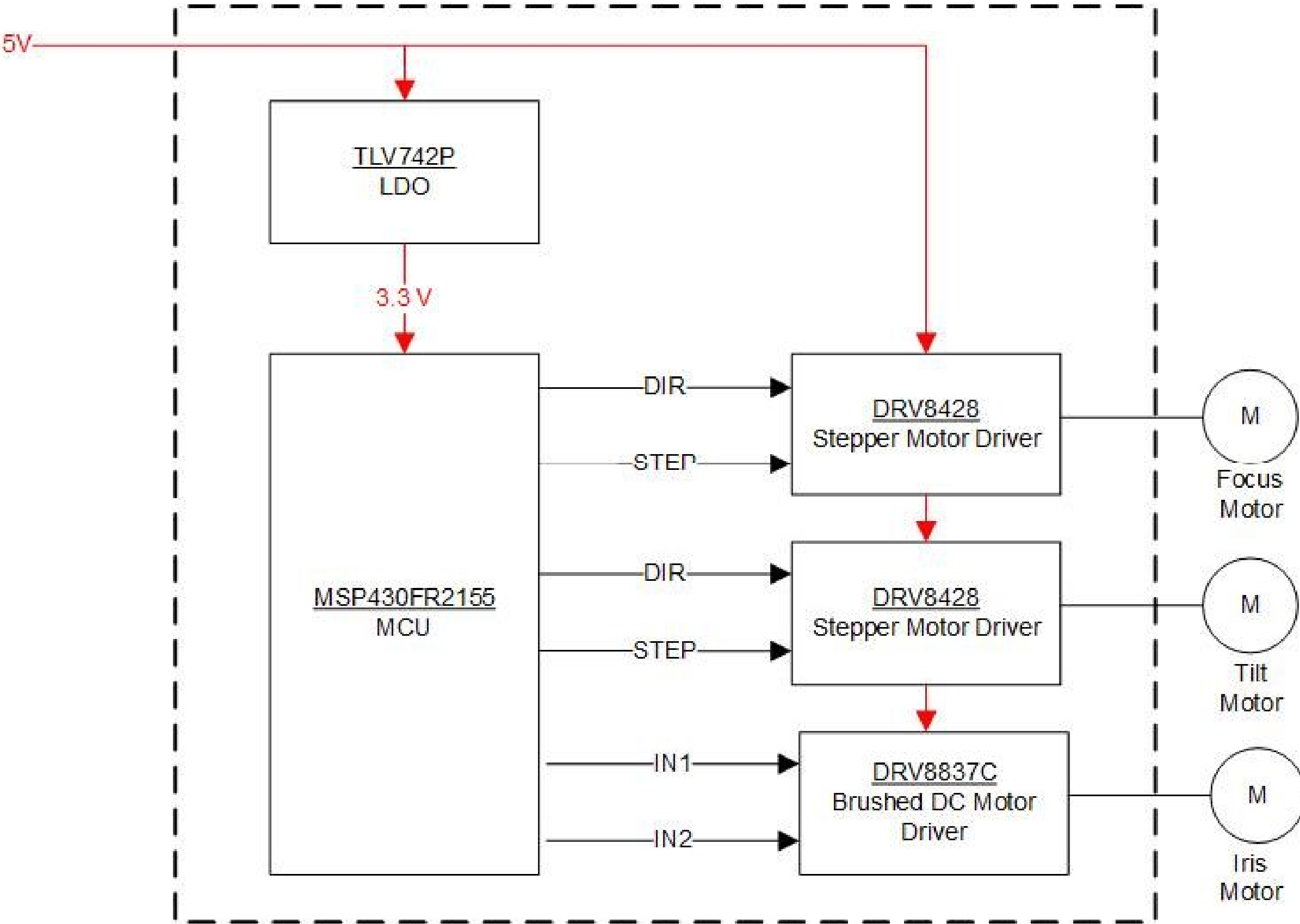



Block Diagram - Motor Module

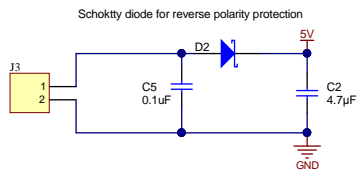


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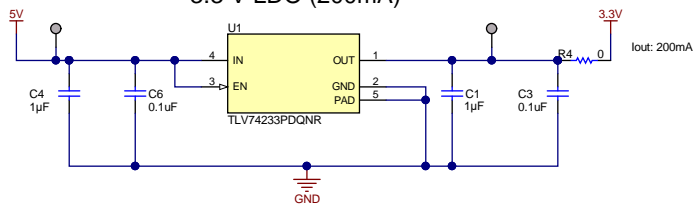
Orderable: ChangeMe in variant	Designed for: Public Release	Mod. Date: 6/4/2021	
TID #: N/A	Project Title: SLAAE27 Motor Module		
Number: SLAAE27	Rev: E1	Sheet Title: SLAAE27 Block Diagram	
SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 1 of 3	
Drawn By: Sakshi Markhedkar	File: SLAAE27 Block Diagram.SchDoc	Size: A2	
Engineer: Sakshi Markhedkar	Contact: http://www.ti.com/support		http://www.ti.com

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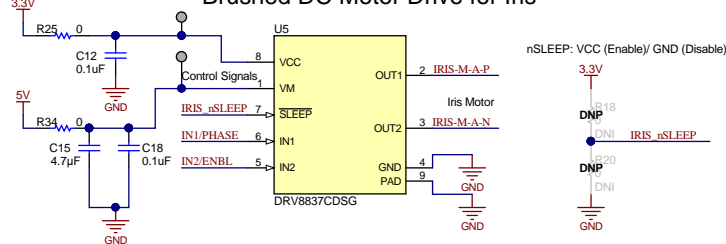
Power Supply Connector



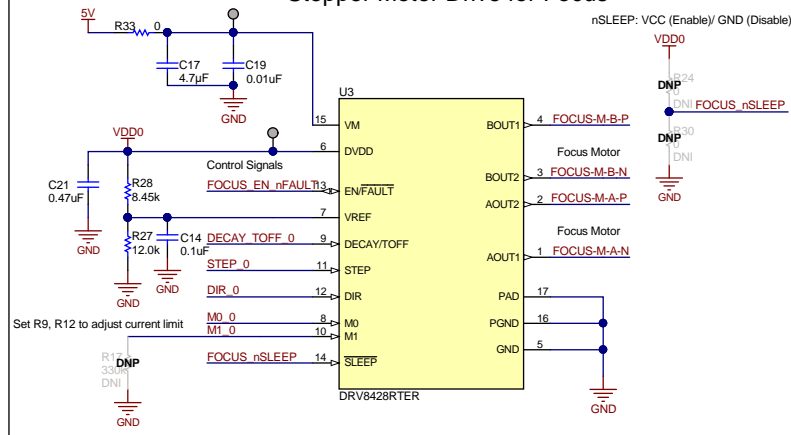
3.3 V LDO (200mA)



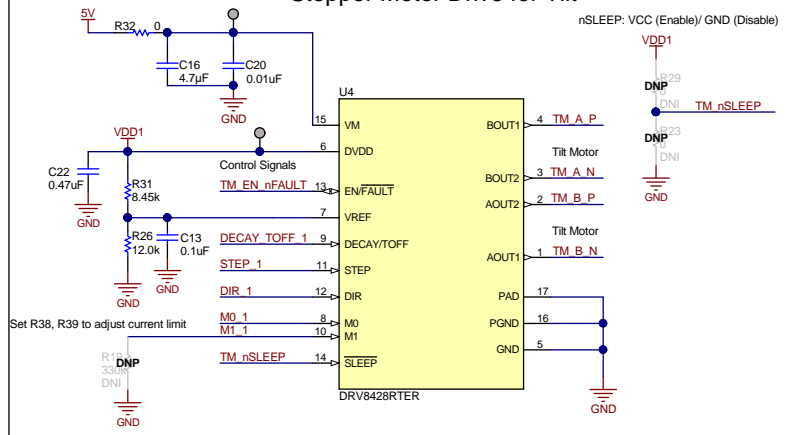
Brushed DC Motor Drive for Iris



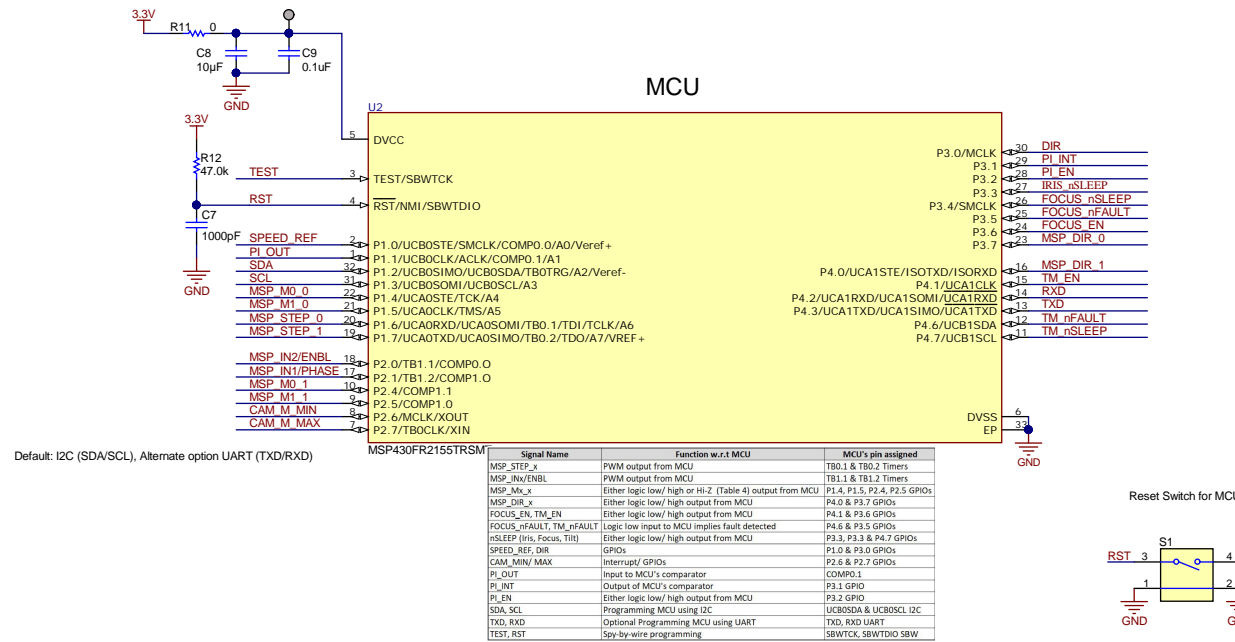
Stepper Motor Drive for Focus



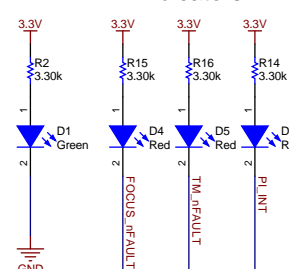
Stepper Motor Drive for Tilt



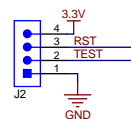
MCU



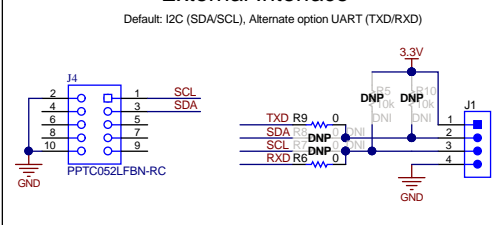
LED Indicators



SPY-BY-WIRE MCU Programming connector



External Interface



Tables: Signal names with functions w.r.t. motor driver ICs

DRV8837C Device Logic

nSLEEP	IN1	IN2	OUT1	OUT2	FUNCTION (DC MOTOR)
0	X	X	Z	Z	Coast
1	0	0	Z	Z	Coast
1	0	1	L	H	Reverse
1	1	0	H	L	Forward
1	1	1	L	L	Brake

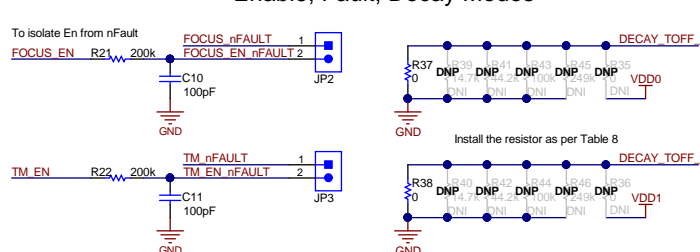
DRV8428 Micro-stepping settings

MODE0	MODE1	STEP MODE
0	0	Full step (2-phase excitation) with 100% current
0	330kΩ to GND	Full step (2-phase excitation) with 71% current
1	0	Non-circular 1/2 step
Hi-Z	0	1/2 step
0	1	1/4 step
1	1	1/8 step
Hi-Z	1	1/16 step
0	Hi-Z	1/32 step
Hi-Z	330kΩ to GND	1/64 step
Hi-Z	Hi-Z	1/128 step
1	Hi-Z	1/256 step

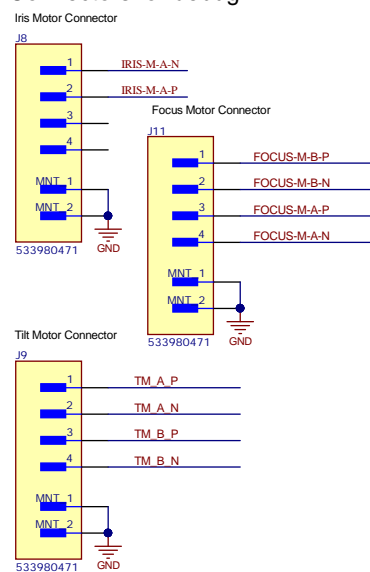
DRV8428 Decay Settings

DECAYTOFF	DECAY MODE	OFF TIME
0	Smart tune Ripple Control	-
0	14.7kΩ to GND	7μs
0	44.2kΩ to GND	16μs
0	100kΩ to GND	32μs
0	249kΩ to GND	7μs
Hi-Z	Smart tune Dynamic Decay	16μs
DVDD		32μs

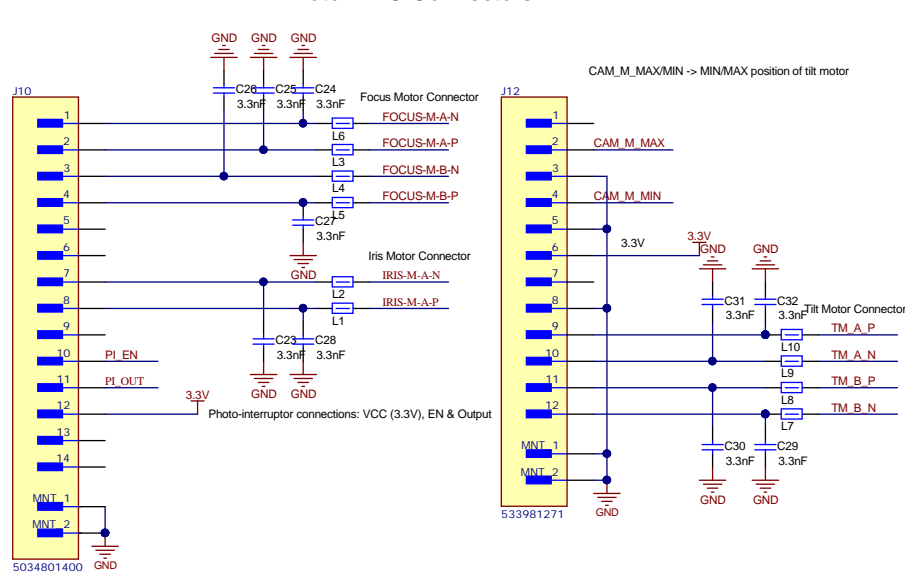
Enable, Fault, Decay Modes



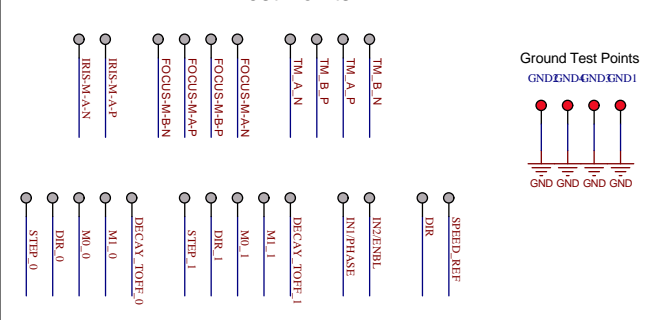
Connectors for debug



Motor FPC Connectors



Test Points



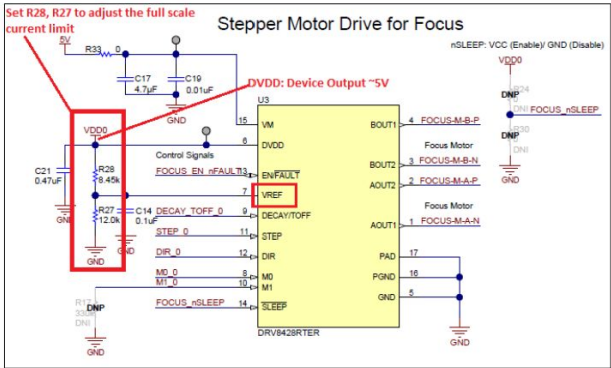
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Additionally full scale current limit for stepper motor can be set by setting the resistor divider present at the VREF pin of stepper motor driver.

Full scale current (A) = (Voltage(V) at VREF Pin) / (3V)

= { 5 * [12k ÷ (12k + 8.45k)] } / 3

= 0.98 A



H4
SJ-5303 (CLEAR)

H1
SJ-5303 (CLEAR)

H2
SJ-5303 (CLEAR)

H3
SJ-5303 (CLEAR)

DNP
FID3

DNP
FID1

DNP
FID2

PCB Number: SLAAE27
PCB Rev: E1



PCB
LOGO
FCC disclaimer

PCB
LOGO
WEEE logo

PCB
LOGO
Pb-Free Symbol

LBL1
PCB Label
THT-14-423-10
Size: 0.65" x 0.20"

ZZ4
Label Assembly Note
This Assembly Note is for PCB labels only

Variant/Label Table	
Variant	Label Text
001	ChangeMe!
002	ChangeMe!

ZZ3
Assembly Note
These assemblies are ESD sensitive, ESD precautions shall be observed.

ZZ2
Assembly Note
These assemblies must be clean and free from flux and all contaminants. Use of no clean flux is not acceptable.

ZZ1
Assembly Note
These assemblies must comply with workmanship standards IPC-A-610 Class 2, unless otherwise specified.