Structure Silicon Monolithic Integrated Circuit

Product series 9ch Power Driver for CD-ROM,DVD-ROM

Type BD7959EFV

Function
- The spindle driver and the SLED / SA 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	SPVM, SL/SAVM	15 #1	V
Preblock/BTL powerblock power supply voltage	Vcc, AVM	15	V
PWM control block power supply voltage	DVcc	7	V
Pick-up pull charge capacitor terminal voltage	CHG_C	15	V
Power dissipation	Pd	2.0 #2	W
Operating temperature range	Topr	-20～75	℃
Storage temperature	Tstg	-55～150	℃
Joint part temperature	Tjmax	150	℃

#1 POWER MOS output terminals (35～42, 45～47pin) is contained.
#2 Reduce power by 16mW for each degree above 25℃.

○Recommended operating conditions(Ta=-20～+75℃)

〔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 / SA motor driver powerblock Power supply voltage	SL/SAVM	—	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	5.5	V
PWM control block power supply voltage	DVcc	4.3	5.0	5.5	V
Spindle driver output current	Iosp	—	1.2	2.5#4	A
Actuator, sled / SA motor, loading motor driver output current	Ioo	—	0.5	0.8	A

#3 Set the same supply voltage to Vcc and SPVM, SL/SAVM
#4 The current is guaranteed 3.0A in case of the Short-circuit braking mode and the current which 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.

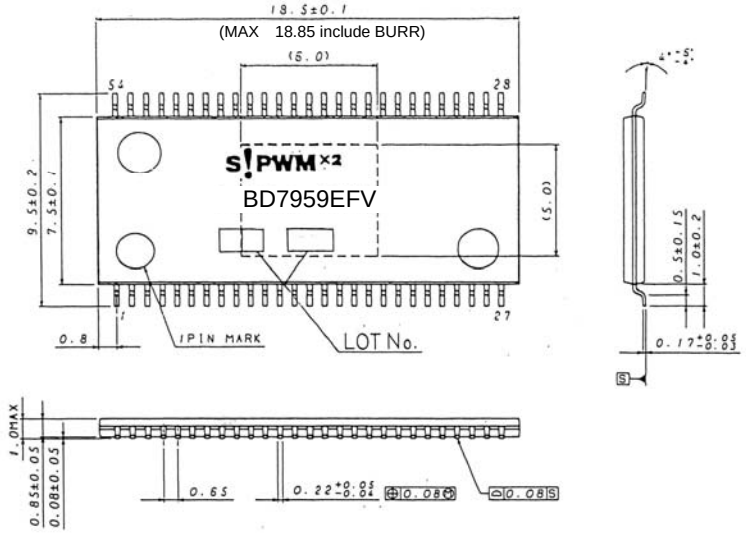
Status of this document
The Japanese version of this document is the formal specification.
A customer may use this translation version only for a reference to help reading the formal version.
If there are any differences in translation version of this document, formal version takes priority.

○Electrical characteristics

(Unless otherwise noted, Ta=25℃,Vcc=SL/SAVM=12V ,DVcc=AVM=5V ,SPRNF=0.33Ω ,RL=8Ω,RLSP=2Ω,PICKCTL=5V)

Parameter		Symbol	MIN.	TYP.	MAX.	Unit	Condition
Circuit current	Quiescent current1	IQ1	−	12	24	mA	Vcc（Loading OFF）
	Quiescent current2	IQ2	−	7	12	mA	Vcc（Loading ON）
	Quiescent current3	IQ3	−	7	12	mA	DVcc
	Standby-on current1	IST1	−	−	0.5	mA	Vcc
	Standby-on current2	IST2	−	−	1.0	mA	DVcc
Sled driver block	Input dead zone (one side)	VDZSL	0	20	80	mV	
	Input output gain	gmSL	1.0	1.25	1.5	A/V	Rin1,2=62kΩ
	Output On resistor（top and bottom）	RONSL	−	2.2	3.3	Ω	IL=500mA
	Output limit current	ILIMSL	0.84	1.2	1.56	A	
	PWM frequency	fosc	−	100	−	kHz	
SA driver block	Input dead zone (one side)	VDZSA	0	60	120	mV	
	Input output gain	gmSA	0.141	0.17	0.199	A/V	Rin1=68kΩ, Rin2=75kΩ
	Output On resistor（top and bottom）	RONSA	−	2.2	3.3	Ω	IL=200mA
	Output limit current	ILIMSA	280	400	520	mA	
	PWM frequency	Fosc	−	100	−	kHz	
Spindle driver block	Input dead zone (one side)	VDZSP	0	10	40	mV	
	Input output gain	gmSP	0.91	1.15	1.39	A/V	SPRNF=0.33Ω
	Output On resistor（top and bottom）	RONSP	−	1.5	2.6	Ω	IL=500mA
	Output limit current	ILIMSP	0.88	1.1	1.32	A	SPRNF=0.33Ω
	PWM frequency	Fosc	−	100	−	kHz	
Actuator driver block	Output offset voltage	VOFFT	-50	0	50	mV	
	Output saturation voltage	VOFT	−	0.9	1.8	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	−	2.2	2.9	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	

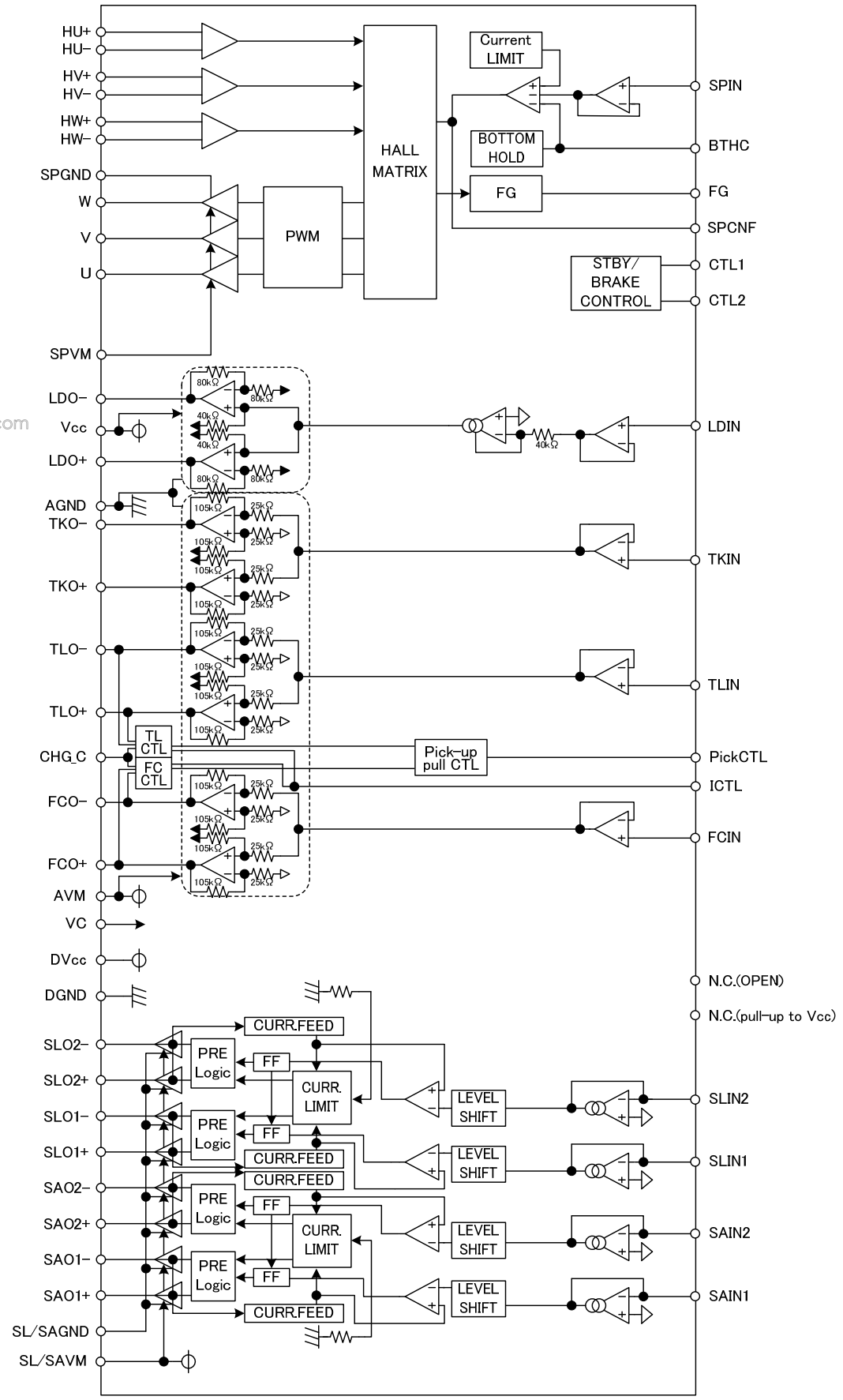
○Package outlines



HTSSOP-B54 (UNIT : mm) Figure No.; B1196

Belly metal (substrate side) heat radiation

○Block diagram



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