

Structure	Silicon Monolithic Integrated Circuit
Product series	7ch Power Driver for DVD $\pm$ RW,DVD-RAM
Type	BD7771EFS
Function	3-phase-sensor-less system, therefore don't need three hall sensors for spindle motor driver. - Needless external current sense resistor because include sense circuit for spindle, sled motor driver.

○Absolute maximum ratings

Parameter	Symbol	Limits	Unit
POWER MOS power supply voltage	SPVM,SLVM	15 #1	V
Preblock/BTL powerblock power supply voltage	Vcc, AVM	15	V
PWM control block power supply voltage	DVcc	7	V
Power dissipation	Pd	2.0 #2	W
Operating temperature range	Topr	-20~70	°C
Storage temperature	Tstg	-55~150	°C
Joint part temperature	Tjmax	150	°C

#1 POWER MOS output terminals (8~10,13~16pin) is contained.

#2 PCB (70mm $\times$ 70mm $\times$ 1.6mm,occupied copper foil is less than 3%,glass epoxy standard board) mounting.

Reduce power by 16mW for each degree above 25°C.(see p.6)

Example of heat radiation pattern, refer to p 19 for a power dissipation.

○Recommended operating conditions(Ta=-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	SPVM	—	Vcc#3	—	V
Sled motor driver powerblock Power supply voltage	SLVM	—	Vcc#3	—	V
Preblock / Loading driver powerblock Power supply voltage	Vcc	10.8	12	13.2	V
Actuator driver powerblock Power supply voltage	AVM	4.3	5.0	Vcc	V
PWM control block power supply voltage	DVcc	4.3	5.0	5.5	V
Spindle driver output current	Iosp	—	1.0	2.5#4	A
Actuator/sled motor/loading motor driver output current	Ioo	—	0.5	0.8	A

#3 Set the same supply voltage to SPVM,SLVM and Vcc.

#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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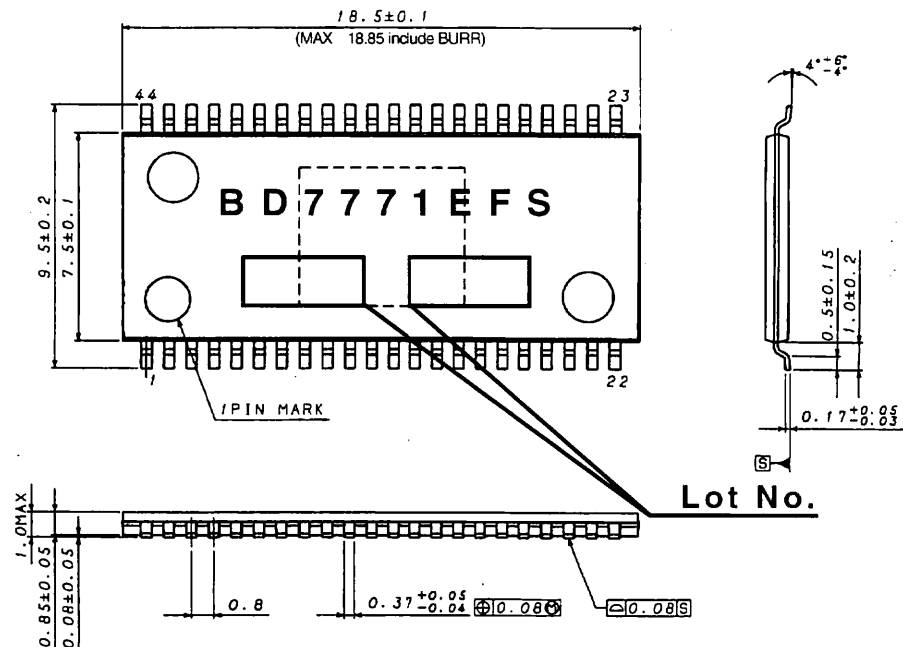
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○Electrical characteristics

(Unless otherwise noted, Ta=25°C, Vcc=SPVM=SLVM=12V, DVcc=AVM=5V, VC=1.65V, RL=8Ω, RLSP=2Ω)

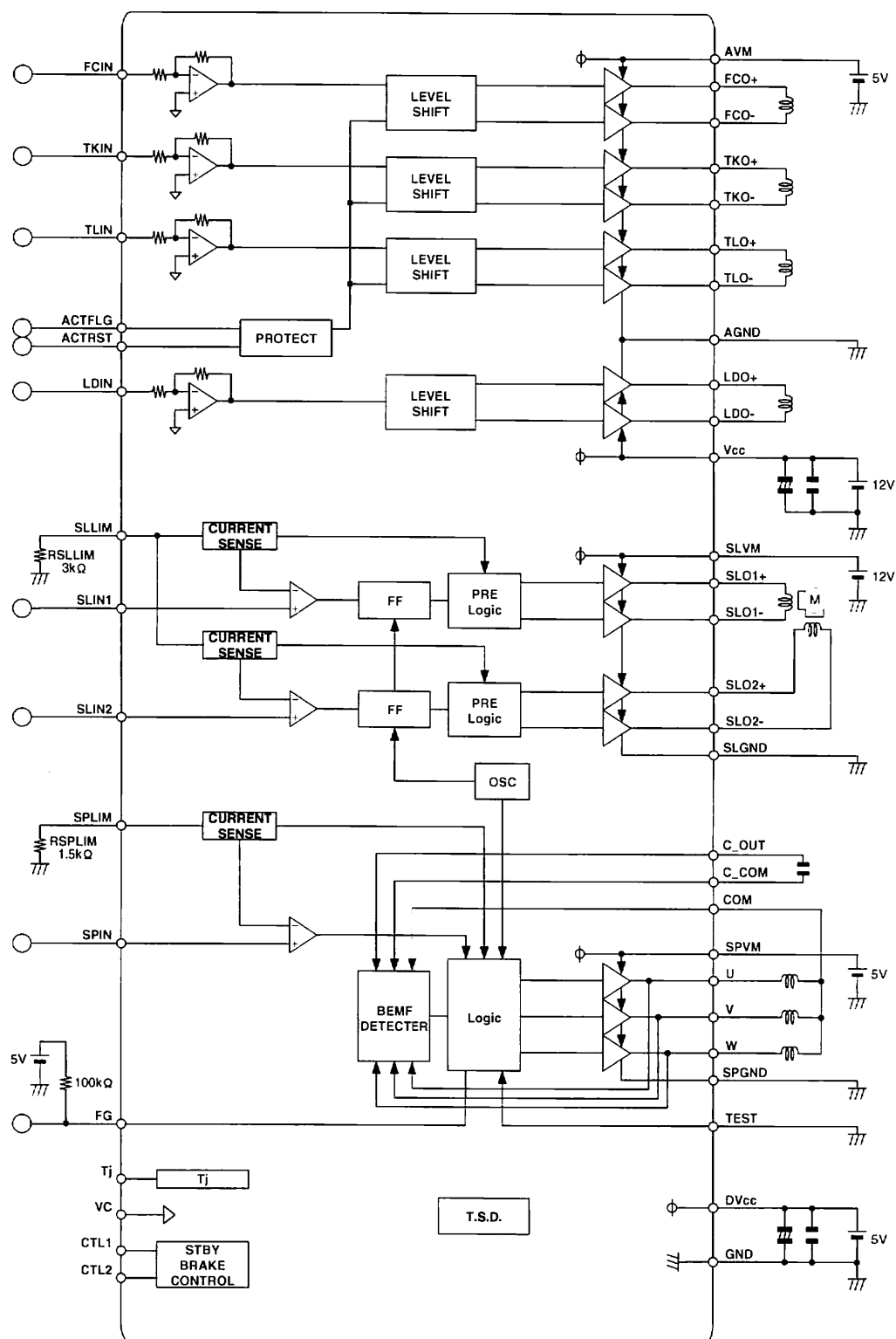
Parameter		Symbol	MIN.	TYP.	MAX.	Unit	Condition
Circuit current	Quiescent current1	IQ1	—	36	52	mA	Vcc (Loading OFF)
	Quiescent current2	IQ2	—	12	21	mA	Vcc (Loading ON)
	Quiescent current3	IQ3	—	3.7	5.9	mA	DVcc
	Standby-on current1	IST1	—	0	100	μA	Vcc
	Standby-on current2	IST2	—	0	100	μA	DVcc
Sled driver block	Input dead zone (one side)	VDZSL	0	20	80	mV	
	Input output gain	gmSL	0.75	1.0	1.25	A/V	RSLLIM=3kΩ
	Output On resistor (top and bottom)	RONSL	—	3.15	4.5	Ω	IL=500mA
	Output limit current	ILIMSL	0.85	1.0	1.15	A	RSLLIM=3kΩ
	PWM frequency	fosc	—	105	—	kHz	
Spindle driver block	Input dead zone (one side)	VDZSP	20	50	90	mV	
	Input output gain	gmSP	2.6	3.4	4.2	A/V	RSPLIM=1.5kΩ
	Output On resistor (top and bottom)	RONSP	—	1.2	1.9	Ω	IL=500mA
	Output limit current	ILIMSP	1.3	1.55	1.8	A	RSPLIM=1.5kΩ
	PWM frequency	fosc	—	175	—	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	15.5	17.5	19.5	dB	
Loading driver block	Output offset voltage	VOFLD	-50	0	50	mV	
	Output saturation voltage	VOLD	—	2.5	3.5	V	IL=500mA
	Voltage gain	GVLD	15.5	17.5	19.5	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



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