

A4931xET Evaluation Board User Guide

DESCRIPTION

This evaluation board is used to demonstrate the Allegro A4931xET three-phase brushless DC motor pre-driver IC.

FEATURES

- 0.1" male header for logic inputs and logic voltage supply
- Screw-down connectors for motor outputs, Hall inputs, and motor supply voltage

EVALUATION BOARD CONTENTS

- APEK4931xET-01-T evaluation board

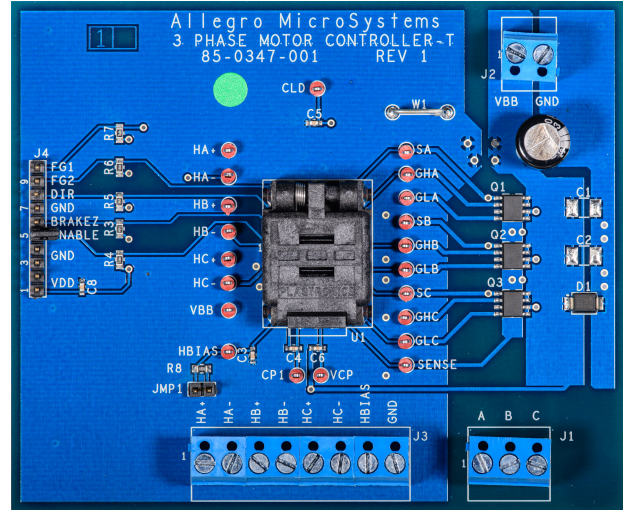


Figure 1: A4931xET Evaluation Board

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Table 1: A4931xET Evaluation Board Configurations

Configuration Name	Part Number
APEK4931MET-01-T	A4931MET-T
APEK4931GET-01-T	A4931GET-T

Table 2: General Specifications

Specification	Min.	Nom.	Max.	Units
Motor Supply Voltage (V_{BB})	8	–	30	V
Input Logic Low Level	0	–	0.8	V
Input Logic High Level	2	–	–	V

USING THE EVALUATION BOARD

EQUIPMENT REQUIRED

- Three-phase BLDC motor with Hall elements
- Voltage supply to power the motor
- Voltage supply to power logic inputs

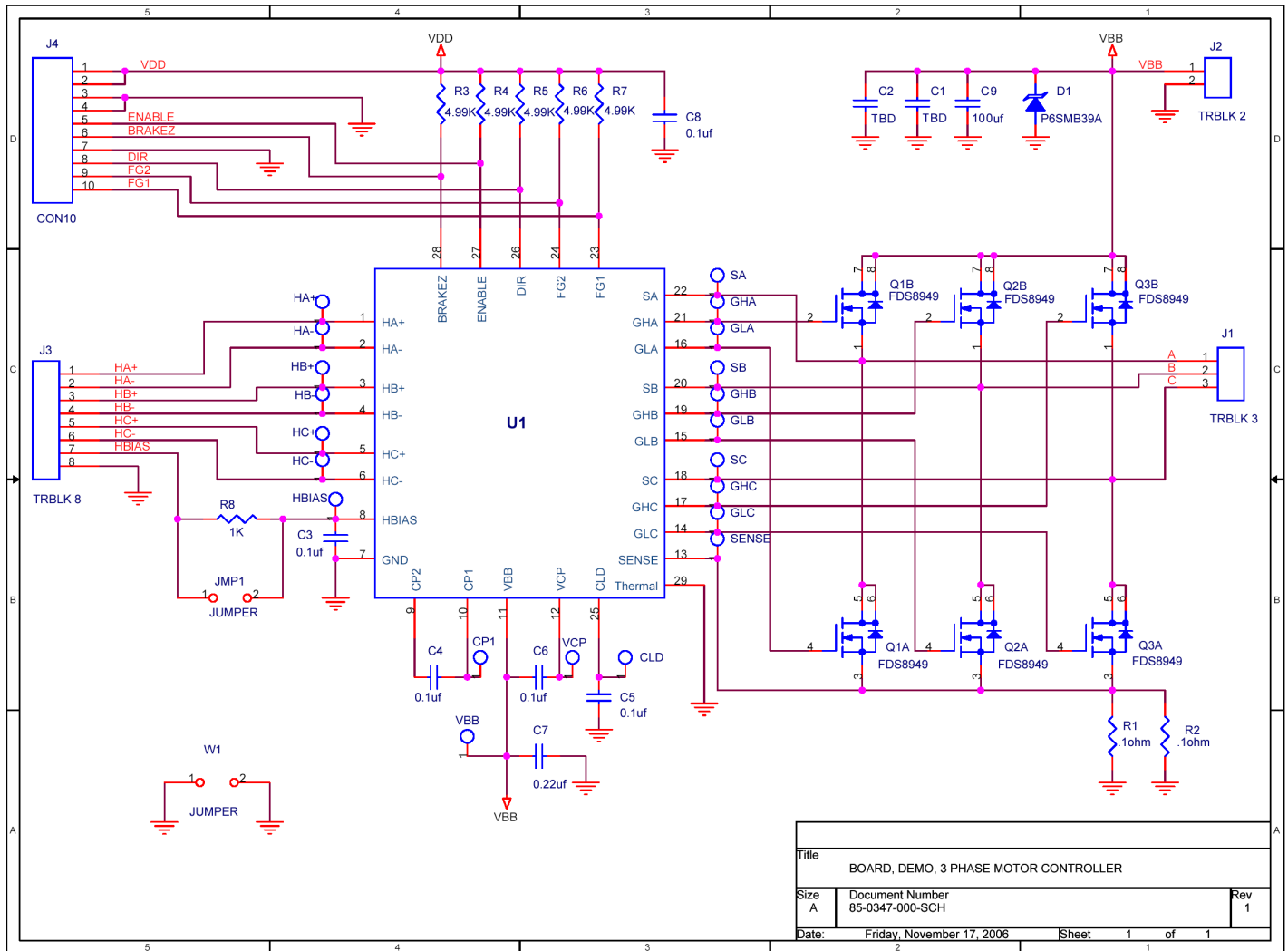
SETUP

1. Set the motor voltage supply to the intended voltage.
2. Set the logic voltage supply to the intended voltage.
3. Turn off both voltage supplies.
4. Connect motor voltage supply to J2.
5. Connect the motor windings to J1.
6. Connect the motor Hall inputs to J3.

Note: Do not connect or disconnect the motor unless the outputs are either disabled or the VBB voltage is off.

7. Turn the voltage supplies on.

SCHEMATIC



Title		
BOARD, DEMO, 3 PHASE MOTOR CONTROLLER		
Size	Document Number	Rev
A	85-0347-000-SCH	1
Date:	Friday, November 17, 2006	Sheet 1 of 1

BILL OF MATERIALS

Table 3: APEK4931xES-01-T Evaluation Board Bill of Materials

ELECTRICAL COMPONENTS						
Designator	Quantity	Value	Description	Manufacturer	Manufacturer Number	PCB Footprint
C1	1	10 μ F	DO NOT KIT , DO NOT INSTALL	no parts	no parts	smd1812
C2	1	10 μ F	DO NOT KIT , DO NOT INSTALL	no parts	no parts	smd1812
C9	1	100 μ F	CAP, ELEC,100 μ F, 63 V, 20%, 5 mm	Panasonic	ECA-1JHG101	See Assy Instr.
C3, C4, C5, C6, C8	5	0.1 μ F	CAP, CER, 0.1 μ F, 25V,X5R,10%,0603	AVX Corporation	06033D104KAT2A	smd0603
C7	1	0.22 μ F	CAP, CER, 0.22 μ F, 50 V, X5R, 0805	Taiyo Yuden	UMK212BJ224KG-T	smd0805
D1	1	–	TVS, ZENER, UNIDIR, 600 W, 39 V, SMB	On Semiconductor	P6SMB39AT3G	smb-do214aa
J1	1	–	Terminal Block 5.08 mm 3 pos	On Shore Technology	ED120/3DS	tb-2sv-03
J2	1	–	Terminal Block 5.08 mm 2 pos	On Shore Technology	ED120/2DS	tb-2sv-02
J3	1	–	Terminal Block 5.08 mm 8 pos	On Shore Technology	ED120/8DS	tb-2sv-08
J4	1	–	Conn, Header, 10 pos, 0.1", SGL, Gold	Samtec Inc.	TSW-110-07-G-S	header100_10
JMP1	1	–	Conn, Header, 2 pos, 0.1", SGL, Gold	Samtec Inc.	TSW-102-07-G-S	jumper2
Q1, Q2, Q3	3	–	Dual N-Channel Power Trench MOSFET	Fairchild	FDS8949	soic8
R1, R2	2	0.1 Ω	Resistor, 1/2 W, 1%, 2010, SMD	Panasonic-ECG	ERJ-L1DKF10CU	smd2010
R3, R4, R5, R6, R7	5	4.99 k Ω	Resistor, 1/8 W, 1%, 0805, SMD	Rohm	MCR10EZHF4991	smd0805
R8	1	1 k Ω	Resistor, 1/8 W, 1%, 0805, SMD	Rohm	MCR10EZPF1001	smd0805
XU1	1	–	Socket, 28 pin, 0.5 mm Pitch, 5x5 mm	Plastronic	28QN50T15050	plastronic28mp5x5
W1	1	–	20 AWG Solid Bus Wire, about 1" long	–	–	tp4
	4	–	Bumpon, Hemisphere	3M/ESM	SJ5003	–
	1	–	85-0347-001, lead free EU ROHS	–	–	–
HA+, HA-, HB+, HB-, HC+, HC-, HBIAS, CP1, VCP, CLD, VBB, SA, GHA, GLA, SB, GHB, GLB, SC, GHC, GLC, SENSE	21	–	Test Point, Miniature, Throughhole, Red	Keystone	5000	wt_awg22

RELATED LINKS

A4931 Product Page: <https://www.allegromicro.com/en/products/motor-drivers/bldc-drivers/a4931>

APPLICATION SUPPORT

For applications support contact, go to <https://www.allegromicro.com/en/about-allegro/contact-us/technical-assistance> and navigate to the appropriate region.

Revision History

Number	Date	Description
-	September 22, 2023	Initial release

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