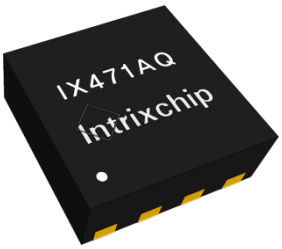
■ Description

The IX471AQ is a monolithic IC for low-saturation bi-directional low cost and high efficiency miniature DC motor or stepper motor applications, such as driving shutter (DC actuator), on cameras, vibration on mobile phone and other motor applications on portable devices.

NOTE: Intrixchip Pb-free plus anneal products employ special Pb-free material sets; molding compounds/die attach materials and 100% matte tin plate termination finish, which are RoHS compliant and compatible with both SnPb and Pb-free soldering operations. Intrixchip Pb-free products are MSL classified at Pb-free peak reflow temperatures that meet or exceed the Pb-free requirements of IPC/JEDEC J STD-020.

■ Package Outline



8-pin DFNWB (2㎜ x 2㎜) package

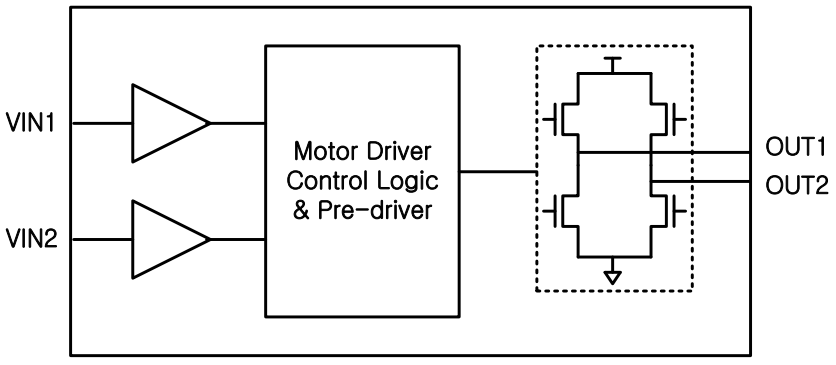
■ Features

- Typical input voltage range of 3.0 to 5.0 V
- brake modes for DC motors
- Low Voltage Current
- Available in 8-pin DFNWB (2 X 2) package

■ Applications

- Camera Lens / Shutter control
- DSC Camera Lens
- Robotic actuators and pumps
- Battery powered toys and games

■ Block Diagram



Absolute Maximum Ratings (TA = 25°C)

VCC Supply 6.0V
Pin Voltages. . . . . -0.5V to VCC +0.5V
Operating Ambient Temperature Range . . . . . .-40°C to +85°C
Operating Junction Temperature . . . . . 150°C
Storage Temperature . . . .-30°C to +125°C
Power Dissipation 400mW

CAUTION: Stresses above those listed in "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied.

Power Supply Specifications

PARAMETER	DESCRIPTION	MIN	TYP	MAX	UNIT
VCC	Motor Driver Power	3.0	5	5.5	V

1. 2. 2CH Bridge Motor Driver

1.1 Electrical Specifications VCC = 3.0 to 5V, TA = 25°C

PARAMETER	DESCRIPTION	MIN	TYP	MAX	UNIT
Output On Resistance	Source Driver, VCC=3V, IOUT=200mA	-	1.6	-	ohm
	Source Driver, VCC=5V, IOUT=200mA	-	1.2	-	ohm
	Sink Driver, VCC=3V, IOUT=200mA	-	1.4	-	ohm
	Sink Driver, VCC=5V, IOUT=200mA	-	1.2	-	ohm
Operating Voltage Range		3.0	5.0	5.5	V
Motor Supply Current	At PWM 20kHz	-	0.5	-	mA
Logic Input voltage	Logic 'high'	VCC/2	-	-	V
	Logic 'low'			0.5	V
Logic Input Current	Logic 'high'		< 50		nA
	Logic 'low'		< -50		nA
Propagation Delay	Sink and source 'ON'		80		ns
	Sink and source 'OFF'		40		ns
Sleep Mode Current			< 100	800	nA

1.2 Functional Description

The IX471AQ is a dual full-bridge low voltage motor driver. It is capable of operating two DC motors.

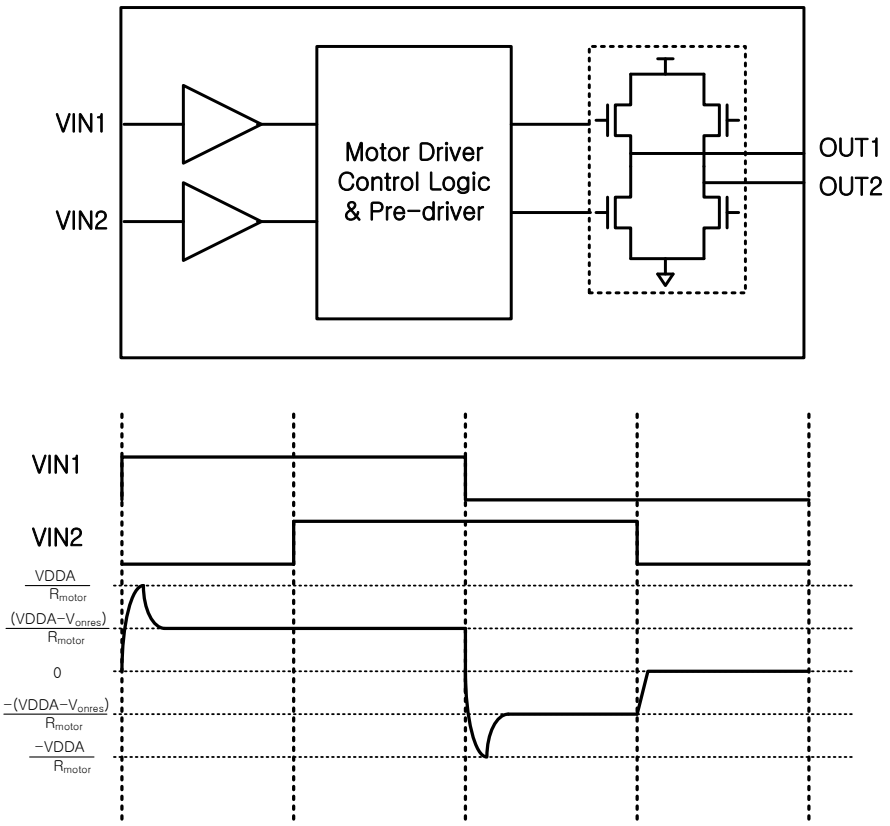
1.3 Motor Operation Truth Table

VIN1	VIN2	OUT1	OUT2	MODE
0	0	OFF	OFF	Hi-Z
1	0	H	L	Forward
0	1	L	H	Reverse
1	1	L	L	Brake

[1]0 = logic low, VINx< VIN(0)(max); 1 = logic high, VINx> VIN(1)(min)
[2]H = voltage high, source driver on; L = voltage low, sink driver on

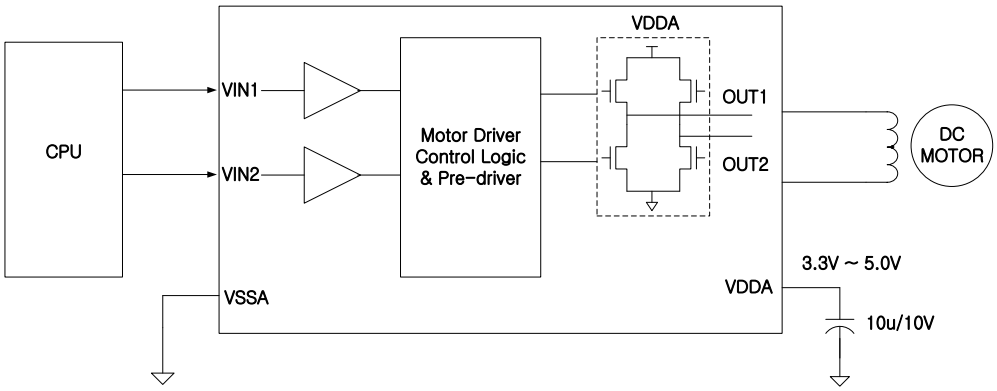
1.4 Application Information

1) Typical control application.



Note.1 Typical DC motor control application timing chart.

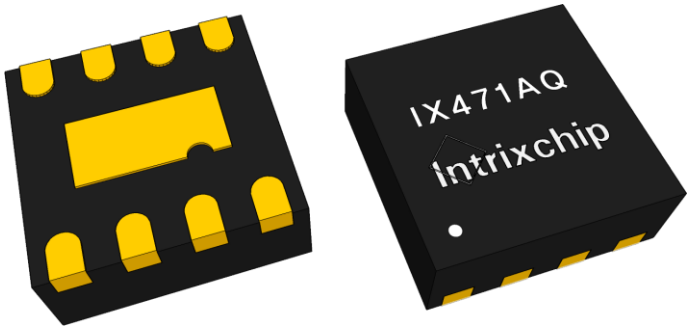
2) Typical Single DC motor control application.

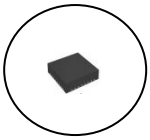


Note.2 Either VIN1 or VIN2 can be used to Drive OUT1 and OUT2.

2. Pin Descriptions

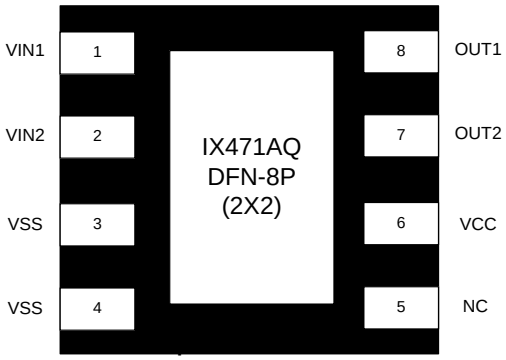
2.1 Approximate Scale





Approximate Scale 1:1

2.2 Pin Configuration

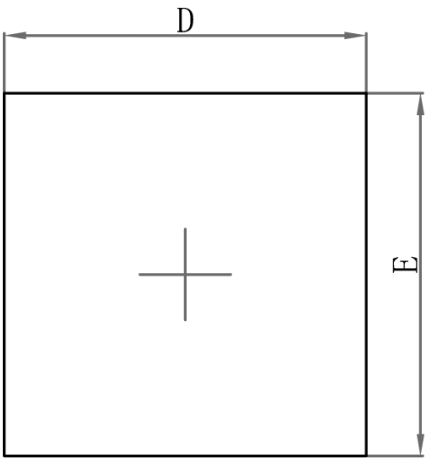


2.3 Pin Descriptions

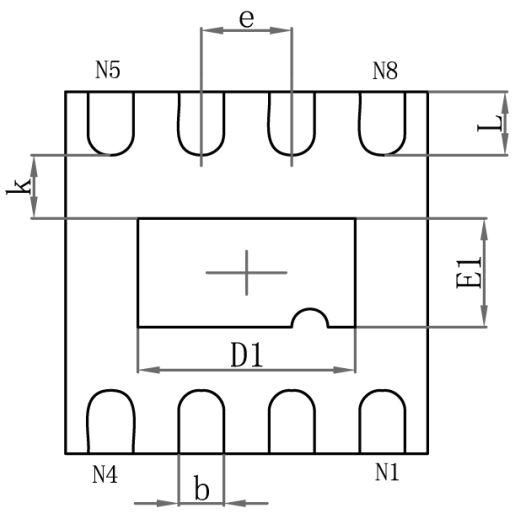
PIN	PIN NAME	PIN FUNCTION
1	VIN1	Motor Driver1 Control Logic Input 1
2	VIN2	Motor Driver1 Control Logic Input 2
3	VSS	Motor Driver Ground
4	VSS	Motor Driver Ground
5	NC	No Connect
6	VCC	Motor Driver Load Supply Power (3.3V ~ 5.0V)
7	OUT2	Motor Driver1 output to Load
8	OUT1	Motor Driver1 output to Load
	Pad	Exposed pad for thermal dissipation; connect to GND externally

3. Package Outline

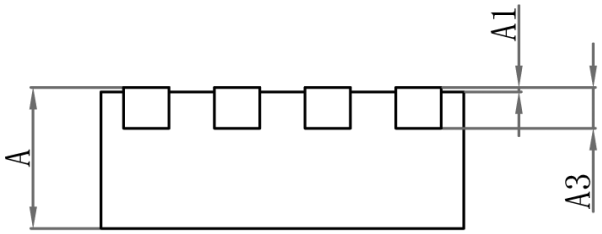
DFNWB 8-Lead Plastic QFN (2㎜ x 2㎜)



TOP VIEW



BOTTOM VIEW



SIDE VIEW

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700/0.800	0.800/0.900	0.028/0.031	0.031/0.035
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	1.900	2.100	0.075	0.083
E	1.900	2.100	0.075	0.083
D1	1.100	1.300	0.043	0.051
E1	0.500	0.700	0.020	0.028
k	0.200MIN.		0.008MIN.	
b	0.180	0.300	0.007	0.012
e	0.500TYP.		0.020TYP.	
L	0.250	0.450	0.010	0.018