

Description

The AZ20A8DDC PWM servo drive is designed to drive brush-type DC motors at a high switching frequency. To increase system reliability and to reduce cabling costs, the drive is designed for direct integration into your PCB. The AZ20A8DDC is fully protected against over-voltage, under-voltage, over-current, over-heating and short-circuits. A single digital output indicates operating status. The drive interfaces with digital controllers that have digital PWM output. The PWM IN duty cycle determines the output current and DIR input determines the direction of rotation. This servo drive requires only a single unregulated isolated DC power supply, and is fully RoHS (Reduction of Hazardous Substances) compliant.

Power Range

Peak Current	20 A
Continuous Current	12 A
Supply Voltage	10 - 80 VDC


Features

- ▲ High Power Density
- ▲ Compact Size
- ▲ Direct Board-to-Board Integration
- ▲ Lightweight
- ▲ High Switching Frequency
- ▲ Four Quadrant Regenerative Operation
- ▲ Wide Temperature Range
- ▲ High Performance Thermal Dissipation
- ▲ Differential Input Command
- ▲ Current Monitor Output
- ▲ Digital Fault Output Monitor
- ▲ 12VDC Operation

HARDWARE PROTECTION

- Over-Voltage
- Under-Voltage
- Over-Current
- Over-Temperature
- Short-circuit (phase-phase)
- Short-circuit (phase-ground)

INPUTS/OUTPUTS

- Digital Fault Output
- Digital Inhibit Input
- Analog Current Monitor
- Analog Command Input
- Analog Current Reference

MODES OF OPERATION

- Current

MOTORS SUPPORTED

- Single Phase (Brushed, Voice Coil, Inductive Load)

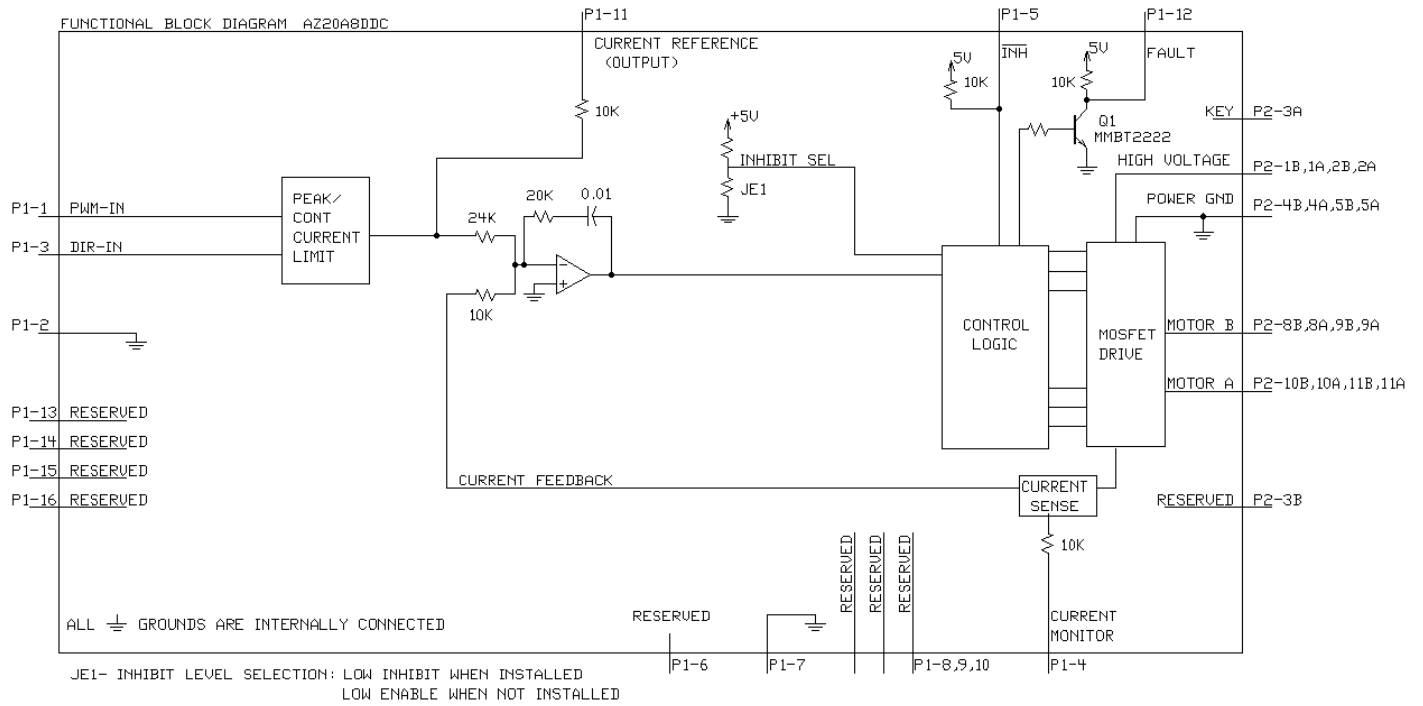
COMMAND SOURCE

- PWM



COMPLIANCES & AGENCY APPROVALS

- CE Class A (EMC)
- CE Class A (LVD)
- RoHS

BLOCK DIAGRAM



Information on Approvals and Compliances

	<p>Compliant with European CE for both the Class A EMC Directive 89/336/EEC on Electromagnetic Compatibility (specifically EN 61000-6-4:2001, EN 61000-6-2:2001, EN 61000-3-2:2000, and EN 61000-3-3:1995/A1:2001) and LVD requirements of directive 73/23/EEC (specifically EN 60204-1), a low voltage directive to protect users from electrical shock.</p>
	<p>RoHS (Reduction of Hazardous Substances) is intended to prevent hazardous substances such as lead from being manufactured in electrical and electronic equipment.</p>

SPECIFICATIONS

Power Specifications		
Description	Units	Value
DC Supply Voltage Range	VDC	10 - 80
DC Bus Under Voltage Limit	VDC	9
DC Bus Over Voltage Limit	VDC	88
Maximum Peak Output Current ¹	A	20
Maximum Continuous Output Current	A	12
Maximum Power Dissipation at Continuous Current	W	48
Minimum Load Inductance (Line-To-Line) ²	µH	100
Switching Frequency	kHz	31
Control Specifications		
Description	Units	Value
Command Sources	-	PWM
PWM Input Frequency Range	kHz	10 - 25
Modes of Operation	-	Current
Motors Supported	-	Single Phase (Brushed, Voice Coil, Inductive Load)
Hardware Protection	-	Over Current, Over Temperature, Over Voltage, Under Voltage, Short Circuit (Phase-Phase & Phase-Ground)
Mechanical Specifications		
Description	Units	Value
Agency Approvals	-	CE Class A (EMC), CE Class A (LVD), RoHS
Size (H x W x D)	mm (in)	63.5 x 50.8 x 22.9 (2.5 x 2 x 0.9)
Weight	g (oz)	94.5 (3.3)
Heatsink (Base) Temperature Range ³	°C (°F)	0 - 75 (32 - 167)
Storage Temperature Range	°C (°F)	-40 - 85 (-40 - 185)
P1 Connector	-	16-pin, 2.54 mm spaced header
P2 Connector	-	22-pin, 2.54 mm spaced, dual-row header

Notes

1. Maximum duration of peak current is ~2 seconds.
2. Lower inductance is acceptable for bus voltages well below maximum. Use external inductance to meet requirements.
3. Additional cooling and/or heatsink may be required to achieve rated performance.

PIN FUNCTIONS

P1 - Signal Connector			
Pin	Name	Description / Notes	I/O
1	PWM INPUT	10 – 25 kHz pulse width modulated digital input command (+5V). Input duty cycle commands the output current.	I
2	SIGNAL GND	Signal Ground	GND
3	DIRECTION	Direction Input (+5 V)	I
4	CURRENT MONITOR	Current Monitor. Analog output signal proportional to the actual current output. Scaling is 6.4 A/V. Measure relative to signal ground.	O
5	INHIBIT IN	TTL level (+5 V) inhibit/enable input. Leave open to enable drive. Pull to ground to inhibit drive. Inhibit turns off all power devices.	I
6	RESERVED	Reserved	O
7	SIGNAL GND	Signal Ground	GND
8	RESERVED		-
9	RESERVED	Reserved	-
10	RESERVED		-
11	CURRENT REFERENCE	Measures the command signal to the internal current-loop. This pin has a maximum output of ± 7.45 V when the drive outputs maximum peak current. Measure relative to signal ground.	O
12	FAULT OUT	TTL level (+5 V) output becomes high when power devices are disabled due to at least one of the following conditions: inhibit, invalid Hall state, output short circuit, over voltage, over temperature, power-up reset.	O
13	RESERVED		-
14	RESERVED		-
15	RESERVED	Reserved	-
16	RESERVED		-

P2 - Power Connector			
Pin	Name	Description / Notes	I/O
1b	1a	HIGH VOLTAGE	DC Power Input. 3A Continuous Current Rating Per Pin.
2b	2a	HIGH VOLTAGE	
3b		NC	Not Connected (Reserved)
	3a	NC (KEY)	Key: No Connection (pin removed)
4b	4a	PWR GND	Power Ground (Common With Signal Ground). 3A Continuous Current Rating Per Pin.
5b	5a	PWR GND	
6b	6a	RESERVED	Reserved
7b	7a	RESERVED	
8b	8a	MOTOR B	
9b	9a	MOTOR B	Motor Phase B. 3A Continuous Current Rating Per Pin.
10b	10a	MOTOR A	Motor Phase A. 3A Continuous Current Rating Per Pin.
11b	11a	MOTOR A	

HARDWARE SETTINGS

Jumper Settings

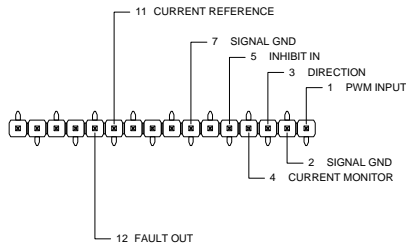
Jumper is a SMT, 0 ohm resistor located on the underside of the drive PCB. By default, the drive is configured with the jumper installed. Typical drive operation will not require the jumper to be removed. Please contact the factory before jumper removal.

Jumper	Description	Configuration	
		Not Installed	Installed
JE1	Inhibit logic. Sets the logic level of inhibit pins. Labeled JE1 on the PCB of the drive.	Low Enable	Low Inhibit

MECHANICAL INFORMATION

P1 - Signal Connector

Connector Information		16-pin, 2.54 mm spaced header
Mating Connector	Details	Samtec: BCS-116-L-S-PE
	Included with Drive	No



P2 - Power Connector

Connector Information		22-pin, 2.54 mm spaced, dual-row header
Mating Connector	Details	Samtec: SSM-111-L-DV
	Included with Drive	No

