

- Structure                      Silicon Monolithic Integrated Circuit
- Product series                7ch Power Driver for CD-ROM,DVD-ROM
- Type                            **BD7956FS**
- Function                      - The spindle driver and the SLED driver can highly effective drive with PWM drive system.  
                                      - The actuator driver and the loading driver are liner BTL drive system and are achieving a low noise power.

○Absolute maximum ratings

Parameter	Symbol	Limits	Unit
POWER MOS power supply voltage	SPVM1,2, SLRNF1,2	15 #1	V
Preblock/BTL powerblock power supply voltage	V <sub>cc</sub> , SPVM_S, SLV <sub>DD</sub> , AV <sub>M</sub>	15	V
PWM control block power supply voltage	DV <sub>cc</sub>	7	V
Power dissipation	P <sub>d</sub>	2.6 #2	W
Operating temperature range	T <sub>opr</sub>	-20~75	°C
Storage temperature	T <sub>stg</sub>	-55~150	°C
Joint part temperature	T <sub>jmax</sub>	150	°C

#1 POWER MOS output terminals (11, 13, 16, 37~40pin) is contained.

#2 PCB (70mm×70mm×1.6mm,occupied copper foil is less than 25.7%,glass epoxy standard board) mounting.  
 Reduce power by 20.8mW for each degree above 25°C.

○Recommended operating conditions(T<sub>a</sub>=-20~+70°C)

(Set the power supply voltage taking allowable dissipation into considering)

Parameter	Symbol	MIN	TYP	MAX	Unit
Spindle driver powerblock Power supply voltage	SPVM1,2	—	V <sub>cc#3</sub>	—	V
Sled motor driver powerblock Power supply voltage	SLRNF1,2	—	SLV <sub>DD#3</sub>	—	V
Preblock / Loading driver powerblock Power supply voltage	SPVM_S, SLV <sub>DD</sub> , V <sub>cc</sub>	AV <sub>M</sub>	12	14	V
Actuator driver powerblock Power supply voltage	AV <sub>M</sub>	4.3	5.0	V <sub>cc</sub>	V
PWM control block power supply voltage	DV <sub>cc</sub>	4.3	5.0	6.0	V
Spindle driver output current	I <sub>osp</sub>	—	1.2	2.5#4	A
Actuator/sled motor/loading motor driver output current	I <sub>oo</sub>	—	0.5	0.8	A

#3 Set the same supply voltage to SPVM\_S and SPVM1,2, to SLV<sub>DD</sub> and SLRNF1,2.

#4 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

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.

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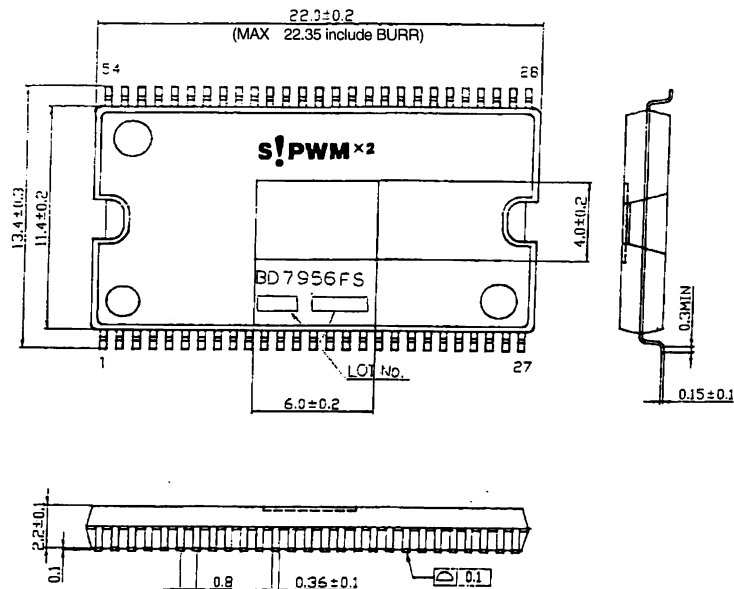
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○Electrical characteristics

(Unless otherwise noted, Ta=25°C, Vcc=SPVM\_S=SLVDD=12V, DVcc=AVM=5V, VC=1.65V, SPRNF=0.22Ω, SLRNF=0.5Ω, RL=8Ω, RLSP=2Ω)

Parameter		Symbol	MIN.	TYP.	MAX.	Unit	Condition
Circuit current	Quiescent current1	IQ1	—	12	20	mA	Vcc (Loading OFF)
	Quiescent current2	IQ2	—	5	9	mA	Vcc (Loading ON)
	Quiescent current3	IQ3	—	4	8.5	mA	DVcc
	Standby-on current1	IST1	—	—	0.4	mA	Vcc
	Standby-on current2	IST2	—	—	0.1	mA	DVcc
Sled driver block	Input dead zone (one side)	VDZSL	5	30	55	mV	
	Input output gain	gmSL	1.0	1.3	1.6	A/V	SLRNF=0.5Ω
	Output On resistor (top and bottom)	RONSL	—	2.6	3.7	Ω	IL=500mA
	Output limit current	ILIMSL	0.84	1.0	1.16	A	SLRNF=0.5Ω
	PWM frequency	fosc	—	100	—	kHz	
Spindle driver block	Input dead zone (one side)	VDZSP	0	10	40	mV	
	Input output gain	gmSP	1.24	1.54	1.84	A/V	SPRNF=0.22Ω
	Output On resistor (top and bottom)	RONSP	—	0.8	1.4	Ω	IL=500mA
	Output limit current	ILIMSP	1.2	1.5	1.8	A	SPRNF=0.22Ω
	PWM frequency	fosc	—	100	—	kHz	
Actuator driver block	Output offset voltage	VOFFT	-50	0	50	mV	
	Output saturation voltage	VOFT	—	0.9	1.6	V	IL=500mA
	Voltage gain	GVFT	16.0	17.5	19.0	dB	
Loading driver block	Output offset voltage	VOFLD	-50	0	50	mV	
	Output saturation voltage	VOLD	—	1.55	2.2	V	IL=500mA
	Voltage gain	GVLD	16.0	17.5	19.0	dB	
Others	VC drop-muting	VMVC	0.4	0.7	1.0	V	
	Vcc drop-muting	VMVcc	3.4	3.8	4.2	V	

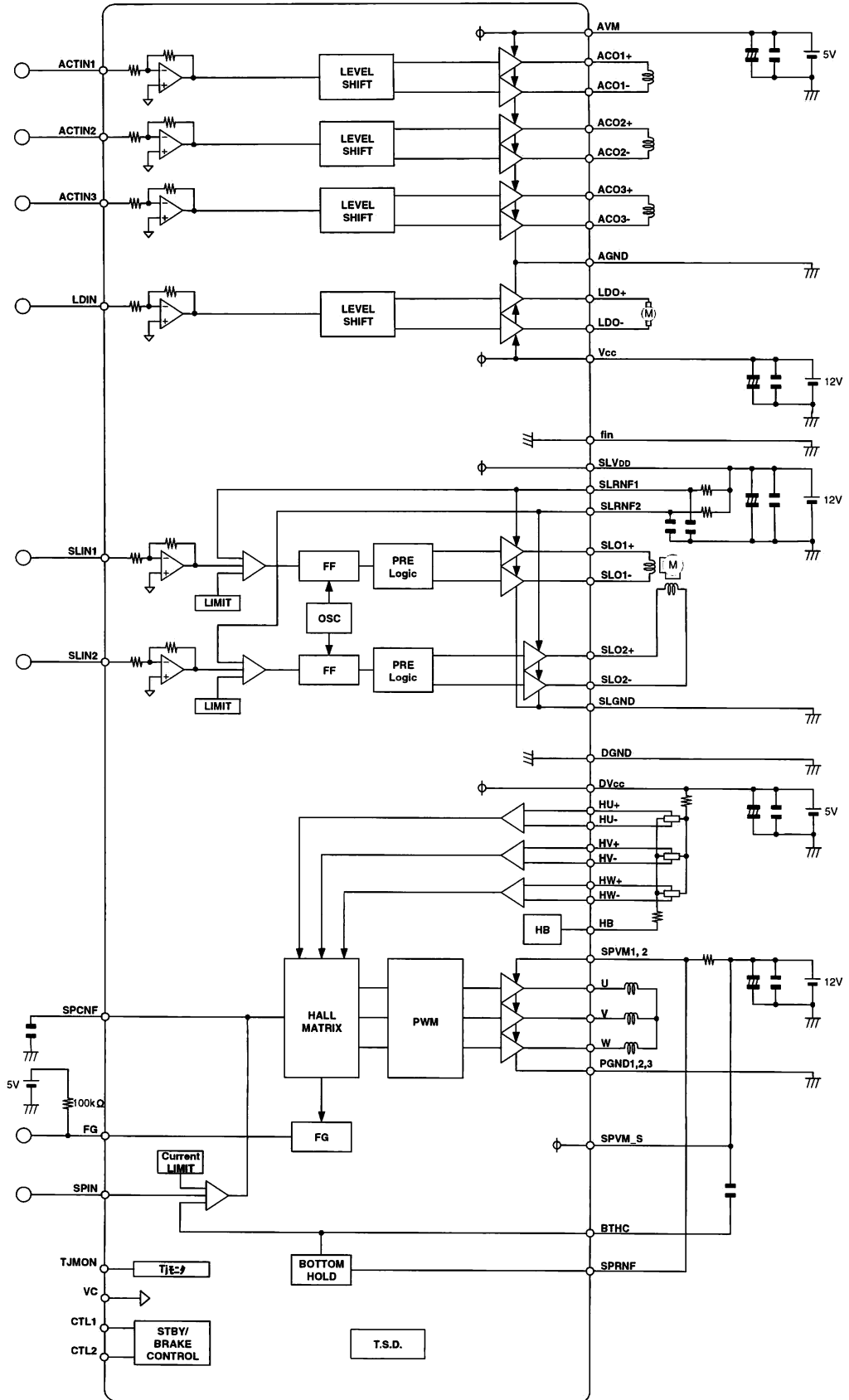
○Package outlines



(UNIT : mm)

Figure No. ; B1196

○ Block diagram / Application circuit



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