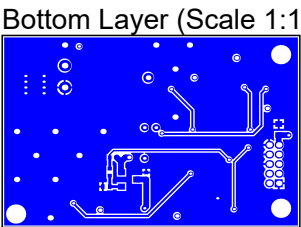
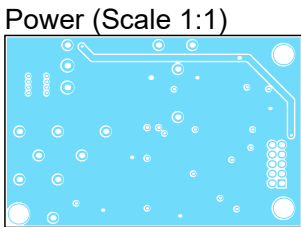
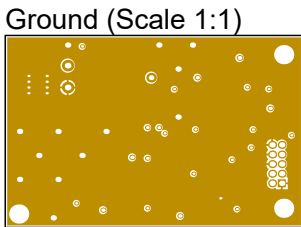
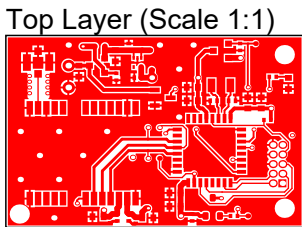
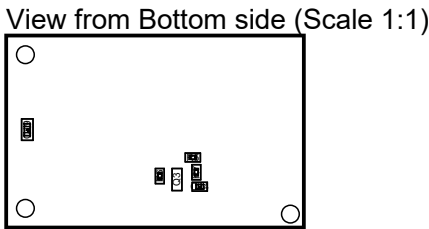
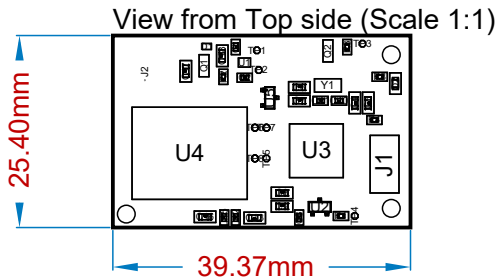


A		B		C		D		E		F									
1	Bill Of Materials											1							
	Line #	Designator	Name	Quantity	Manufacturer 1	Manufacturer Part Number 1	Supplier 1	Supplier Part Number 1	Value										
	1	C1	C0402	1					0.1uF										
	2	C2	C0402	1					1uF										
	3	C3	C0402	1					0.11uF										
	4	C4, C6, C8	C0603	3					0.1uF										
	5	C5, C7, C9, C13, C16	C0603	5					4.7uF										
	6	C10, C11	C0402	2					4.3pF										
	7	C12	C0402	1					0.1uF										
	8	C14	C0402	1					22nF										
2	9	C15	C0402	1					100nF										
	10	C17, C18, C19	C0603	3					4.7uF										
	11	D1	RB521S30T1G	1	ON Semiconductor	RB521S30T1G	Digi-Key	RB521S30T1GOSDKR-ND											
	12	D2	D0603	1					B										
	13	J1	10 PIN	1	Samtec	FTSH-105-01-F-D-K	Digi-Key	SAM8909-ND											
	14	J2	73412-0110	1	Molex	73412-0110	Digi-Key	WM5587CT-ND											
	15	Q1, Q3	NTR2101PT1G	2	ON Semiconductor	NTR2101PT1G	Digi-Key	NTR2101PT1GOSDKR-ND											
	16	Q2	2N7002ET1G	1	ON Semiconductor	2N7002ET1G	Digi-Key	2N7002ET1GOSCT-ND											
	17	R1, R8	R0402	2					220R										
	18	R2, R3	R0402	2					500k										
3	19	R4	R0402	1					47k										
	20	R5, R6	R0402	2					1.0M										
	21	R7	R0402	1					220k										
	22	U1	IC REG LINEAR 3.3V 200MA ESV	1	Toshiba	TCR2EE33,LM(CT	Digi-Key	TCR2EE33LM(CTCT-ND											
	23	U2	DRV5032FBDBZT	1	Texas Instruments	DRV5032FBDBZT	Digi-Key	296-46624-1-ND											
	24	U3	STM32L011K4T6	1	STMicroelectronics		Digikey	497-18578-ND											
	25	U4	RF RCVR GNSS/GPS 1.575GHZ 24LCC	1	u-blox	NEO-M8N-0	Digi-Key	672-1008-1-ND											
	26	U5	STM809TWX6F	1	STMicroelectronics	STM809TWX6F	Digi-Key	497-3339-1-ND											
	27	Y1	32.768kHz	1	NDK	NX3215SA-32.768K-STD-MUA-8	Digi-Key	644-1156-1-ND											
	4	<div>Notes:</div> <div>1. Passive components are interchangeable with those of same specification</div> <div>2. Resistors are 5% tolerance unless otherwise specified</div> <div>3. "NP" denotes non-populated components</div>											4						
<div>THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF GRAND VALLEY STATE UNIVERISTY. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF GRAND VALLEY STATE UNIVERSITY IS PROHIBITED.</div> <div>PROPRIETARY AND CONFIDENTIAL</div>						<div>UNLESS OTHERWISE SPECIFIED:</div> <div>DIMENSIONS ARE IN INCHES</div> <div>TOLERANCES:</div> <div>.X ± 0.2</div> <div>.0X ± 0.01</div> <div>.00X ± 0.005</div> <div>.000X ± 0.0005</div> <div>MATERIAL:</div> <div>FR-4</div> <div>FINISH:</div> <div>ENIG</div>		<div></div> <div>DRAWN</div> <div>CHECKED</div> <div>ENG APPR.</div> <div>MFG APPR.</div> <div>Q.A.</div> <div>COMMENTS:</div> <div>DO NOT SCALE DRAWING</div>		<div>NAME</div> <div>CRH</div> <div></div> <div></div> <div></div> <div></div>		<div>DATE</div> <div>7-29-19</div> <div></div> <div></div> <div></div> <div></div>		<div>GRAND VALLEY STATE UNIVERSITY</div> <div>301 W Fulton, Grand Rapids, MI, 49504</div> <div>TITLE</div> <div>Wildlife Tracking Collar - Small</div> <div>SIZE</div> <div>B</div> <div>DRAWING NO.</div> <div>20000</div> <div>REVISION</div> <div>AA</div>		<div>SCALE:</div> <div>1:1</div> <div>WEIGHT:</div> <div></div> <div>SHEET 1 OF 2</div>			



Layer Stack Legend

	Material	Layer	Thickness	Dielectric Material	Type	Gerber
		Top Overlay			Legend	GTO
	Surface Material	Top Solder	0.40mil	Solder Resist	Solder Mask	GTS
	Copper	Top Layer	1.40mil		Signal	GTL
	Prepreg		4.33mil	PP-006	Dielectric	
	CF-004	Ground	1.38mil		Signal	G1
			44.48mil	FR-4	Dielectric	
	CF-004	Power	1.38mil		Signal	G2
	Prepreg		4.33mil	PP-006	Dielectric	
	Copper	Bottom Layer	1.40mil		Signal	GBL
	Surface Material	Bottom Solder	0.40mil	Solder Resist	Solder Mask	GBS
		Bottom Overlay			Legend	GBO
Total thickness: 59.50mil						

THE INFORMATION CONTAINED
IN THIS DRAWING IS THE SOLE
PROPERTY OF GRAND VALLEY
STATE UNIVERISTY. ANY
REPRODUCTION IN PART OR AS
A WHOLE WITHOUT THE
WRITTEN PERMISSION OF
GRAND VALLEY STATE
UNIVERSITY IS PROHIBITED.

PROPRIETARY AND CONFIDENTIAL

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES

TOLERANCES:

.X ± 0.2
.0X ± 0.01
.00X ± 0.005
.000X ± 0.0005

MATERIAL:

FR-4

FINISH:

ENIG

NAME

DATE

DRAWN

CRH

7-29-19

CHECKED

ENG APPR.

MFG APPR.

Q.A.

COMMENTS:

DO NOT SCALE DRAWING

GRAND VALLEY STATE UNIVERSITY

301 W Fulton, Grand Rapids, MI, 49504

TITLE

Wildlife Tracking Collar - Small

SIZE

DRAWING NO.

REVISION

B

20000

AA

SCALE:

1:1

WEIGHT:

SHEET 2 OF 2

A

B

C

D

E

F