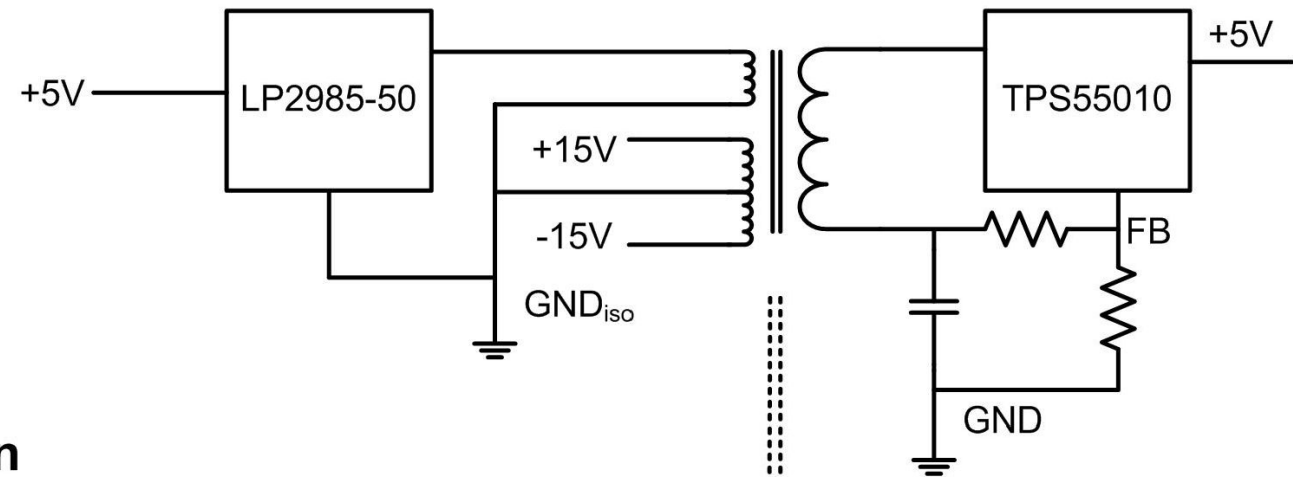


Revision History	
Revision	Notes

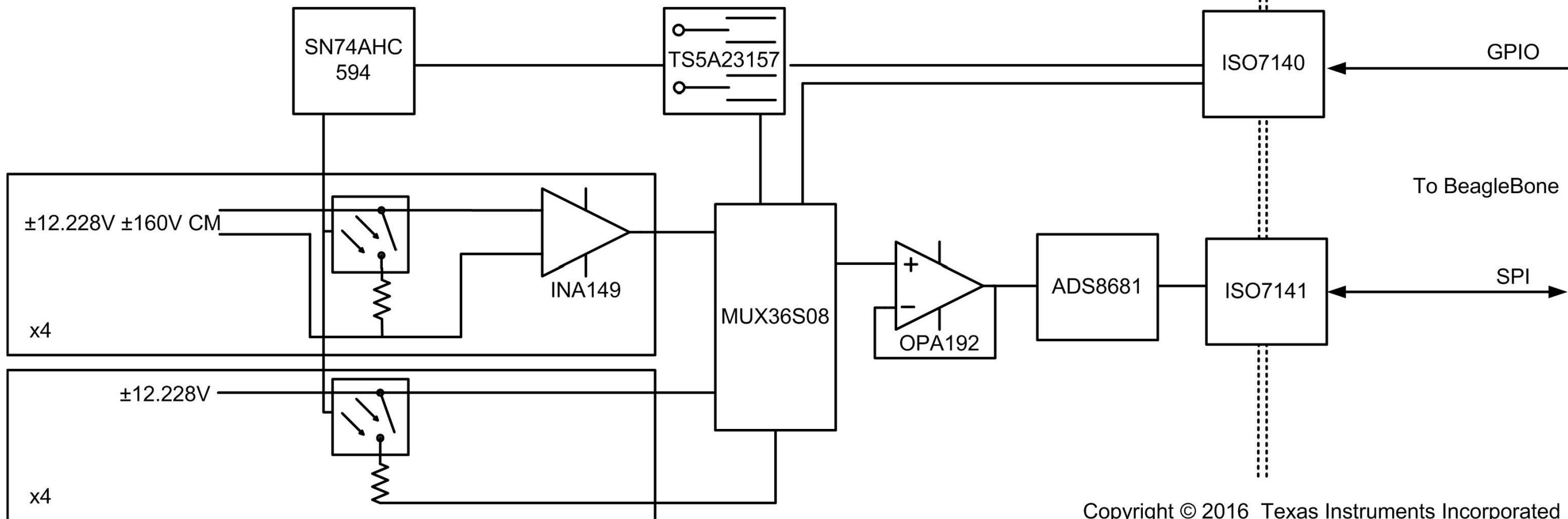
TIDA-00764

8-ch Isolated High Voltage Analog Input Module Reference Design

Power



Signal Chain

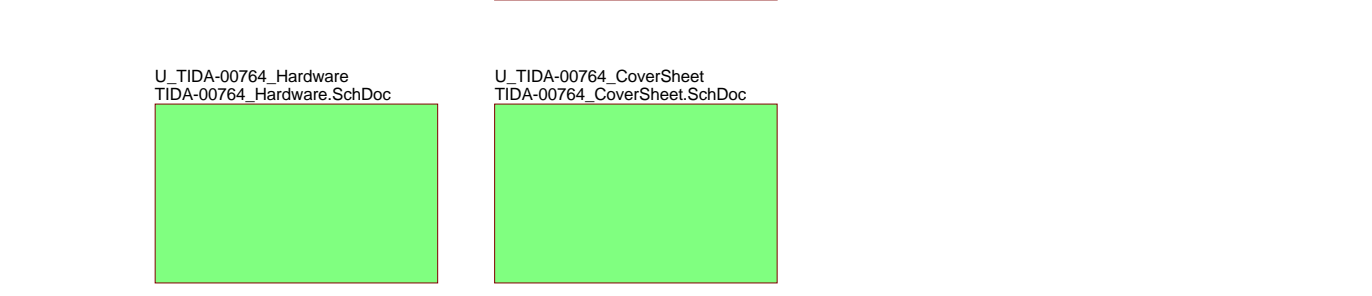
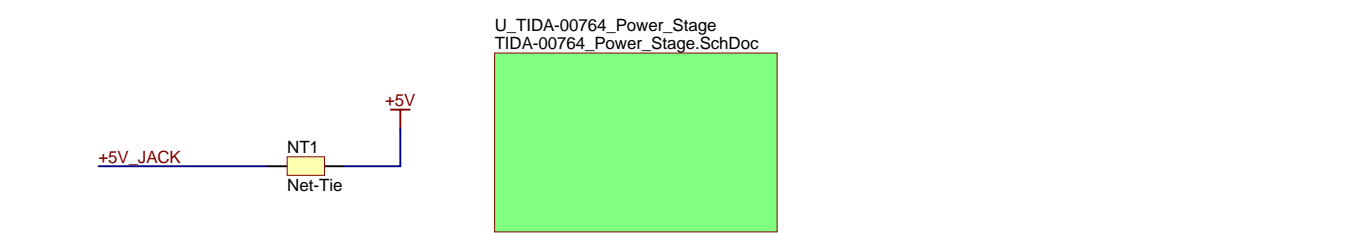
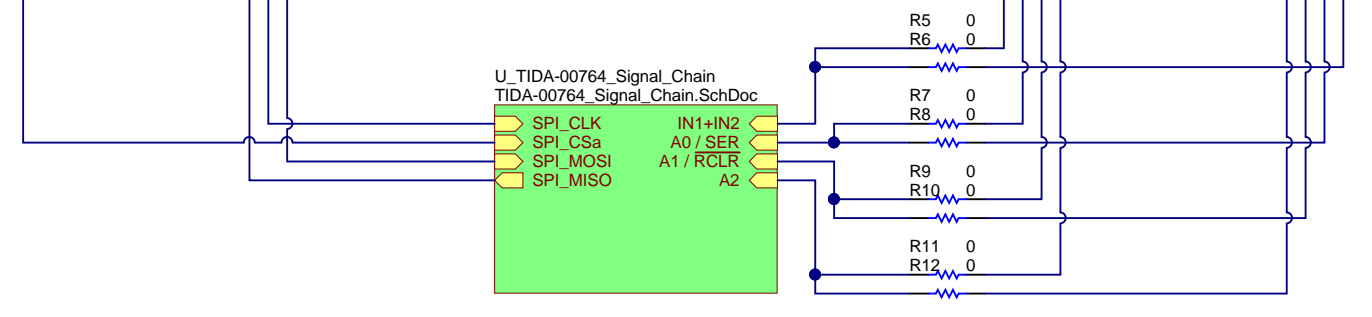
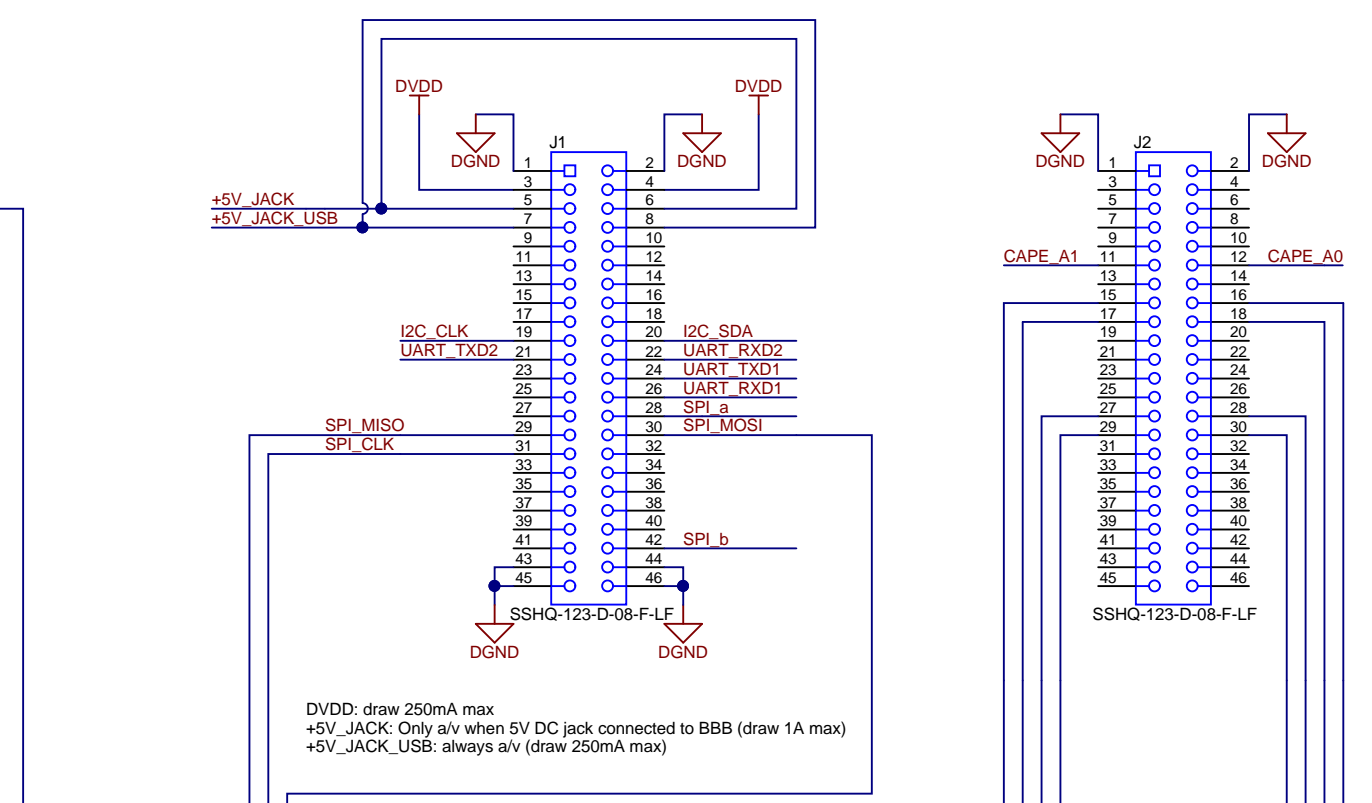
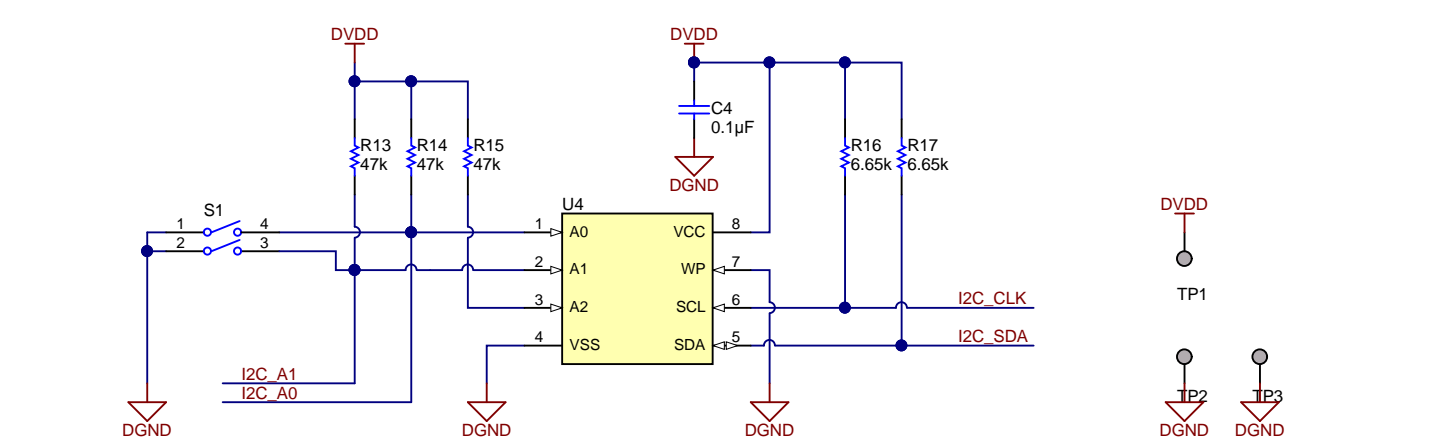
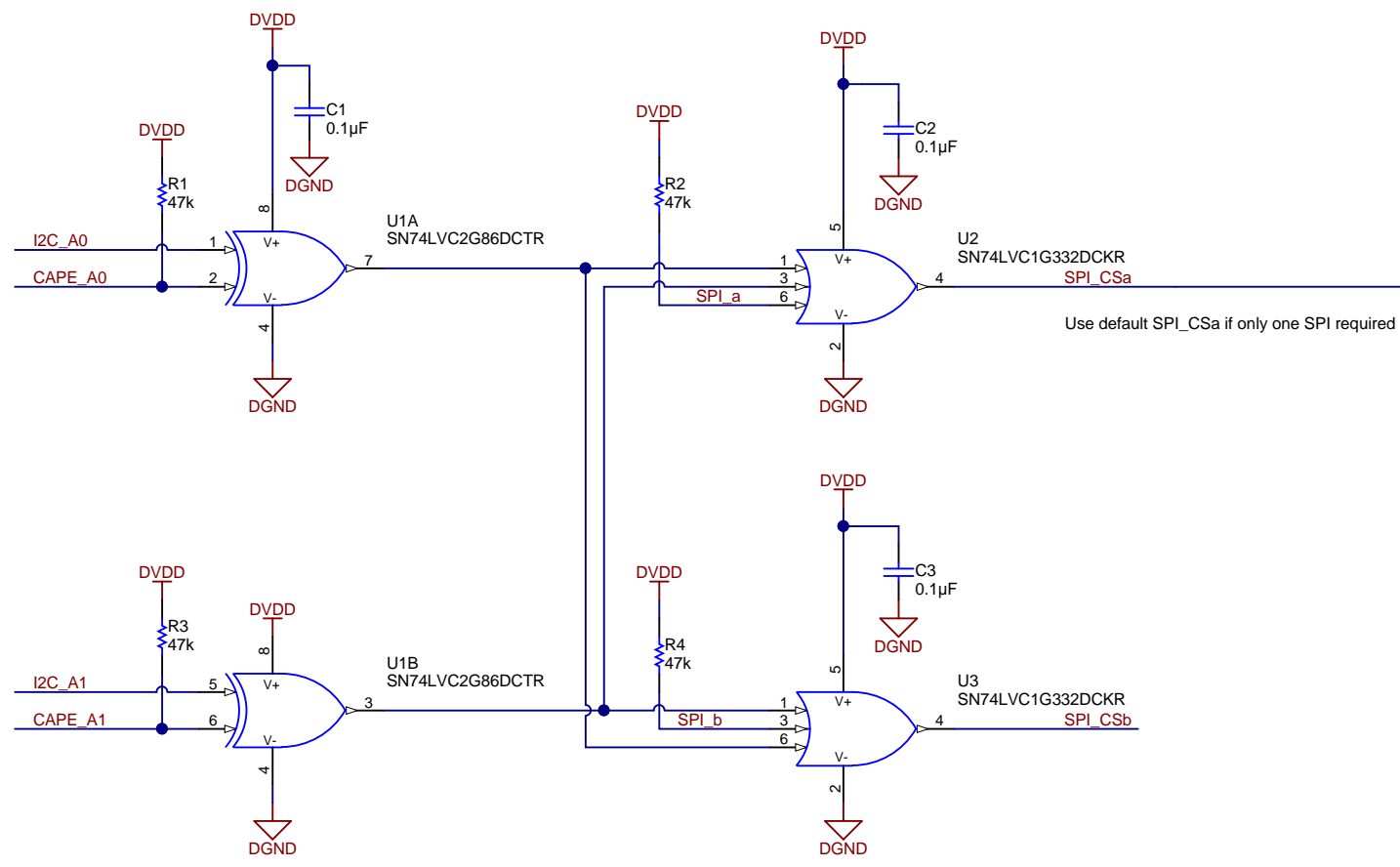


Copyright © 2016 Texas Instruments Incorporated

Orderable: N/A	Designed for: Public Release	Mod. Date: 23.06.2016
TID #: TIDA-00764	Project Title: 8-ch Isolated High Voltage Analog Input Module	
Number: TIDA-00764	Rev: E1	Sheet Title: Block Diagram
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 1 of 10
Drawn By: Tobias Puetz	File: TIDA-00764_CoverSheet_SchDoc	Size: B
Engineer: Tobias Puetz	Contact: http://www.ti.com/support	

Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

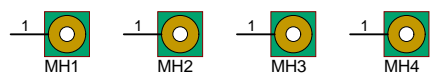




Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

Orderable: N/A	Designed for: Public Release	Mod. Date: 23.06.2016
TID #: TIDA-00764	Project Title: 8-ch Isolated High Voltage Analog Input Module	
Number: TIDA-00764	Rev: E1	Sheet Title: Cape
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 2 of 10
Drawn By: Tobias Puetz	File: TIDA-00764_Cape.SchDoc	Size: B
Engineer: Tobias Puetz	Contact: http://www.ti.com/support	





PCB Number: TIDA-00764
PCB Rev: E1

PCB
LOGO

PCB
LOGO


Label Table	
Variant	Label Text
001	TIDA-00XXX

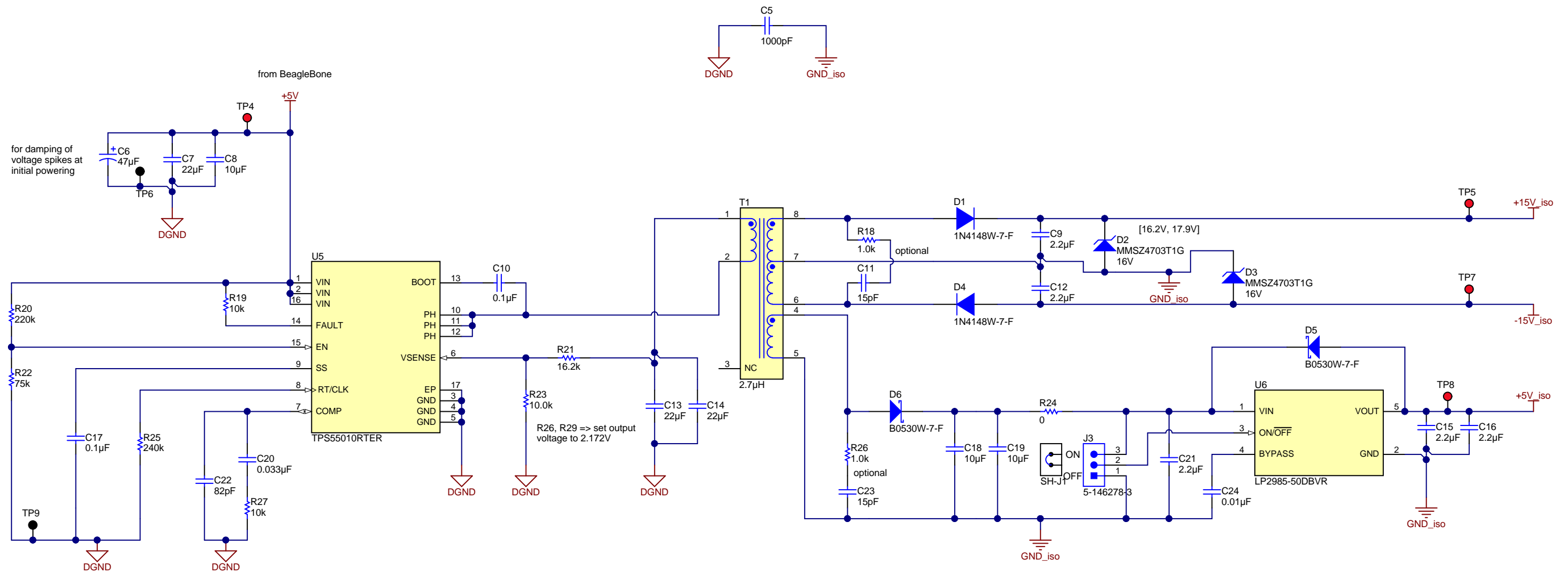
ZZ1
Assembly Note
 This Assembly Note will show in the PcbDoc and associated outputs

ZZ2
Assembly Note
 This Assembly Note will show in the PcbDoc and associated outputs

ZZ3
Assembly Note
 This Assembly Note will show in the PcbDoc and associated outputs

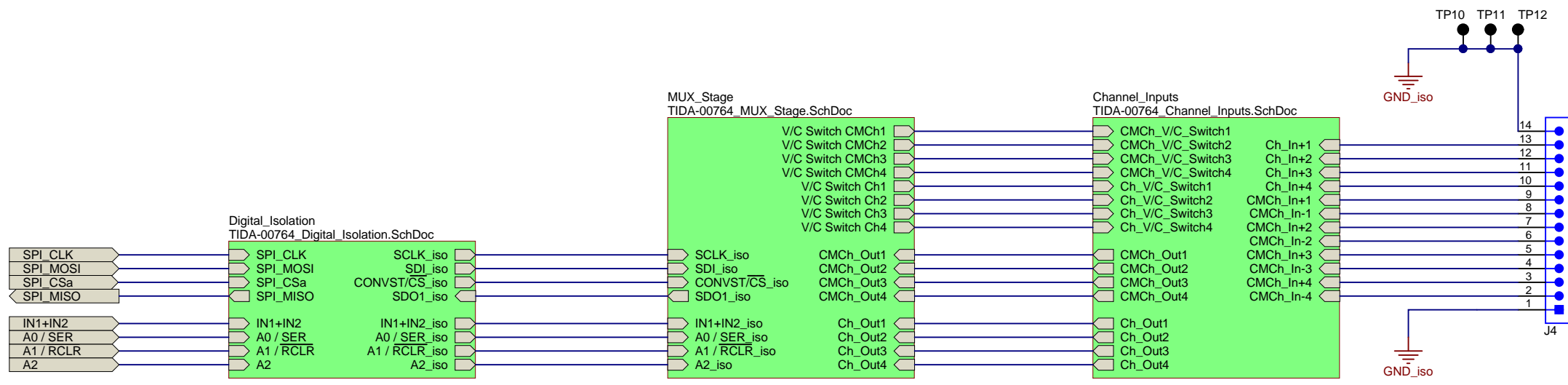
Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

Orderable: N/A	Designed for: Public Release	Mod. Date: 26.04.2016	 TEXAS INSTRUMENTS http://www.ti.com © Texas Instruments 2016
TID #: TIDA-00764	Project Title: 8-ch Isolated High Voltage Analog Input Module		
Number: TIDA-00764	Rev: E1	Sheet Title: Hardware	
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 3 of 10	
Drawn By: Tobias Puetz	File: TIDA-00764_Hardware.SchDoc	Size: B	
Engineer: Tobias Puetz	Contact: http://www.ti.com/support		



R26, R28 => set UVLO to 3.5V, operation starts at 4.5V
 C48 => set slow start to 35ms
 R30 => set operating switching frequency to 400kHz
 C50, C49, R31 => compensation





Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

Orderable: N/A	Designed for: Public Release	Mod. Date: 23.06.2016
TID #: TIDA-00764	Project Title: 8-ch Isolated High Voltage Analog Input Module	
Number: TIDA-00764	Rev: E1	Sheet Title: Signal Chain
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 5 of 10
Drawn By: Tobias Puetz	File: TIDA-00764_Signal_Chain.SchDoc	Size: B
Engineer: Tobias Puetz	Contact: http://www.ti.com/support	



<http://www.ti.com>
© Texas Instruments 2016

A

B

C

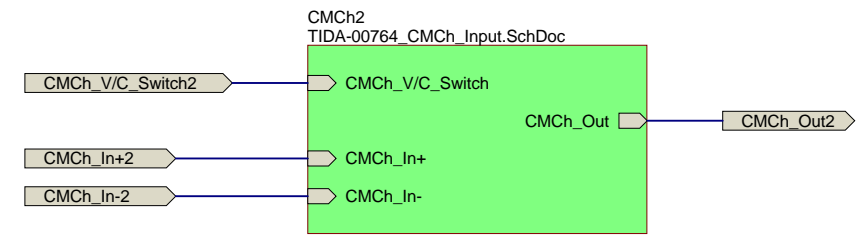
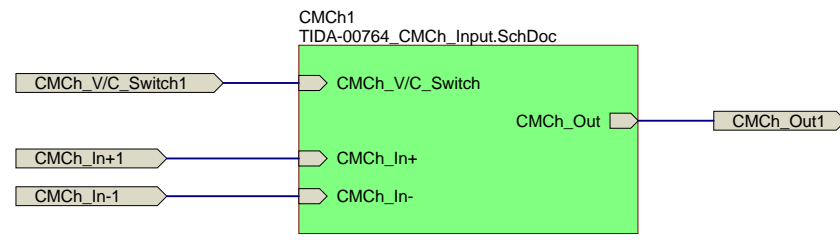
D

A

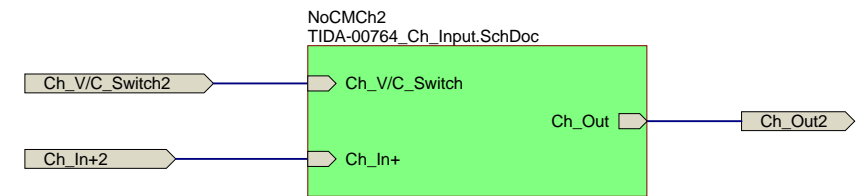
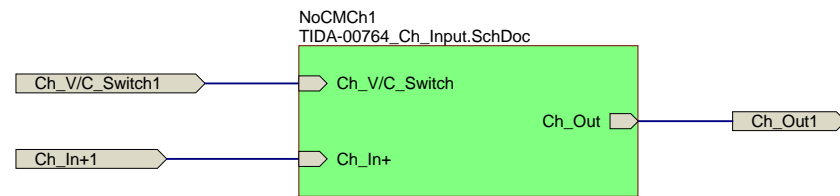
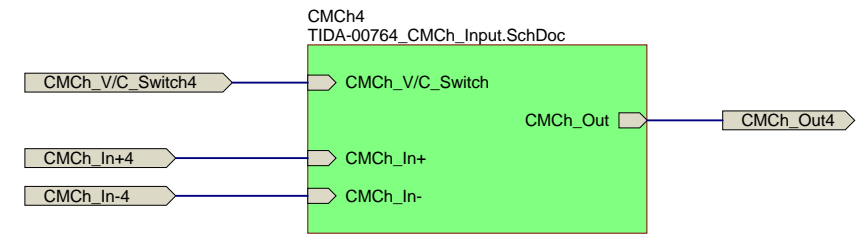
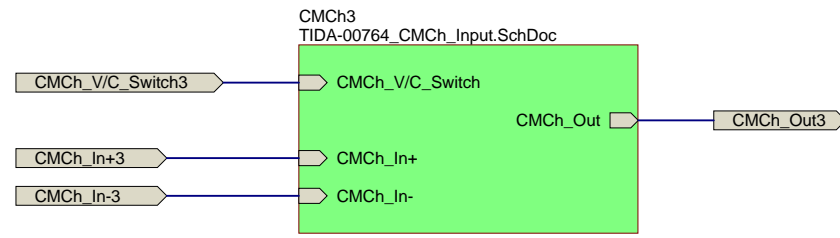
B

C

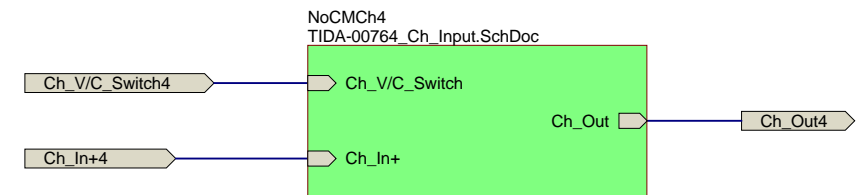
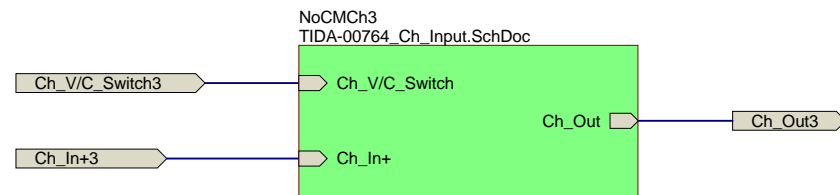
D



Channels with Common Mode



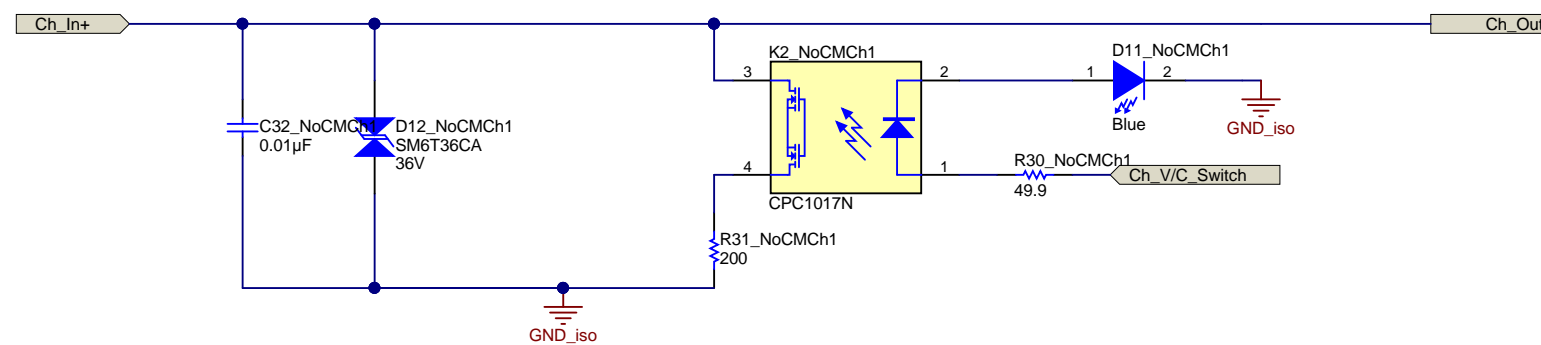
Channels without Common Mode



Orderable: N/A	Designed for: Public Release	Mod. Date: 25.04.2016
TID #: TIDA-00764	Project Title: 8-ch Isolated High Voltage Analog Input Module	
Number: TIDA-00764	Rev: E1	Sheet Title: Channel Inputs
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 6 of 10
Drawn By: Tobias Puetz	File: TIDA-00764_Channel_Inputs.SchDoc	Size: B
Engineer: Tobias Puetz	Contact: http://www.ti.com/support	

Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

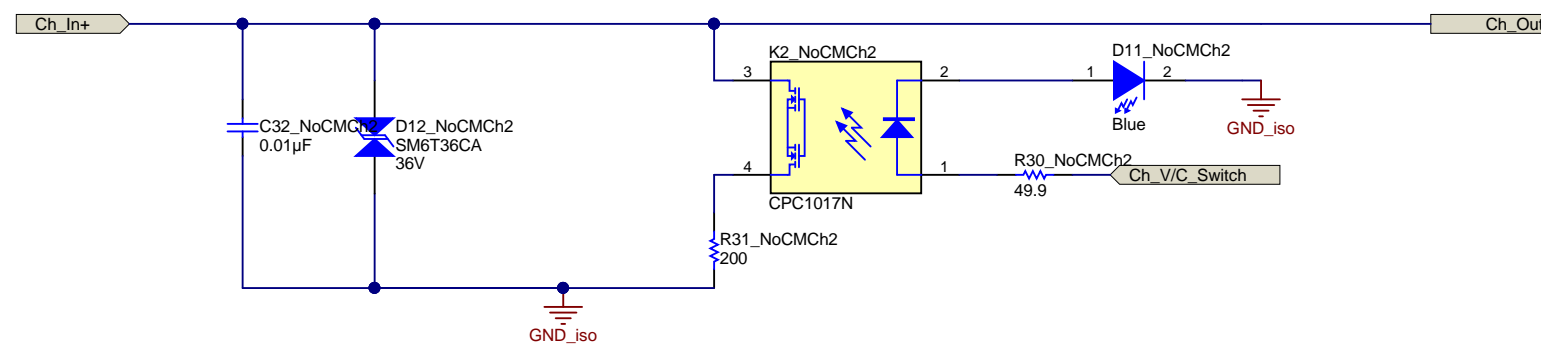




Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

Orderable: N/A	Designed for: Public Release	Mod. Date: 23.06.2016
TID #: TIDA-00764	Project Title: 8-ch Isolated High Voltage Analog Input Module	
Number: TIDA-00764	Rev: E1	Sheet Title: NoCM Ch Input
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 7 of 10
Drawn By: Tobias Puetz	File: TIDA-00764_Ch_Input.SchDoc	Size: B
Engineer: Tobias Puetz	Contact: http://www.ti.com/support	

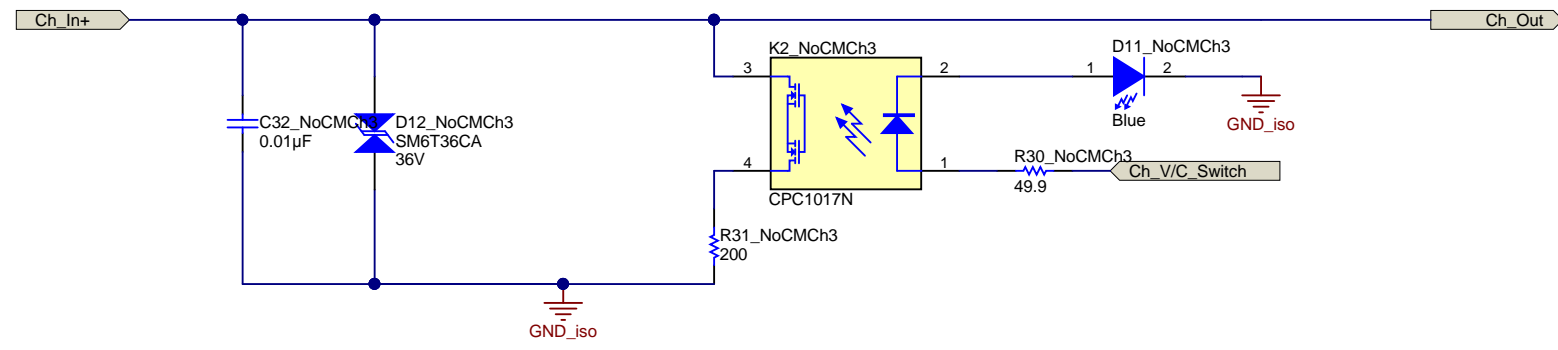




Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

Orderable: N/A	Designed for: Public Release	Mod. Date: 23.06.2016
TID #: TIDA-00764	Project Title: 8-ch Isolated High Voltage Analog Input Module	
Number: TIDA-00764	Rev: E1	Sheet Title: NoCM Ch Input
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 7 of 10
Drawn By: Tobias Puetz	File: TIDA-00764_Ch_Input.SchDoc	Size: B
Engineer: Tobias Puetz	Contact: http://www.ti.com/support	

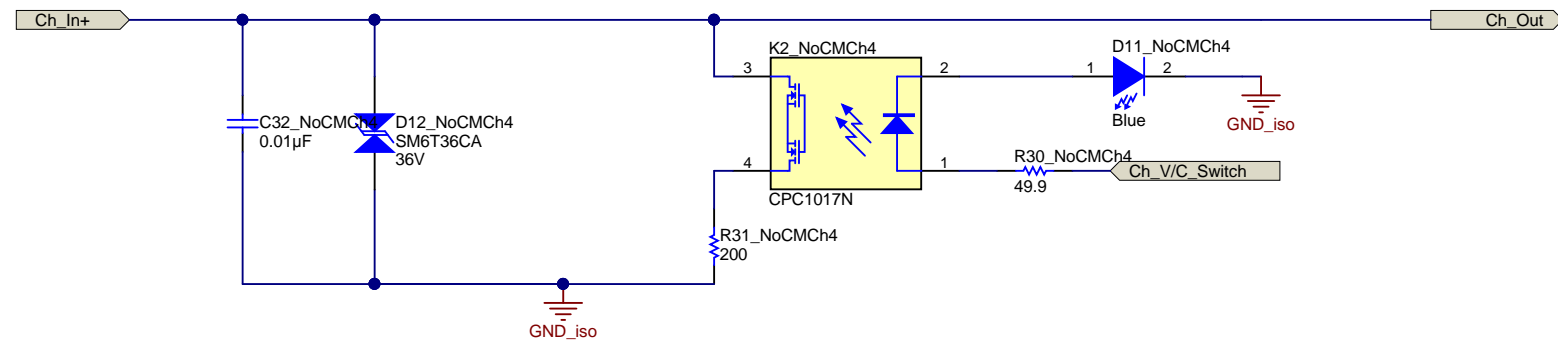





Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

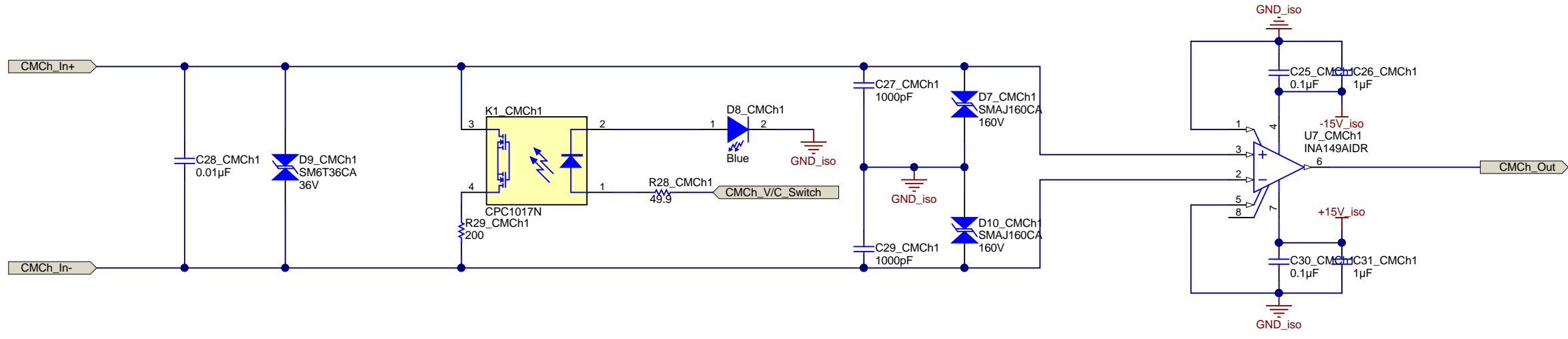
Orderable: N/A	Designed for: Public Release	Mod. Date: 23.06.2016
TID #: TIDA-00764	Project Title: 8-ch Isolated High Voltage Analog Input Module	
Number: TIDA-00764	Rev: E1	Sheet Title: NoCM Ch Input
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 7 of 10
Drawn By: Tobias Puetz	File: TIDA-00764_Ch_Input.SchDoc	Size: B
Engineer: Tobias Puetz	Contact: http://www.ti.com/support	





Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

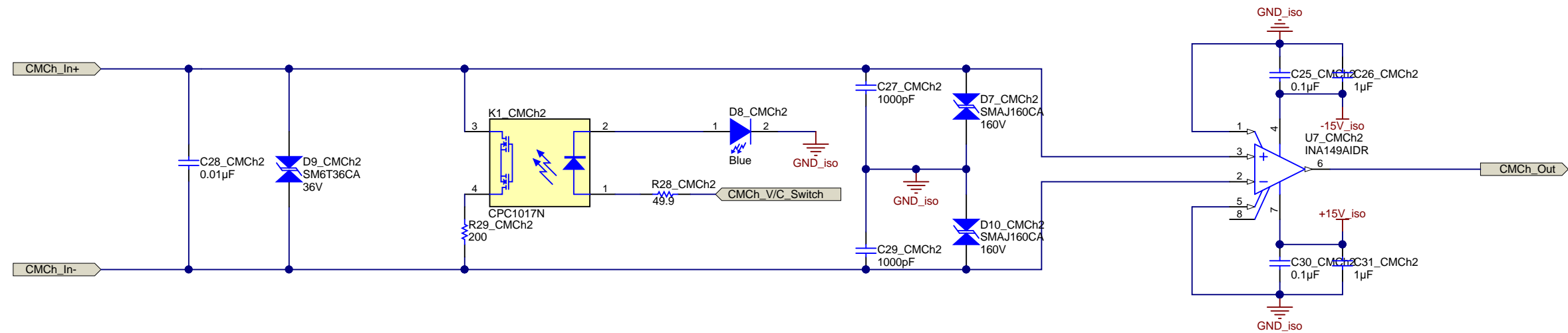
Orderable: N/A	Designed for: Public Release	Mod. Date: 23.06.2016	 http://www.ti.com
TID #: TIDA-00764	Project Title: 8-ch Isolated High Voltage Analog Input Module	Sheet: 7 of 10	
Number: TIDA-00764	Rev: E1	Sheet Title: NoCM Ch Input	Size: B
SVN Rev: Version control disabled	Assembly Variant: 001	File: TIDA-00764_Ch_Input.SchDoc	Contact: http://www.ti.com/support
Drawn By: Tobias Puetz	Engineer: Tobias Puetz		



Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

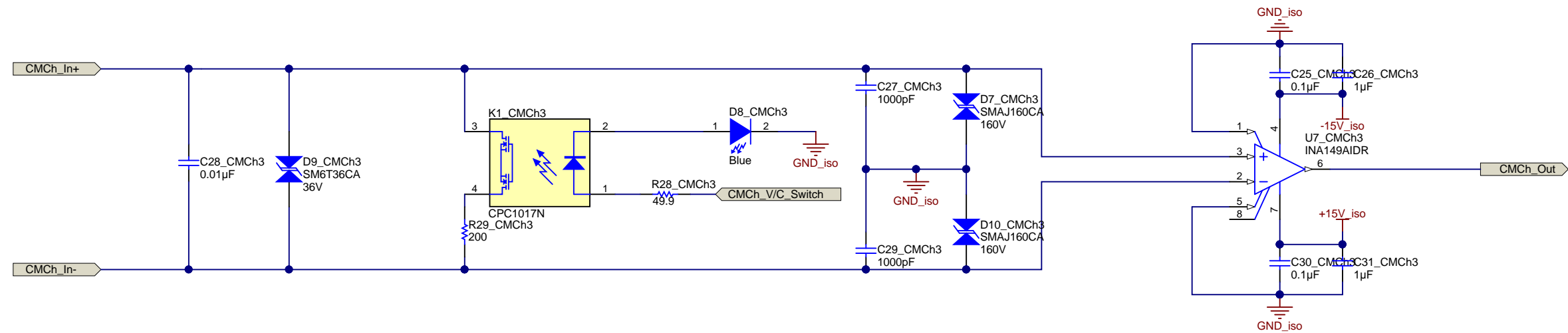
Orderable: N/A	Designed for: Public Release	Mod. Date: 23.06.2016
TID #: TIDA-00764	Project Title: 8-ch Isolated High Voltage Analog Input Module	
Number: TIDA-00764	Rev: E1	Sheet Title: CM Ch Input
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 8 of 10
Drawn By: Tobias Puetz	File: TIDA-00764_CMCh_Input.SchDoc	Size: B
Engineer: Tobias Puetz	Contact: http://www.ti.com/support	





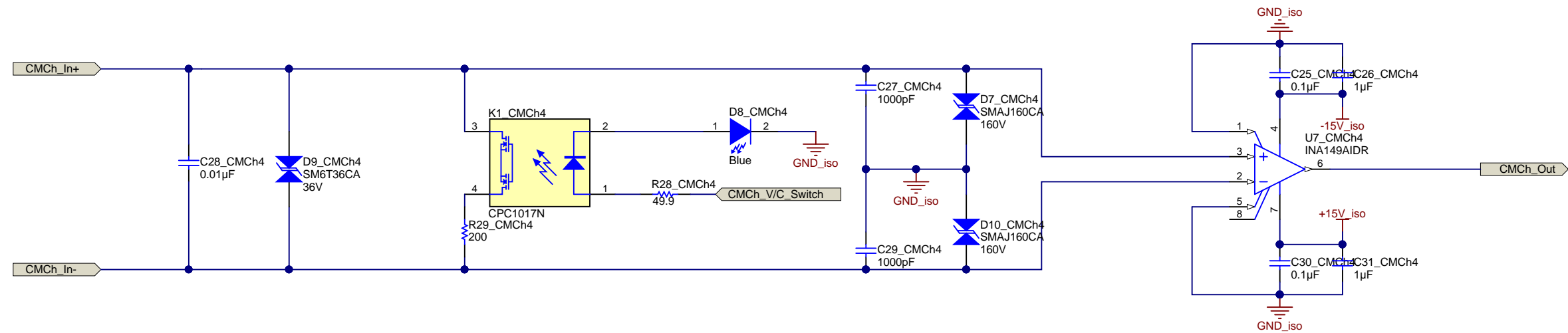
Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

Orderable: N/A	Designed for: Public Release	Mod. Date: 23.06.2016
TID #: TIDA-00764	Project Title: 8-ch Isolated High Voltage Analog Input Module	
Number: TIDA-00764	Rev: E1	Sheet Title: CM Ch Input
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 8 of 10
Drawn By: Tobias Puetz	File: TIDA-00764_CMCh_Input.SchDoc	Size: B
Engineer: Tobias Puetz	Contact: http://www.ti.com/support	



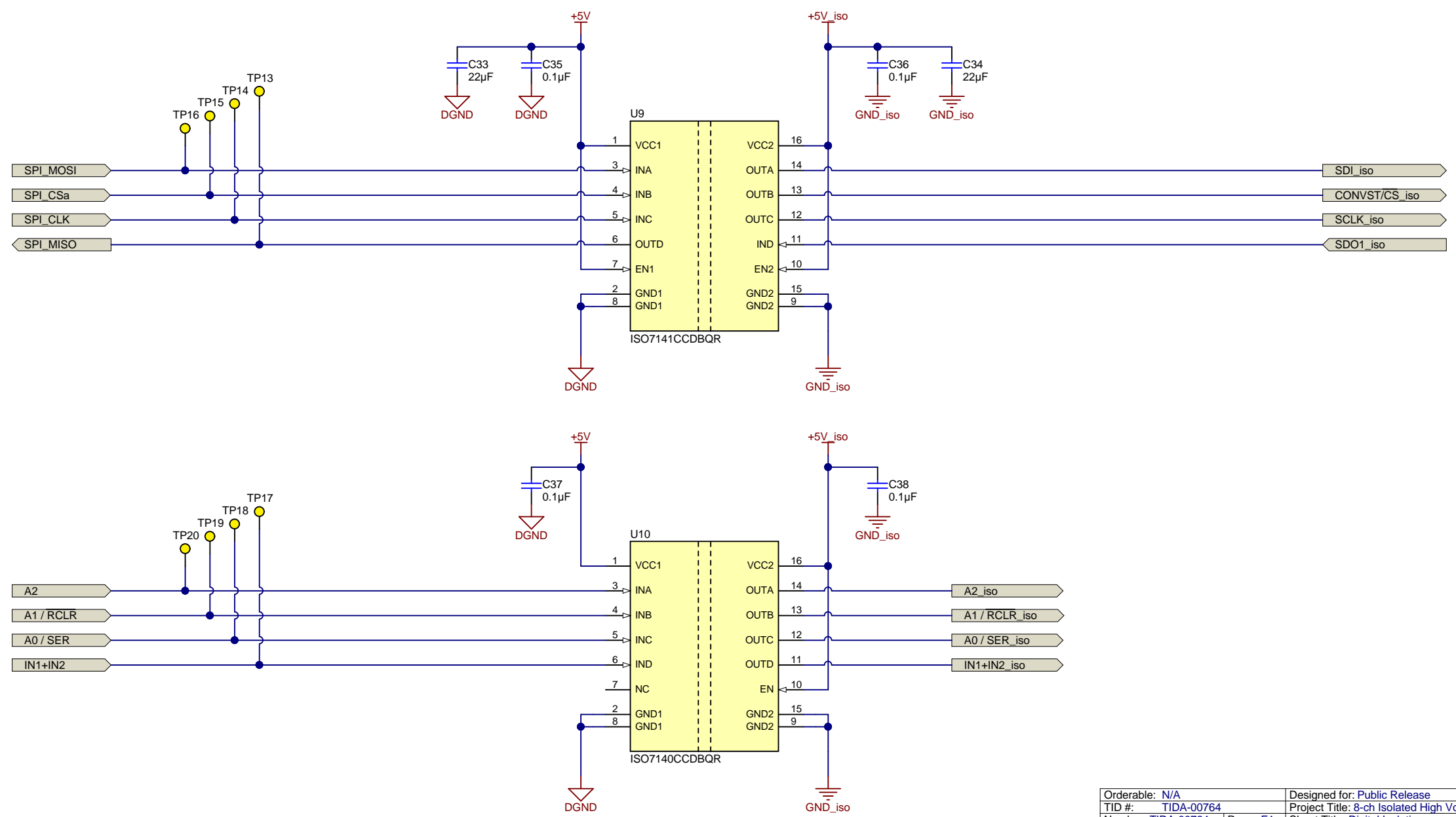
Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

Orderable: N/A	Designed for: Public Release	Mod. Date: 23.06.2016
TID #: TIDA-00764	Project Title: 8-ch Isolated High Voltage Analog Input Module	
Number: TIDA-00764	Rev: E1	Sheet Title: CM Ch Input
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 8 of 10
Drawn By: Tobias Puetz	File: TIDA-00764_CMCh_Input.SchDoc	Size: B
Engineer: Tobias Puetz	Contact: http://www.ti.com/support	



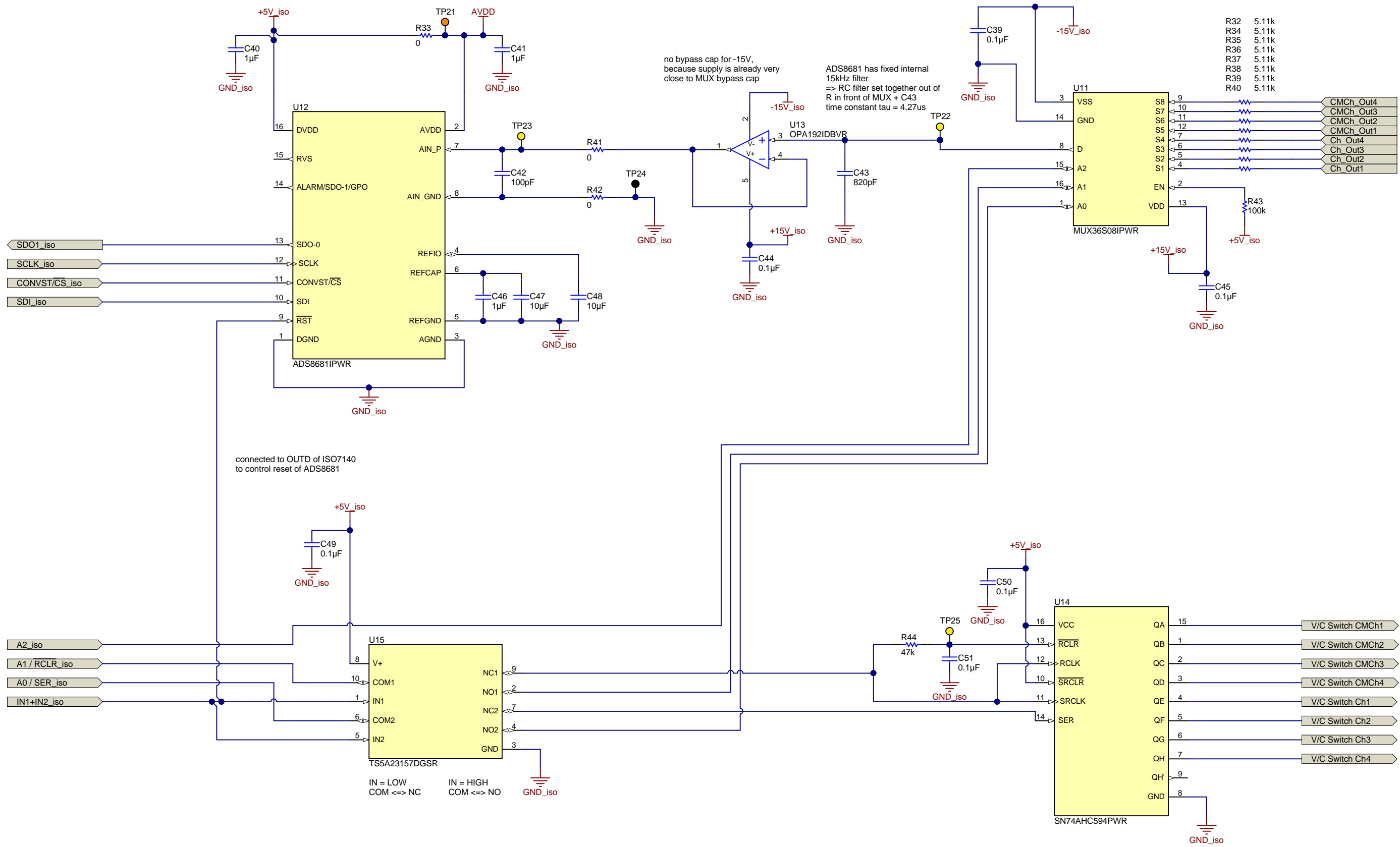
Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

Orderable: N/A	Designed for: Public Release	Mod. Date: 23.06.2016
TID #: TIDA-00764	Project Title: 8-ch Isolated High Voltage Analog Input Module	
Number: TIDA-00764	Rev: E1	Sheet Title: CM Ch Input
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 8 of 10
Drawn By: Tobias Puetz	File: TIDA-00764_CMCh_Input.SchDoc	Size: B
Engineer: Tobias Puetz	Contact: http://www.ti.com/support	



Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

Orderable: N/A	Designed for: Public Release	Mod. Date: 23.06.2016	 TEXAS INSTRUMENTS http://www.ti.com © Texas Instruments 2016
TID #: TIDA-00764	Project Title: 8-ch Isolated High Voltage Analog Input Module	Sheet: 9 of 10	
Number: TIDA-00764	Rev: E1	Sheet Title: Digital Isolation	
SVN Rev: Version control disabled	Assembly Variant: 001	Size: B	
Drawn By: Tobias Puetz	File: TIDA-00764_Digital_Isolation.SchDoc	Contact: http://www.ti.com/support	
Engineer: Tobias Puetz			



Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

IMPORTANT NOTICE FOR TI REFERENCE DESIGNS

Texas Instruments Incorporated ("TI") reference designs are solely intended to assist designers ("Designer(s)") who are developing systems that incorporate TI products. TI has not conducted any testing other than that specifically described in the published documentation for a particular reference design.

TI's provision of reference designs and any other technical, applications or design advice, quality characterization, reliability data or other information or services does not expand or otherwise alter TI's applicable published warranties or warranty disclaimers for TI products, and no additional obligations or liabilities arise from TI providing such reference designs or other items.

TI reserves the right to make corrections, enhancements, improvements and other changes to its reference designs and other items.

Designer understands and agrees that Designer remains responsible for using its independent analysis, evaluation and judgment in designing Designer's systems and products, and has full and exclusive responsibility to assure the safety of its products and compliance of its products (and of all TI products used in or for such Designer's products) with all applicable regulations, laws and other applicable requirements. Designer represents that, with respect to its applications, it has all the necessary expertise to create and implement safeguards that (1) anticipate dangerous consequences of failures, (2) monitor failures and their consequences, and (3) lessen the likelihood of failures that might cause harm and take appropriate actions. Designer agrees that prior to using or distributing any systems that include TI products, Designer will thoroughly test such systems and the functionality of such TI products as used in such systems. Designer may not use any TI products in life-critical medical equipment unless authorized officers of the parties have executed a special contract specifically governing such use. Life-critical medical equipment is medical equipment where failure of such equipment would cause serious bodily injury or death (e.g., life support, pacemakers, defibrillators, heart pumps, neurostimulators, and implantables). Such equipment includes, without limitation, all medical devices identified by the U.S. Food and Drug Administration as Class III devices and equivalent classifications outside the U.S.

Designers are authorized to use, copy and modify any individual TI reference design only in connection with the development of end products that include the TI product(s) identified in that reference design. HOWEVER, NO OTHER LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE TO ANY OTHER TI INTELLECTUAL PROPERTY RIGHT, AND NO LICENSE TO ANY TECHNOLOGY OR INTELLECTUAL PROPERTY RIGHT OF TI OR ANY THIRD PARTY IS GRANTED HEREIN, including but not limited to any patent right, copyright, mask work right, or other intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license to use such products or services, or a warranty or endorsement thereof. Use of the reference design or other items described above may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

TI REFERENCE DESIGNS AND OTHER ITEMS DESCRIBED ABOVE ARE PROVIDED "AS IS" AND WITH ALL FAULTS. TI DISCLAIMS ALL OTHER WARRANTIES OR REPRESENTATIONS, EXPRESS OR IMPLIED, REGARDING THE REFERENCE DESIGNS OR USE OF THE REFERENCE DESIGNS, INCLUDING BUT NOT LIMITED TO ACCURACY OR COMPLETENESS, TITLE, ANY EPIDEMIC FAILURE WARRANTY AND ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT OF ANY THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

TI SHALL NOT BE LIABLE FOR AND SHALL NOT DEFEND OR INDEMNIFY DESIGNERS AGAINST ANY CLAIM, INCLUDING BUT NOT LIMITED TO ANY INFRINGEMENT CLAIM THAT RELATES TO OR IS BASED ON ANY COMBINATION OF PRODUCTS AS DESCRIBED IN A TI REFERENCE DESIGN OR OTHERWISE. IN NO EVENT SHALL TI BE LIABLE FOR ANY ACTUAL, DIRECT, SPECIAL, COLLATERAL, INDIRECT, PUNITIVE, INCIDENTAL, CONSEQUENTIAL OR EXEMPLARY DAMAGES IN CONNECTION WITH OR ARISING OUT OF THE REFERENCE DESIGNS OR USE OF THE REFERENCE DESIGNS, AND REGARDLESS OF WHETHER TI HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

TI's standard terms of sale for semiconductor products (<http://www.ti.com/sc/docs/stdterms.htm>) apply to the sale of packaged integrated circuit products. Additional terms may apply to the use or sale of other types of TI products and services.

Designer will fully indemnify TI and its representatives against any damages, costs, losses, and/or liabilities arising out of Designer's non-compliance with the terms and provisions of this Notice.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2016, Texas Instruments Incorporated