



New Product Announcement

ZXBM5210

ZXBM5210 – High Performance Single Phase Reversible DC Motor Drive with Speed Control

The ZXBM5210 is a fully featured high performance single chip reversible DC motor drive solution with average current capability of up to 700mA .

For system flexibility the device has forward, reverse, brake and standby modes of operations, selected by FWD and REV pins. The motor speed can be controlled linearly by PWM signal duty ratio on FWD and REV pins or alternatively by adjusting DC voltage input signal to the Vref pin.

The device has a wide supply voltage range of 3V to 18V with an operating ambient temperature range of -40°C to 105°C. To minimize power consumption, the ZXBM5210 quiescent current is 0.85mA with 32uA typical in standby mode.

In the motor industry, protection is critical. To help protect the motor coil, the device provides under voltage lockout, over voltage protection, over current limit and thermal shutdown and high ESD withstand capability.

The ZXBM5210 is available in industry standard SO-8 thermally capable SO-8EP packages.



The Diodes Advantage

The ZXBM5210 is a high performance solution for reversible DC motor drives with speed control for consumer, home appliances and industrial applications.

- **Four modes of operations: Forward, Reverse, Brake and Standby mode**
 - High stable solutions providing system flexibility
 - Simple FWD and REV pin for mode selection and operations
- **Speed control by PWM or DC voltage input signal**
 - Flexible speed control by an external PWM signal (via FWD & REV pins) or by DC input voltage on Vref pin
- **Built-in PWM oscillator and H-Bridge power switches**
 - Highly integrated solution reduces components, PCB area and placement cost
 - Low $R_{DS(ON)}$ H-Bridge (the total resistance of 10ohms) allows high motor current
- **Over Voltage Protection, Over Current Protection, Thermal shutdown and ESD withstand capability of 6kV**
 - Helps to protect coil and the device - Safe, reliable and robust operation
- **Low operating current of 0.85mA with standby current of 32uA typical**
 - Helps to minimize power consumption and improve efficiency
- **Operating temperature range -40°C to 85°C/105°C**
 - Suitable for thermally demanding enclosed cooling fan applications.

Applications

- 5V/9V/12/15V Reversible DC motor and actuator drive
- Home appliances
- Handheld power tools
- Valve open and close
- Motorized remote control toys

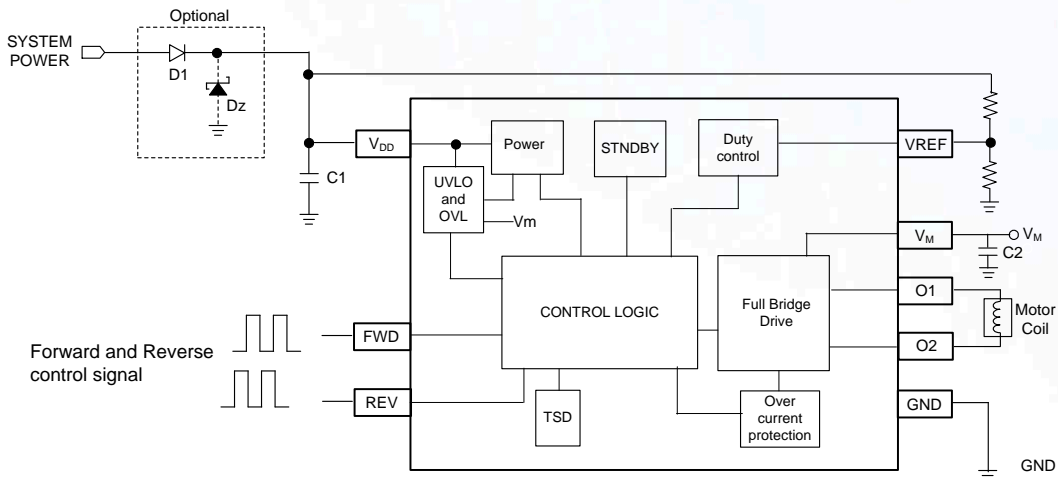


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Typical Application Circuit



Electrical Characteristics

Part	Operating Voltage	Supply Current (No Load)	Avg. Output Drive Current	Peak Motor Current	Typical RDS(on) – NIMOS and PMOS Combined	Speed Control	Direction Control	Brake Mode	Standby Mode	Protection Features	ESD Withstand Capability	Temp Range	Package
	(V)	(mA)	(mA)	(mA)								(Ω)	
ZXBM5210	3 to 18	0.85	500	1200	1 @ 12V	PWM, DC Vref	Yes	Yes	Yes	UVLO, OVP, OCP, TSD	6kV	-40 to +85	SO-8
			700									-40 to +105	SO-8EP

TSD: Thermal Shutdown

ESD: Electrostatic Discharge

Ordering Information

Device	Packaging (Note 1 and 2)	Part mark	Reel size or Bulk	Tape width	Quantity
ZXBM5210--S-13	SO-8	BM5210	13"	8mm	2500
ZXBM5210--SP-13	SO-8EP	BM5210	13"	8mm	2500

- Notes:
- ZXBM5210 is in "Green" and with Lead Free Finish/RoHS Compliant packages.
EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. No purposely added lead. Halogen and Antimony free.
Please visit our website at http://www.diodes.com/products/lead_free.html
 - Pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>



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Product Portfolio – Single phase Reversible DC Motor Driver ICs

Part	Operating Voltage	Supply Current (No Load)	Avg. Output Drive Current	Peak Motor Current	Typical RDSON – NMOS and PMOS Combined (Ω)	Speed Control	Direction Control	Brake Mode	Standby Mode	Protection Features	ESD Withstand Capability	Temp Range	Package
	(V)	(mA)	(mA)	(mA)								(°C)	
ZXBM5210	3 to 18	0.85	500	1200	1 @ 12V	PWM, DC Vref	Yes	Yes	Yes	UVLO, OVP, OCP, TSD	6kV	-40 to +85	SO-8
			700									-40 to +105	SO-8EP

UVLO: Under Voltage Lockout
TSD: Thermal Shutdown

OVP: Over Voltage Protection
ESD: Electrostatic Discharge

OCP: Over Current Protection

To find out more information:

Reversible Motor Driver Portfolio page: http://www.diodes.com/catalog/reversible_dc_motor_drivers_0709
Datasheet: <http://www.diodes.com/datasheets/ZXBM5210.pdf>

- (1) For single phase All-In-One BLDC fans and motor drivers please refer to the motor drive portfolio <http://www.diodes.com/products/catalog/browse.php?parent-id=2204>
- (2) For two phase All-In-One BLDC fans and motor drivers please refer to the motor drive portfolio <http://www.diodes.com/products/catalog/browse.php?parent-id=2205>
- (3) For single BLDC fans and motor drivers please refer to the motor drive portfolio <http://www.diodes.com/products/catalog/browse.php?parent-id=221>
- (4) For single or two phase BLDC fans and motor control pre-drivers please refer to the motor drive portfolio page on <http://www.diodes.com/products/catalog/browse.php?parent-id=222>
- (5) For three phase BLDC sensorless fans and motor drivers please refer to the motor drive portfolio page on <http://www.diodes.com/products/catalog/browse.php?parent-id=222>