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DD8727T4V1 stepper motor driver

Product Specification (English Version)



▶ 1. Introduction

DD8727T4V1 is a high subdivision two- phase step motor driver developed by many times optimization, which is suitable to drive the small and medium phase the two or four phase current lower than 4A hybrid step motor. Comparing with other driving mode, the new style bipolar constant current chopping driving technology enables the DD8727T4V1 output higher speed and power when you use the same motor. Its subdivision feature improves the motor operating accuracy, decreases the shaking and reduces the noise.

▶ 2. Specification

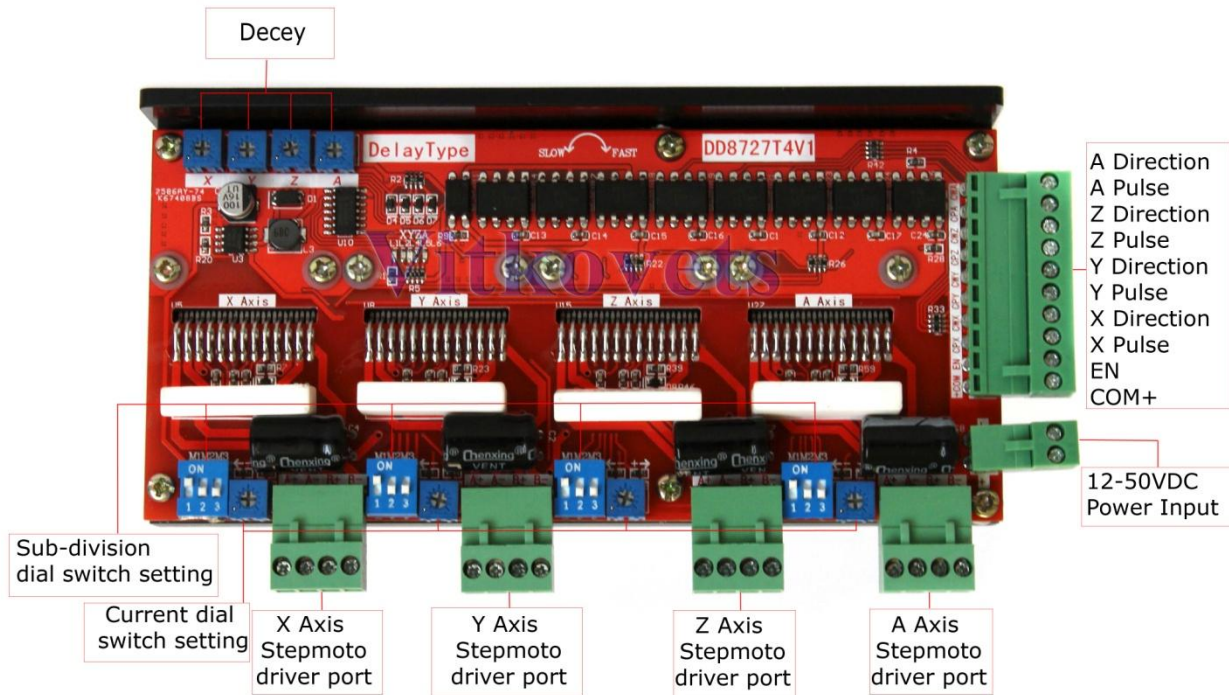
- 1) High performance, low price;
- 2) Constant current chopping driving technology;
- 3) Supply voltage 12~50VDC;
- 4) High-speed optocoupler signal isolation input;
- 5) 20Khz chopping wave frequency;
- 6) Subdivision accuracy 1, 2, 4, 8, 16, 32, 64, 128 choosable;
- 7) Input electrical signal TTL compatibility;
- 8) Automatic current halving in rest;
- 9) Easy to assemble in terms of appearance design;
- 10) 4 axis stepper driver out;
- 11) Maximum driving current 4A;
- 12) Could drive any two or four-phase hybrid stepping motor with 4A phase one time.

▶ 3. Application fields

It is suitable to various kinds of small or middle size of automation equipment and instrument, like the small size engraving machine and chip mounter.



4. Wire connection definition



Control Port define:

PORT	Function
+	Power Positive 12-50VDC
-	GND
+COM	COM(Positive of all signal)
EN	Negative of Enable
CPX	Negative of X AXIS PULSE
CWX	Negative of X AXIS direction
CPY	Negative of Y AXIS PULSE
CWY	Negative of Y AXIS direction
CPZ	Negative of Z AXIS PULSE
CWZ	Negative of Z AXIS direction

Strong Voltage signal interface

Signal	Function
VIN+	Direct-current power 12~50V input+terminal, recommend to use 40V6A
GND	Direct-current power ground terminal
A+	Step motor A+phase terminal
A-	Step motor A-phase terminal
B+	Step motor B+phase terminal
B-	Step motor B-phase terminal



CAUTION: This driver do not contain the anti-plug backward circuit, thus positive-negative reversal is prohibited! Otherwise, the driver will be damaged!

▶ 5. Electrical specification

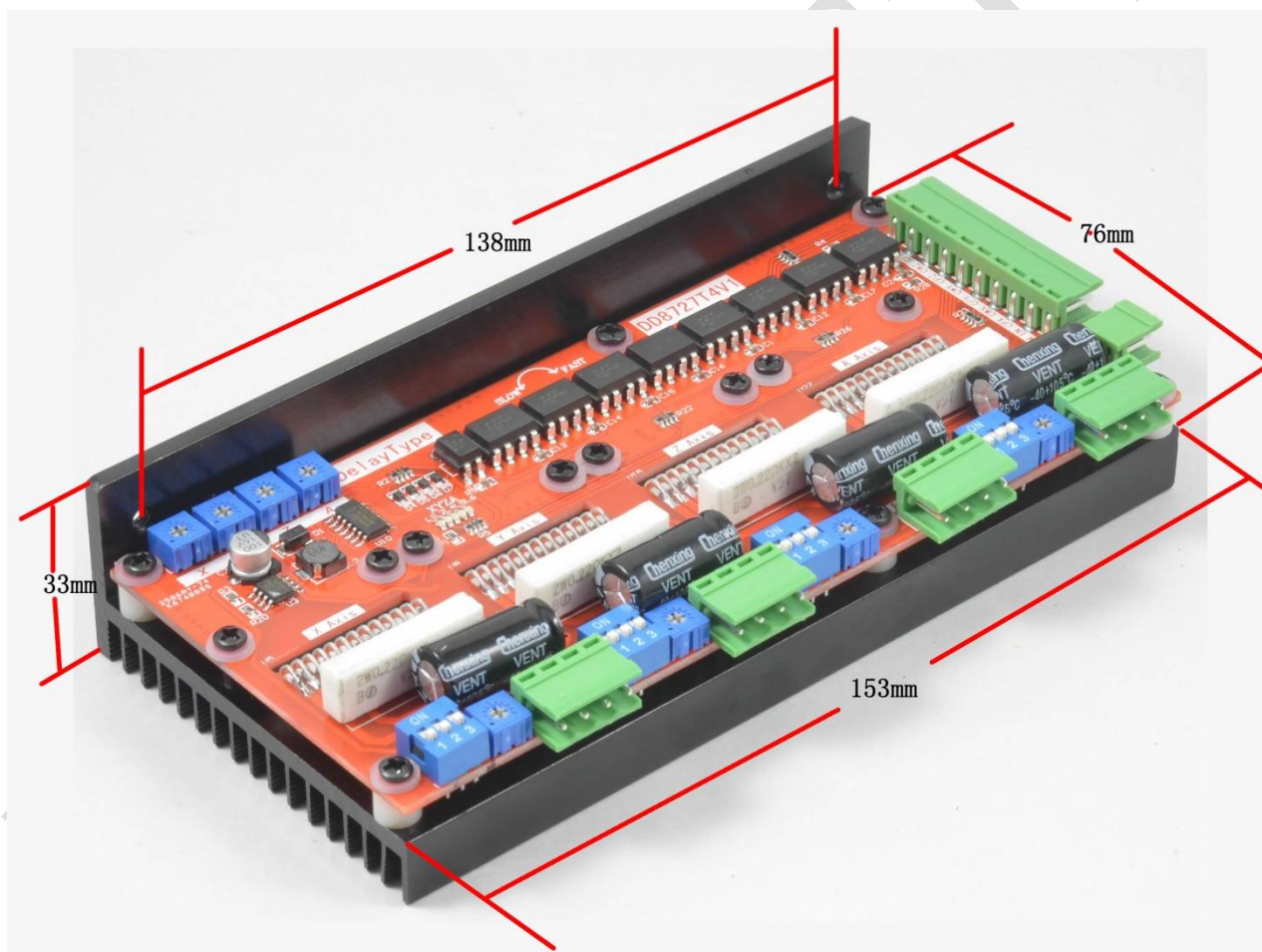
Electrical specification (T=25° C)

Description	DD8727T4V1 X Y Z single output parameters			
	Min. value	Typical value	Max. value	Unit
Output phase current	0.5	-	4	A
Input power source voltage	12	36	50	V
Logic input voltage	3	5	7	V
Logic input current	5	10	15	mA
Stepping motor impulse frequenc	0	-	150	KHz
Min. impulse time	1	-	-	us

▶ 6. Operating environment and parameter

Cooling type		Natural cooling or force-air cooling
Operating environment	Circumstance	Avoid the dust, oil mist and corrosive gas
	Temperature	0° C-+50° C
	Humidity	40-90%RH
	Shake	6m/s2 MAX
Storage temperature		-20° C-+65° C
Weight		250g

7. Machine installation size



8. Power supply

Machine could operate within the voltage of DC12V-50V. The common switch DC power supply and the transformer+bridge rectifier+capacitor filtering (capacitance range:2000U-5000U), both are allowable for the DD872T4V1 driver's power supply. But the voltage wave crest shall less than 40V. It is recommended that the

user adopt the 32V-40V DC power supply lest the power grid fluctuation exceeds the driver's voltage range.



Attention: 1, the polarity of the power supply mustn't be reversed.
2, Several drivers can share one power source in order to reduce the cost. But the rated power and output current of the power source shall be increased; heat dissipation shall also be notice

▶ 9. Decay dial switch setting

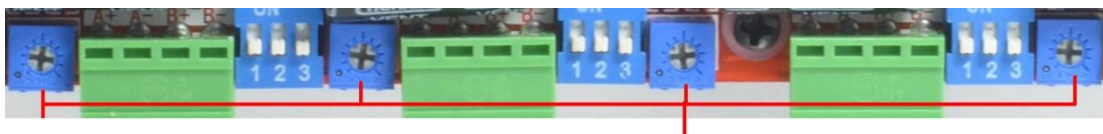


Left:SLOW Right:FAST

▶ 10. Sub-division dial switch setting

Sub-divisin multiple	Step NO./Circle(1.8° /full step)	SW1	SW2	SW3
2	400	OFF	OFF	OFF
8	1600	ON	OFF	OFF
16	3200	OFF	ON	OFF
32	6400	ON	ON	OFF
64	12800	OFF	OFF	ON
128	25600	ON	OFF	ON
10	2000	OFF	ON	ON
20	4000	ON	ON	ON

▶ 11. Current dial switch setting

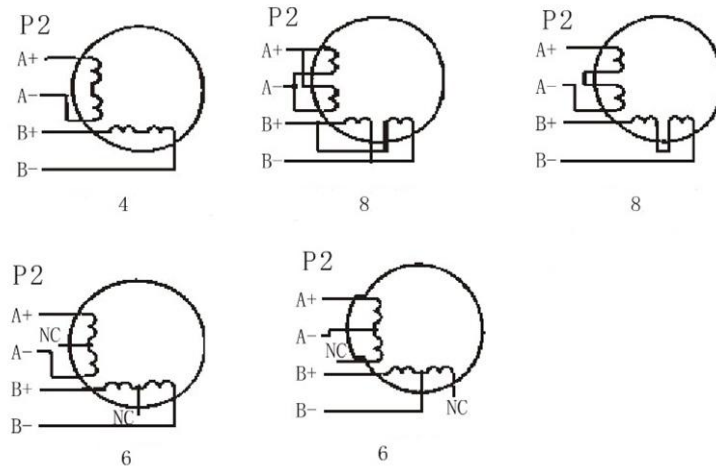


Current dial setting

0.5 – 4A Current Adju

▶ 12. The motor wiring

The DD8727T4V1 driver can drive the four and six wire or the eight wire 2/4 phase motor under the phase current of 4A. Below is the way of connection for four, six and eight wire:



▶ 13. The matching of drive and motor

DD8727T4V1 driver could drive the two phases and four phase motor manufactured by domestic and overseas company. It is needed to choose the suitable power supply and setting current in order to reach the satisfying effect. The height of power voltage decides the motor performance, while the electric current setting value decides the motor's output torque.

The setting of power supply voltage:

Generally speaking, the higher of the power supply voltage, the stronger of the motor high speed torque, which can avoid the breakdown in high speed. But on the other hand, if the voltage is too high, it will lead to the overvoltage protection, even damage the driver, and the machine would lead low speed shake under the high voltage.

Output electric current setting.

As to the same motor, the higher of the electric current setting value, the higher is the motor output torque, but the motor and driver also generate heat greatly under the high electric current. Therefore mostly the electricity value shall be set at warm but not too heat condition when the motor is under long term operation.



Attention: Please run the motor 15-30 minutes after setting the electricity, if the motor temperature is too high, the electricity setting value shall be reduced. If the motor output torque is not enough after setting the motor electricity value, the heat dissipation condition shall be improved to ensure that the motor and driver temperature are not too high.

▶ Wire between of MACH3 USB board and DD8727T4V1

No	DD8727T4V1 input Port	USB Mach3 Output port
	COM+	X /Y/ Z/ A/ B AXIS STEP+
	En	NC
	CPX	X AXIS: STEP-
	CWX	X AXIS: DIR-
	CPY	Y AXIS: STEP-
	CWY	Y AXIS: DIR-
	CPZ	Z AXIS: STEP-
	CWZ	Z AXIS: DIR-
	CPA	A AXIS: STEP-
	CWA	A AXIS: DIR-