

Structure	Silicon Monolithic Integrated Circuit
Product series	6ch Power Driver for CD-ROM,DVD-ROM
Type	BD7998EFS
Function	<ul style="list-style-type: none"> ▪ 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	Vcc=SLV _{DD} ,AVM	15	V
PWM control block power supply voltage	DVcc	7	V
Power dissipation	Pd	2.0 #2	W
Operating temperature range	Topr	-40~85	°C
Storage temperature	Tstg	-55~150	°C
Joint part temperature	Tjmax	150	°C

#1 POWER MOS output terminals (17~20, 30, 33, 35pin) is contained.

#2 PCB (70mm × 70mm × 1.6mm,occupied copper foil is less than 3%,glass epoxy standard board) mounting.
Reduce power by 16mW for each degree above 25°C.

○Recommended operating conditions (Ta=-40~+85°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	SLV _{DD} =Vcc	AVM	12	14	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	6.0	V
Spindle driver output current	Iosp	—	1.2	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

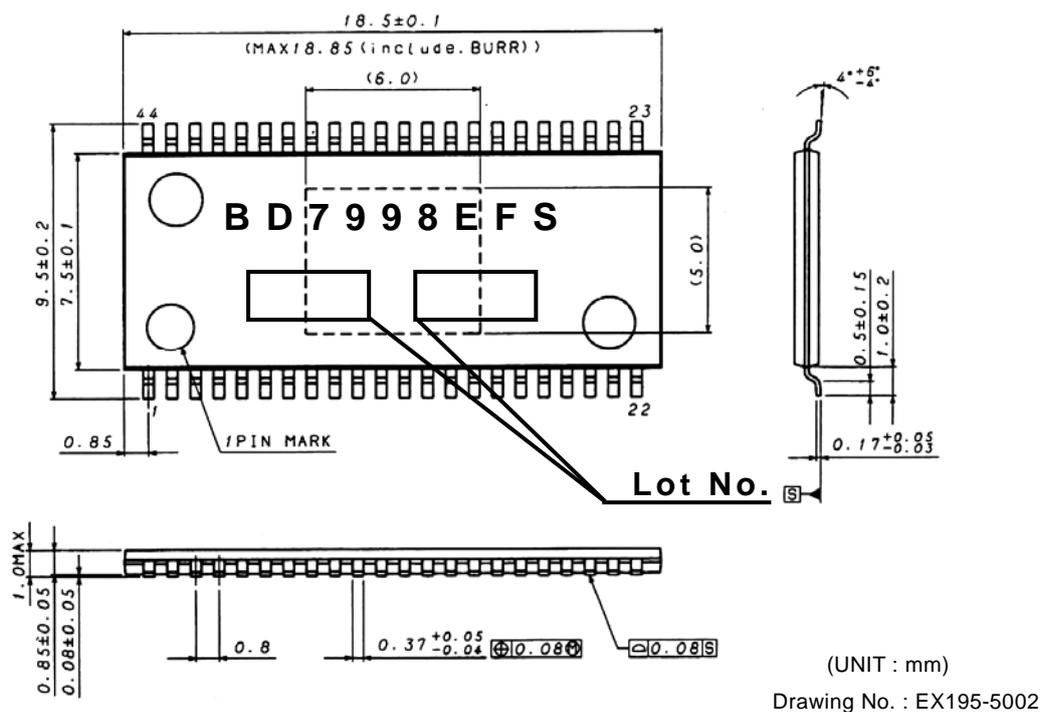
This product isn't designed for protection against radioactive rays.

○Electrical characteristics

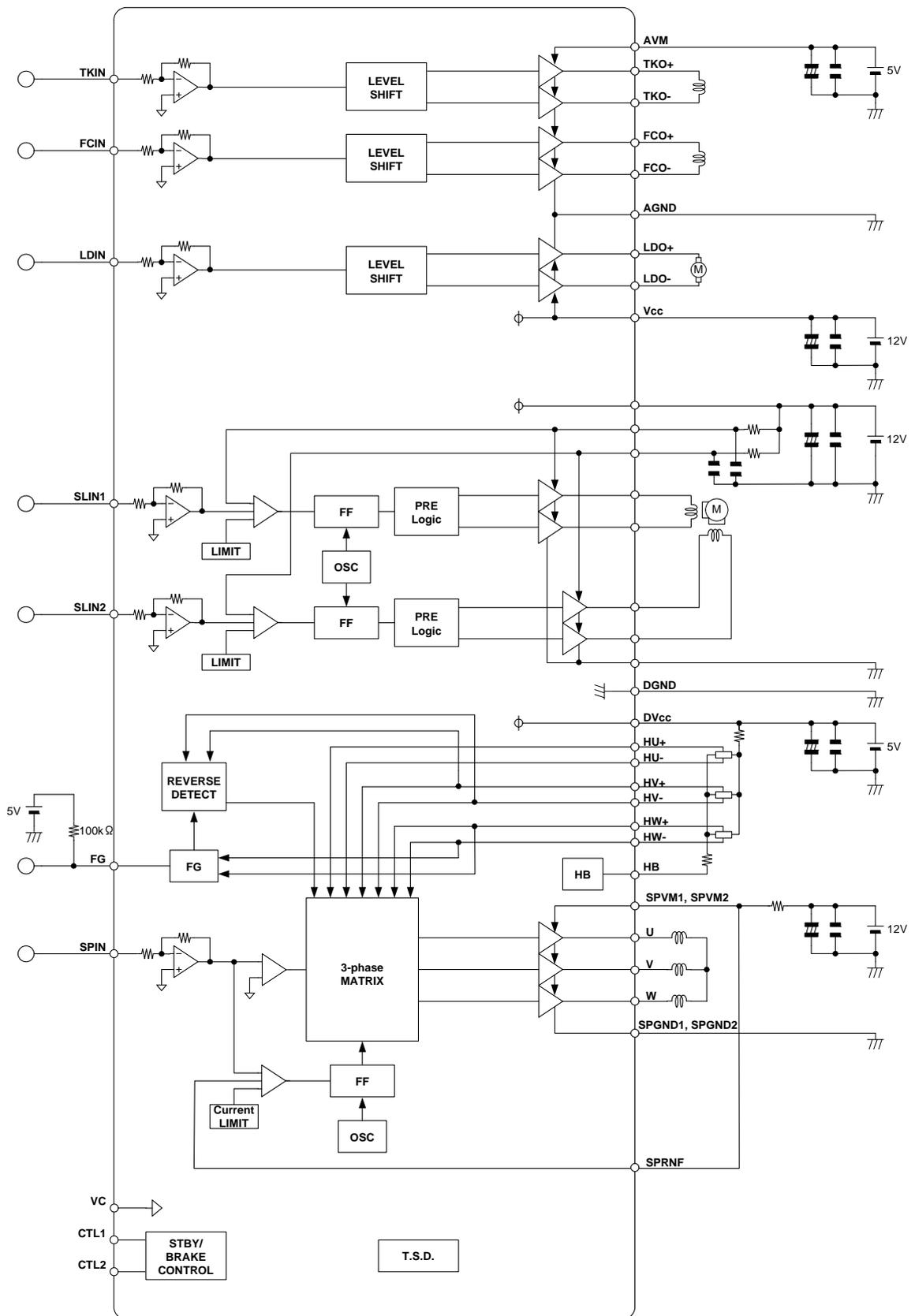
(Unless otherwise noted, Ta=25°C, Vcc=SPVM=SLVM=12V, DVcc=AVM=5V, SPRNF=0.33Ω, SLRNF=0.5Ω, VC=1.65V, RL=8Ω, RLSP=2Ω)

Parameter		Symbol	MIN.	TYP.	MAX.	Unit	Condition
Circuit current	Quiescent current1	IQ1	—	12	20	mA	Vcc (Loading OFF)
	Quiescent current2	IQ2	—	7	12	mA	Vcc (Loading ON)
	Quiescent current3	IQ3	—	2.2	4.4	mA	DVcc
	Standby-on current1	IST1	—	0.18	0.4	mA	Vcc
	Standby-on current2	IST2	—	0.18	0.4	mA	DVcc
Sled driver block	Input dead zone (one side)	VDZSL	15	40	65	mV	
	Input output gain	gmSL	0.8	1.0	1.2	A/V	SLRNF=0.5Ω
	Output On resistor (top and bottom)	RONSL	—	2.65	3.8	Ω	IL=500mA
	Output limit current	ILIMSL	0.91	1.05	1.19	A	SLRNF=0.5Ω
	PWM frequency	fosc	—	100	—	kHz	
Spindle driver block	Input dead zone (one side)	VDZSP	20	50	90	mV	
	Input output gain	gmSP	2.4	3.0	3.6	A/V	SPRNF=0.33Ω
	Output On resistor (top and bottom)	RONSP	—	0.9	1.7	Ω	IL=500mA
	Output limit current	ILIMSP	1.30	1.51	1.73	A	SPRNF=0.33Ω
	PWM frequency	fosc	—	100	—	kHz	
Actuator driver block	Output offset voltage	VOFFT	-50	0	50	mV	
	Output saturation voltage	VOFT	—	0.95	1.75	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	—	2.45	3.5	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



Block diagram / Application circuit



Notes

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