

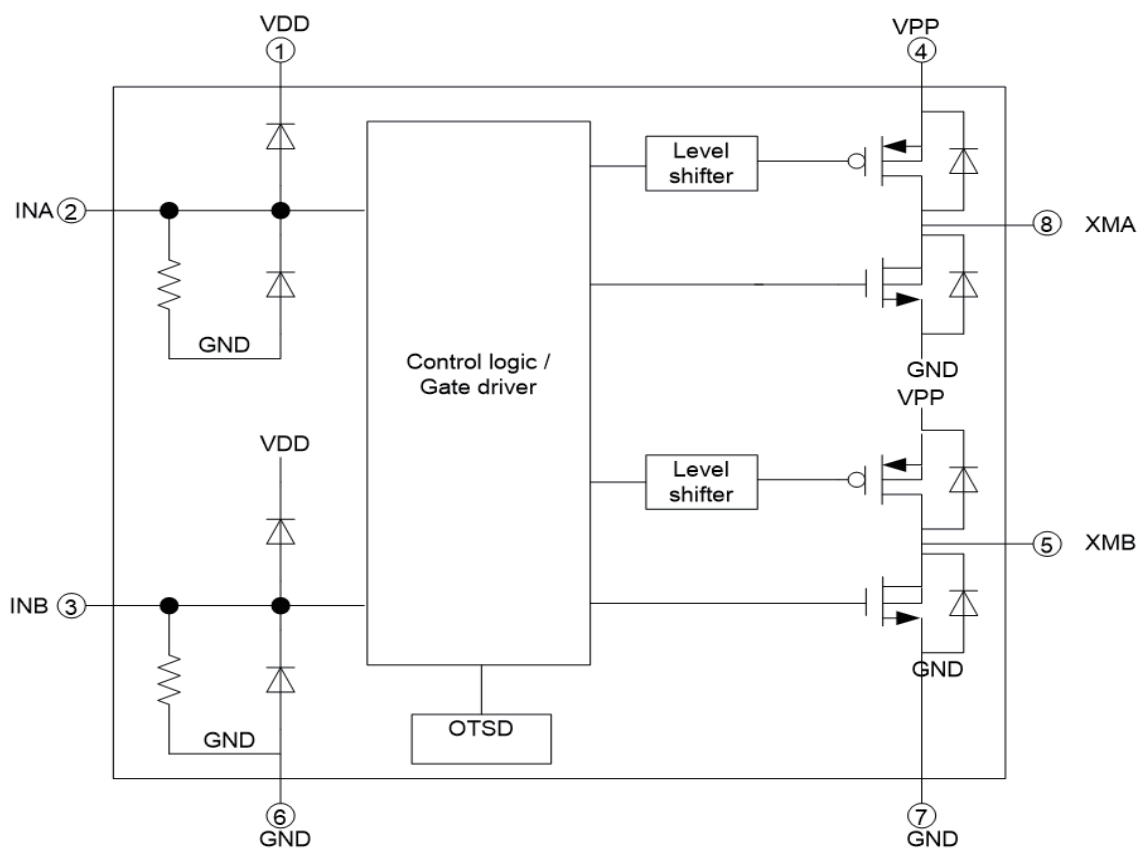
## FEATURES

- ★ Wide operation voltage: VDD = 2.2V to 10V (2 to 6 AA or AAA batteries)
- ★ Logic operating voltage range: VDD = 2.2V to 6V
- ★ Low standby current : 0.1uA (typical) @ VDD=5V
- ★ Low on resistance ~ 0.27ohm(SOP8)
- ★ ESD 6KV(HBM)
- ★ Over-temperature protection(OTSD)

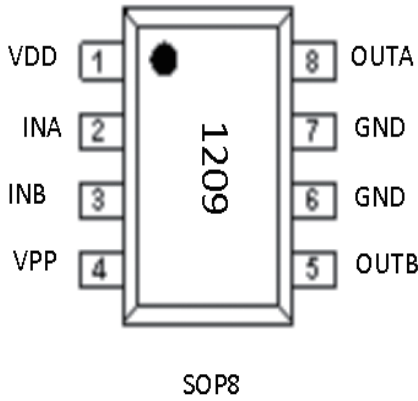
## GENERAL DESCRIPTON

1209 is a single-channel DC motor driver designed by COMS technology. It integrates H bridge circuit inside. Through different input logic of two signal input terminals, It can realize four functions of motor including positive rotation, reverse rotation, brake and standby. Mainly for toys, electric toothbrush, intelligent lock and other consumer motor applications.

## BLOCK DIAGRAMS



PIN ASSIGNMENT

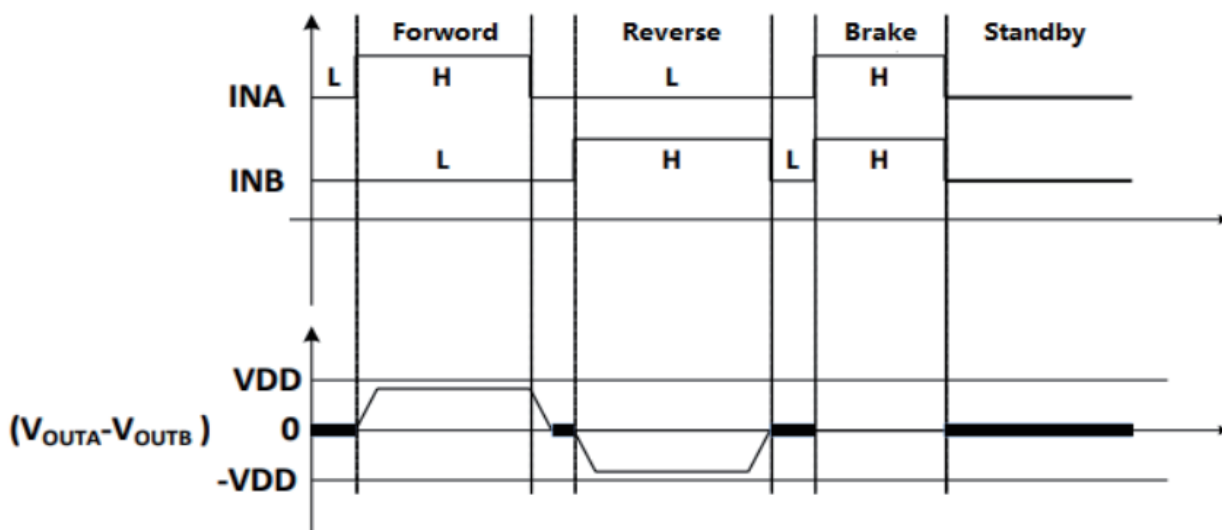


PIN	SYMBOL	I/O	DESCRIPTION
1	VDD	---	Logic power supply
2	INA	I	Signal input A
3	INB	I	Signal input B
4	VPP	---	Motor power supply
5	OUTB	O	Output B
6	GND	---	Ground
7	GND	---	Ground
8	OUTA	O	Output A

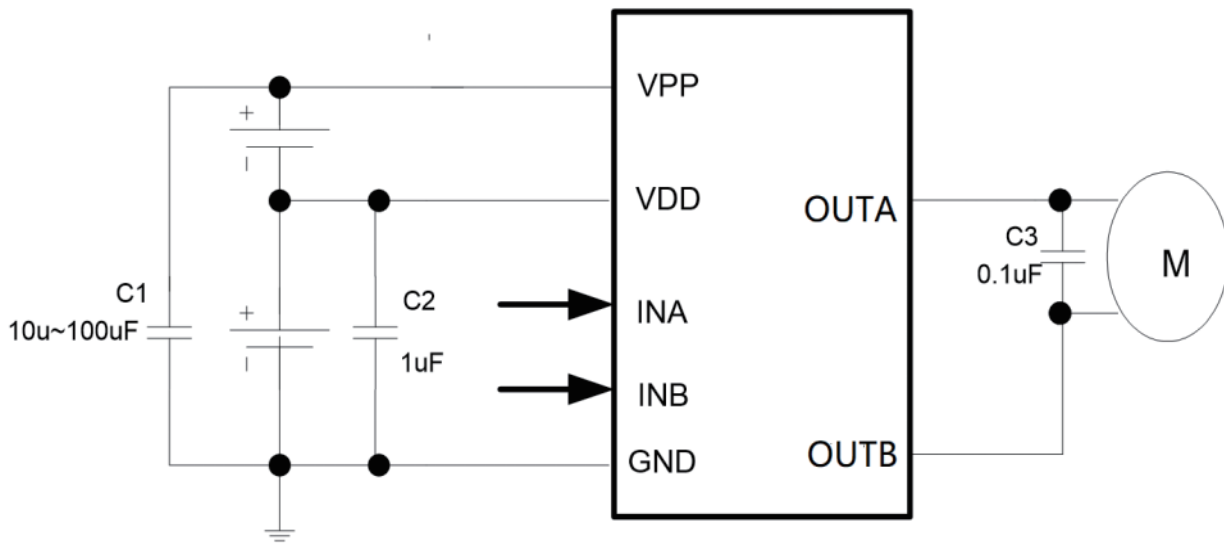
Diode Characteristics

INA	INB	OUTA	OUTB	FUNCTION
L	L	Hi-Z	Hi-Z	STANDBY
L	H	L	H	REVERSE
H	L	H	L	FORWARD
H	H	L	L	BRAKE

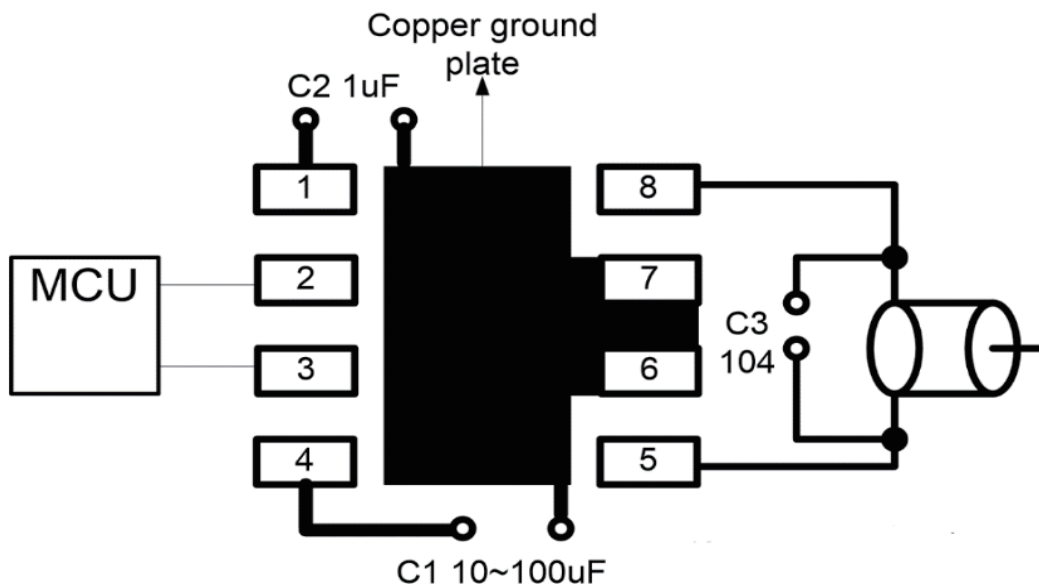
TYPICAL INPUT DIAGRAM



TYPICAL APPLICATION



LAYOUT GUIDELINE



- \*C1 must close to 1209
- \*C1 if the voltage is higher than 6V, electrolytic capacitor must be used (stepless SMD capacitor cannot be used)
- \*C3 must be welded directly to the motor
- \*The higher VPP voltage, the larger C1 capacity

## Absolute Maximum Ratings

Parameter	SYMBOL	Condition	MAX	Unit
Power supply	VPP	motor	10V	V
Logic Power supply	VDD	motor	6V	V
Logic input voltage			VSS-0.3~VDD+0.3	V
Power dissipation (S08C)	Pd		1.2	W
Output peak current	Ipeak	VPP=6.5V	3.5*	A
Continuous output current (S08C)	Icon		2.2	A
Operation temperature	Top		-20~60*	°C

\* The higher the ambient temperature, the lower the output continuous current

Note:

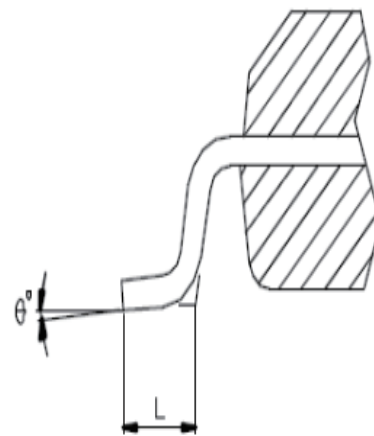
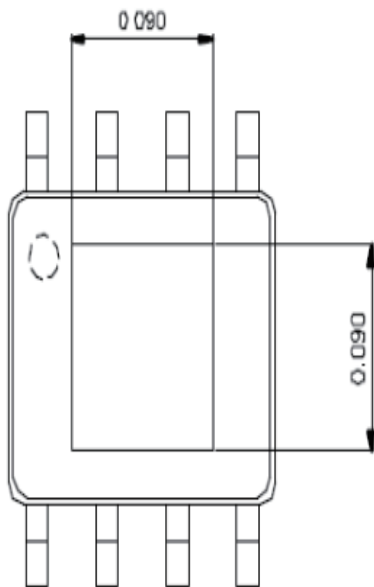
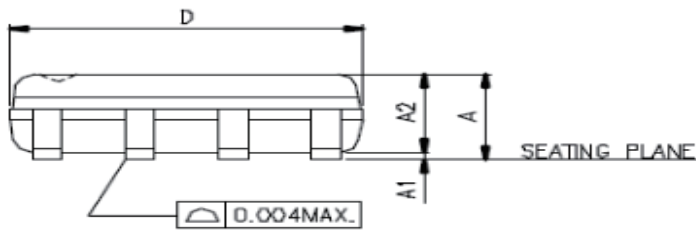
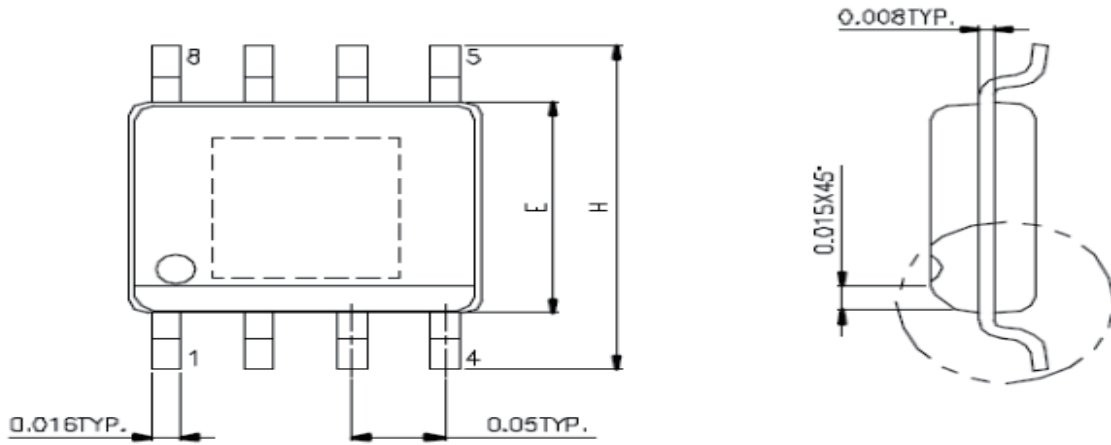
Motor lock-rotor has different peak current because of different motors. If the peak current of motor lock-rotor is too large, it may burn IC

## Electrical Characteristics (VDD=6V, T=25°C)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
VPP	operation range	INA/INB, VDD=5V	1.8	-	8.5	V
VDD	operation range	motor, -20 ~ 60 °C	2	-	6	V
IIM	Input resistance	INA/INB, VDD=5V	-	100	-	KΩ
IF	Input frequency		-	100	-	Hz
IDD	Input current	No load, Input = 5V	-	500	-	uA
ISB	Standby current	standby mode INA=INB=0 > 10ms	-	0.1	0.5	uA
R <sub>on</sub>	Output on resistance(S08C)	I <sub>LOAD</sub> =1000mA	-	0.27	-	Ω
Vih	Input logic high voltage	VDD=5V	-	1.8	-	V
Vil	Input logic low voltage	VDD=5V	-	1	-	V
T <sub>OTSD</sub>	Thermal shutdown temperature	VDD=5V	-	150	-	°C
H <sub>OTSD</sub>	Thermal shutdown hysteresis		-	50	-	°C

PACKAGE INFORMATION

8-PIN SOP 150Mil



E.P. VERSION ONLY



Symbols	Dimension In INCH	
	Min.	Max.
A	0.053	0.069
A1	0.004	0.01
A2	-	0.059
D	0.189	0.196
E	0.15	0.157
H	0.228	0.244
L	0.016	0.05
$\theta^\circ$	$0^\circ$	$8^\circ$