A/V	SPRNF=0.33Ω
	Input output gain M	gmM	0.23	0.33	0.43	A/V	SPRNF=0.33Ω
	Input output gain H	gmH	0.35	0.5	0.65	A/V	SPRNF=0.33Ω
	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=0.33Ω
	PWM frequency	fSP	65	85	105	kHz	
	GVSW H Voltage	VG VH	2.3	—	3.3	V	gain L
	GVSW M Voltage	VG VM	1.2	—	1.6	V	gain M
GVSW L Voltage	VG VL	—	—	0.5	V	gain H	
Actuator / Stepping driver block	Output offset voltage	VOO1~5	-50	—	50	mV	
	Voltage gain (CH1,2,4,5)	GVC1,2,4,5	15.5	17.5	19.5	dB	
	Voltage gain (CH3)	GVC3	6.0	8.0	10.0	dB	
	Output On resistor (top and bottom)	RON1,2,3	—	1.3	2.0	Ω	Io=500mA
	Output On resistor (top and bottom)	RON4,5	—	1.5	2.3	Ω	Io=500mA
	PWM frequency	fCH1~5	215	270	325	kHz	
Others	Vref drop mute ON threshold voltage	VMVref	—	0.7	1.0	V	
	Vcc drop mute ON threshold voltage	VMVccD	3.2	3.6	4.0	V	
	Standby High level voltage range	VSTH	2.3	—	3.3	V	
	Standby Hi-Z level voltage range	VSTHZ	1.2	—	1.6	V	OPEN(Hi-z) is also available.
	Standby Low level voltage range	VSTL	—	—	0.5	V	

○ Package outlines

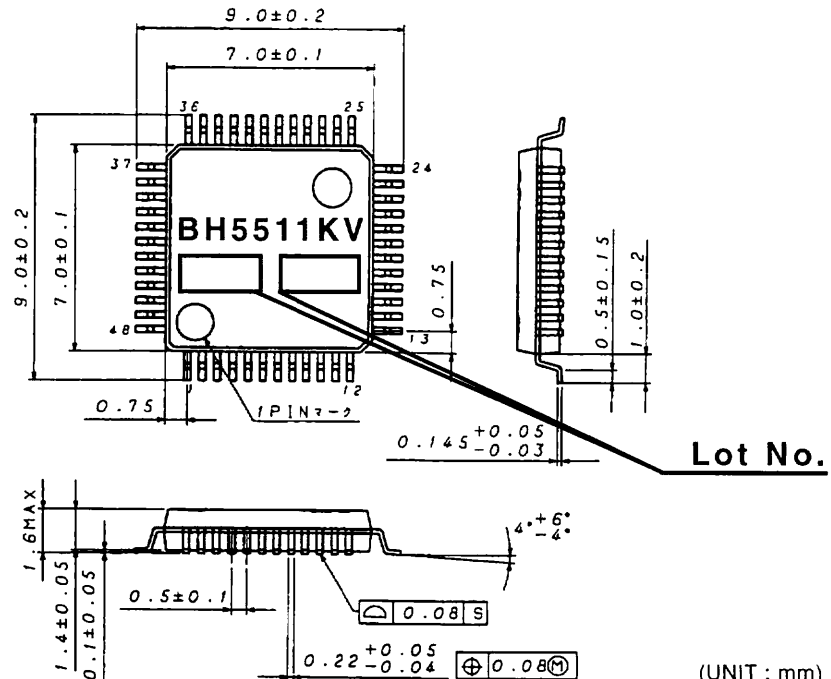
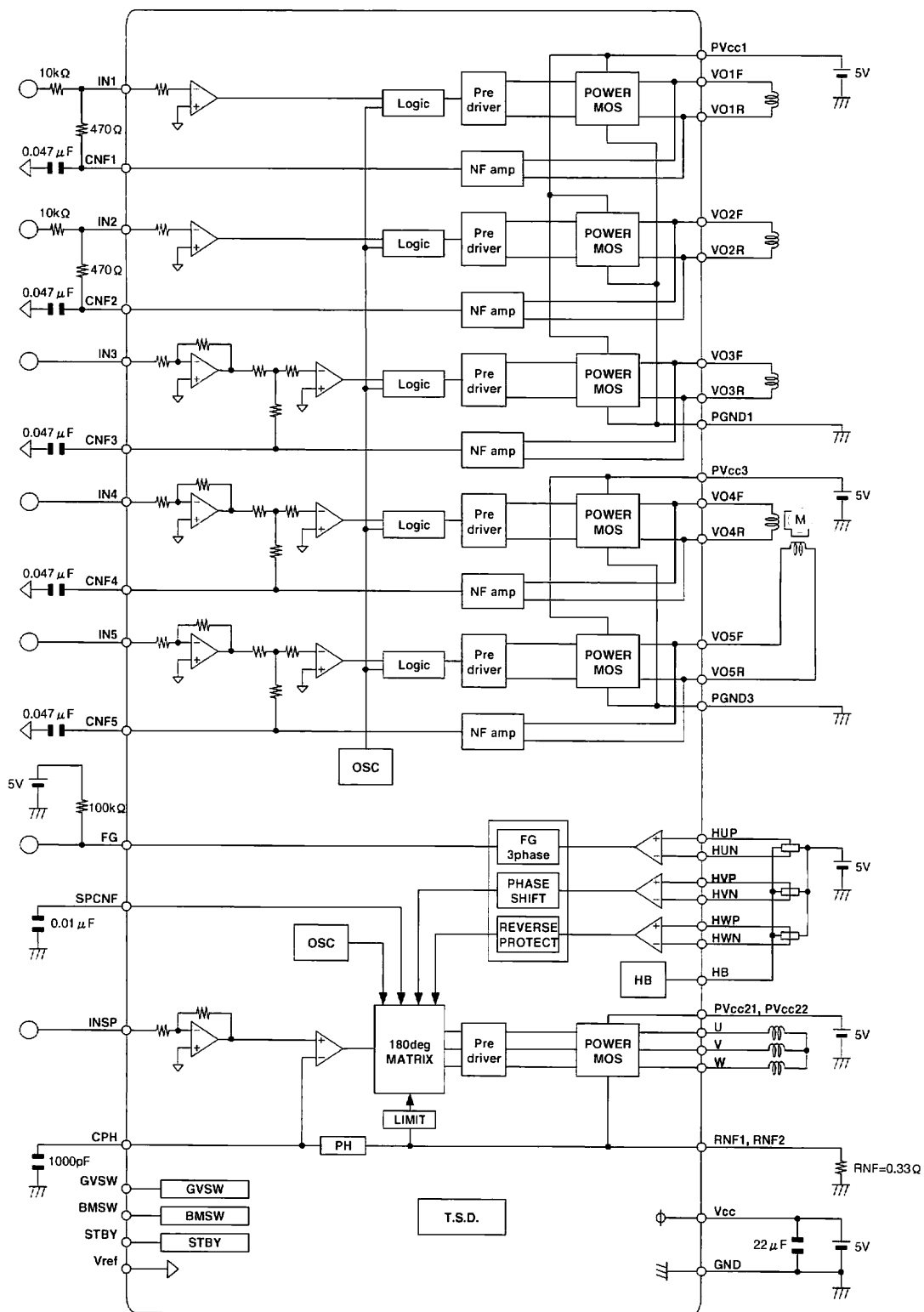


Figure No. ; EX259-5001-1



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