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Datasheet-TB6560 3Axis Stepper Motor Driver



1.Introduction

The TB6560-3 Axis Stepper Motor Driver is an excellent microstepping driver that uses the TOSHIBA TB6560 Chip, based on pure-sine current control technology. Owing to the above technology and the self-adjustment technology (self-adjust current control parameters) according to different motors, the driven motors can run with smaller noise, lower heating, smoother movement and have better performances at higher speed than most of the drives in the markets. It is suitable for driving 2-phase and 4-phase hybrid stepping motors.

2.Features

- Low cost and good high-speed torque
- Supply voltage up to +32 VDC
- Output current up to 3.0A
- Pulse frequency up to 20 KHz
- Suitable for 2-phase and 4-phase motors
- Over-voltage and short-circuit protection
- 7 output current choices, max 3200 steps/rev
- Automatic idle-current reduction
- Slim size (96x61x37mm)

3.Applications

Applications

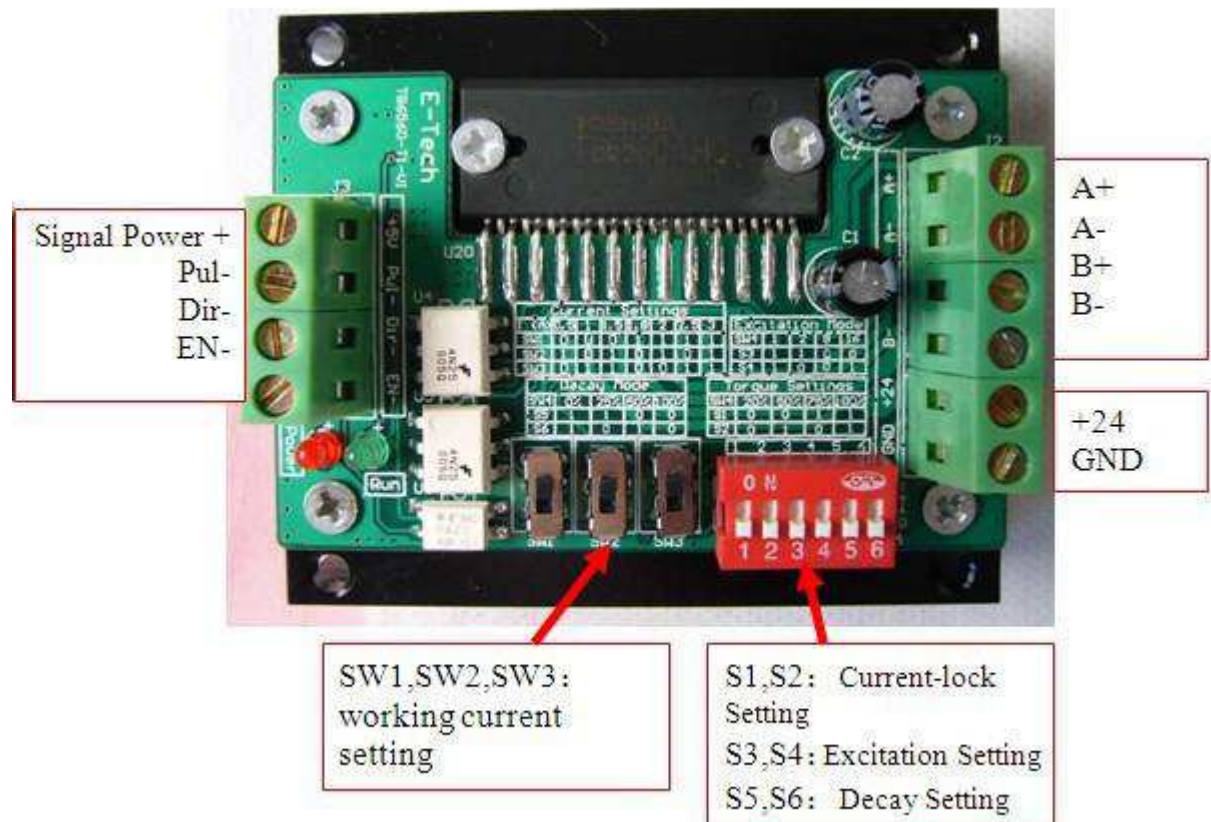
Suitable for a wide range of stepping motors from NEMA size 17 to 23. It can be used in various kinds of machines, such as X-Y-Z tables, labeling machines, laser cutters, engraving machines,pick-place devices, and so on. Particularly adapt to the applications desired with low vibration,high speed and high precision.

4. Specifications and Operating Environment

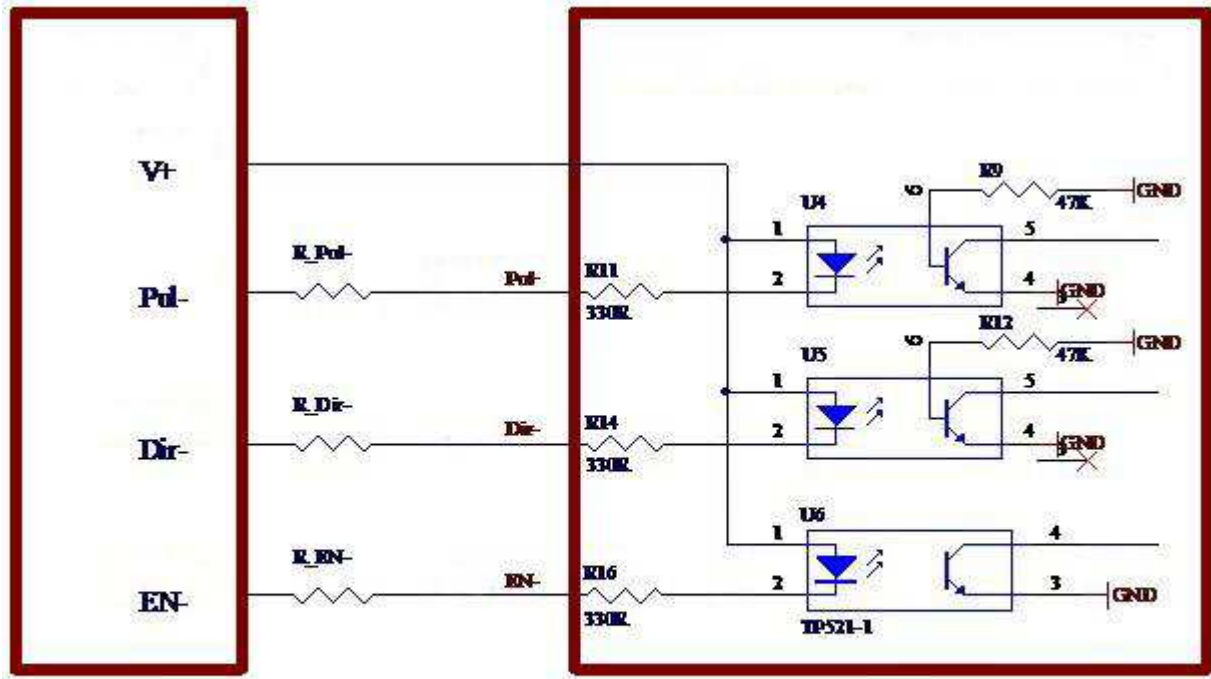
Electrical Specifications($T_j=25^{\circ}\text{C}$)

Parameters	TB6560-3AXIS				
	Min	Typical	Max	Unit	
Output current	0.6	-	3	A	
Input voltage	7	24	32	VDC	
Inner Frequency	640		20000	Hz	
Outer input frequency	0	-	16000	Hz	
Connector Voltage	H	4.5	5	5.5	VDC
	L	0	0	0.5	VDC

TB6560-3Axis Interface Definition



TB6560-3Axis Wiring Diagram



$$\begin{aligned}
 5V & : R_{\text{Pul-}} = R_{\text{Dir-}} = R_{\text{EN-}} = 0 \Omega \\
 12V & : R_{\text{Pul-}} = R_{\text{Dir-}} = R_{\text{EN-}} = 1K \Omega \\
 24V & : R_{\text{Pul-}} = R_{\text{Dir-}} = R_{\text{EN-}} = 2.7K \Omega
 \end{aligned}$$

Controller interface voltage=5V, no resistance;

Controller interface voltage=12V, series connect a 1K resistance;

Controller interface voltage=24V, series connect a 2.7K resistance

Ps:

EN- inputs high level or being hanged, optocoupler U6 light off, step motor=working

EN- inputs low level, optocoupler U6 light on, step motor= not working

TB6560-3Axis Working Current Setting

Attention:Please ensure the motor power off during setting!

Current Setting							
I(A)	0.5	1	1.5	1.8	2	2.5	3
SW1	0	0	0	1	1	1	1
SW2	1	0	1	0	1	0	1
SW3	0	1	1	0	0	1	1
ResistanceΩ	1	0.51	0.34	0.33	0.25	0.2	0.167

TB6560-3Axis Excitation Setting:

Excitation Mode Setting				
SW4	1	2	8	16
S3/M2	1	1	0	0
S4/M1	1	0	0	1

TB6560-3Axis Decay Setting:

Decay Mode Setting				
SW4	0%	25%	50%	100%
S5/DY2	1	1	0	0
S6/DY1	1	0	1	0

It can lower the noises and increase the stability by decay mode setting.

TB6560-3Axis Semi-Current Lock Torque Setting:

Semi-current Torque Setting				
SW4	20%	50%	75%	100%
S1/TQ2	0	0	1	1
S2/TQ1	0	1	0	1