





















							Farnell Par	t			
Part	x	Υ Α	ingle Package	Value	Manufacturer	Manufacturer Part No	No	Mouser Part No	McMaster Part No	Description	Alternative Part
Dimensions	107.95									Excludes snap-off servo linkage pieces	
Fiducials - for solder paste mask alignment:											
FD1 FD2		71.12 0 149.86 0								Fiducial 1mm Fiducial 1mm	
Surface Mount Components:											
C1		141.22	0 0603	1uF	Walsin	0603X105K100CT	2496916			MultiLayer Ceramic Capacitor; 1uF; 10V; 0603; X5R	1uF 50V ±10% 0603 Samsung
C2 C3	58.93 49.4	83.57 83.57	0 0603 180 0603	120pF 120pF	Walsin Walsin	0603B121K500CT 0603B121K500CT	2524820 2524820			MultiLayer Ceramic Capacitor; 120pF; 50V; 0603 MultiLayer Ceramic Capacitor; 120pF; 50V; 0603	
C4 C5	53.98 74.8	77.98 88.27	90 0603 180 0805	120pF 0.1uF	Walsin Walsin	0603B121K500CT 0805B104K500CT	2524820 2496944			MultiLayer Ceramic Capacitor; 120pF; 50V; 0603 MultiLayer Ceramic Capacitor; 0.1uF; 50V; 0805; X7R	100nF 50V ±10% 0805 Samsung
C6 C7	92.75	105.54 102.39	0 0805 270 0603	10uF 1uF	Walsin Walsin	0805F106Z100CT 0603X105K100CT	2496998 2496916			MultiLayer Ceramic Capacitor; 10uF; 10V; 0805 MultiLayer Ceramic Capacitor; 1uF; 10V; 0603; X5R	10uF 16V ±10% 0805 Samsung 1uF 50V ±10% 0603 Samsung
C8 C9	82.2	102.39 79.86	270 0805 270 0805	10uF 0.1uF	Walsin Walsin	0805F106Z100CT 0805B104K500CT	2496998 2496944			MultiLayer Ceramic Capacitor; 10uF; 10V; 0805 MultiLayer Ceramic Capacitor; 0.1uF; 50V; 0805; X7R	10uF 16V ±10% 0805 Samsung 100nF 50V ±10% 0805 Samsung
C10 C11	82.26 74.4	75.84 102.87	90 0805 90 0805	10uF 10nF	Walsin Walsin	0805F106Z100CT 0805B103K500CT	2496998 2496939			MultiLayer Ceramic Capacitor; 10uF; 10V; 0805 MultiLayer Ceramic Capacitor; 10nF; 50V; 0805; X7R	10uF 16V ±10% 0805 Samsung 10nF 50V ±5% 0805 Samsung
C12 C13	73.03	93.6	90 0805 180 0603	10uF 12pF	Walsin Walsin Walsin	0805F106Z100CT 0603N120J500CT	2496998 2496884			MultiLayer Ceramic Capacitor; 10uF; 10V; 0805 MultiLayer Ceramic Capacitor; 12pF; 50V; 0603	10uF 16V ±10% 0805 Samsung 12pF 50V ±5% 0603 Samsung
C14 C15	73.03 69.19	91.31 109.22	180 0603 0 0805	12pF 10uF	Walsin	0603N120J500CT 0805F106Z100CT	2496884 2496998			MultiLayer Ceramic Capacitor; 12pF; 50V; 0603 MultiLayer Ceramic Capacitor; 10uF; 10V; 0805	12pF 50V ±5% 0603 Samsung 10uF 16V ±10% 0805 Samsung
C16 C17	7.62 7.62	125.2	0 0805 0 0805	10nF 10nF	Walsin Walsin	0805B103K500CT 0805B103K500CT	2496939 2496939			MultiLayer Ceramic Capacitor; 10nF; 50V; 0805; X7R MultiLayer Ceramic Capacitor; 10nF; 50V; 0805; X7R	10nF 50V ±5% 0805 Samsung 10nF 50V ±5% 0805 Samsung
C18 C19	71.12 91.89	88.27 81.69	180 0603 0 0805	1uF 10uF	Walsin Walsin	0603X105K100CT 0805F106Z100CT	2496916 2496998			MultiLayer Ceramic Capacitor; 10F; 10V; 0603; XSR MultiLayer Ceramic Capacitor; 10uF; 10V; 0805	1uF 50V ±10% 0603 Samsung 10uF 16V ±10% 0805 Samsung
C20 C21	100.33	125.2	0 0805	10nF 10nF	Walsin Walsin	0805B103K500CT 0805B103K500CT	2496939 2496939			MultiLayer Ceramic Capacitor; 10nF; 50V; 0805; X7R MultiLayer Ceramic Capacitor; 10nF; 50V; 0805; X7R	10nF 50V ±5% 0805 Samsung 10nF 50V ±5% 0805 Samsung
C22 C23	30.48 27.3	105.69 105.69	270 0805 270 0805	10uF 0.1uF	Walsin Walsin	0805F106Z100CT 0805B104K500CT	2496998 2496944			MultiLayer Ceramic Capacitor; 10uF; 10V; 0805 MultiLayer Ceramic Capacitor; 0.1uF; 50V; 0805; X7R	10uF 16V ±10% 0805 Samsung 100nF 50V ±10% 0805 Samsung
C24 C25	84.2 92.71	97.16 92.84	0 0603 0 0805	1uF 10uF	Walsin Walsin	0603X105K100CT 0805F106Z100CT	2496916 2496998			MultiLayer Ceramic Capacitor; 1uF; 10V; 0603; XSR MultiLayer Ceramic Capacitor; 10uF; 10V; 0805	1uF 50V ±10% 0603 Samsung 10uF 16V ±10% 0805 Samsung
C26 CON1	28.45 2.99	87.63 92.71	270 0805 270	10uF Micro_USB	Walsin Amphenol_FCI	0805F106Z100CT 10103594	2496998 2293752			MultiLayer Ceramic Capacitor; 10uF; 10V; 0805 Amphenol FCI 10103594 Micro USB Type B	10uF 16V ±10% 0805 Samsung A01SB7X4X1B21-167 Micro USB 5S B
CON2 D1	41.78 82.18	83.57 105.57	0 uFL 180 SOD-123	uFL MBR120	ON SEMICONDUCTOR	U.FL-R-SMT(01) MBR120VLSFT1G	3908021 1431044			HIROSE U.FL-R-SMT(01); U.FL Coaxial; Straight Jack; 50 ohm Schottky Rectifier; 20V; 1A; SOD-123	
D2 D3		91.44 111.76	180 SOD-123 180 SOD-123	MBR120 MBR120	ON SEMICONDUCTOR ON SEMICONDUCTOR	MBR120VLSFT1G MBR120VLSFT1G	1431044 1431044			Schottky Rectifier; 20V; 1A; SOD-123 Schottky Rectifier; 20V; 1A; SOD-123	
D4 D5	81.41 10.16	110.87 93.98	0 SOD-123 180 SOD-123	MBR120 MBR120	ON SEMICONDUCTOR ON SEMICONDUCTOR	MBR120VLSFT1G MBR120VLSFT1G	1431044 1431044			Schottky Rectifier; 20V; 1A; SOD-123 Schottky Rectifier; 20V; 1A; SOD-123	
D6 D7	95.89	111.76 70.99	180 SOD-123 0 SOD-123	MBR120 MBR120	ON SEMICONDUCTOR ON SEMICONDUCTOR	MBR120VLSFT1G MBR120VLSFT1G	1431044 1431044			Schottky Rectifier; 20V; 1A; SOD-123 Schottky Rectifier; 20V; 1A; SOD-123	
IC1 IC2	83.82 94.49	90.17 140.34	0 TQFP48-7X7 0 SOP65P400X130-8N			SAMD21G18A-AFT SN74LVC2G02DCTR	1236358	556-ATSAMD21G18A-AFT		NOR Gate, 2 Input, 32 mA, 1.65 V to 5.5 V, SSOP-8	
IC3 IC4		96.91 102.39	0 SOT23-3 270 SOT23-5	MCP111T-240E/TT SPX3819-3.3	Microchip Exar	MCP111T-240E/TT SPX3819M5-L-3-3/TR	1627192	701-SPX3819M5-L-33TR		Reset Supervisor; SOT23-3; 2.40V; Open Drain; Active Low LDO Voltage Regulator; 500mA; SOT-23-5	
IC5 IC6	53.98 68.15	82.42 80.34	270 SOT65P220X100-6N 0	MAX-M8Q	Skyworks Solutions u-blox	AS179-92LF MAX-M8Q	1753762	873-AS179-92LF		Skyworks AS179-92LF RF Switch https://www.u-blox.com/en/product/max-m8-series	
IC7 IC8	92.61	104.32 114.18	0 QFN-20 0 SOT23-5	MPM3610 74AHCT1G125DBV	MPS Texas Instruments	MPM3610AGQV-P SN74AHCT1G125DBVR	1105927	946-MPM3610AGQV-P		Switching Voltage Regulator; 21V; 1.2A; DC/DC Buffer / Line Driver; Single Gate	
J1	41.09	109.34 94.65	180 SOT23-5 270	74AHCT1G125DBV SS4-10-3.50	Texas Instruments Samtec	SN74AHCT1G125DBVR SS4-10-3.50-L-D-K-TR	1105927 2085336			Buffer / Line Driver; Single Gate Samtec SS4-10-3.50-L-D-K-TR	
LED1 LED2	91.8 96.88	76.52 76.71	0 180 2.0x1.25	WS2812B RED	Sparkfun / Worldsemi Wurth Electronik	WS2812B 150080RS75000	2322077	474-COM-13667 710-150080R\$75000		RGB LED with Driver LED; Red; 20mA; 2V; 2.0x1.25mm	
Q1 Q2	79.03 65.15	79.8 92.08	0 SOT23 180 SOT23	DMG3415U-7 2N2222	Diodes Inc. Fairchild	DMG3415U-7 MMBT2222A	1843688 9846700			MOSFET; P Channel; SOT23-WIDE Bipolar (BJT) Single Transistor, NPN, 40 V, 350 mW, 1 A	
Q3 Q4	60.96 15.39	89.28 132.49	180 SOT23 0 SOT23	DMG3415U-7 DMG3415U-7	Diodes Inc. Diodes Inc.	DMG3415U-7 DMG3415U-7	1843688 1843688			MOSFET; P Channel; SOT23-WIDE MOSFET; P Channel; SOT23-WIDE	
Q5 Q6	35.54	125.13 102.23	0 SOT23 180 SOT23	2N2222 DMG3415U-7	Fairchild Diodes Inc.	MMBT2222A DMG3415U-7	9846700 1843688			Bipolar (BJT) Single Transistor, NPN, 40 V, 350 mW, 1 A MOSFET; P Channel; SOT23-WIDE	
Q7 Q8		105.79 130.05	0 SOT23 180 SOT23	2N2222 DMG3415U-7	Fairchild Diodes Inc.	MMBT2222A DMG3415U-7	9846700 1843688			Bipolar (BJT) Single Transistor, NPN, 40 V, 350 mW, 1 A MOSFET; P Channel; SOT23-WIDE	
Q9 Q10	92.43 21.59	125.1 87.63	0 SOT23 90 SOT23	2N2222 DMG3415U-7	Fairchild Diodes Inc.	MMBT2222A DMG3415U-7	9846700 1843688			Bipolar (BJT) Single Transistor, NPN, 40 V, 350 mW, 1 A MOSFET; P Channel; SOT23-WIDE	
R1 R2		76.62 105.79	180 0805 270 0805	100K 19K1_0.1%	Multicomp Panasonic	MC01W08051100K ERA6ARB1912V	9332405 2094729			Chip Resistor; Thick Film; 100k; 150V; 0805; 100mW Resistor, Thin Film, 19K1, 0.1%, 0.125W, 0805	100K ±1% 0805 RoyalOhm
R3 R4	71.9 64.24	97.76 101.6	180 0805-NO 270 0805	330K 100K_1%	Multicomp Panasonic	MCWR08X3303FTL ERJ6ENF1003V	2447637 2303757			Chip Resistor; Thick Film; 330k; 150V; 0805; 125mW Resistor, Thick Film, 100K, 1% 0.125W, 0805	
R5 R6	60.96 76.37	92.2 97.76	180 0805-NO 180 0805	10K 100k	Multicomp Multicomp	MC01W0805510K MC01W08051100K	9333720 9332405			Chip Resistor; Thick Film; 10k; 150V; 0805; 100mW Chip Resistor; Thick Film; 100k; 150V; 0805; 100mW	100K ±1% 0805 RoyalOhm
R7 R8	39.48 66.42	101.73 95.89	90 0603 270 0603	1K 1K	Multicomp Multicomp	MCWR06X1001FTL MCWR06X1001FTL	2447272 2447272			Chip Resistor; Thick Film; 1k; 50V; 0603; 100mW Chip Resistor; Thick Film; 1k; 50V; 0603; 100mW	1K ±1% 0603 RoyalOhm 1K ±1% 0603 RoyalOhm
R9 R10	64.26 96.85	95.89 80.93	270 0603 270 0603	10K 2.2K	Multicomp Multicomp	MCWR06X1002FTL MCWR06X2201FTL	2447230 2447320			Chip Resistor; Thick Film; 10k; 50V; 0603; 100mW Chip Resistor; Thick Film; 2.2k; 50V; 0603; 100mW	10K ±1% 0603 RoyalOhm
R11 R12		109.98 133.22	270 0805 0 0603	68K 10K	Multicomp Multicomp	MCWR08X6802FTL MCWR06X1002FTL	2447706 2447230			Resistor, Thick Film, 68K, 1%, 0.125W Chip Resistor; Thick Film; 10k; 50V; 0603; 100mW	10K ±1% 0603 RoyalOhm
R13 R14	93.45 14.33	120.9 121.09	90 0603 90 0603	10K 1K	Multicomp Multicomp	MCWR06X1002FTL MCWR06X1001FTL	2447230 2447272			Chip Resistor; Thick Film; 10k; 50V; 0603; 100mW Chip Resistor; Thick Film; 1k; 50V; 0603; 100mW	10K ±1% 0603 RoyalOhm 1K ±1% 0603 RoyalOhm
R15 R16	35.54	129.35 105.41	180 0603 0 0603	10K 10K	Multicomp Multicomp	MCWR06X1002FTL MCWR06X1002FTL	2447230 2447230			Chip Resistor; Thick Film; 10k; 50V; 0603; 100mW Chip Resistor; Thick Film; 10k; 50V; 0603; 100mW	10K ±1% 0603 RoyalOhm 10K ±1% 0603 RoyalOhm
R17 R18	41.38	121.09 101.73	90 0603 90 0603	10K 10K	Multicomp Multicomp	MCWR06X1002FTL MCWR06X1002FTL	2447230 2447230			Chip Resistor; Thick Film; 10k; 50V; 0603; 100mW Chip Resistor; Thick Film; 10k; 50V; 0603; 100mW	10K ±1% 0603 RoyalOhm 10K ±1% 0603 RoyalOhm
R19 R20	91.55 25.4	120.9 87.63	90 0603 270 0805	1K 100K	Multicomp Multicomp	MCWR06X1001FTL MC01W08051100K	2447272 9332405			Chip Resistor; Thick Film; 1k; 50V; 0603; 100mW Chip Resistor; Thick Film; 100k; 150V; 0805; 100mW	1K ±1% 0603 RoyalOhm 100K ±1% 0805 RoyalOhm
X1 Z1	76.07 10.29	92.46 89.41	90 3.2x1.5 0 CT/CN0603	32.768 CG0603MLC-05E	Epson Bourns	Q13FC13500004 CG0603MLC-05E	1278036 1838966	652-CG0603MLC-05E		Crystal; 32.768kHz; 12.5pF; 3.2 x 1.5mm ESD Suppressor; 0603; 5 Volts	
Z2		91.44	0 CT/CN0603	CG0603MLC-05E	Bourns	CG0603MLC-05E	1838966	652-CG0603MLC-05E		ESD Suppressor; 0603; 5 Volts	
Press-In Nuts f											
H1 H2	16.27 41.27	16.50 16.50		Press-In Nut Press-In Nut	McMaster-Carr McMaster-Carr	95117A411 95117A411			95117A411 95117A411	Press-In Nut; 2-56 Press-In Nut; 2-56	
Non-surface m	ount compo	nents:									
ANTENNA				SMA Jack	Johnson	142-0711-821	1019328			SMA End Launch Jack	
BUZ BAT1				Buzzer PP3-Clip_Pair	Pro Signal Keystone	ABI-003-RC 593 + 594	1107581 723988			Buzzer 3V - 20VDC 15mA 95dB Battery Contact, PP3 (9V), Snap Contact, Steel, Nickel Plated	
BAT2 RELAY1				PP3-Clip_Pair DPDT Latching	Keystone Omron	593 + 594 G6SK-2 3VDC	723988	653-G6SK-2DC3		Battery Contact, PP3 (9V), Snap Contact, Steel, Nickel Plated DPDT Latching Relay (Dual Coil) 3VDC	
!RESET CLOSE A				Tactile Switch Tactile Switch	Multicomp Multicomp	MCDTS6-1N MCDTS6-1N	9471685 9471685			Switch, SPST, 0.05A, 12VDC, 160gf Switch, SPST, 0.05A, 12VDC, 160gf	
CLOSE B OPEN_A				Tactile Switch Tactile Switch	Multicomp Multicomp	MCDTS6-1N MCDTS6-1N	9471685 9471685			Switch, SPST, 0.05A, 12VDC, 160gf Switch, SPST, 0.05A, 12VDC, 160gf	
OPEN_B ON				Tactile Switch Tactile Switch	Multicomp Multicomp	MCDTS6-1N MCDTS6-1N	9471685 9471685			Switch, SPST, 0.05A, 12VDC, 160gf Switch, SPST, 0.05A, 12VDC, 160gf	
OFF DC-DC				Tactile Switch DC-DC Converter	Multicomp Recom	MCDTS6-1N REC10-2405SRWZ/H3/A/M	9471685 2846237			Switch, SPST, 0.05A, 12VDC, 160gf Isolated DC-DC Converter, 10W, 5V, 2A, 24V Nominal Input	
PI					oni.com/products/2x20-pir	-gpio-header-for-raspberry-pi-2	?-b-a?variant=	1132812269		Female Header for Raspberry Pi GPIO pins	
Iridium 9603N											
9603N					Iridium	9603N				https://www.rock7.com/shop-product-detail?productId=50	
Mounting hardware for Iridium 9603N:											
SPACERS_x2 SCREWS x2									94669A100 92185A081	4.5mm OD x 6mm Spacers for Iridium Module 2-56 x 7/16 Screws for Iridium Module	
Cable for Iridiu	m 9603N:								-		
CABLE					Amphenol	A-1PA-132-025B2	2664624			Amphenol AMC cable (u.FL compatible) 50ohm 25mm	
SMA Antenna:					•	-					
Iridium+GNSS					Maxtena	M1600HCT-P-SMA				Iridium + GNSS Passive Antenna with SMA connector	