



圓創科技股份有限公司

# AT5608

## Bi-directional Motor Driver

### Features

- Built-in brake function.
- Built-in diode to absorb surge currents.
- Low standby circuit current .
- Wide range of operating supply voltage (4.5~13.5V).
- Interfaces with the TTL logic.

### Description

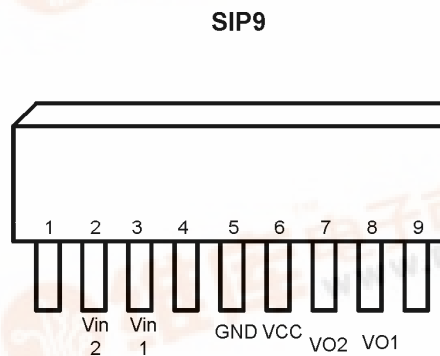
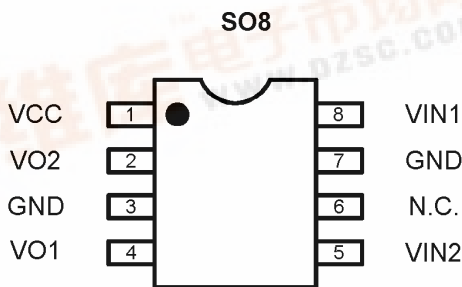
The AT5608 is a monolithic integrated circuit designed for driving bi-directional DC motor.

It has two pins of logic input for controlling the forward/reverse and braking, which can supply an output current of up to 100mA (typical) according to the logic control.

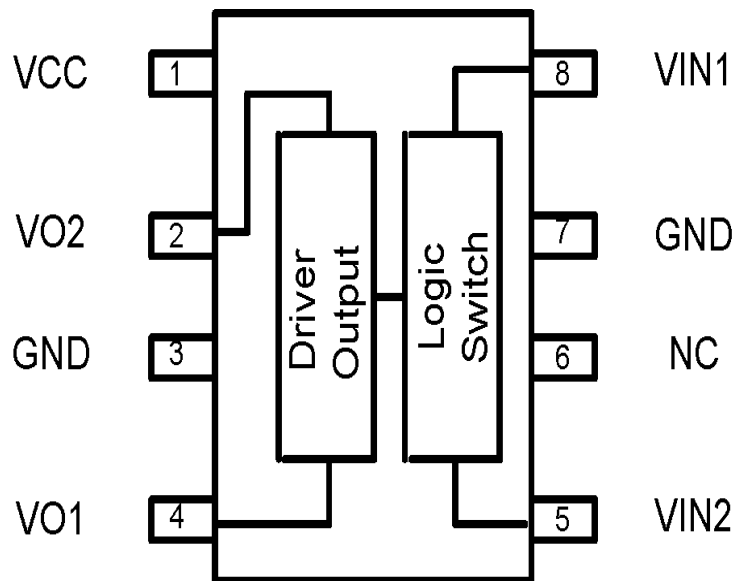
### Applications

DVD and VCD player tray driver.

### Pin Configuration



**Circuit Configuration**



**Pin Descriptions**

Pin No.		Pin name	Function
SO8	SIP9		
1	6	VCC	Power supply
2	7	VO2	Motor output2
3	5	GND	GND
4	8	VO1	Motor output1
5	2	VIN2	Logic input2
6	1,4,9	N.C.	N.C.
7	5	GND	GND
8	3	VIN1	Logic input1

**Absolute maximum ratings (Ta = 25°C)**

Parameter	Symbol	Limits	unit
Power supply voltage	V <sub>CC</sub>	13.5	V
Power dissipation	P <sub>d</sub>	450*	mW
Operating temperature	T <sub>opr</sub>	-20~+60	°C
Storage temperature	T <sub>stg</sub>	-55~+125	°C
Maximum output current	I <sub>OUT</sub>	500	mA

\* Reduce by 13.5 mW for each increase in T<sub>a</sub> of 1°C over 25°C.

**Recommended operating conditions (Ta = 25°C)**

Parameter	Symbol	Limits	unit
Power supply voltage	V <sub>cc</sub>	4.5~12	V

**Input truth table**

VIN1(8pin)	VIN2(5pin)	VO1(4pin)	VO2(2pin)
H	L	H	L
L	H	L	H
H	H	L	L
L	L	OPEN	OPEN

\*:HIGH level input is 2.0V or more

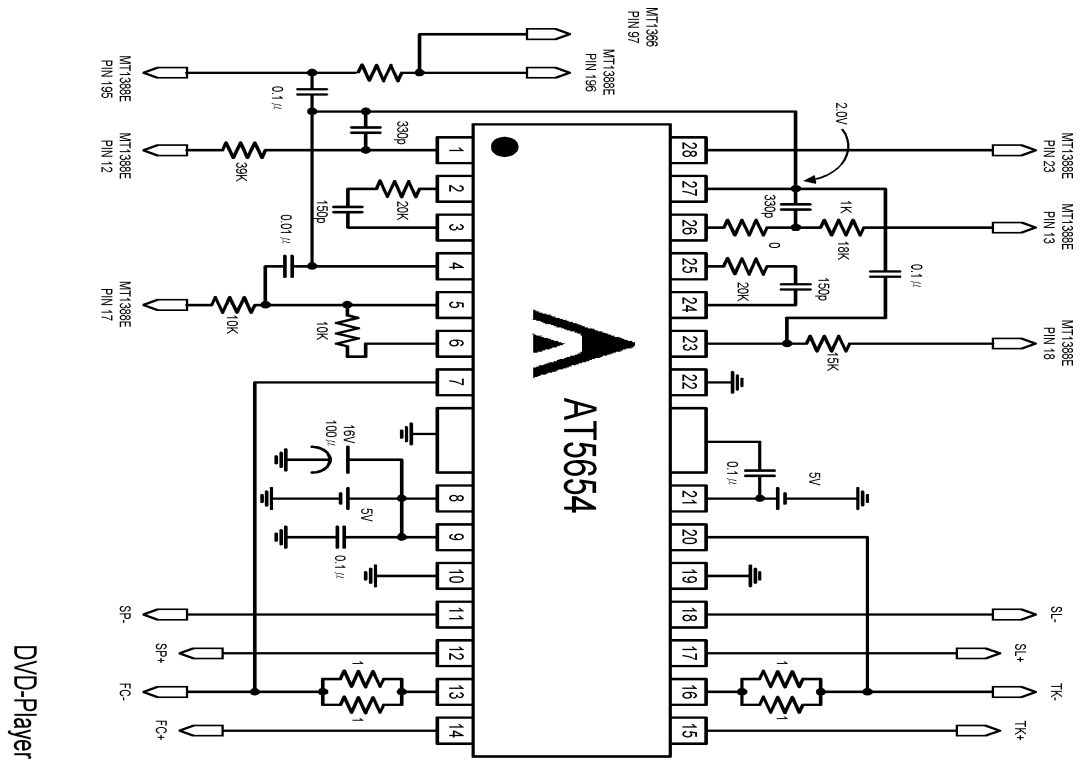
LOW level input is 0.8V or less.

**Electrical characteristics (unless otherwise noted, Ta = 25°C and V<sub>CC</sub> = 9V)**

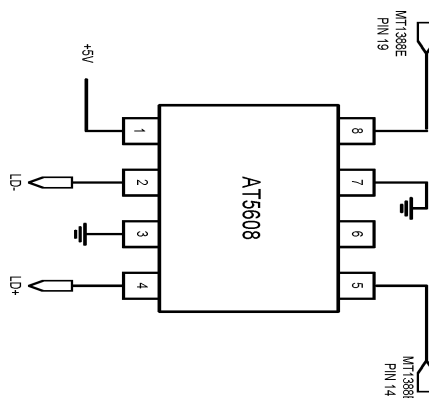
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Standby supply current	I <sub>ST</sub>	-	-	0.4	mA	When inputs VIN1 and VIN2 are both "L" level
Output current	I <sub>O</sub>	200	-	-	mA	
Output saturation voltage	V <sub>CE</sub>	-	-	1.7	V	I <sub>O</sub> =100mA
Input high level voltage	V <sub>IH</sub>	2.0	-	-	V	
Input high level voltage	V <sub>IL</sub>	-	-	0.8	V	
Input high level current	I <sub>IH</sub>	-	-	400	μA	V <sub>IH</sub> =4.5V

A diode that absorbs at least 500 mA is built in to give protection against surge currents with a pulse width of 10 ms and a duty ratio of 10% or less.

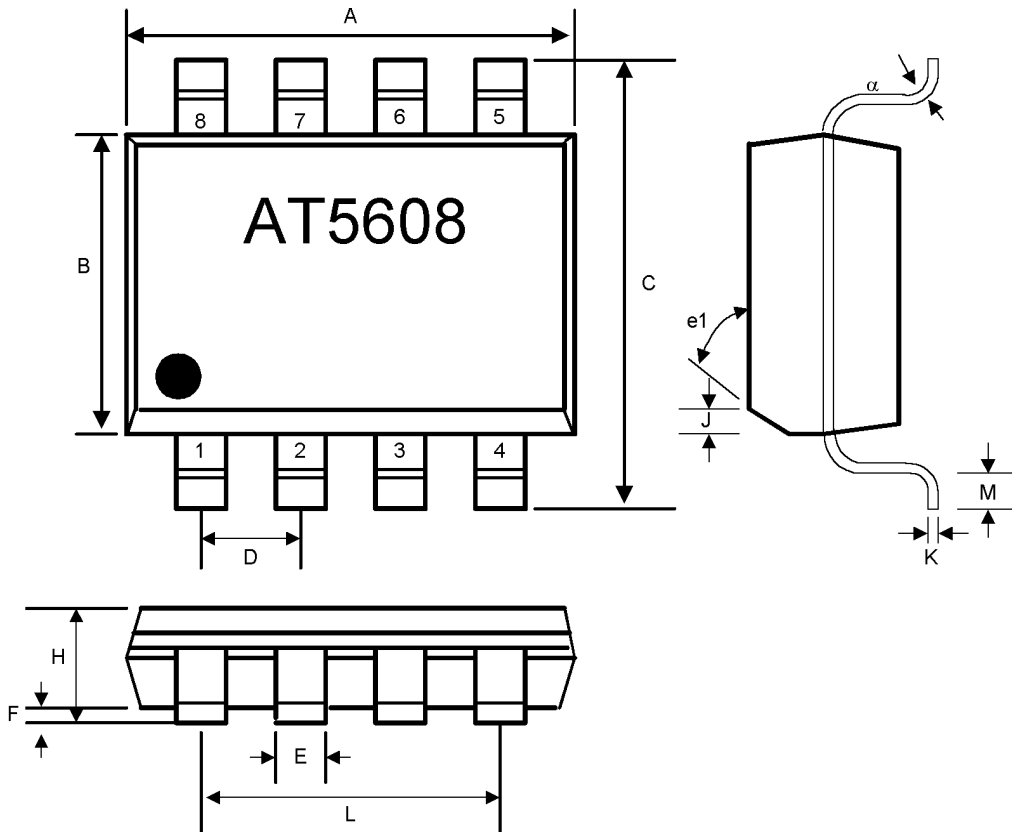
**Application Circuit**



DVD-Player

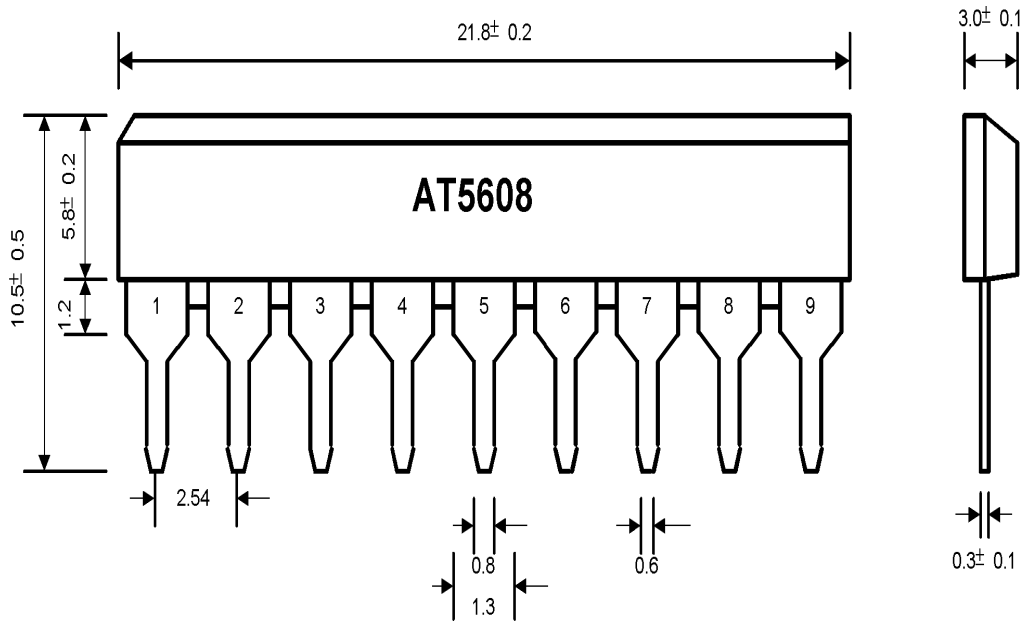


**Package Outline SOP-8**



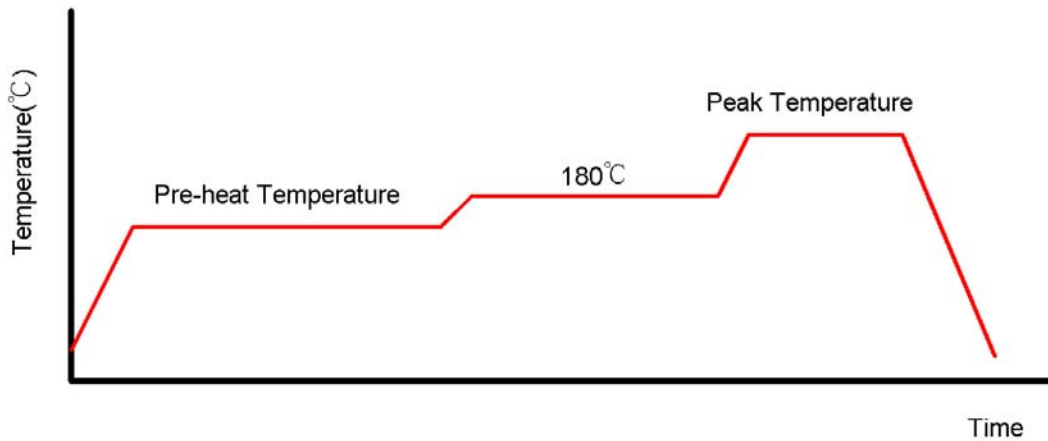
SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN	MAX	MIN	MAX	
A	0.188	0.197	4.80	5.00	-
B	0.149	0.158	3.80	4.00	-
C	0.228	0.244	5.80	6.20	-
D	0.050	BSC	1.27	BSC	-
E	0.013	0.020	0.33	0.51	-
F	0.004	0.010	0.10	0.25	-
H	0.053	0.069	1.35	1.75	-
J	0.011	0.019	0.28	0.48	-
K	0.007	0.010	0.19	0.25	-
M	0.016	0.050	0.40	1.27	-
L	0.150	REF	3.81	REF	-
e1	45°		45°		-
alpha	0°	8°	0°	8°	-

**Package Outline SIP-9**



**Reflow Condition (IR/Convection or VPR Reflow)**

Reference JEDEC Standard J-STD-020A



**Classification Reflow Profiles**

	Convection or IR/Convection	VPR
Average Heating Rate(180°C to peak)	5°C/second max.	10°C/second max.
Preheat Temperature(125±20°C)	120 seconds max.	
Temperature maintained above 180°C	10~150 seconds	
Time within 5°C of actual Peak Temperature	10~20 seconds	60 seconds
Peak Temperature Range(Note 1)	219~225°C or 235~240°C	219~225°C or 235~240°C
Cooling Rate	6°C /second max.	10°C/second max.
Time 25°C to Peak Temperature	6 minutes max.	

\*1 The maximum peak temperatures for IR and VP reflow are depending on package dimensions.

**Package Reflow Conditions**

Pkg. Thickness ≥2.5mm and all bags	Pkg. Thickness <2.5mm and Pkg. Volume ≥350 mm <sup>3</sup>	Pkg. Thickness <2.5mm and Pkg. Volume <350 mm <sup>3</sup>
Convection 219~225°C		Convection 235~240°C
VPR 219~225°C		VPR 235~240°C
IR/Convection 219~225°C		IR/Convection 235~240°C