



# CMD4509

## 5-CH BTL Driver for DVD Player

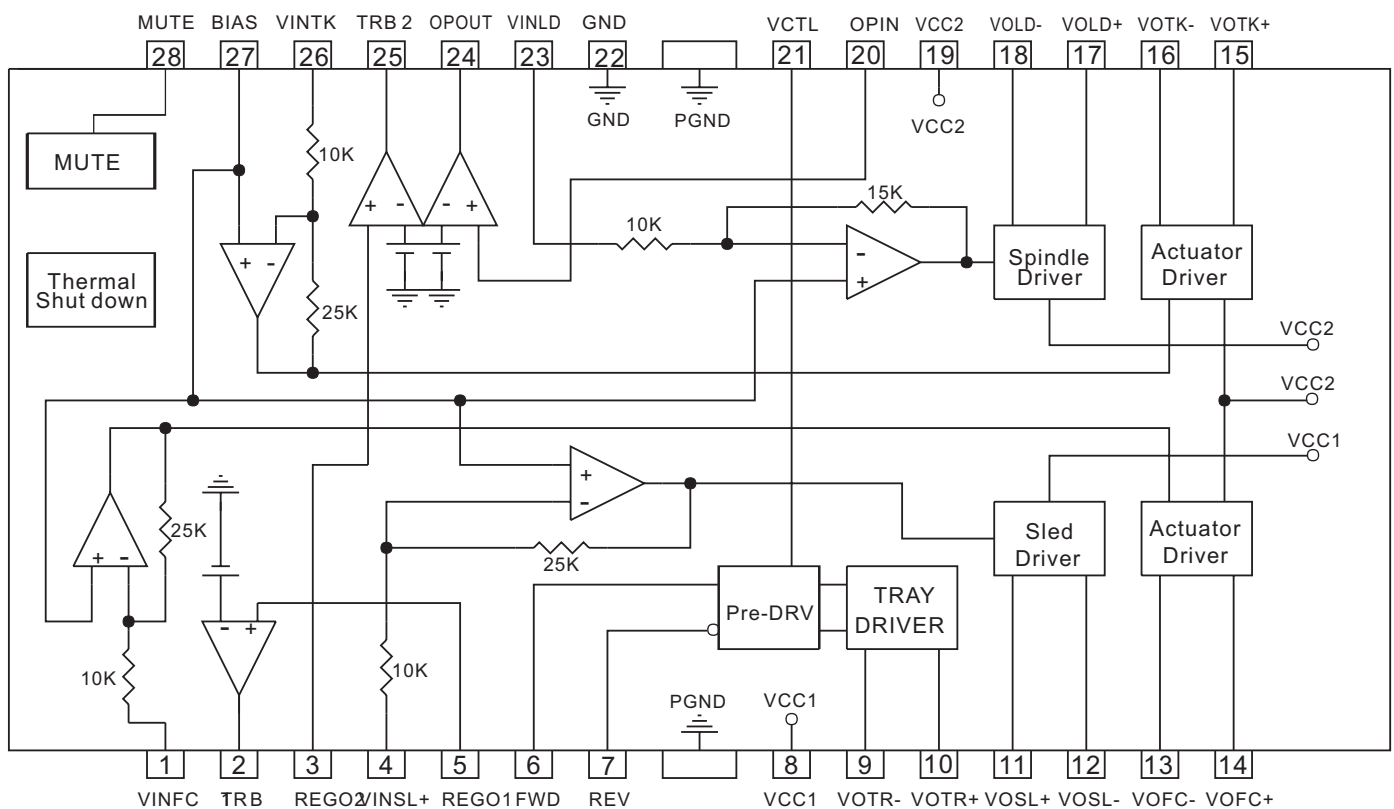
### Features

- 2-CH BTL driver
- 2-CH BTL driver with current feedback
- 1-CH forward/reverse control DC motor
- Built-in motor speed control circuit
- Built-in TSD (thermal shut down) circuit
- Built-in mute mode
- Operating supply voltage(4.5V~13.2V)

### Descriptions

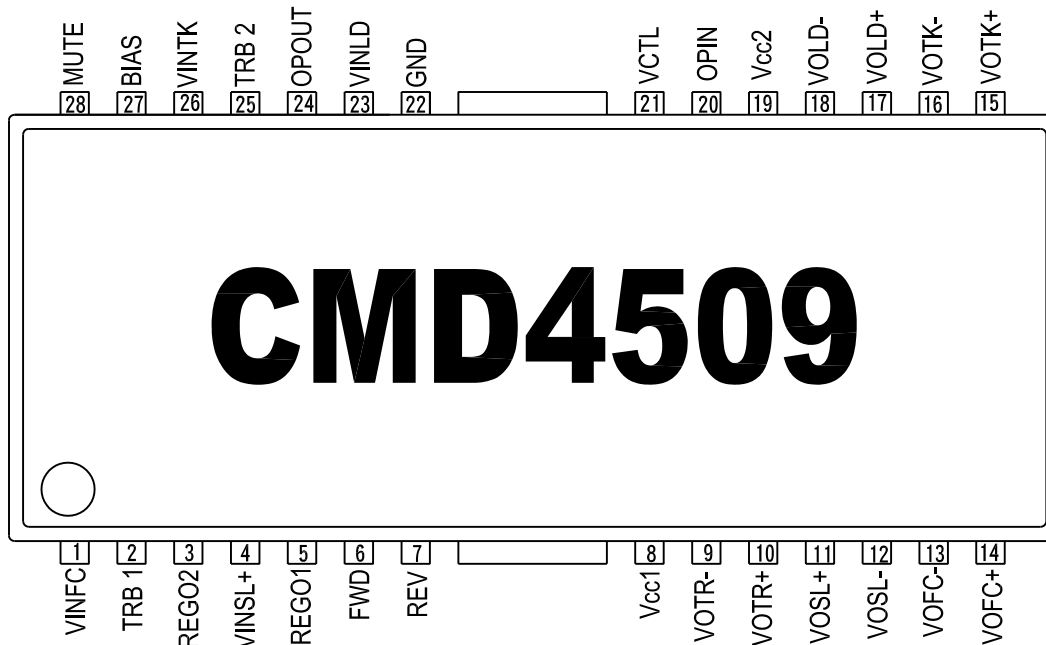
The CMD4509 is a 5-CH motor driver for CD-p/VCD/DVD systems. It is composed of 2-CH BTL driver, 2-CH driver with current feedback and 1-CH forward/reverse control DC motor driver.

### Internal Block Diagram



\* All specs and applications shown above subject to change without prior notice.

### Pin Assignments



### Pin Definitions

NO	SYMBOL	FUNCTION	NO	SYMBOL	FUNCTION
1	VINFC	Input for focus driver	15	VOTK+	Tracking driver output (+)
2	TRB 1	Connect to external transistor base	16	VOTK-	Tracking driver output (-)
3	REGO2	Regulator voltage output, connect to external transistor collector	17	VOLD+	Spindle driver output (+)
4	VINSL+	Input for the sled driver	18	VOLD-	Spindle driver output (-)
5	REGO1	Regulator voltage output, connect to external transistor collector	19	Vcc2	Vcc for power block of spindle, tracking and focus
6	FWD	Tray driver forward input	20	OPIN	Comparator input
7	REV	Tray driver reverse input	21	VCTL	Speed control input of tray driver
8	Vcc1	Vcc for pre-drive block and power block of sled and tray	22	GND	Ground
9	VOTP-	Tray driver output (-)	23	VINLD	Input for spindle driver
10	VOTR+	Tray driver output (+)	24	OPOUT	Comparator output
11	VOSL+	Sled driver output (+)	25	TRB 2	Connect to external transistor base
12	VOSL-	Sled driver output (-)	26	VINTK	Input for tracking driver
13	VOFC-	Focus driver output (-)	27	BIAS	Input for reference voltage
14	VOFC+	Focus driver output (+)	28	MUTE	Input for mute control

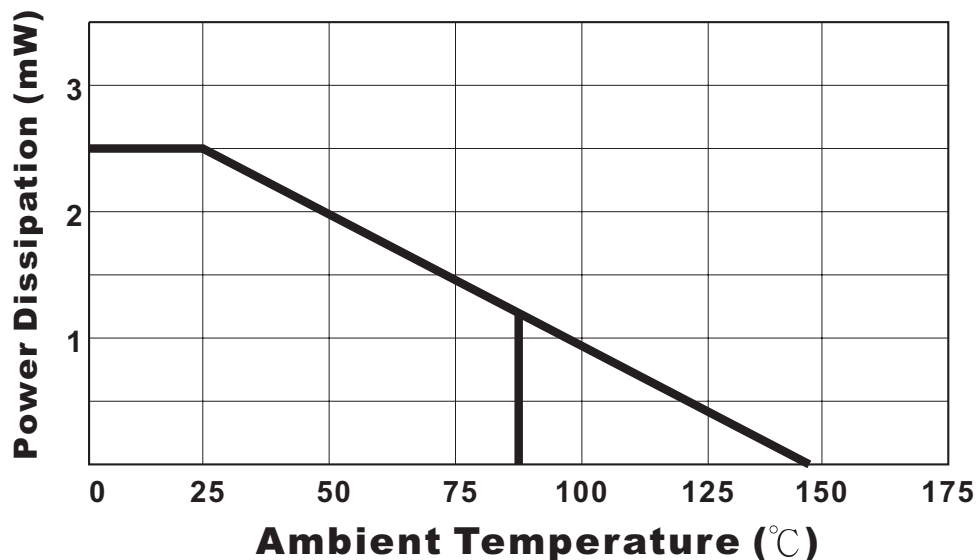
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**5-CH BTL Driver for DVD Player**
**Absolute Maximum Rating(Ta=25 )**

CHARACTERISTICS	SYMBOL	LIMITS	UNIT
Supply voltage	Vcc1 Vcc2	13.5	V
Power dissipation	Pd	*1.7	W
Operate Temp range	Topr	-35~+85	
Storage Temp range	Tstg	-55~+150	

Note:

1. When mounted on 50mm x 50mm x 1mm PCB ( Phenolic resin material).
2. Power dissipation reduces 20mW/ for using above Ta=25 .
3. Do not exceed Pd and SOA

**Power Dissipation Curve**

**Recommended Operating Conditions**

CHARACTERISTICS	SYMBOL	LIMITS	UNIT
Supply voltage	Vcc1	4.3~13.2	V
	Vcc2	4.3~Vcc1	V

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**5-CH BTL Driver for DVD Player**
**Electrical Characteristics**

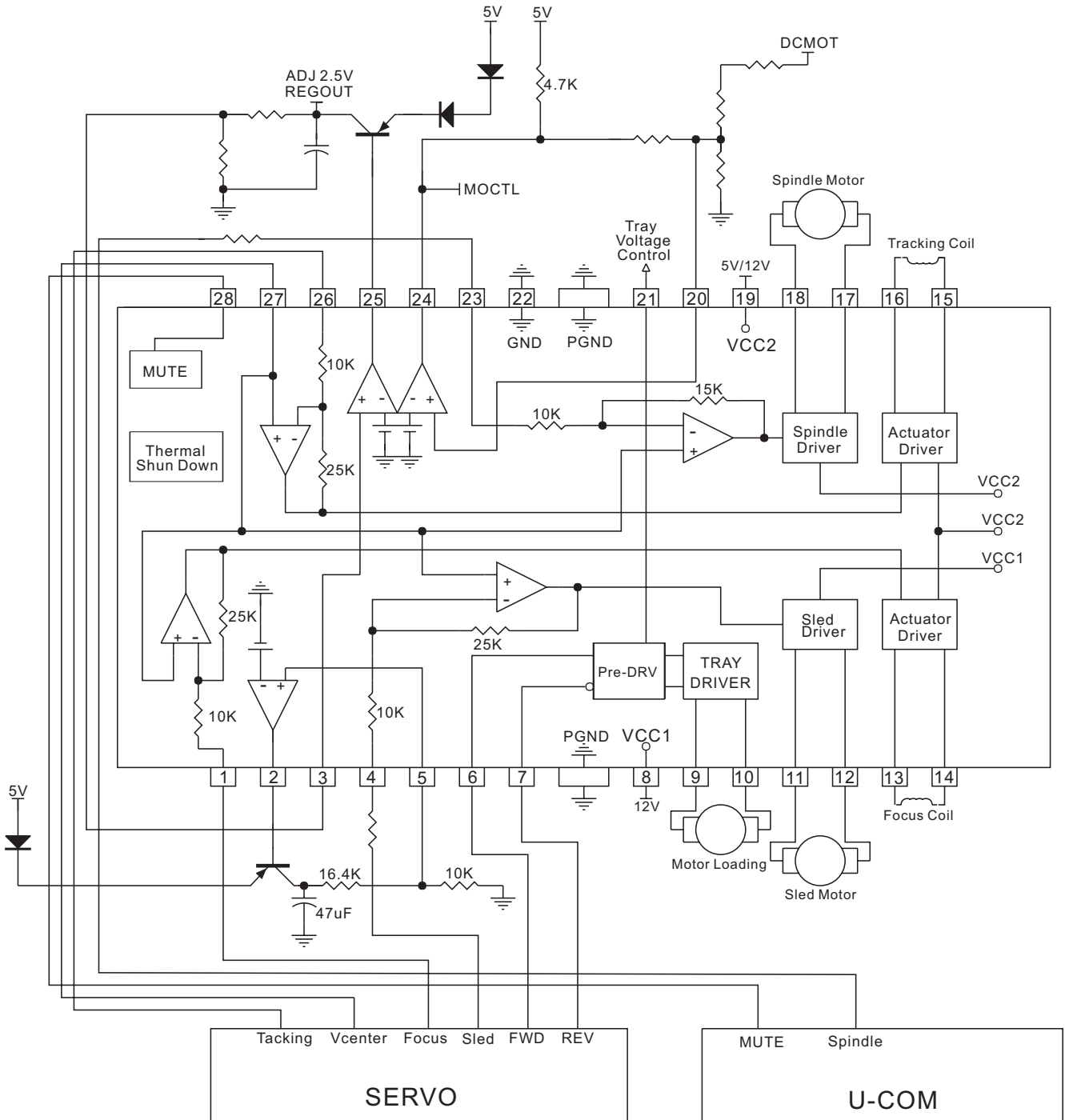
 (VCC1=8V, VCC2=5V, BIAS=2.5V, f=1kHz, RL=8 $\Omega$ , RS=0.5 $\Omega$ , Ta=25 $^{\circ}$ C unless otherwise specified)

Characteristics	Symbol	Conditions	Limit			Unit
			Min	Typ.	Max	
Quiescent current	Icc		-	30	-	mA
Voltage for mute ON	Vston		0	-	0.5	V
Voltage for mute OFF	Vstoffs		2.0	-	5	V
<b>[Actuator Part]</b>						
Output offset voltage	Voo		-	-	+50	mV
Maximum output voltage	Vom	@10 $\Omega$ Load	3.6	4.0	-	V
Voltage gain	Gv	VIN=BIAS+0.2Vpp ac @1KHz	21.5	23.5	25.5	dB
<b>[Sled Part]</b>						
Output offset voltage	Voofsl		-	-	+100	mV
Maximum output voltage	Vomsl	@20 $\Omega$ Load	7.5	9.0	-	V
Closed loop voltage gain	Gvsl	VIN=BIAS+0.2Vpp ac @1KHz	18	20	22	dB
<b>[Spindle Part]</b>						
Output offset voltage	Voofd		-	-	+50	mV
Maximum output voltage	Vomax	@8 $\Omega$ Load	-	3.5	-	V
Voltage gain	Gvld	VIN=BIAS+0.2Vpp ac @1KHz	13.3	15.5	17.5	dB
Gain error by polarity	Gvld	VIN=BIAS+0.2Vpp ac @1KHz	0	1	2	dB
<b>[Tray Driver Part]</b>						
Output saturation voltage 1	Vsat1	Upper + Lower saturation, IL=200mA	0.7	1.1	1.5	V
Output saturation voltage between F&R	Vsat1	Output saturation voltage 1 between FWD and REV	-	-	0.1	V
Output saturation voltage 2	Vsat2	Upper + Lower saturation, IL=500mA	1.0	1.55	2.2	V
Output adjustable gain on "H" side voltage	VvtrH	VCTL=2V	7.4	9.2	11	dB
High level input voltage	VIH		1.5	-	Vcc	V
Low level input voltage	VIL		-0.3	-	0.5	V
High level input current	IiH	VFWD=VREV=5V	-	180	270	$\mu$ A
<b>[Regulator]</b>						
Output voltage	Vreg	IL=500mA	1.5		4.0	V
Output load differential	$\sim$ VRL	IL=500mA	-50	0	50	mV
Power supply voltage differential	$\sim$ VVCC	(Vcc=4.5~8V) IL=500mA	-25	0	25	mV

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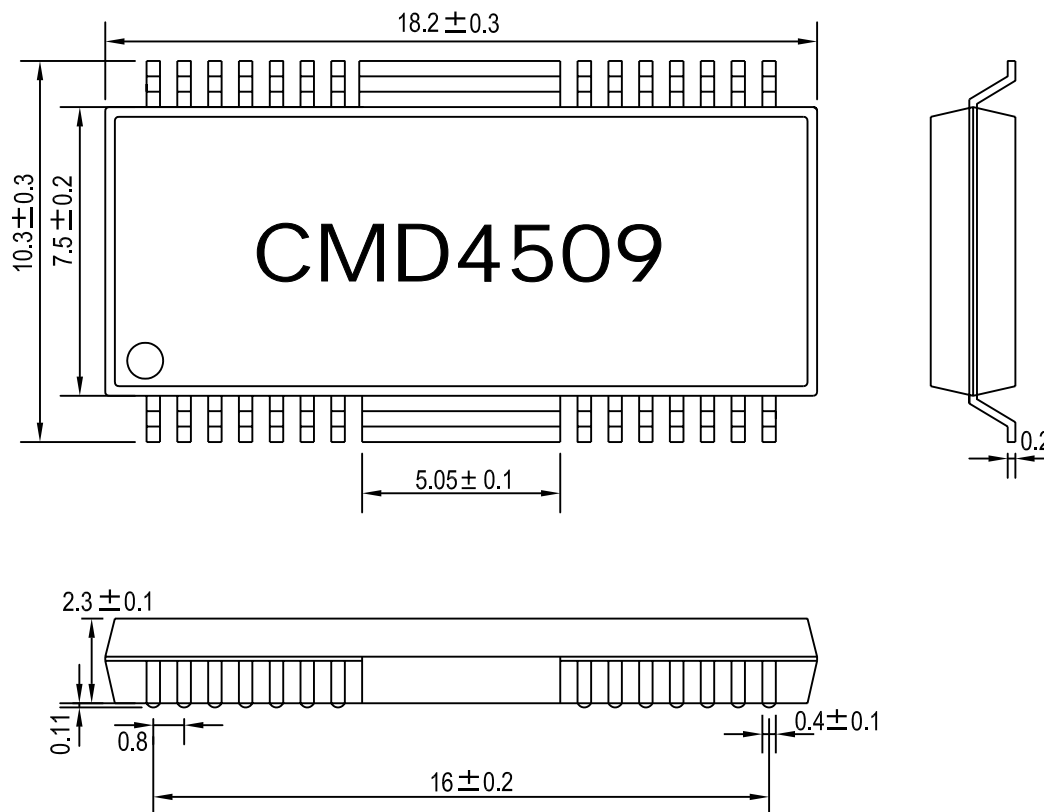
### Application Circuit



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### Mechanical Dimensions

Package: HSOP-28



Unit: mm

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