

LORD INTERFACE CONTROL DOCUMENT

C-Series Connectivity Board and Reference Design

Introduction

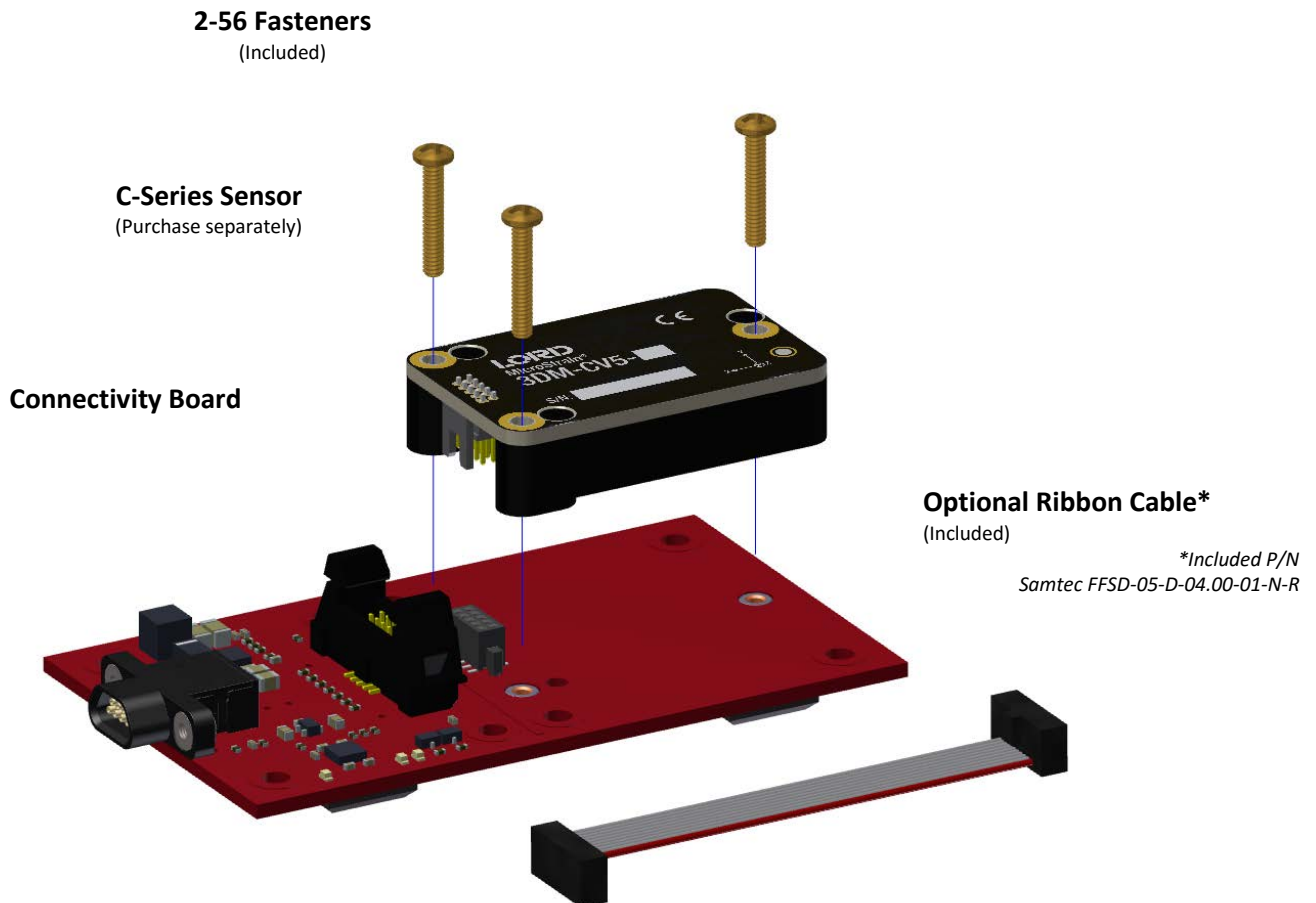
The C-Series Connectivity Board is a demonstration board that allows customers to directly interface with any 3DM[®]-C-Series product, such as the 3DM[®]-CV5-10 sensor.

The board may be used with a micro DB9/USB cable (Included in USB Connectivity Kit-P/N 6212-3009) or with a microDB9/RS-232 cable (Included in Serial Connectivity Kit-P/N 6212-3010) to directly interface with a Windows PC running [MIP Monitor software](#).

Full schematics are provided here as a reference design for incorporating 3DM-C series products into OEM products.

The 3DM[®]-C-Series IMU is screwed to the connectivity board with 2-56 fasteners. Alternatively, the IMU may be directly mounted to the chassis of the vehicle and wired to the connectivity board using the included 4" ribbon cable or a custom length cable may be ordered from [Samtec's FFSD ribbon connector series*](#).

Connector Wiring



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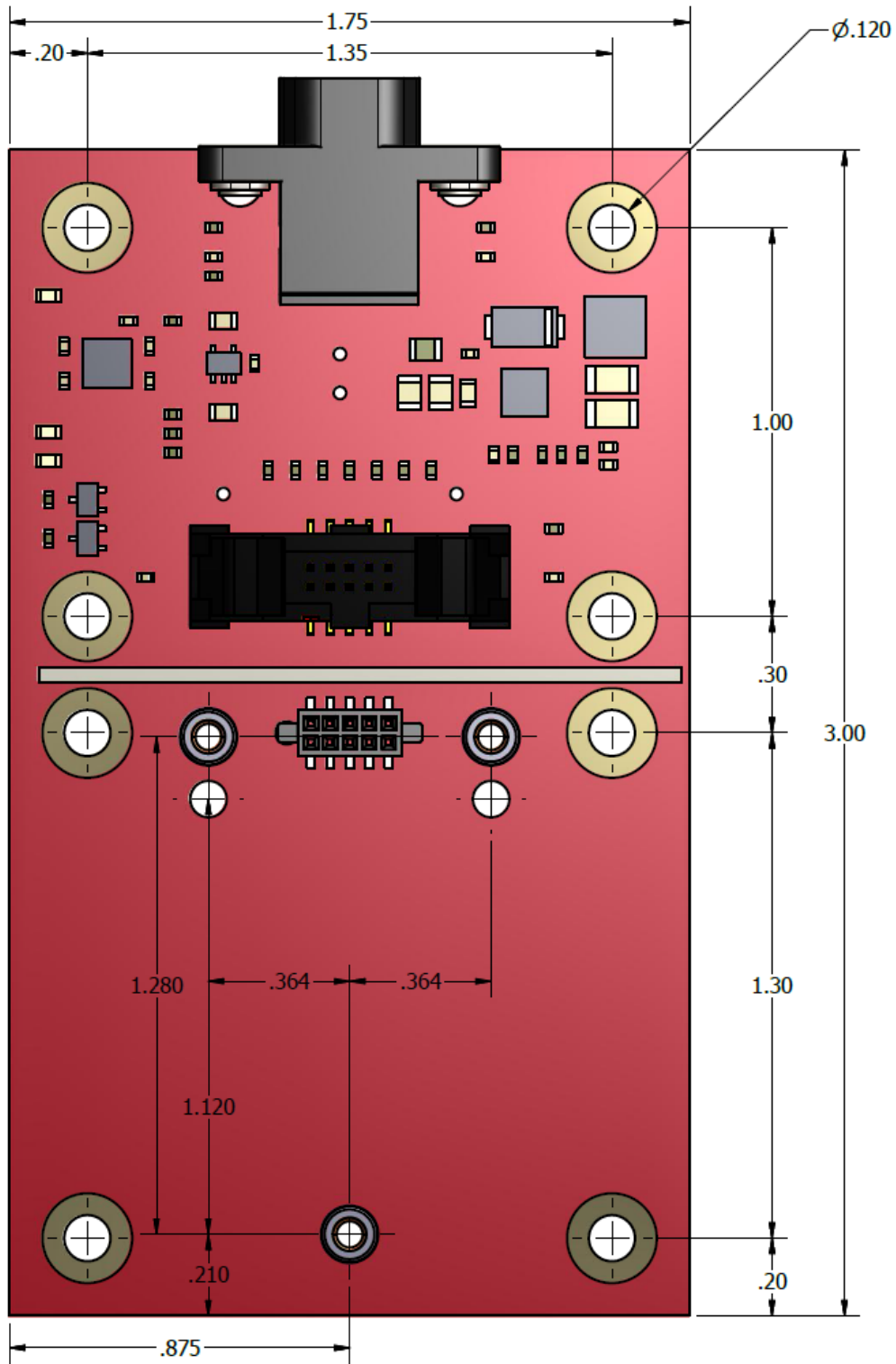
Connectivity Board Pin Number	Signal
1	USB D-
2	USB D+
3*	+4V to +5.5VDC
4	RS232 RxD
5	RS232 TxD
6*	+4V to +35VDC
7	PPS output
8	GND
9	--

*use either pin 3 OR pin 6 for power

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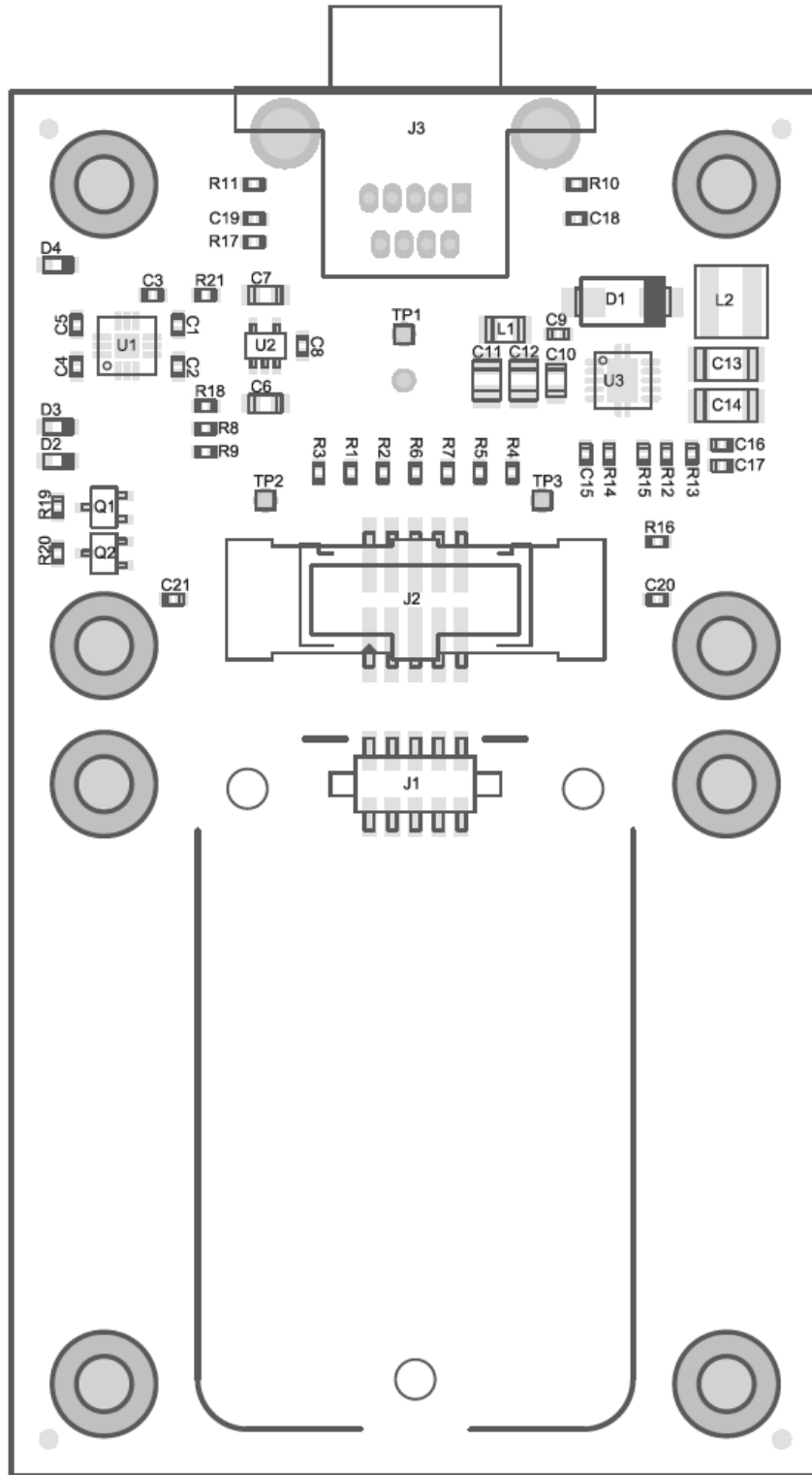
Mechanical Overview



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C-Series Connectivity Board and Reference Design

Assembly Diagram



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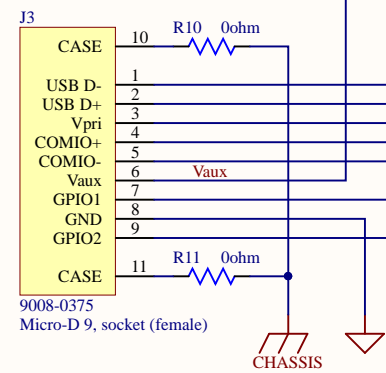
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Table 1: Connectivity Board Bill of Materials

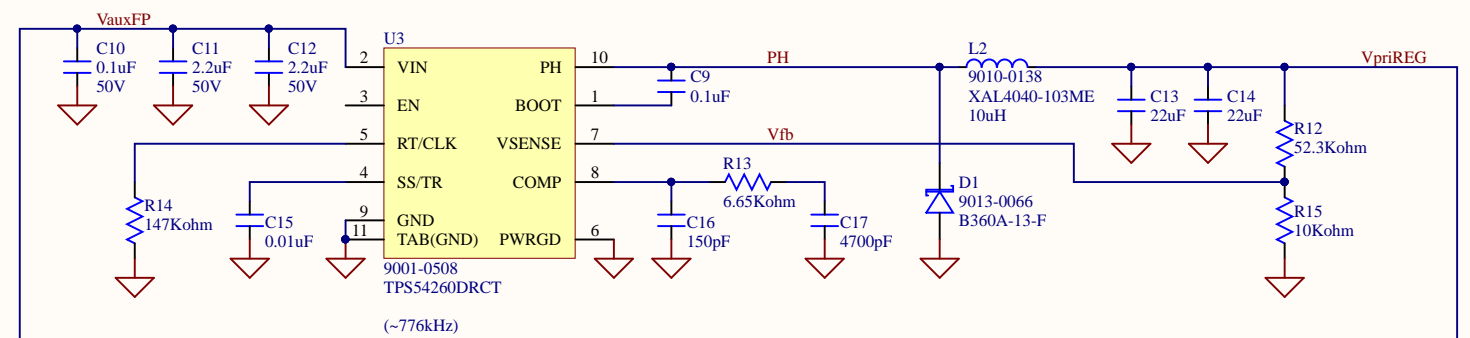
REFDES	QTY	DESCRIPTION	MANUFACTURER	MFR. PART #
BP1-4	4	BUMPER,0.413X0.413,BLK	3M	SJ-5007 (BLACK)
C8,C15,C18-21	6	CAP,.01UF,0402,CERX7R,25V,10%	Kemet	C0402C103K3RACTU
C1-5,C9	6	CAP,.1UF,0402,CERX7R,16V,10%	Murata Electronics North America	GRM155R71C104KA88D
C10	1	CAP,.1UF,0603,CERX7R,50V,10%,HR	TDK Corporation	CGJ3E2X7R1H104K080AA
C6-7	2	CAP,1.0UF,0603,CERX7R,16V,10%	TDK Corporation	C1608X7R1C105K
C16	1	CAP,150PF,0402,CERNP0,50V,5%	TDK Corporation	C1005C0G1H151J050BA
C11-12	2	CAP,2.2UF,0805,CERX7R,50V,10%	TDK Corporation	C2012X7R1H225K125AC
C13-14	2	CAP,22UF,1206,CERX7R,10V,10%	Samsung Electro-Mechanics	CL31B226KPHNNNE
C17	1	CAP,4700PF,0402,CERX7R,50V,10%	Murata Electronics North America	GRM155R71H472KA01D
J1	1	CONN,HEADER,010,.050,SMD-V,R,+PEGS	Harwin	M50-3110542
J3	1	CONN,MICRO-D,009,PCB,R,POSTS,SHRTLD	Ulti-Mate Connector Inc	SD-836419004
J2	1	CONN,SAM,EHF-105-01-L-D-SM-LC	Samtec	EHF-105-01-L-D-SM-LC
D1	1	DIODE,SCHOTTKY,B360A,SMA	Diodes Inc.	B360A-13-F
L1	1	FERRITE BEAD,2A,600OHM@100MHZ,0805	TDK Corporation	MPZ2012S601A
U1	1	IC,ITF,ADM3101EACPZ,QFN-10	Analog Devices	ADM3101EACPZ
U2	1	IC,REG,3.3V,TPS71733DCK,SC70-5	Texas Instruments	TPS71733DCK
U3	1	IC,REG,TPS54260DRCT,SON-10	Texas Instruments	TPS54260DRCT
L2	1	INDUCTOR,10UH,XAL4040	Coilcraft	XAL4040-103ME
D4	1	LED,GREEN,PCB-SMD-0603	LITE-ON INC	LTST-C190KGKT
D3	1	LED,ORANGE,PCB-SMD-0603	LITE-ON INC	LTST-C190KFKT
D2	1	LED,YELLOW,PCB-SMD-0603	LITE-ON INC	LTST-C190KSKT
MH1-3	3	NUT,SMT,2-56,BRASS,PEM SMTSOB-256-2ET	Penn Engineering	SMTSOB-256-2ET
R1-5,R8-11,R16	10	RES,0 OHM,0402,1/16W,5%	Panasonic - ECG	ERJ-2GE0R00X
R6-7,R17	3	RES,1 MOHM,0402,1/16W,1%	Vishay	CRCW04021M00FKED
R15,R18	2	RES,10 KOHM,0402,1/16W,1%	Panasonic - ECG	ERJ-2RKF1002X
R19,R20,R21	3	RES,100 OHM,0402,1/16W,1%	Panasonic - ECG	ERJ-2RKF1000X
R14	1	RES,147 KOHM,0402,1/16W,1%	Panasonic - ECG	ERJ-2RKF1473X
R12	1	RES,52.3 KOHM,0402,1/10W,1%	Panasonic - ECG	ERJ-2RKF5232X
R13	1	RES,6.65 KOHM,0402,1/16W,1%	Panasonic - ECG	ERJ-2RKF6651X
Q1,Q2	2	TRANS,DMP2240UW ,P-CHANNEL,SOT-323	Diodes Inc.	DMP2240UW

POWER REQUIREMENTS:
 Vpri = 3.2V min, 5.2V max
 Vaux = 5.2Vmin, 28V max
 Connect either Vpri OR Vaux, NOT BOTH.

Host Connector

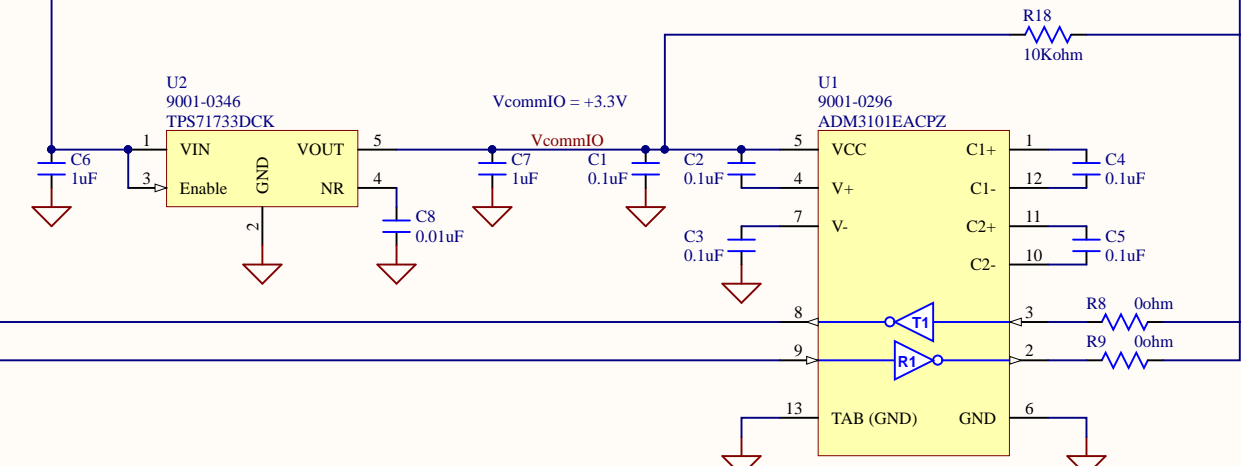


Vaux Regulator
 (completely inactive when powered by Vpri input)

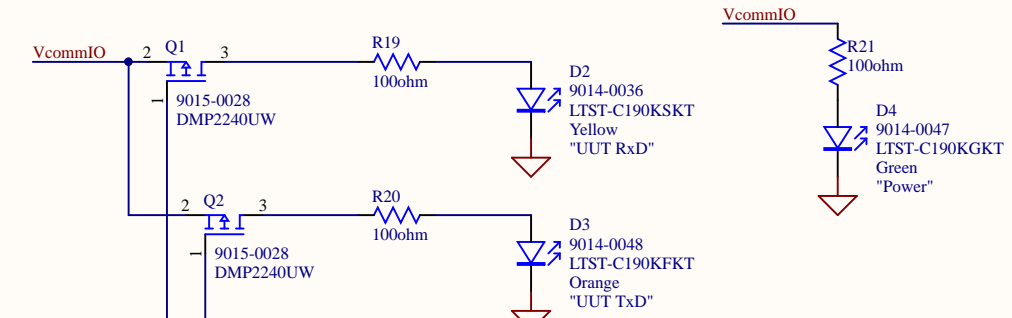


VpriREG = +5V (when regulating from Vaux)

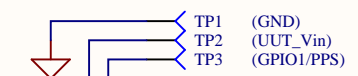
RS232 Level Translation



LEDs

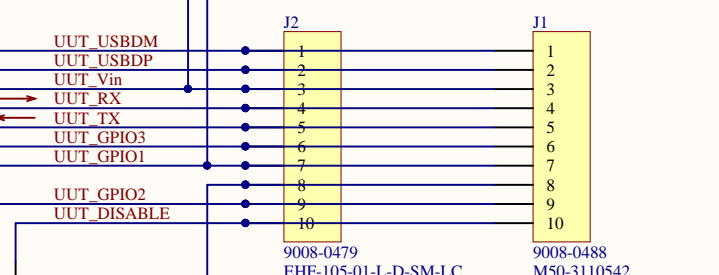


Test Points



UUT Connectors

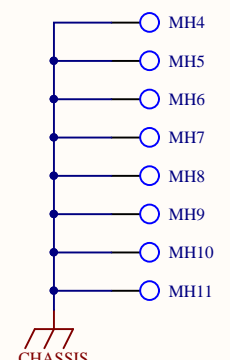
(connect one -OR- the other)
 Ribbon Cable Header (for remote-mounted UUT)
 Direct-Connect Header (for PCB-mounted UUT)



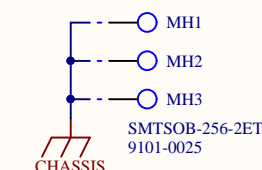
NOTE: J2 footprint is also compatible with...
 9008-0480 = EHF-105-01-L-D-SM-LC
 9008-0477 = SHF-105-01-L-D-SM-LC
 9008-0478 = SHF-105-01-L-D-SM

NOTE: J1 footprint is also compatible with...
 9008-0488 = M50-3110542
 9008-0487 = M50-3100545

PCB Mounting Holes



UUT Mounting Holes



Adhesive Bumpers



PWB
 3065-7242
 Rev.: -

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 Williston, VT 05495 USA
 802-862-6629
 www.microstrain.com

Title C-Series Connectivity Board, Schematic		
Size	Number	Revision
Tabloid	3065-7242	A
Date:	2017-04-13	Sheet 1 of 1
File:	\\.\3065-7242-SCH.SchDoc	Drawn By: Grayson King