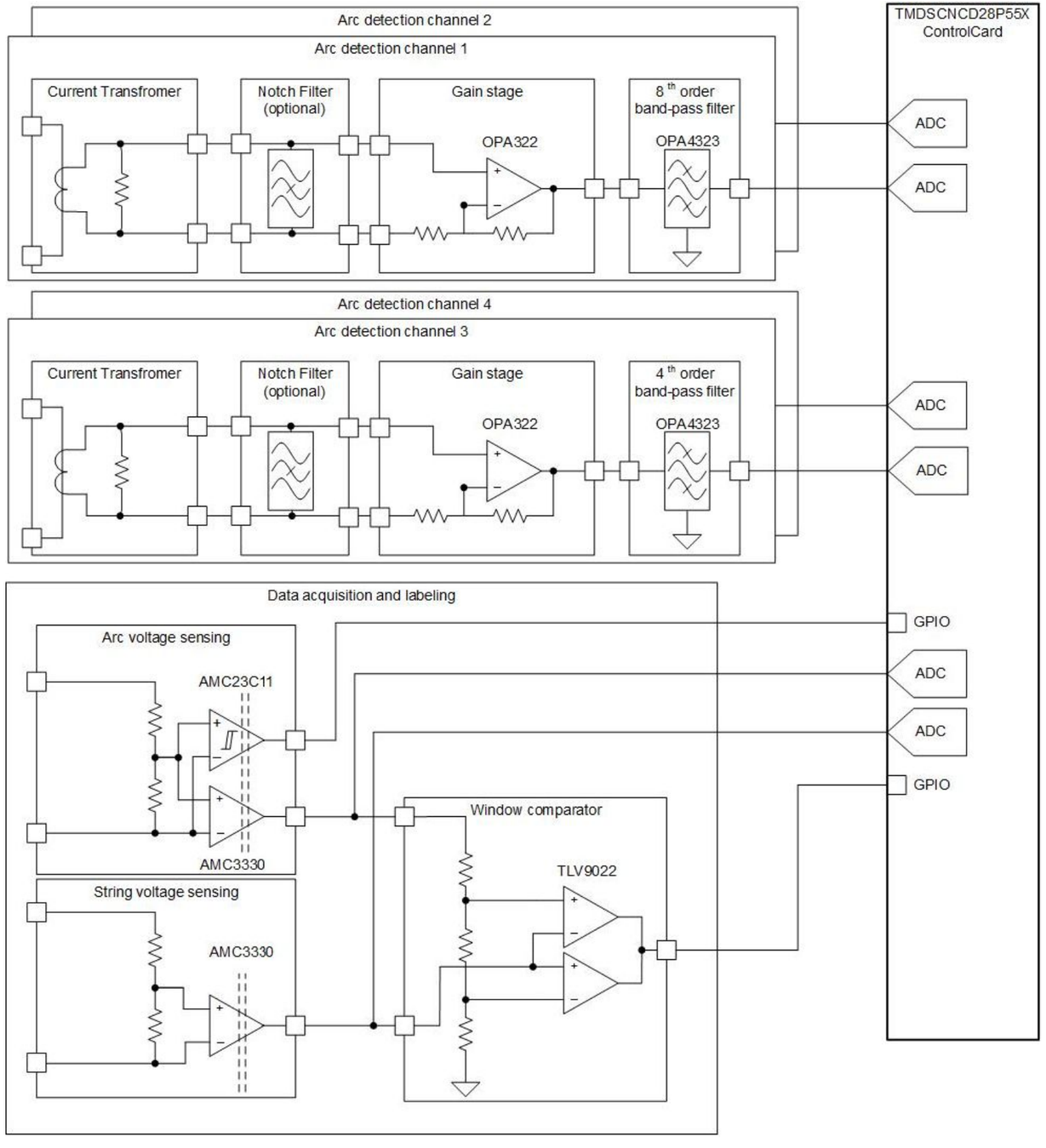
TIEVM-ARC-AFE



Orderable: TIEVM_ARC_AFE		Designed for: Public Release	Mod. Date: 9/23/2024
TID #: TIDA-010955		Project Title: AFE fro AI Arc Detection in solar applications	
Number: MCU156	Rev: A	Sheet Title: Block diagram	
SVN Rev: Not in version control		Assembly Variant: 001	Sheet: 1 of 7
Drawn By: Andreas Lechner		File: MCU156A_Block_Diagram.SchDoc	Size: B
Engineer: Andreas Lechner		Contact: http://www.ti.com/support	

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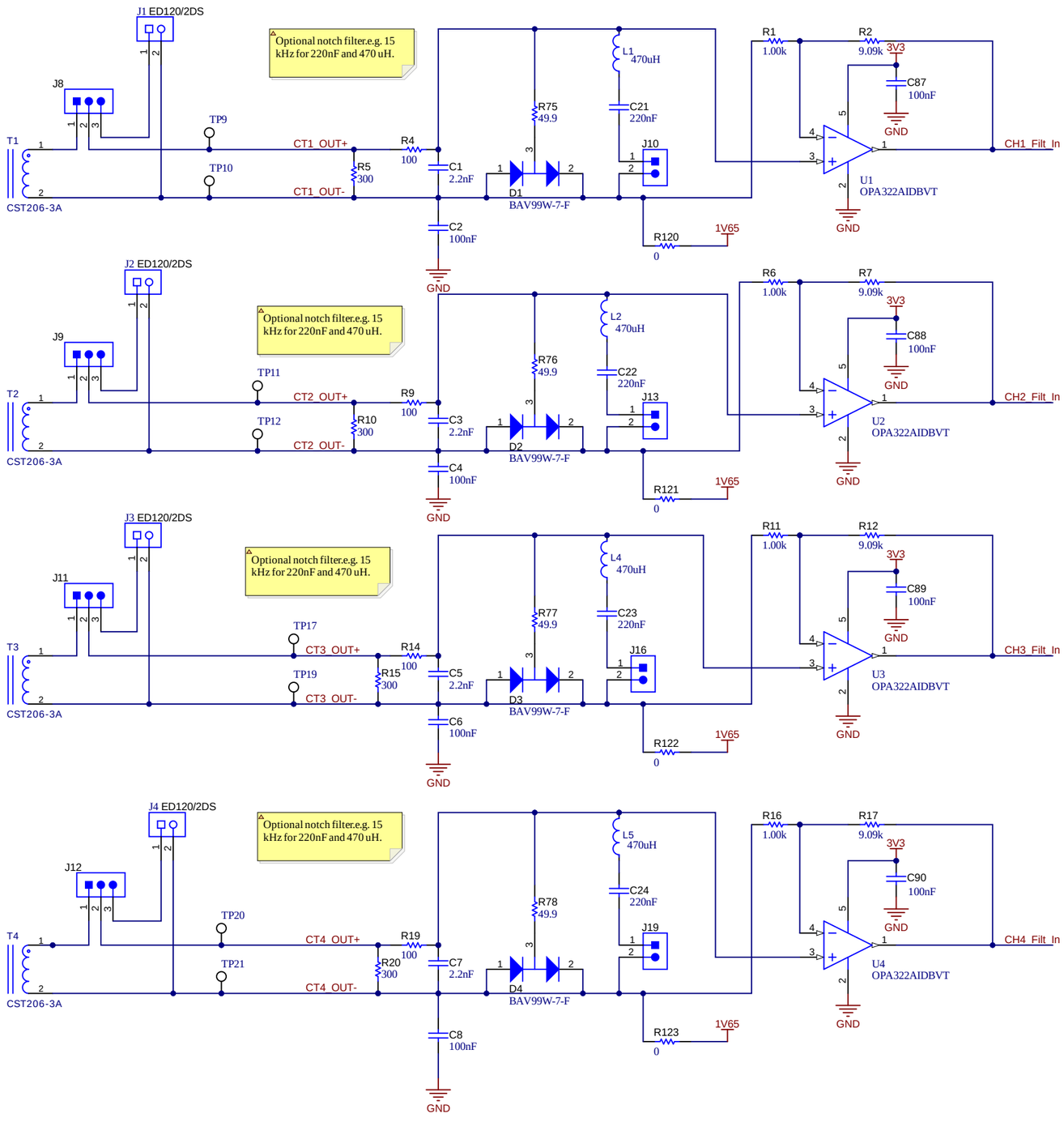

Orderable: TIEVM_ARC_AFE	Designed for: Public Release	Mod. Date: 9/23/2024
TID #: TIDA-010955	Project Title: AFE fro AI Arc Detection in solar applications	
Number: MCU156 Rev: A	Sheet Title: CT cuircuit + gain	
SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 2 of 7
Drawn By: Andreas Lechner	File: MCU156A_Current_Transformer.SchDoc	Size: B
Engineer: Andreas Lechner	Contact: http://www.ti.com/support	

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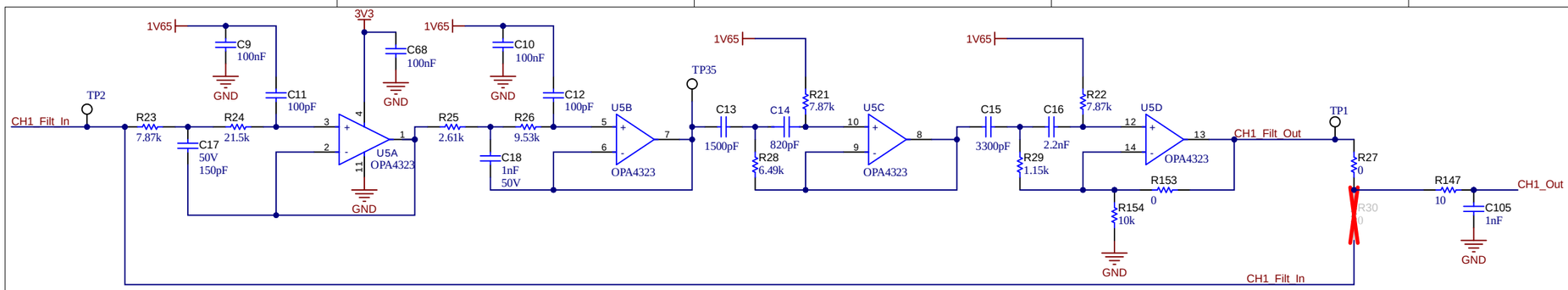

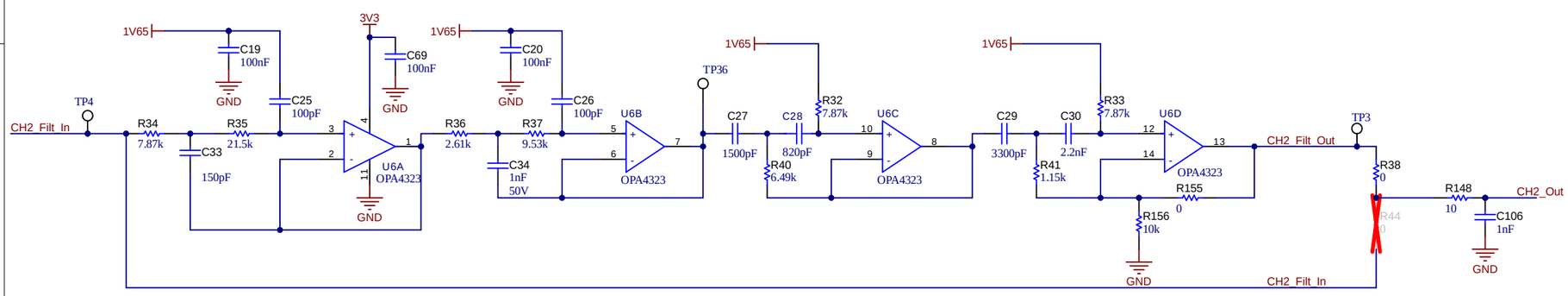

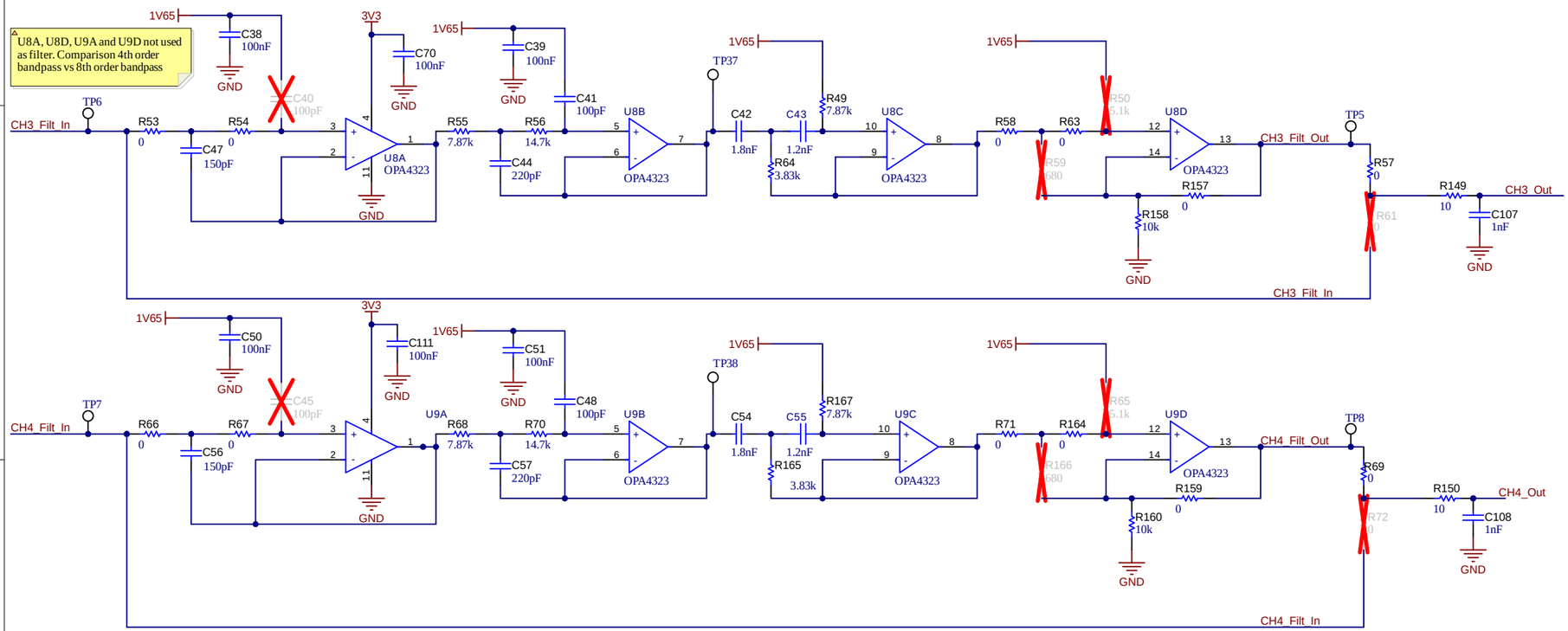

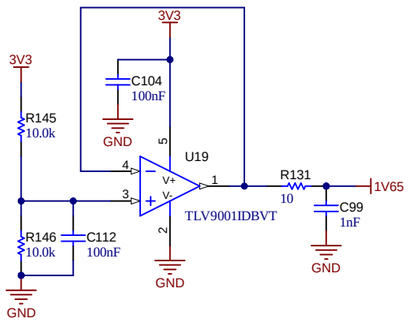

Orderable: TIEVM_ARC_AFE		Designed for: Public Release	Mod. Date: 9/23/2024
TID #: TIDA-010955		Project Title: AFE fro AI Arc Detection in solar applications	
Number: MCU156	Rev: A	Sheet Title: Filter Stage	
SVN Rev: Not in version control		Assembly Variant: 001	Sheet: 3 of 7
Drawn By: Andreas Lechner		File: MCU156A_Filter.SchDoc	Size: B
Engineer: Andreas Lechner		Contact: http://www.ti.com/support	

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WIndow comparator for arc indication:
Lower theshold 10V at 800V
Upper threshold 100V at 800V

String voltage sensing:
Max sensing voltage 1500 V
Max input voltage = 1 V
1500*1960/(316000*10+1960) = 0.93 V

Arc indication threhold:
VRef = 20mV
Vthreshold = 0.02V *
(10*316000+6490)/6490 = 9.75 V

Arc gap voltage sensing:
Max input voltage 1500 V
(clearance/creepage)
Max sensing voltage 450 V
Max input voltage = 1 V
450*6490/(316000*10+6490) = 0.92 V

Open Drain

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TID #: TIDA-010955		Project Title: AFE fro AI Arc Detection in solar applications	
Number: MCU156	Rev: A	Sheet Title:	
SVN Rev: Not in version control		Assembly Variant: 001	Sheet: 4 of 7
Drawn By: Andreas Lechner		File: MCU156A_Voltage_Sensing.SchDoc	Size: A3
Engineer: Andreas Lechner		Contact: http://www.ti.com/support	

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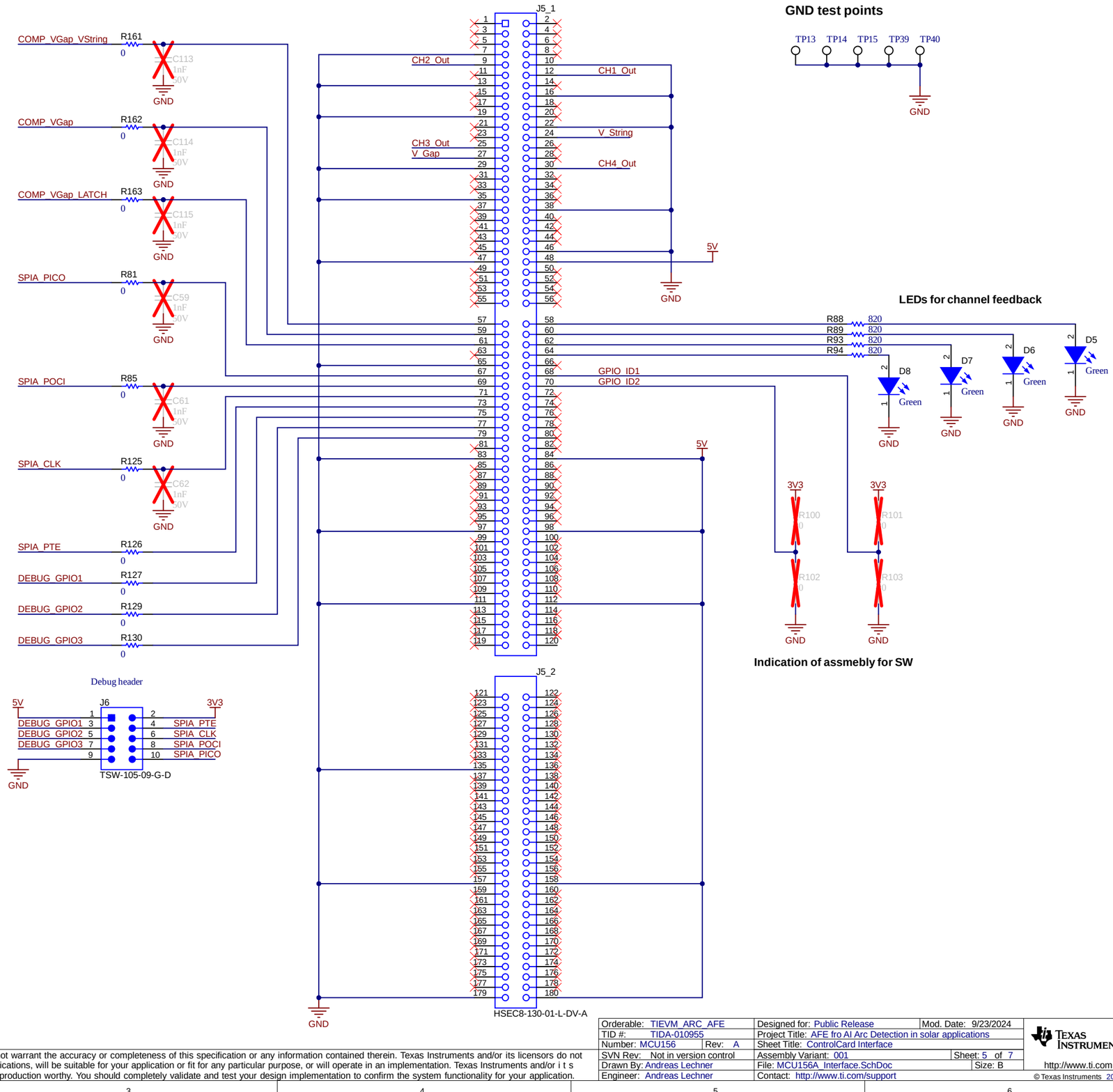

Orderable: TIEVM_ARC_AFE	Designed for: Public Release	Mod. Date: 9/23/2024
TID #: TIDA-010955	Project Title: AFE fro AI Arc Detection in solar applications	
Number: MCU156 Rev: A	Sheet Title: ControlCard Interface	
SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 5 of 7
Drawn By: Andreas Lechner	File: MCU156A_Interface.SchDoc	Size: B
Engineer: Andreas Lechner	Contact: http://www.ti.com/support	

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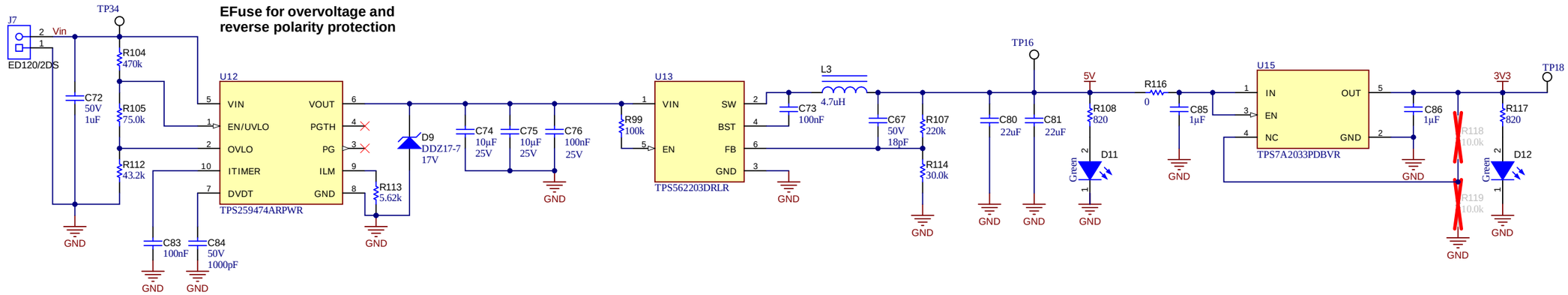
Vin: 8V to 16V

EFuse for overvoltage and reverse polarity protection



Orderable: TIEVM_ARC_AFE		Designed for: Public Release	Mod. Date: 9/23/2024
TID #: TIDA-010955		Project Title: AFE fro AI Arc Detection in solar applications	
Number: MCU156	Rev: A	Sheet Title: Power tree	
SVN Rev: Not in version control		Assembly Variant: 001	Sheet: 6 of 7
Drawn By: Andreas Lechner		File: MCU156A_Power.SchDoc	Size: B
Engineer: Andreas Lechner		Contact: http://www.ti.com/support	

H1 1 NY PMS 440 0025 PH

H2 1 NY PMS 440 0025 PH

H3 1 NY PMS 440 0025 PH

H4 1 NY PMS 440 0025 PH

H9 1 NY PMS 440 0025 PH

H11 1 NY PMS 440 0025 PH

H5 1902C

H6 1902C

H7 1902C

H8 1902C

H10 1902C

H12 1902C

FID1 Fiducial

FID2 Fiducial

FID3 Fiducial

FID4 Fiducial

FID5 Fiducial

FID6 Fiducial

M1 M2 M3 M4

PCB Number: MCU156
PCB Rev: A

PCB LOGO
Texas Instruments

PCB LOGO
FCC disclaimer

PCB LOGO
WEEE logo

DANGER HIGH VOLTAGE

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

ZZ1
Label Assembly Note
This Assembly Note is for PCB labels only

ZZ2
Assembly Note
These assemblies are ESD sensitive, ESD precautions shall be observed.

ZZ3
Assembly Note
These assemblies must be clean and free from flux and all contaminants. Use of no clean flux is not acceptable.

ZZ4
Assembly Note
These assemblies must comply with workmanship standards IPC-A-610 Class 2, unless otherwise specified.

Orderable: TIEVM_ARC_AFE		Designed for: Public Release	Mod. Date: 9/23/2024
TID #: TIDA-010955		Project Title: AFE fro AI Arc Detection in solar applications	
Number: MCU156	Rev: A	Sheet Title: Hardware	
SVN Rev: Not in version control		Assembly Variant: 001	Sheet: 7 of 7
Drawn By: Andreas Lechner		File: MCU156A_Hardware.SchDoc	Size: B
Engineer: Andreas Lechner		Contact: http://www.ti.com/support	

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