

BOARD SPECIFICATIONS

- Dimensions: 8in by 8in, 0.093in thick, 2oz copper on all layers, ENIG, 6 layers
- 197mil clearance to adhere to UL 61800-5-1 Table 10 PWBs Pollution degree 2 1000Vrms

PRESS-FIT NOTES


- All other components should be 5mm from the center of the WolfPACK pins
- For the REDCUBE press-fit terminals, per the application notes, other components should be spaced at least 4mm away and the hole should be at least 3mm from the edge.

GENERAL NOTES

- The +5V_ALT power rail is required to avoid routing the +5V rail across the DC-link copper pours on the PCB. Only route the +12V rail across the DC-link.

Version History

Version	Date	Description
V1.0	2023/04	Initial release.
V1.1	2023/07	Added 10kΩ to gate-source, made Rg easier to access, added thermal relief, switched to 1.65V regulators, fixed inverted regulator outputs



[No Variations]

Title: 25kW WolfPACK FM3 Six-Pack Inverter

Drawing No: CRD25DA12N-FMC

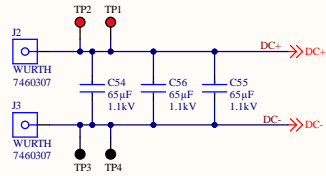
Date: 07/2023

Size: B

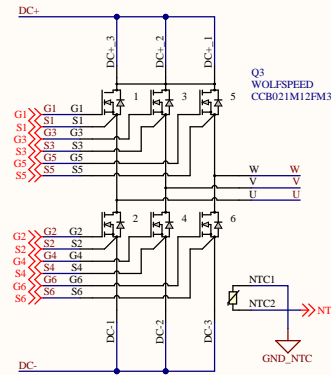
Revision: 1.1

Sheet 1 of 8

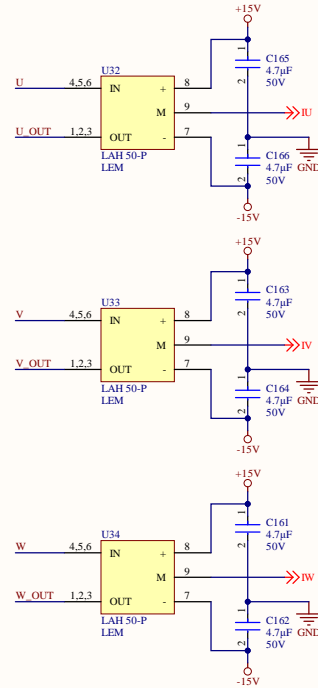
BULK CAPACITANCE



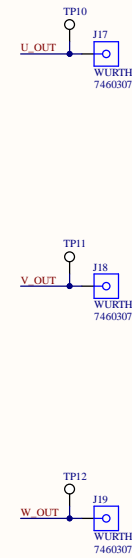
POWER MODULE



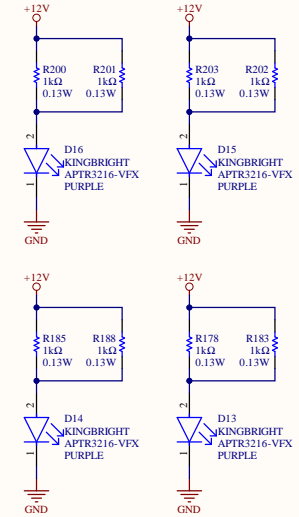
CURRENT MEASUREMENT



OUTPUT TERMINALS

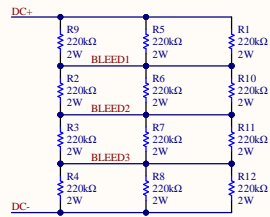


UNDERGLOW

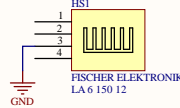


Vf = 3.3V
I = (12V-3.3V) / 500ohm = 17mA
P = (12V-3.3V)*2 / 500ohm = 151mW

BLEED RESISTORS

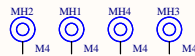


HEAT SINK



Only ground in one location to prevent ground loops.

MOUNTING HOLES



- Floating to avoid ground loops or short circuits through mounting hardware.
- Attach using 12mm standoffs (McMaster-Carr 98952A143)

Wolfspeed

[No Variations]

Title: Power Stage - 25kW WolfPACK FM3 Six-Pack Inv.

DrawingNo: CRD25DA12N-FMC

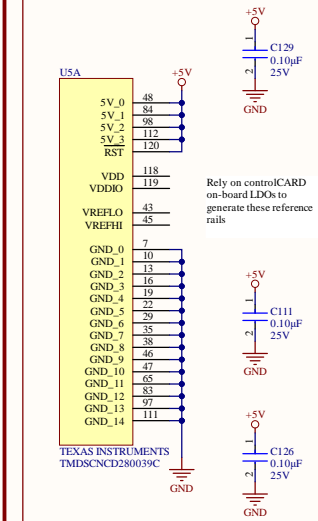
Date: 07/2023

Size: B

Revision: 1.1

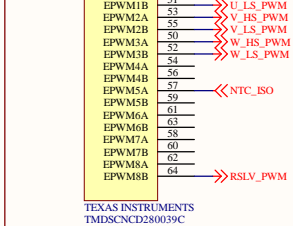
Sheet: 2 of 8

POWER

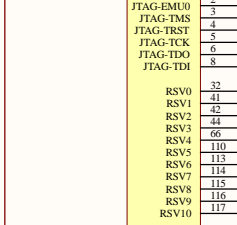


CONNECTOR: SAMTEC HSEC8-160-01-L-DV-A-BL

PWM

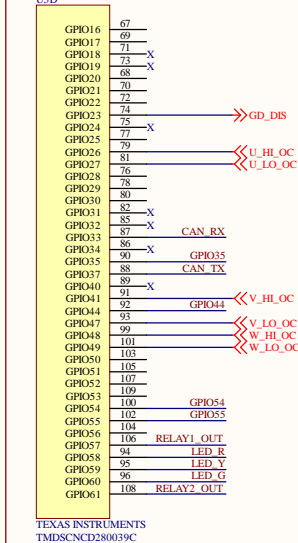


OTHER



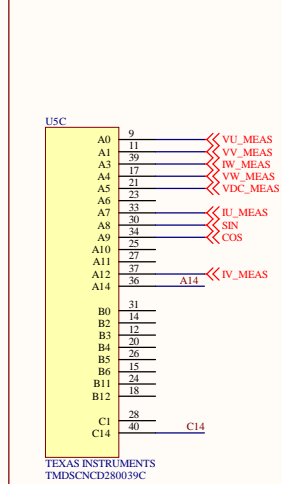
TEXAS INSTRUMENTS

GPIO



Signals labeled with "X" are preferred not to use due to pre-assigned functionality on the controller such as boot-mode

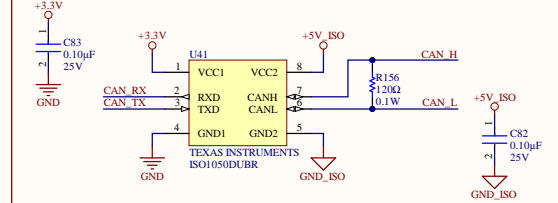
ANALOG



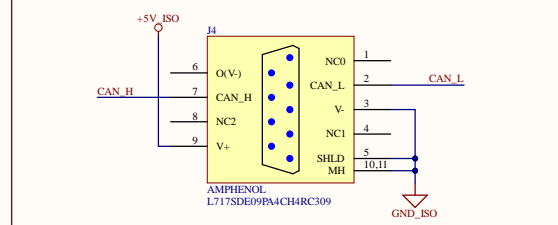
TEXAS INSTRUMENTS
TMDSCNCD280039C

CAN

COMMUNICATION



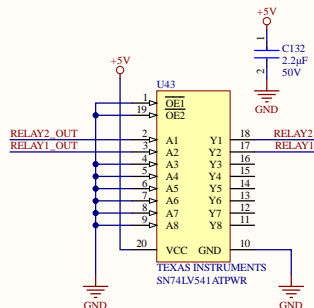
CONNECTOR



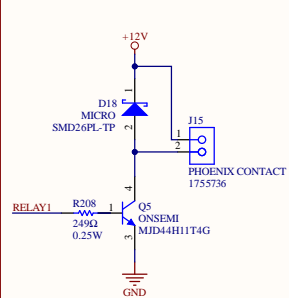
AMPHENOL
L717SDE09PA4CH4RC309

RELAYS

BUFFER

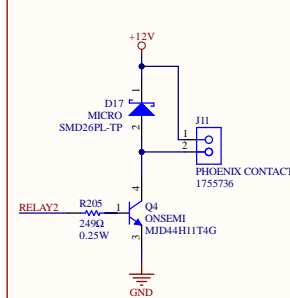


RELAY #1

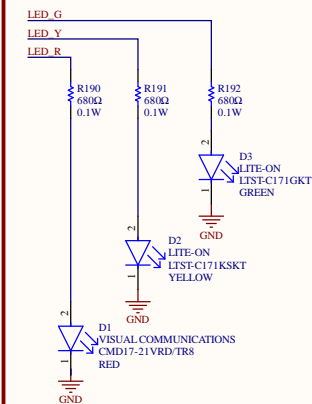


Mating Connectors:
 - Connector with Wires Parallel to the PCB: Phoenix Contact 1792757
 - Connector with Wires Perpendicular to the PCB: Phoenix Contact 1754449

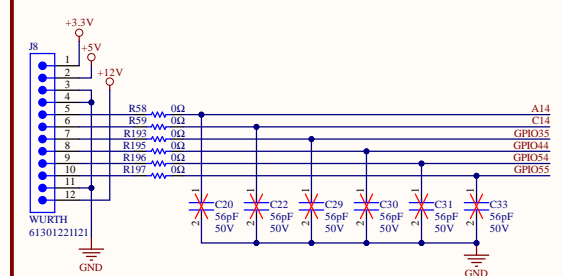
RELAY #2



PROGRAMMABLE LEDS



SPARE INPUTS/OUTPUTS



[No Variations]

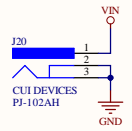
Title: Controller - 25kW WolfPACK FM3 Six-Pack Inverter

Drawing No: CRD25DA12N-FMC

Date: 07/2023

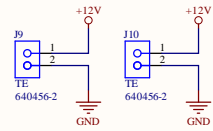
Size: B	Revision: 1.1	Sheet: 3 of 8
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INPUT AUX POWER

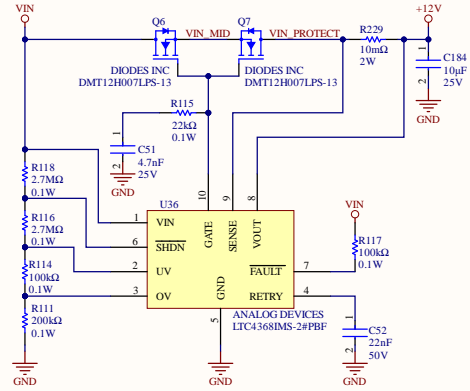


MATING: CUI DEVICES PP3-002A

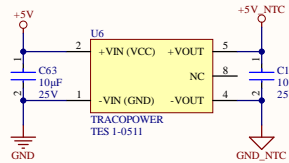
EXTERNAL FAN POWER



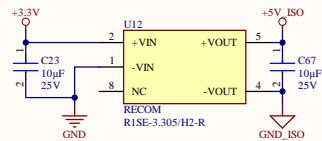
INPUT POWER CONDITIONING



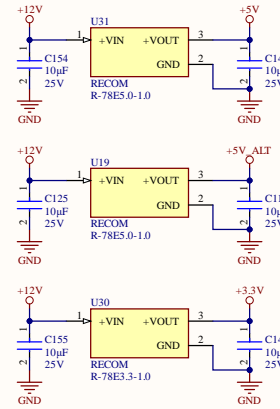
NTC ISOLATED +5V RAIL



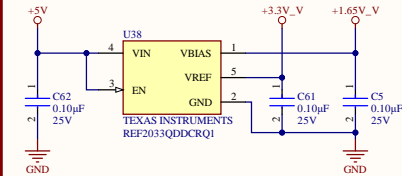
CAN ISOLATED +5V RAIL



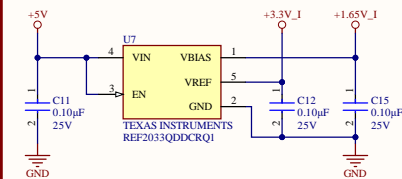
+3.3V AND +5V RAILS



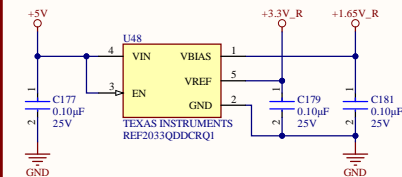
VOLTAGE REFERENCE RAILS



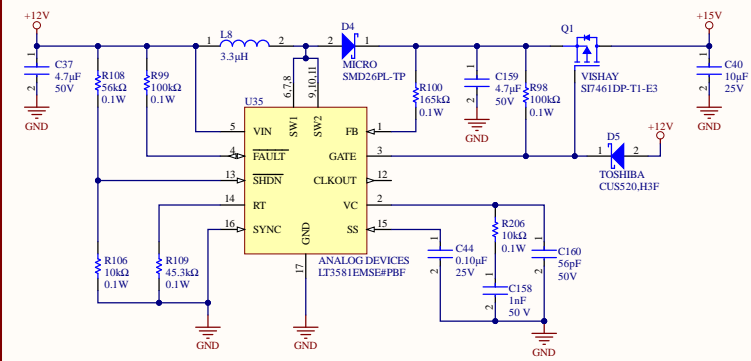
CURRENT REFERENCE RAILS



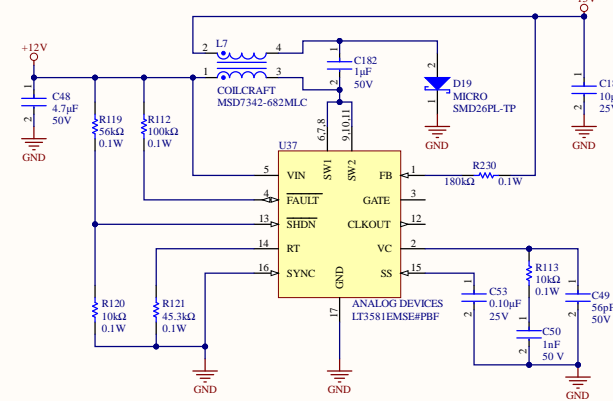
RESOLVER REFERENCE RAILS



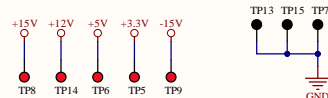
+15V RAIL



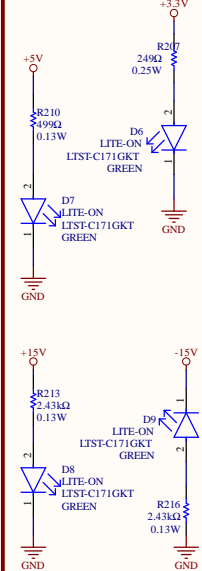
-15V RAIL



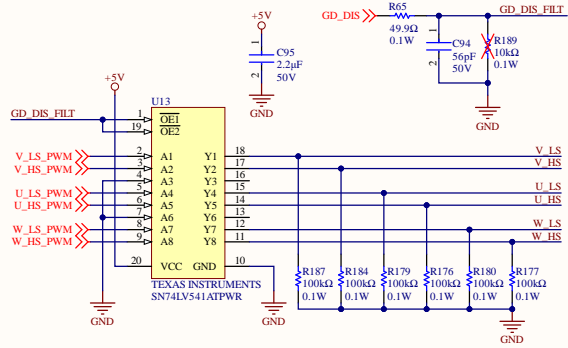
TEST POINTS



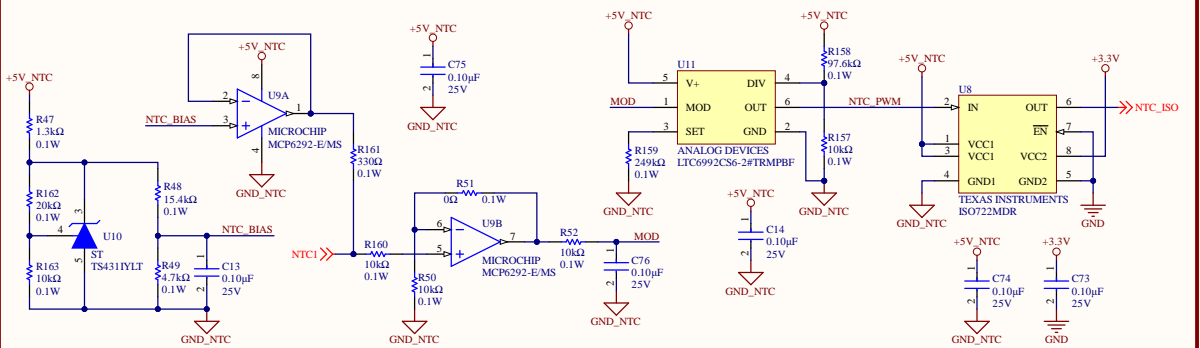
STATUS LEDS



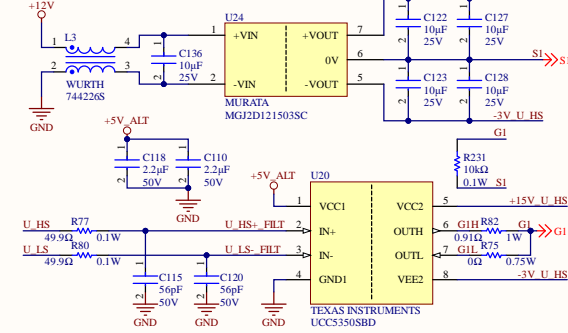
GATE DRIVER BUFFER



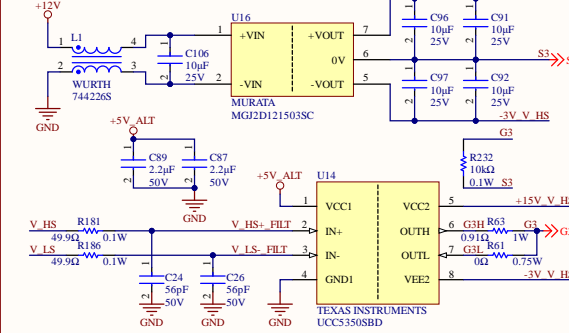
TEMPERATURE MEASUREMENT



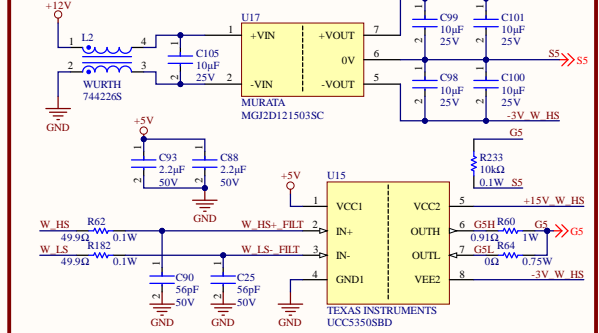
U-HS (G1) GATE DRIVER



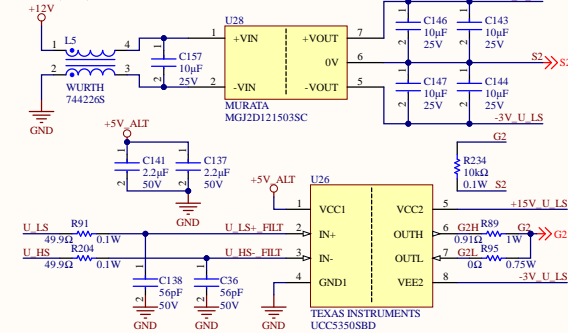
V-HS (G3) GATE DRIVER



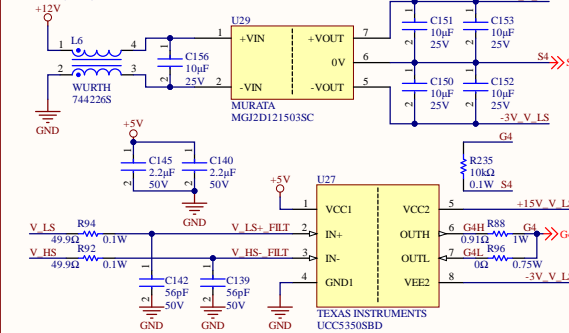
W-HS (G5) GATE DRIVER



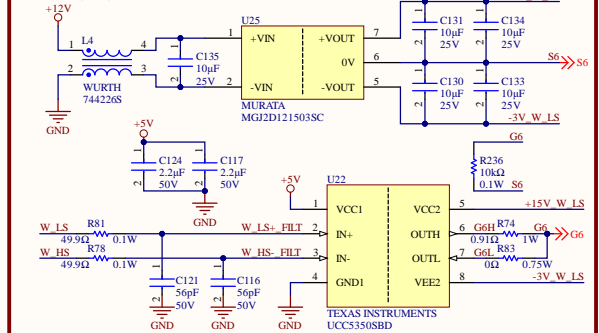
U-LS (G2) GATE DRIVER



V-LS (G4) GATE DRIVER



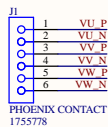
W-LS (G6) GATE DRIVER



[No Variations]

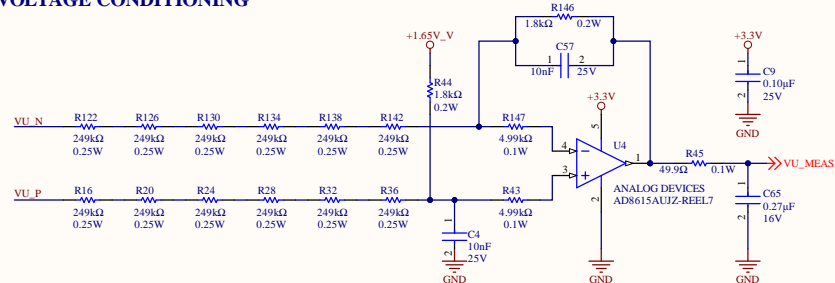
Title:	Gate Drivers - 25kW WolfPACK FM3 Six-Pack Inv.		
Drawing No:	CRD25DA12N-FMC		
Date:	07/2023	Size:	B
Revision:	1.1	Sheet:	5 of 8

AC VOLTAGE FEEDBACK

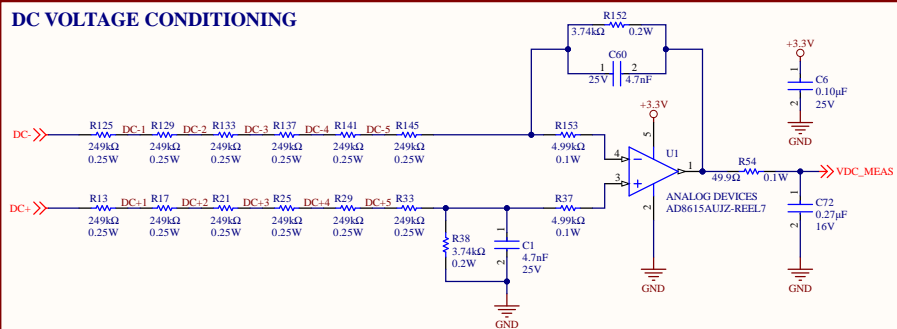


Mating Connectors:
 - Connector with Wires Parallel to the PCB: Phoenix Contact 1792799
 - Connector with Wires Perpendicular to the PCB: Phoenix Contact 1757051

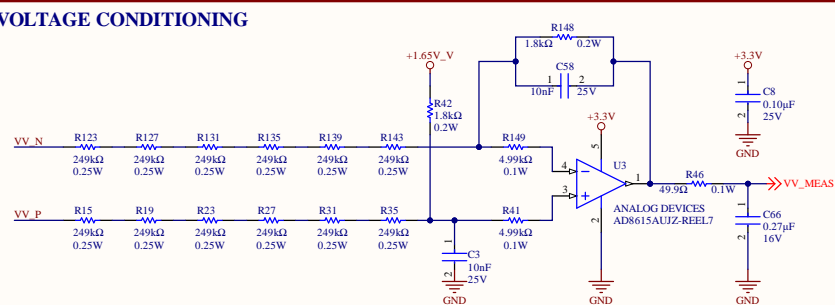
U VOLTAGE CONDITIONING



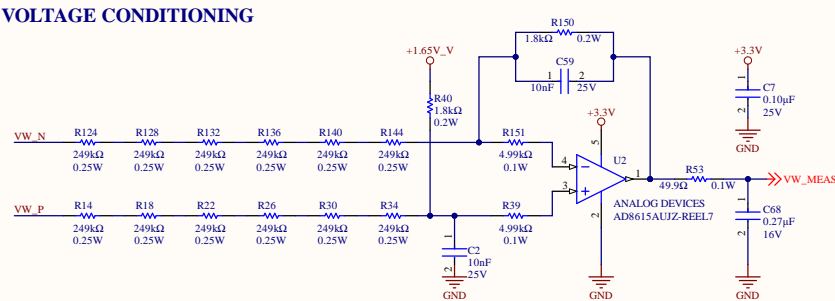
DC VOLTAGE CONDITIONING



V VOLTAGE CONDITIONING



W VOLTAGE CONDITIONING



[No Variations]

Title: Voltage Sense - 25kW WolfPACK FM3 Six-Pack Inv.

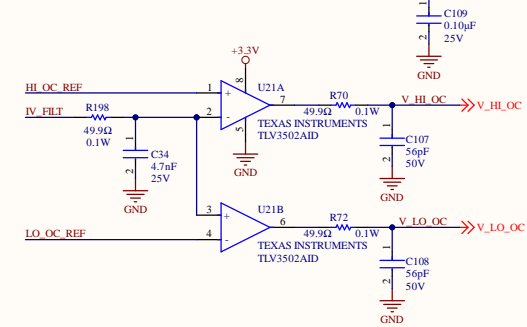
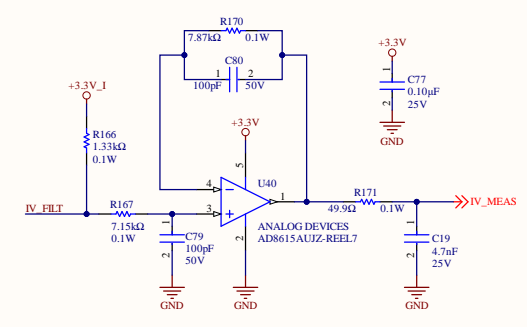
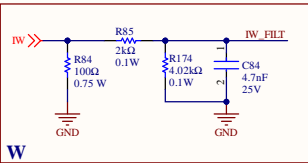
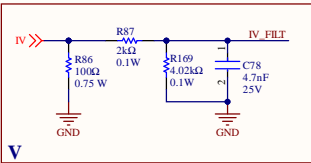
Drawing No: CRD25DA12N-FMC

Date: 07/2023

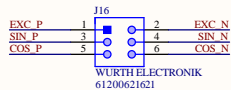
Size: B

Revision: 1.1

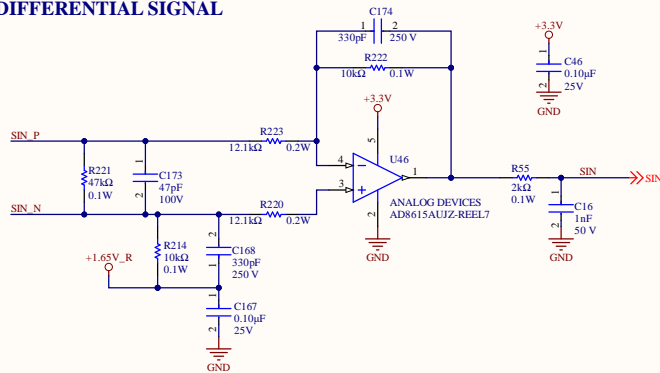
Sheet: 6 of 8



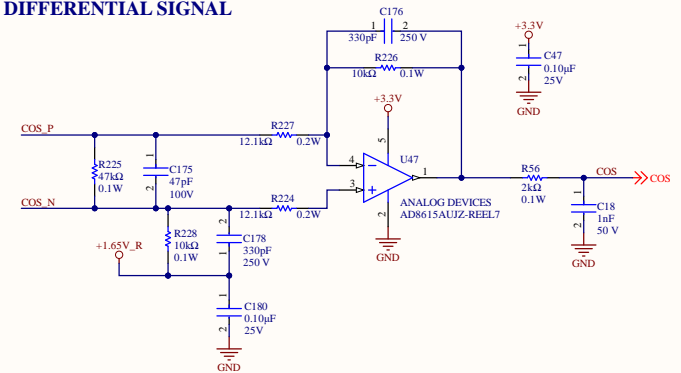
RESOLVER CONNECTOR



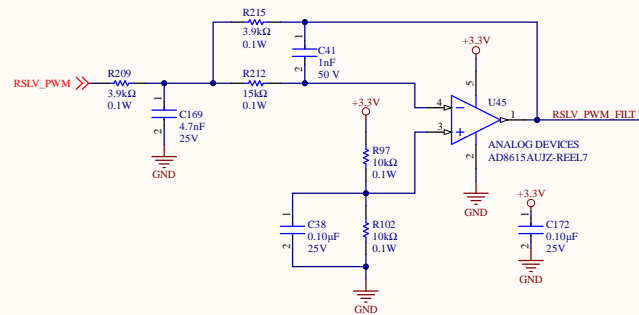
SINE DIFFERENTIAL SIGNAL



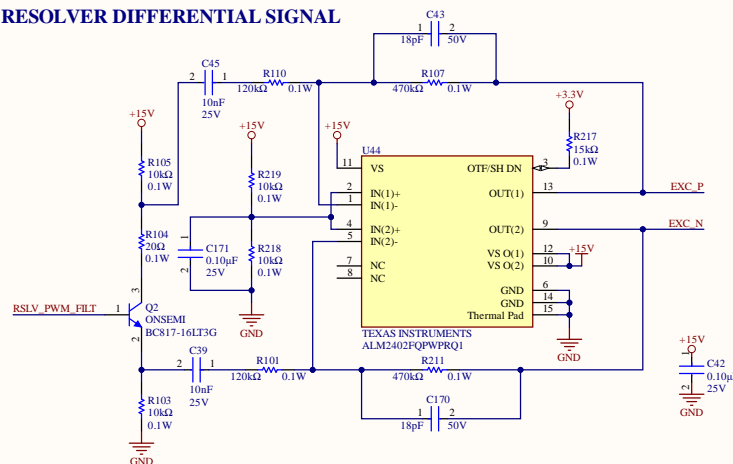
COSINE DIFFERENTIAL SIGNAL



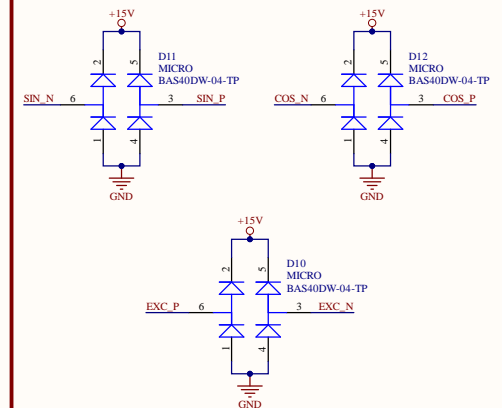
RESOLVER CONDITIONING



RESOLVER DIFFERENTIAL SIGNAL



PROTECTION



Wolfspeed

[No Variations]

Title: Resolver - 25kW WolfPACK FM3 Six-Pack Inverter

Drawing No: CRD25DA12N-FMC

Date: 07/2023

Size: B

Revision: 1.1

Sheet 8 of 8