APEK4955GES-01-T

A4955GES Evaluation Board User Guide

DESCRIPTION

This evaluation board is used to demonstrate the Allegro A4955GES full-bridge PWM gate driver IC.

FEATURES

- Onboard voltage regulator for logic inputs
- Potentiometer to control the peak output current

EVALUATION BOARD CONTENTS

- APEK4955GES-01-T evaluation board

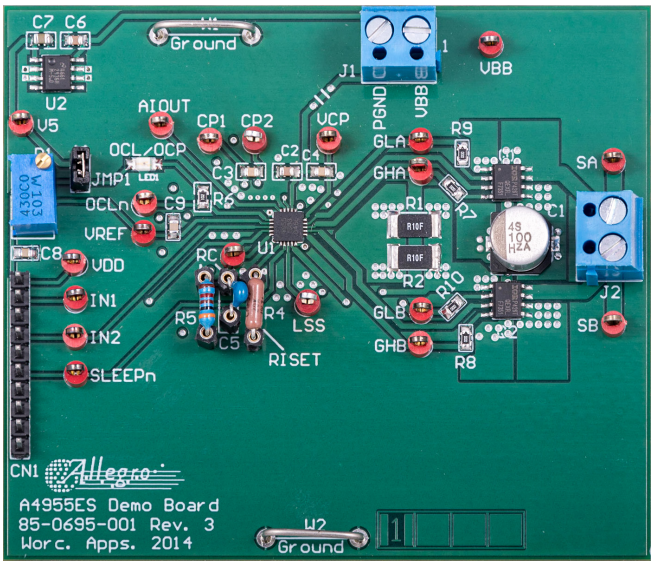

Figure 1: A4955GES Evaluation Board

Table 1: A4955GES Evaluation Board Configurations

Configuration Name	Part Number
APEK4955GES-01-T	A4955GES-T

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Table 2: General Specifications

Specification	Min.	Nom.	Max.	Units
Motor Supply Voltage (V_{BB})	5.5	–	50	V
VREF Output Voltage (V_{BB} = 5.5 to 50 V)	0	–	2.5	V
Input Logic Low Level	0	–	0.8	V
Input Logic High Level	2	–	5.5	V

USING THE EVALUATION BOARD

EQUIPMENT REQUIRED

- DC motor
- Voltage supply

SETUP

1. Set the motor voltage supply to the intended voltage.
2. Turn off motor voltage supply.
3. Connect motor voltage supply to J1.
4. Turn the voltage supply on after ensuring that the motor is NOT connected.
5. Adjust P1 to set the peak current to intended value (see data-sheet).
6. Turn off motor voltage supply.
7. Connect the motor to J2 (screw-down terminals).

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

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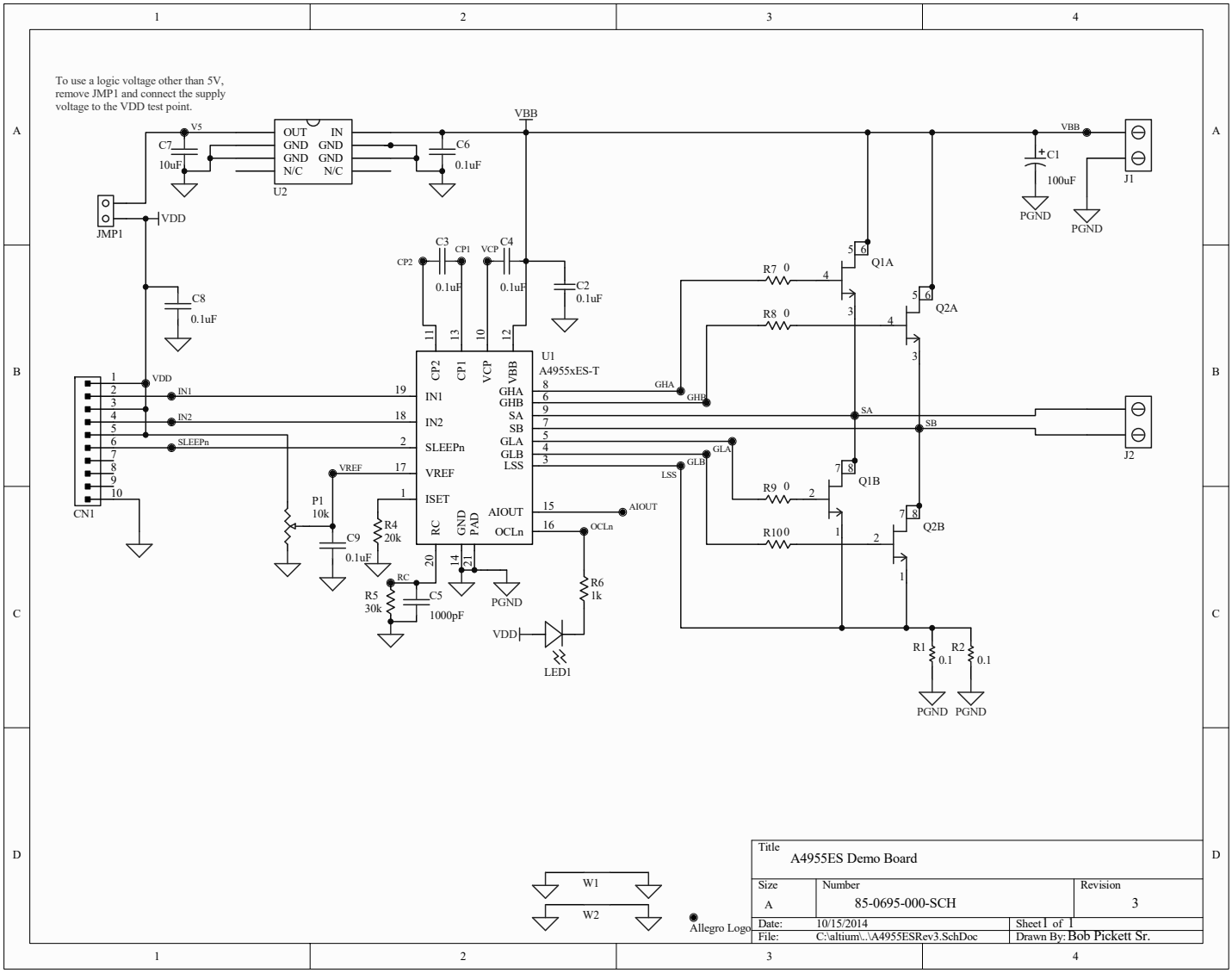
SCHEMATIC



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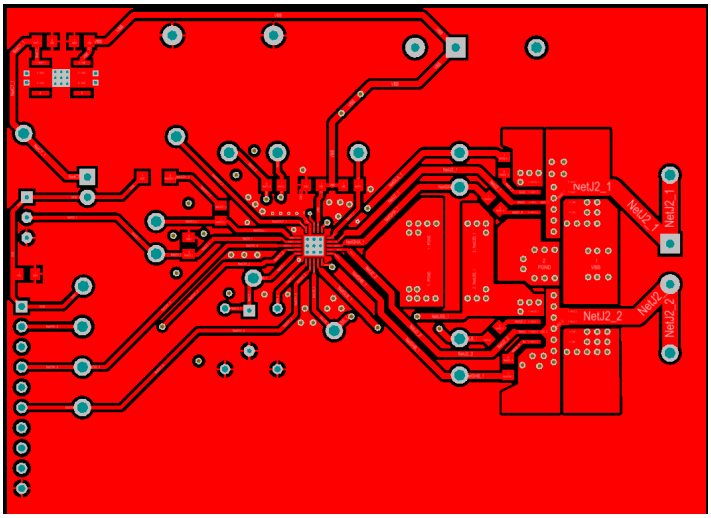
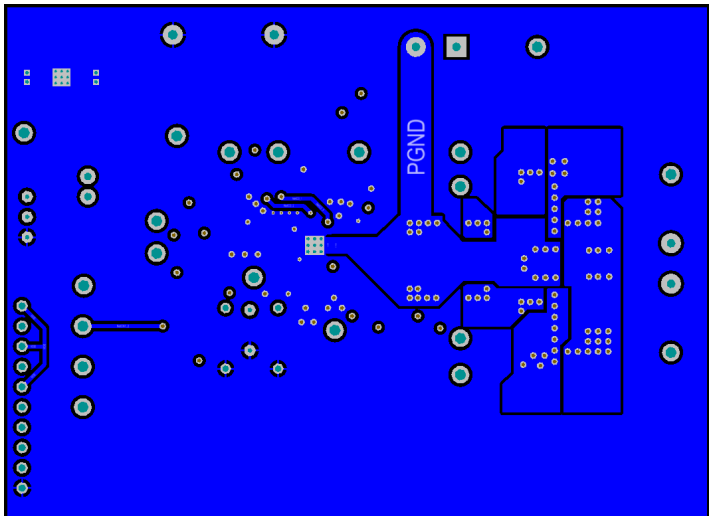
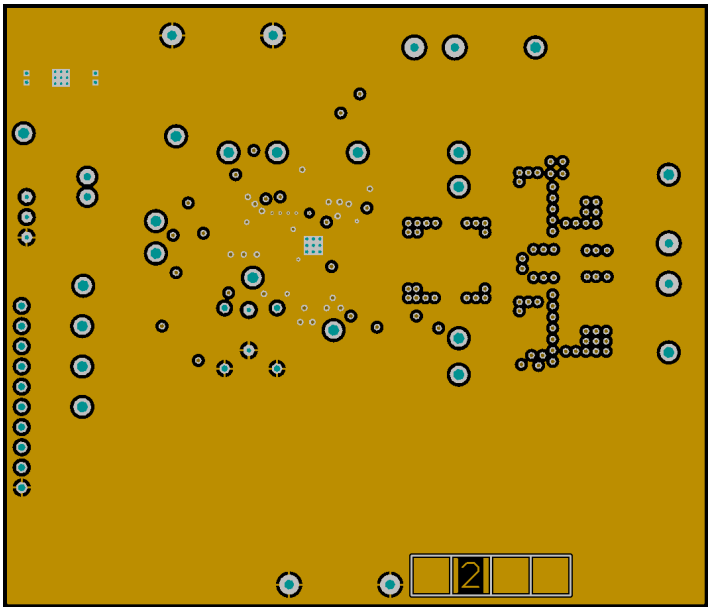
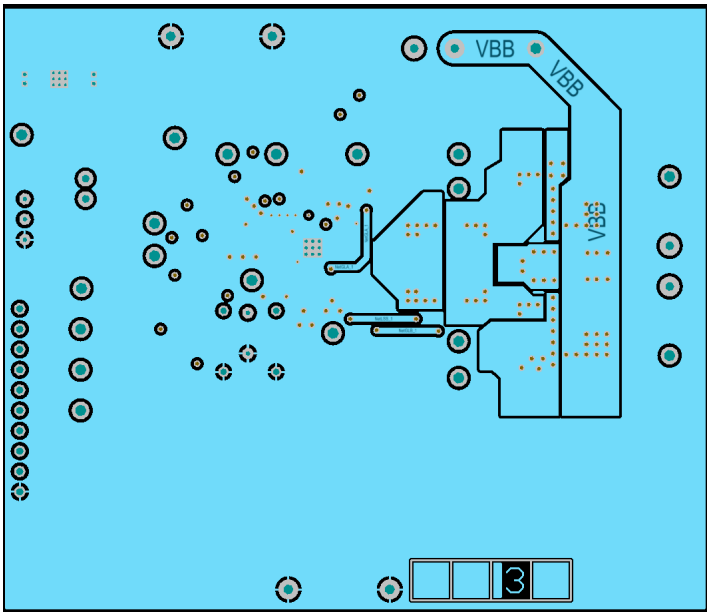
LAYOUT









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BILL OF MATERIALS

Table 3: APEK4955GES-01-T Evaluation Board Bill of Materials

ELECTRICAL COMPONENTS					
Designator	**Quantity**	**Value**	**Description**	**Part Type**	**Footprint**
AIOUT, CP1, CP2, GHA, GHB, GLA, GLB, IN1, IN2, LSS, SLEEPn, OCLn, RC, SA, SB, V5, VBB, VCP, VDD, VREF	20	–	Large Test Point	Keystone Electronics 5010; Digikey 5010K-ND	PAD 57 125 TP HB
C1	1	100 µF	50 V Capacitor	Chemi-Con EMZA500ADA101MHA0G; Digikey 565-2569-1-ND	UCC HA0
C2, C6	2	0.1 µF	50 V Capacitor	TDK C2012X7R1H104K085AA; Digikey 445-7534-1-ND	0805
C3, C4, C8, C9	4	0.1 µF	25 V Capacitor	Kemet C0805C104K3RACTU; Digikey 399-1168-1-ND	0805
C5	1	1000 pF	50 V Capacitor	TDK FK28X7R1H102K; Digikey 445-5246-ND	0.2" Cap
C7	1	10 µF	25 V Capacitor	Murata GRM21BR61E106KA73L; Digikey 490-5523-1-ND	0805
CN1, JMP1	12 pins	–	Cut pins from 50-pin strip	Samtec TSW-150-07-T-S; Digikey SAM1035-50-ND	2-pos. shunt, 10pinUSBConn
–	4	–	–	3M SJ-5303 (CLEAR); Digikey SJ5303-7-ND	Bumpon Foot
J1, J2	2	–	2-Pin Screw Down Connector	On Shore Technology ED120/2DS; Digikey ED1609-ND	2-pin screw down connector, 2-pin screw down connector2
LED1	1	–	Red Surface-Mount LED	Lite-On LTST-C150CKT; Digikey 160-1167-1-ND	1206 LED
P1	1	10 kΩ	1/2 W Potentiometer	Bourns 3299W-103LF; Digikey 3299W-103LF-ND	Through-hole Trimpot
–	1	–	PCB	85-0695-001 Rev. 3	
Q1, Q2	2	–	60 V 8 A Dual N-FET	IR IRF7351TRPBF; Digikey IRF7351TRPBFCT-ND	8-Pin SO
QR4, QR5, QC5	6 pins	–	Sockets for R4, R5, and C5	Mill-Max 801-43-050-10-001000; Digikey ED6350-ND	–
–	1	–	Shunt for JMP1	3M 969102-0000-DA; Digikey 3M9580-ND	–
R1, R2	2	0.1 Ω	1 W Resistor	Panasonic ERJ-L1WKJ10CU; Digikey P100TCT-ND	2512 (6432 Metric)
R4	1	20 kΩ	1/2 W Resistor	Vishay-Dale CMF5520K000FKEB; Digikey CMF20.0KHGCT-ND	AXIAL-0.3
R5	1	30 kΩ	1/4 W Resistor	Yageo MFR-25FBF-30K1; Digikey 30.1KXBK-ND	AXIAL-0.3
R6	1	1 kΩ	1/8 W Resistor	Panasonic ERJ-6GEYJ102V; Digikey P1.0KACT-ND	0805
R7, R8, R9, R10	4	0 Ω	1/8 W Resistor	Panasonic ERJ-6GEY0R00V; Digikey P0.0ACT-ND	0805
U1	1	–	Full-Bridge PWM Gate Driver	A4955xES-T	ES_20-Pin_4x4QFN_2
U2	1	5 V	Linear Voltage Regulator	National LM2936HVMA-5.0/NOPB; Digikey LM2936HVMA-5.0/NOPB-ND	LM2936HVMA
W1, W2	2	–	22-Gauge Buss Wire (100 mils above PCB)	Scope ground	Scope Ground

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RELATED LINKS

A4955 Product Page: https://www.allegromicro.com/en/products/motor-drivers/brush-dc-motor-drivers/a4955

Software Registration Site: http://registration.allegromicro.com/login

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.

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Revision History

Number	Date	Description
–	July 26, 2023	Initial release

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