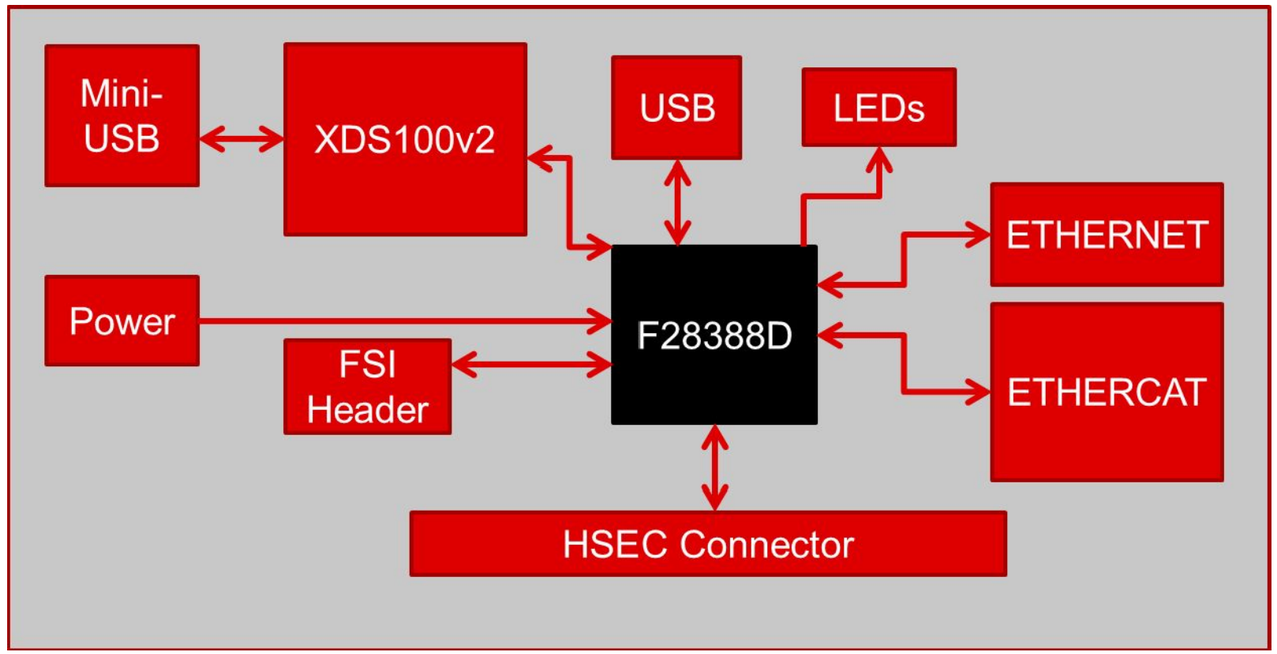
Revision History				
Rev	ECN #	Approved Date	Approved by	Notes
E1	N/A	N/A	N/A	Initial
E2	N/A	N/A	N/A	Fixed Ethernet MDC Bug in PCB Replaced U20 with an inverting buffer
A	N/A	N/A	N/A	Public Release

1) USB Differential Pairs - 90 Ohm
   (A)USB_N and USB_P
   (B)MCU_GPIO42 and MCU_GPIO43

2)ADC Differential pair Impedance Matching
   (A)HSEC_ADC even pins should match with HSEC_ADC + 1 pin(ie HSEC_ADC-C2 should match with HSEC_ADC-C3)
   (B)MCU_ADC even pins should match with MCU_ADC + 1 pin(ie MCU_ADC-A0 should match with MCU_ADC-A1)

3)ETHERNET and ETHERCAT Differential pairs
   (A)TD_P and TD_N
   (B)RD_P and RD_N



This controlCARD does not support the High Density(HD) connector, or EMIF, as previously supported by TMDSCNCDF28379D.

Orderable: TMDXCNCD28388D		Designed for: Public Release	Mod. Date: 4/4/2019
TID #: N/A		Project Title: TMS320F28388D controlCARD	
Number: MCU063	Rev: A	Sheet Title:	
SVN Rev: ee566633343535c1debbf0[illegible]7d01			Sheet: 1 of 11
Drawn By: Cody Watkins		File: MCU063A_CoverSheet.SchDoc	Size: B
Engineer: Cody Watkins		Contact: http://www.ti.com/support	

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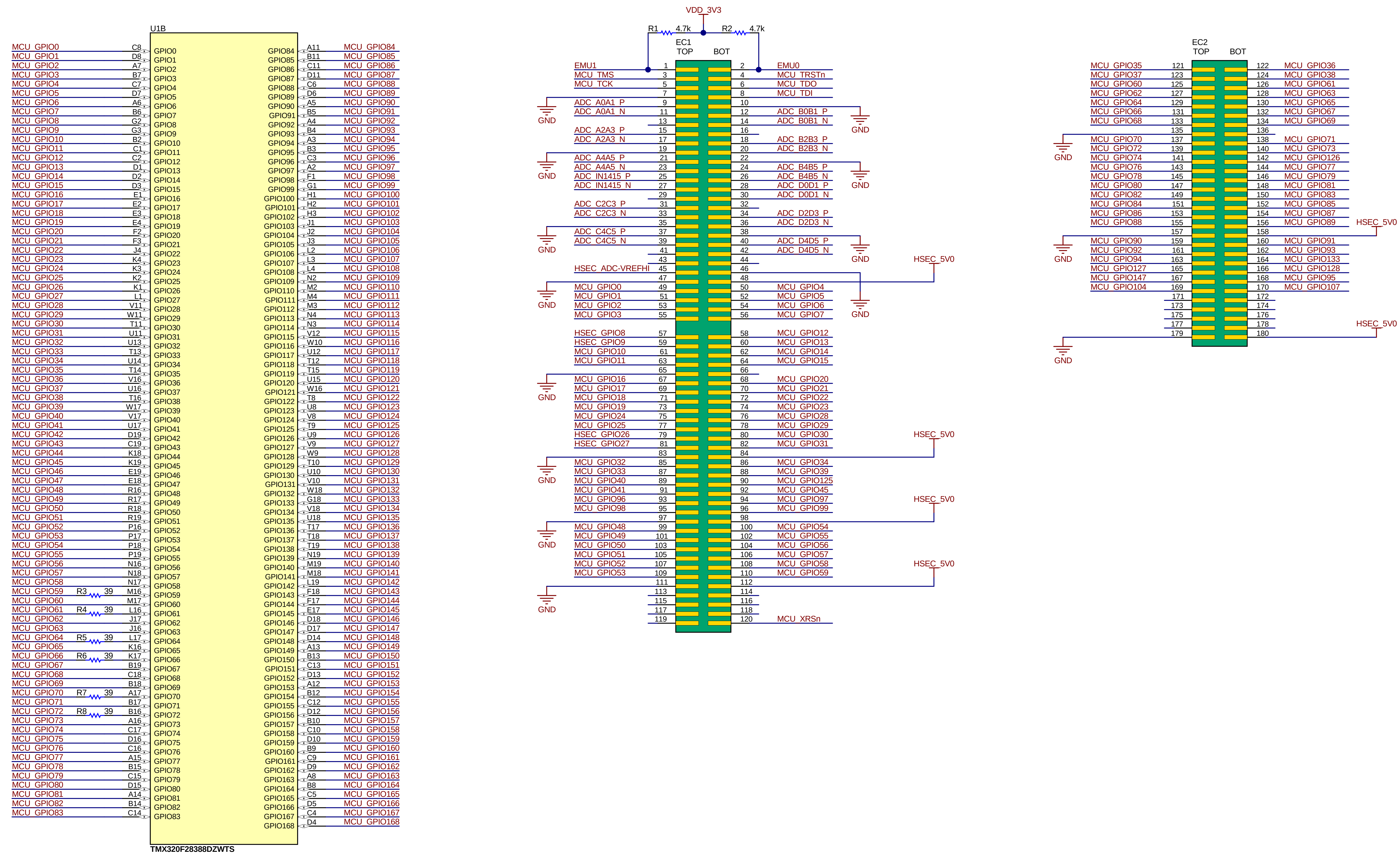

Orderable: TMDXCNCD28388D	Designed for: Public Release	Mod. Date: 4/11/2019
TID #: N/A	Project Title: TMS320F28388D controlCARD	
Number: MCU063 Rev: A	Sheet Title:	
SVN Rev: b997299dbe3a727308a35e86359c0d7f22ee9180 [Locally Modified]		Sheet: 2 of 11
Drawn By: Cody Watkins	File: MCU063A_GPIO.SchDoc	Size: B
Engineer: Cody Watkins	Contact: http://www.ti.com/support	

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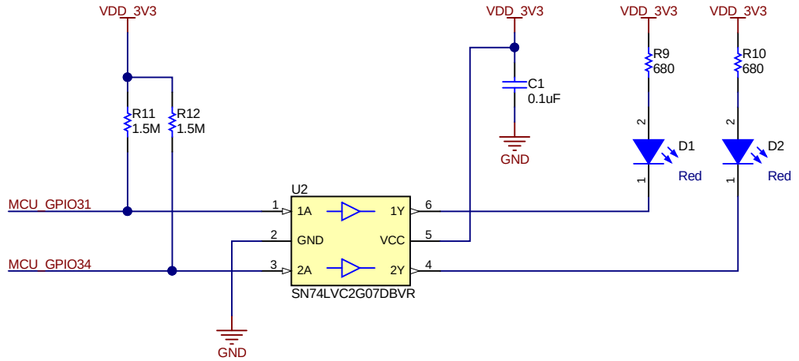
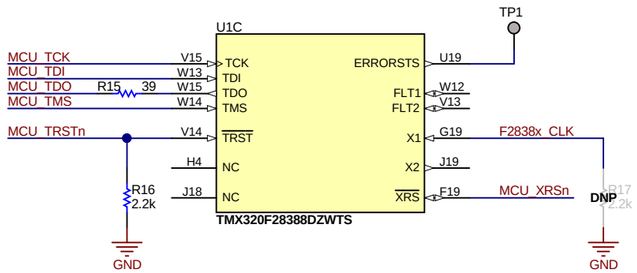
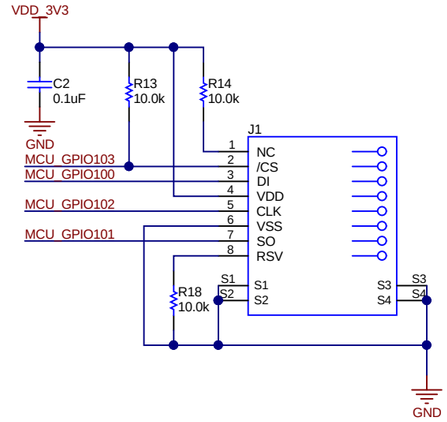
LEDs

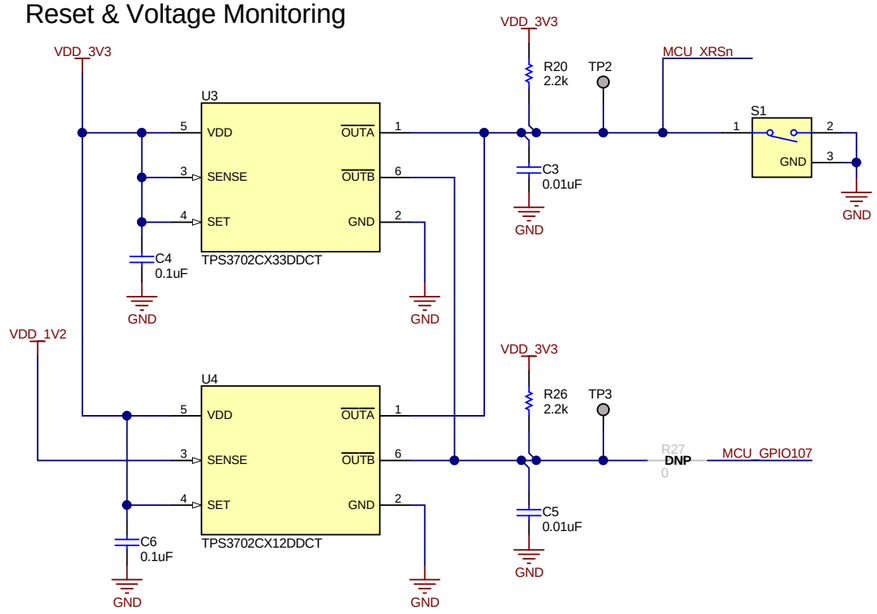




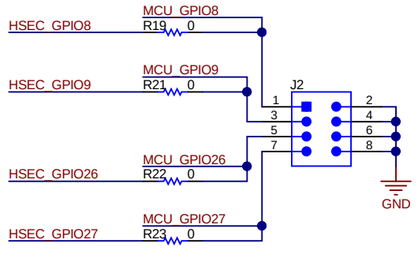
Micro-SD Card



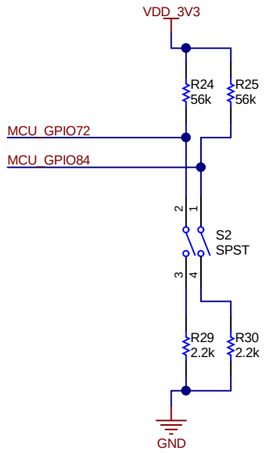
Reset & Voltage Monitoring



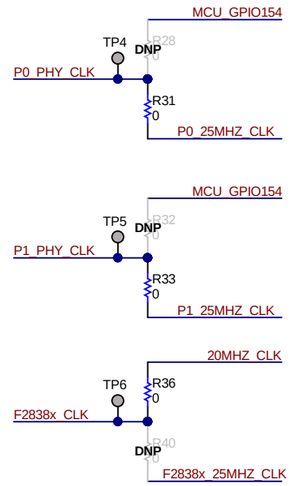
FSI Header



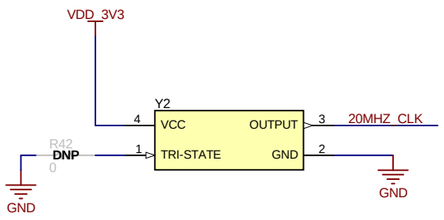
Boot Mode Selection Switch



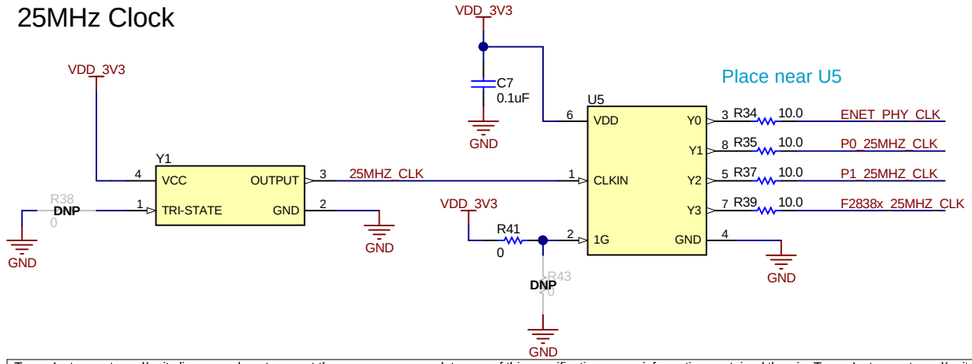
Clock Source Selection



20MHz Clock



25MHz Clock

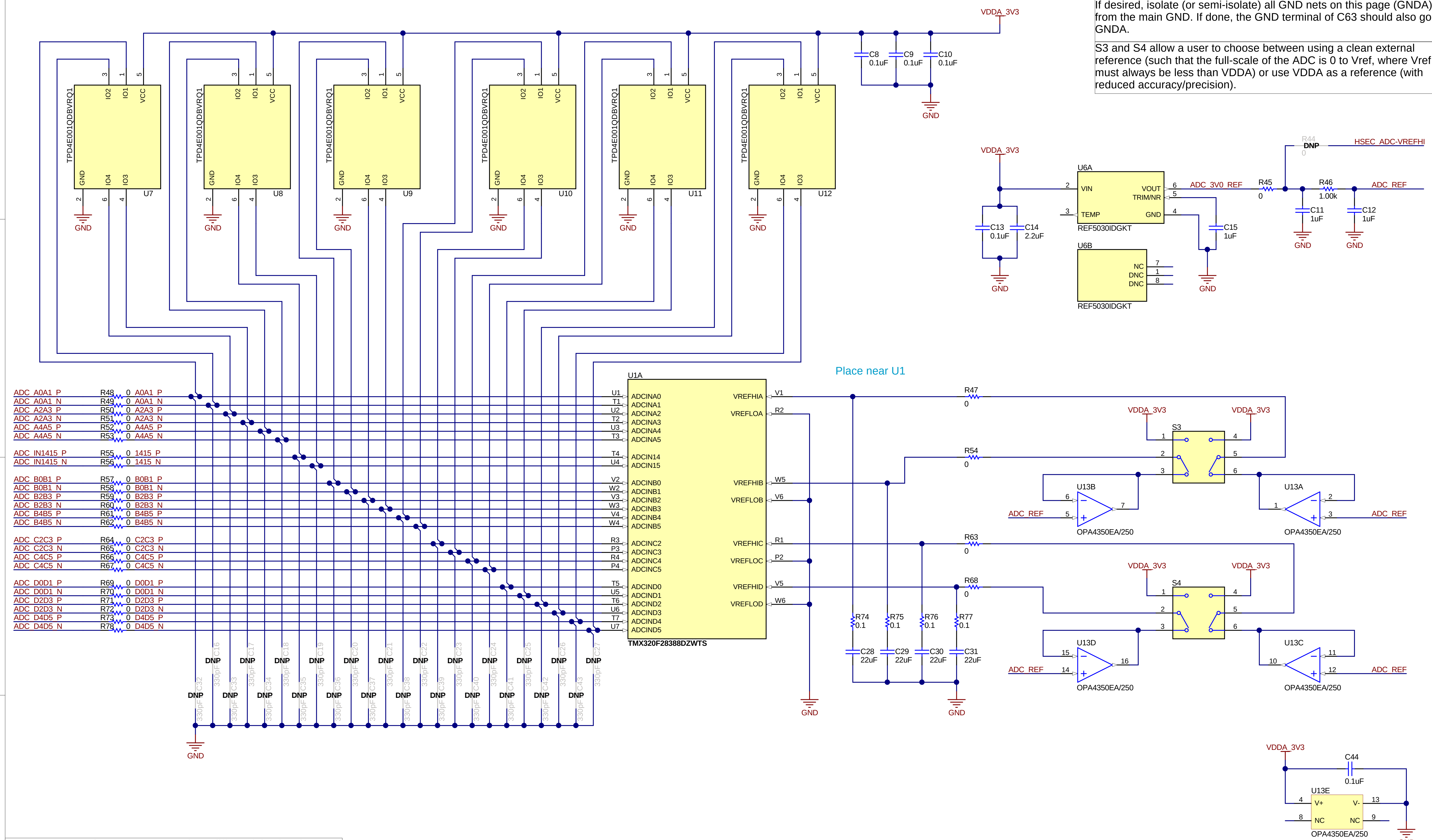


Orderable: TMDXCNCD28388D		Designed for: Public Release	Mod. Date: 4/11/2019
TID #: N/A		Project Title: TMS320F28388D controlCARD	
Number: MCU063	Rev: A	Sheet Title:	
SVN Rev: ee566633343535c1debbf0[illegible]			Sheet: 3 of 11
Drawn By: Cody Watkins		File: MCU063A_Support.SchDoc	Size: B
Engineer: Cody Watkins		Contact: http://www.ti.com/support	

http://www.ti.com

If desired, isolate (or semi-isolate) all GND nets on this page (GNDA) from the main GND. If done, the GND terminal of C63 should also go to GNDA.

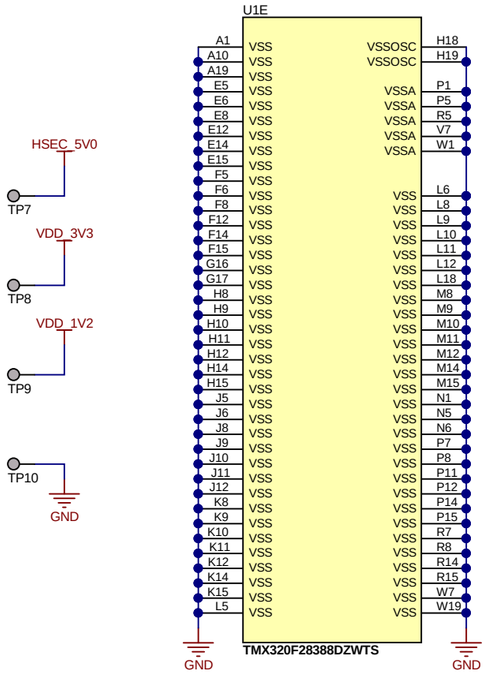
S3 and S4 allow a user to choose between using a clean external reference (such that the full-scale of the ADC is 0 to Vref, where Vref must always be less than VDDA) or use VDDA as a reference (with reduced accuracy/precision).



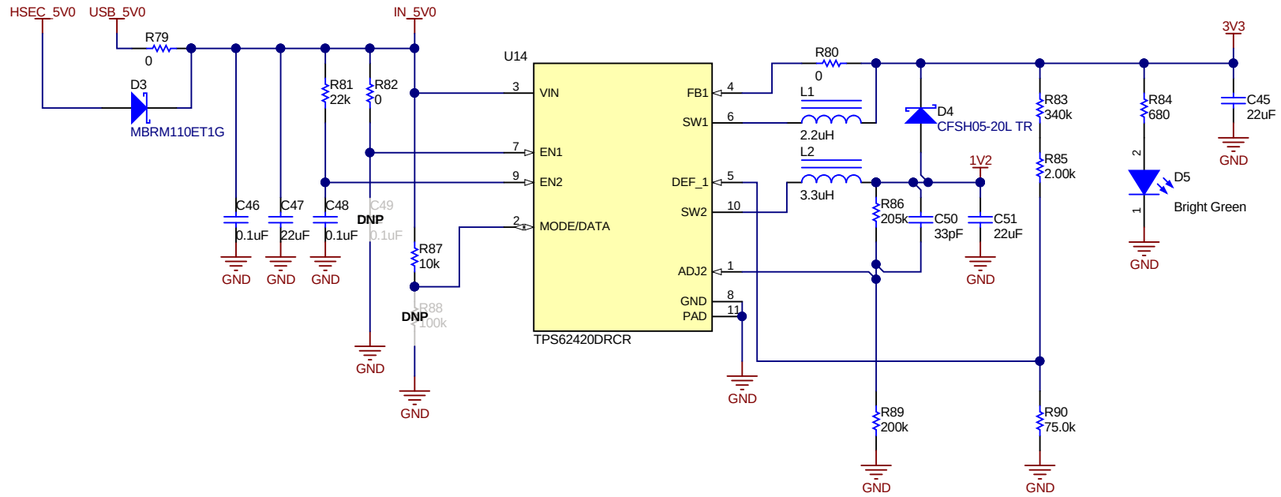
ADC_A0A1_P and ADC_A0A1_N make a differential pair using channels A0 and A1 respectivly.

If you wish to use A0 or A1 independently the "_P" refers to the first ADC channel. For example A0 in "ADC_A0A1". Additionally the "_N" refers to the second channel, A1 in "ADC_A0A1".

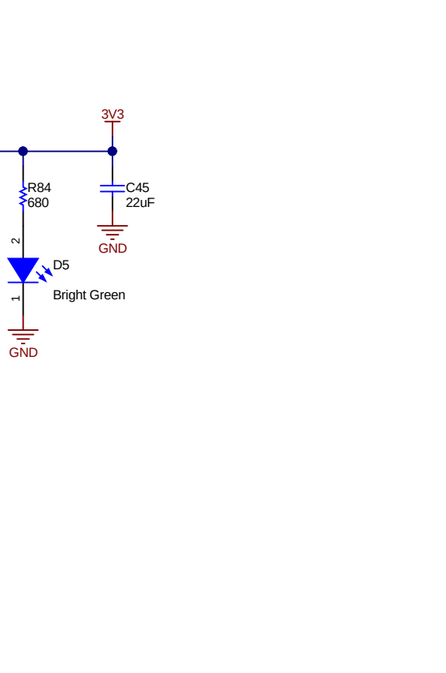
Orderable: TMDXCNCD28388D	Designed for: Public Release
TID #: N/A	Mod. Date: 4/11/2019
Number: MCU063	Rev: A
Project Title: TMS320F28388D controlCARD	Sheet Title:
SVN Rev: b997299dbe3a727308a35e… [Locally Modified]	Sheet: 4 of 11
Drawn By: Cody Watkins	File: MCU063A_ADC.SchDoc
Engineer: Cody Watkins	Size: B
Contact: http://www.ti.com/support	http://www.ti.com



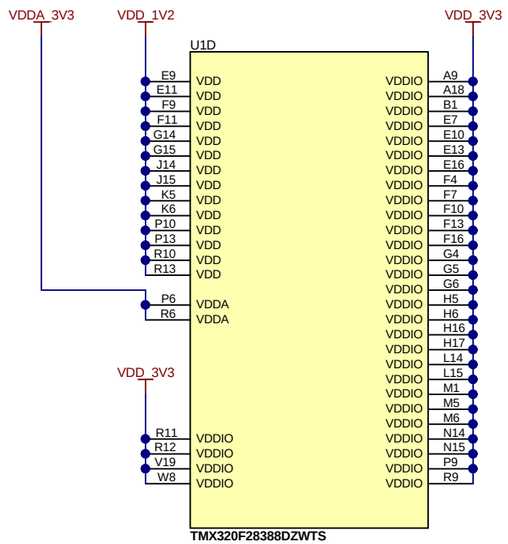
1.2V and 3.3V Supplies

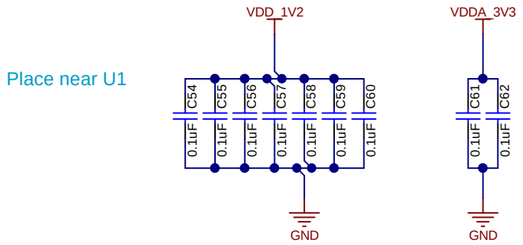


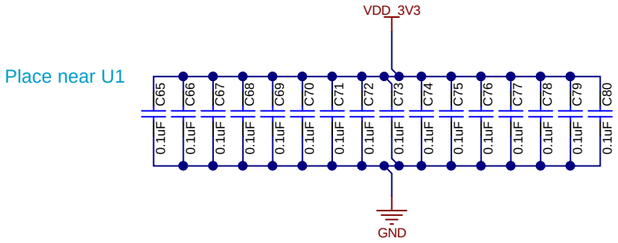
Ferrite Beads



Decoupling Capacitors







Orderable: TMDXCNCD28388D		Designed for: Public Release	Mod. Date: 4/11/2019
TID #: N/A		Project Title: TMS320F28388D controlCARD	
Number: MCU063	Rev: A	Sheet Title:	
SVN Rev: ee566633343535c1debbf0[illegible]		[Locally Modified]	Sheet: 5 of 11
Drawn By: Cody Watkins		File: MCU063A_Power.SchDoc	Size: B
Engineer: Cody Watkins		Contact: http://www.ti.com/support	

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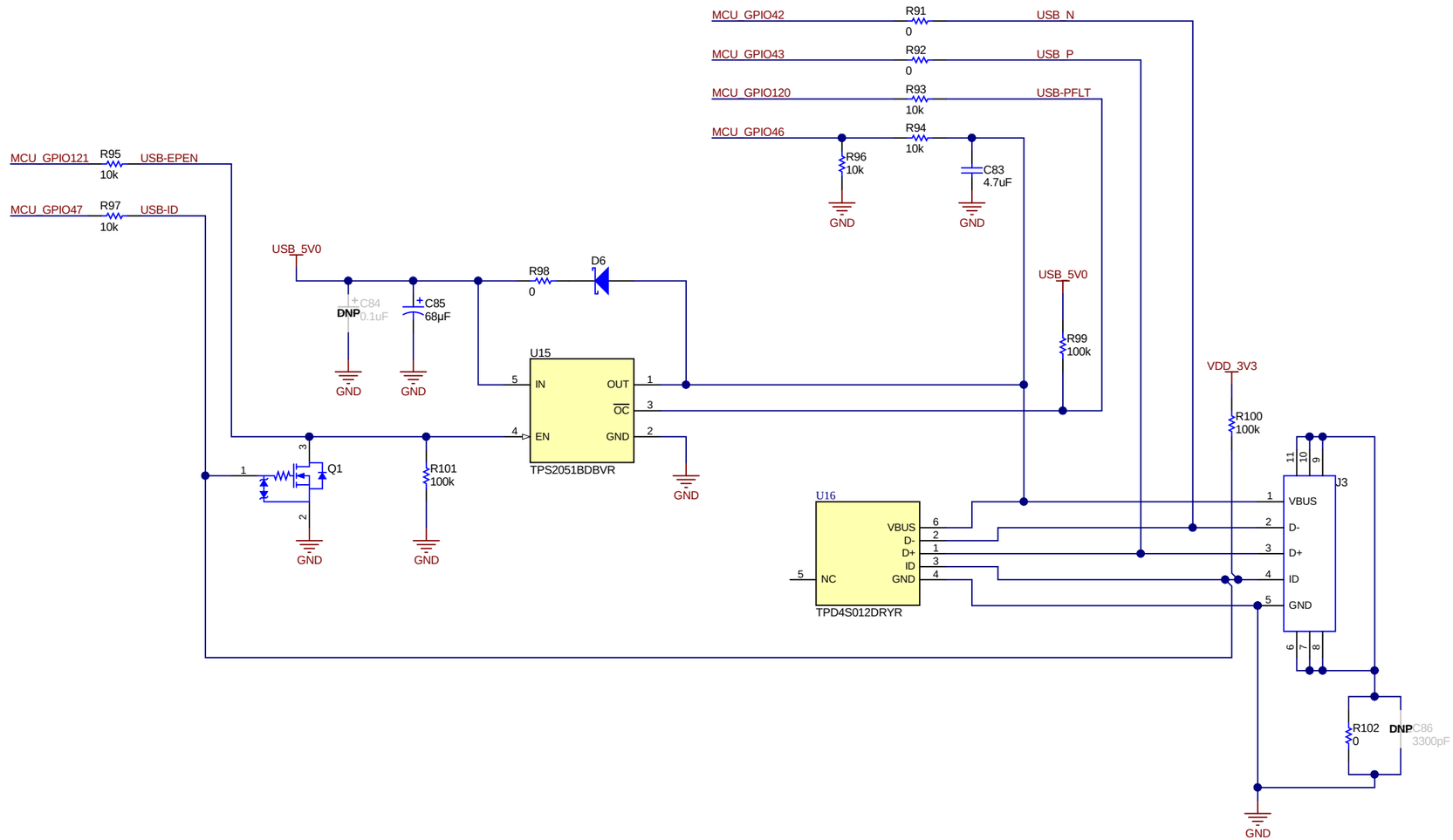

NOTE: USB VBUS, ID, PFLT & EPEN do not have a specific mux position in this device.

In this controlCARD, a standard GPIO is used to detect changes to these signals.

R98 is populated to allow a customer to evaluate the controlCARD without a baseboard if they desire. USB specifies the total bus capacitance on any device as 10uF max. R98 should be depopulated in most end applications.

Orderable: TMDXCNCD28388D		Designed for: Public Release	Mod. Date: 4/11/2019
TID #: N/A		Project Title: TMS320F28388D controlCARD	
Number: MCU063	Rev: A	Sheet Title:	
SVN Rev: b997299dbe3a727308a35[illegible]		[Locally Modified]	Sheet: 6 of 11
Drawn By: Cody Watkins		File: MCU063A_USB.SchDoc	Size: B
Engineer: Cody Watkins		Contact: http://www.ti.com/support	

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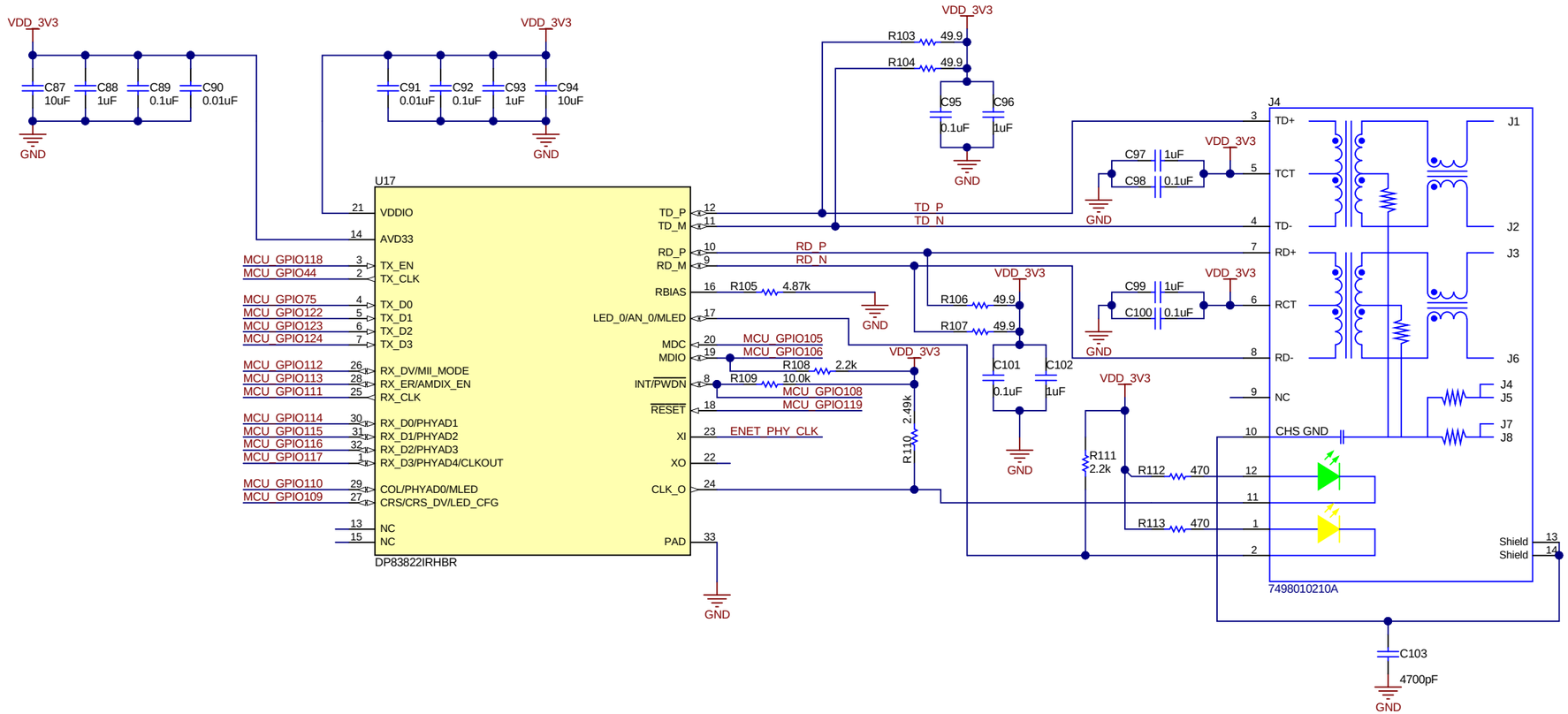

Orderable: TMDXCNCD28388D		Designed for: Public Release	Mod. Date: 4/11/2019
TID #: N/A		Project Title: TMS320F28388D controlCARD	
Number: MCU063	Rev: A	Sheet Title:	
SVN Rev: b997299dbe3a727308a35e [Locally Modified]			Sheet: 7 of 11
Drawn By:		File: MCU063A_EtherNET.SchDoc	Size: B
Engineer: Cody Watkins		Contact: http://www.ti.com/support	

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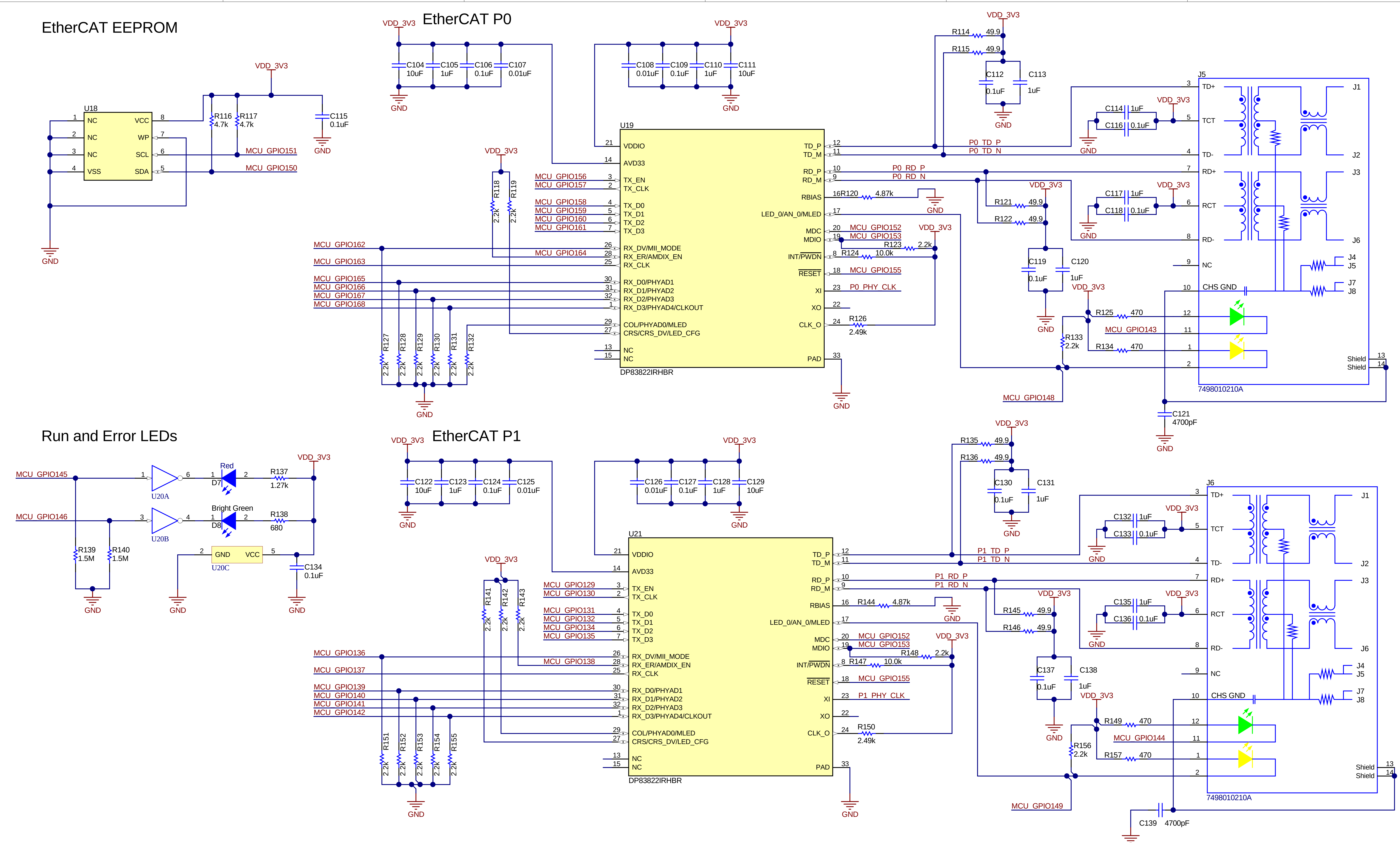

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Orderable: TMDXCNCD28388D	Designed for: Public Release	Mod. Date: 4/11/2019
TID #: N/A	Project Title: TMS320F28388D controlCARD	
Number: MCU063 Rev: A	Sheet Title:	
SVN Rev: b997299dbe3a727308a35e… [Locally Modified]		Sheet: 8 of 11
Drawn By:	File: MCU063A_EtherCAT.SchDoc	Size: B
Engineer: Cody Watkins	Contact: http://www.ti.com/support	

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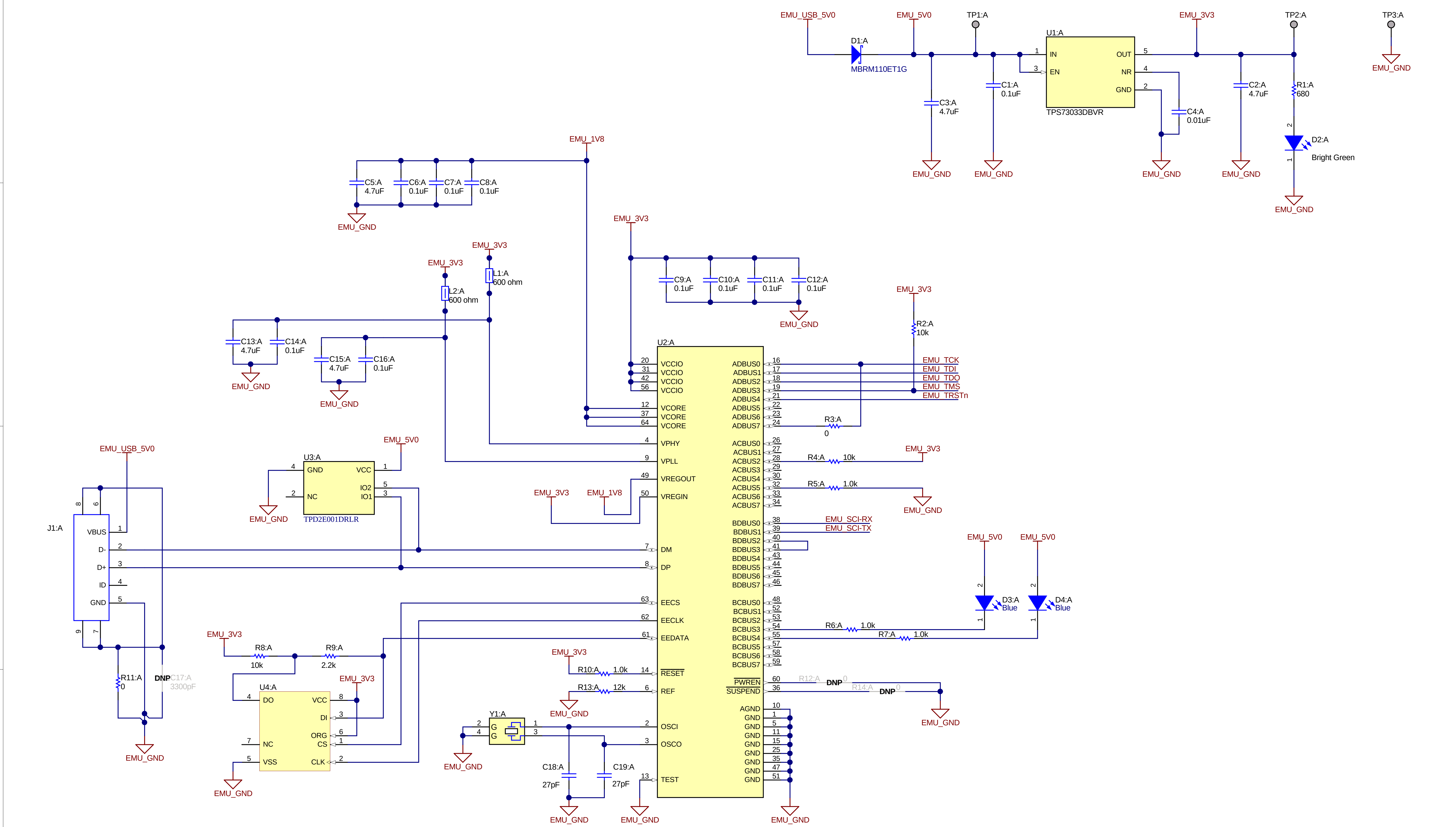

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Orderable: TMDXCNCD28388D		Designed for: Public Release	Mod. Date: 4/11/2019
TID #: N/A		Project Title: TMS320F28388D controlCARD	
Number: MCU063	Rev: A	Sheet Title:	
SVN Rev: b997299dbe3a727308a35e... [Locally Modified]			Sheet: 9 of 11
Drawn By: Cody Watkins		File: MCU063A_Emulator.SchDoc	Size: B
Engineer: Cody Watkins		Contact: http://www.ti.com/support	

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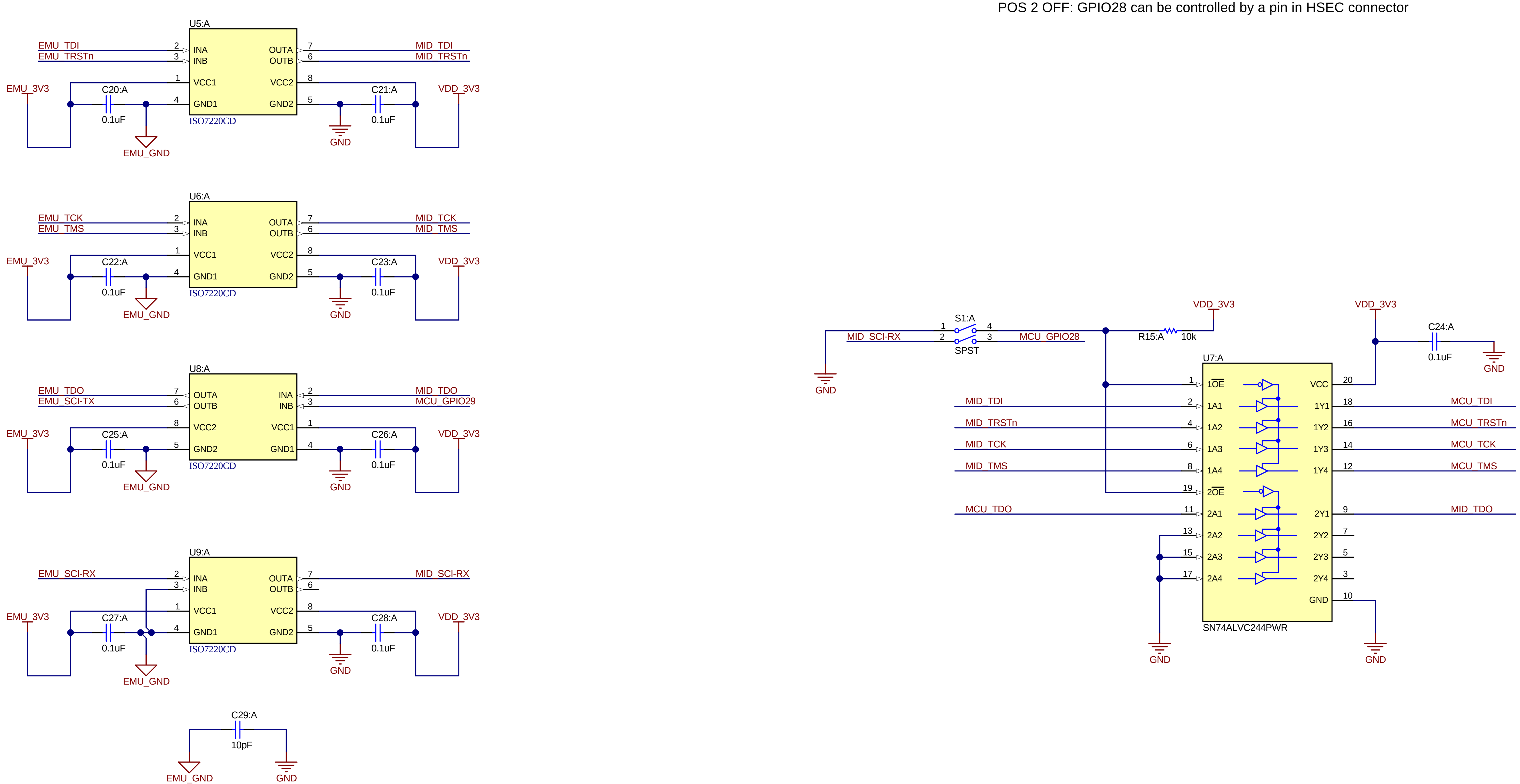
S1:A - Emulation & GPIO28 Switch

POS 1 ON: Use xds100v2 emulator that is on the cCARD

POS 1 OFF: Boot from FLASH/peripheral (see boot mode switch) OR use emulator on baseboard

POS 2 ON: GPIO28 will be controlled by the USB-to-UART adapter on the FTDI chip

POS 2 OFF: GPIO28 can be controlled by a pin in HSEC connector



Orderable: TMDXCNCD28388D	Designed for: Public Release	Mod. Date: 5/2/2019	
TID #: N/A	Project Title: TMS320F28388D controlCARD		
Number: MCU063 Rev: A	Sheet Title:		
SVN Rev: b997299dbe3a727308a35e4659e05d7f2ee91801 [Locally Modified]		Sheet: 10 of 11	
Drawn By: Cody Watkins	File: MCU063A_Emulator_interface.SchDoc	Size: B	http://www.ti.com
Engineer: Cody Watkins	Contact: http://www.ti.com/support		© Texas Instruments 2018

DNP FID1 DNP FID2 DNP FID3 DNP FID4 DNP FID5 DNP FID6

PCB Number: MCU063
PCB Rev: A

PCB LOGO
Texas Instruments

CE Mark

PCB LOGO
FCC disclaimer

PCB LOGO
WEEE logo

PCB LOGO
ETHERCAT LABEL

Variant/Label Table	
Variant	Label Text
001	TMDXCNCD28388D
002	TMDSCNCD28388D

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: TMDXCNCD28388D		Designed for: Public Release	Mod. Date: 4/2/2019
TID #: N/A		Project Title: TMS320F28388D controlCARD	
Number: MCU063	Rev: A	Sheet Title:	
SVN Rev: b997299dbe3a727308a35[illegible]01			Sheet: 11 of 11
Drawn By:		File: MCU063A_EVM_Hardware.SchDoc	Size: B
Engineer: Cody Watkins		Contact: http://www.ti.com/support	

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