

Part	X	Y	Angle	Package	Value	Manufacturer	Manufacturer Part No	Farnell Part No	McMaster Part No	Mouser Part No	Description
Dimensions	50.80	63.50									
Fiducials - for solder paste mask alignment:											
FD1	50.16	0.64	0								Fiducial
FD2	0.64	62.87	0								Fiducial
Surface Mount Components:											
B1	35.65	15.53	180			Seiko Instruments	ML414H-IV01E			628-ML414H-IV01E	Rechargeable Battery - Reflow Compatible
C1	12.83	18.29	0	0603	10nF	Walsin	0603B103K101CT	2496825			MultiLayer Ceramic Capacitor; 10nF; 100V; 0603; X7R
C2	13.46	56.39	270	0603	2.2uF	AVX	06036D225KAT2A	1327678			MultiLayer Ceramic Capacitor; 2.2uF; 6.3V; 0603; X5R
C3	6.99	57.28	270	0603	1.0uF	Walsin	0603X105K100CT	2496916			MultiLayer Ceramic Capacitor; 1uF; 10V; 0603; X5R
C4	10.03	58.93	180	0603	0.22uF	Multicomp	MC0603F224Z160CT	1759019			MultiLayer Ceramic Capacitor; 0.22uF; 16V; 0603
C7	12.83	16.64	0	0603	0.1uF	Murata	GRM188R71H104JA93D	2688523			MultiLayer Ceramic Capacitor; 0.1uF; 50V; 0603; X7R
C8	17.65	11.05	180	0603	4.7uF	AVX	06036D475KAT2A	1833803			MultiLayer Ceramic Capacitor; 4.7uF; 6.3V; 0603; X5R
C9	31.24	41.27	180	0603	10nF	Walsin	0603B103K101CT	2496825			MultiLayer Ceramic Capacitor; 10nF; 100V; 0603; X7R
C10	29.21	45.72	270	0603	1.0uF	Walsin	0603X105K100CT	2496916			MultiLayer Ceramic Capacitor; 1uF; 10V; 0603; X5R
C11	41.40	51.31	90	0603	4.7uF	AVX	06036D475KAT2A	1833803			MultiLayer Ceramic Capacitor; 4.7uF; 6.3V; 0603; X5R
C12	11.56	40.13	90	0603	0.22uF	Multicomp	MC0603F224Z160CT	1759019			MultiLayer Ceramic Capacitor; 0.22uF; 16V; 0603
C13	37.72	41.99	270	0603	0.1uF	Murata	GRM188R71H104JA93D	2688523			MultiLayer Ceramic Capacitor; 0.1uF; 50V; 0603; X7R
C14	37.59	54.86	270	0603	100pF	Walsin	0603B101K500CT	2524815			MultiLayer Ceramic Capacitor; 100pF; 50V; 0603; X7R
C15	44.70	54.86	270	0603	100pF	Walsin	0603B101K500CT	2524815			MultiLayer Ceramic Capacitor; 100pF; 50V; 0603; X7R
C16	40.26	57.79	0	0603	100pF	Walsin	0603B101K500CT	2524815			MultiLayer Ceramic Capacitor; 100pF; 50V; 0603; X7R
C17	17.65	16.13	180	0603	4.7uF	AVX	06036D475KAT2A	1833803			MultiLayer Ceramic Capacitor; 4.7uF; 6.3V; 0603; X5R
C18	24.51	34.04	270	0603	12pF	Walsin	0603N120J500CT	2496884			MultiLayer Ceramic Capacitor; 12pF; 50V; 0603
C19	23.24	37.59	180	0603	12pF	Walsin	0603N120J500CT	2496884			MultiLayer Ceramic Capacitor; 12pF; 50V; 0603
C20	19.10	32.59	0	0603	0.1uF	Murata	GRM188R71H104JA93D	2688523			MultiLayer Ceramic Capacitor; 0.1uF; 50V; 0603; X7R
C21	1.91	33.66	270	0805	22uF	AVX	08056D226MAT2A	1867955			MultiLayer Ceramic Capacitor; 22uF; 6.3V; 0805; X5R
C22	19.10	35.76	180	0603	10uF	AVX	06036D106MAT2A	1833804			MultiLayer Ceramic Capacitor; 10uF; 6.3V; 0603; X5R
C23	19.05	34.16	180	0603	1.0uF	Walsin	0603X105K100CT	2496916			MultiLayer Ceramic Capacitor; 1uF; 10V; 0603; X5R
C24	38.10	7.37	90	0603	1.0uF	Walsin	0603X105K100CT	2496916			MultiLayer Ceramic Capacitor; 1uF; 10V; 0603; X5R
C25	8.89	33.78	270	0603	22uF	Murata	GRM188R60J226MEA00	2494232			MultiLayer Ceramic Capacitor; 22uF; 6.3V; 0603; X5R
C27	5.71	36.20	180	0603	1.0uF	Walsin	0603X105K100CT	2496916			MultiLayer Ceramic Capacitor; 1uF; 10V; 0603; X5R
C28	11.05	33.78	270	0603	0.1uF	Murata	GRM188R71H104JA93D	2688523			MultiLayer Ceramic Capacitor; 0.1uF; 50V; 0603; X7R
C29	2.16	29.85	90	0603	1nF	Walsin	0603B102K500CT	2496822			MultiLayer Ceramic Capacitor; 1000pF; 50V; 0603; X7R
C30	8.51	29.85	270	0603	0.1uF	Murata	GRM188R71H104JA93D	2688523			MultiLayer Ceramic Capacitor; 0.1uF; 50V; 0603; X7R
C31	6.10	29.85	270	0603	0.1uF	Murata	GRM188R71H104JA93D	2688523			MultiLayer Ceramic Capacitor; 0.1uF; 50V; 0603; X7R
D1	48.18	13.56	0	0603		Kingbright	KP-1608CGCK	2290328			Green LED 0603
D2	48.18	16.10	0	0603		Kingbright	KP-1608SYCK	2290330			Yellow LED 0603
D3	48.18	18.64	0	0603		Kingbright	KPT-1608SURCK	2099224			Red LED 0603
D4	48.18	11.02	0	0603		Kingbright	KP-1608PBC-A	8529809			Blue LED 0603
D5	32.64	11.56	180	SOD-323		Nexperia	PMEG4005EJ	1757776			Schottky Rectifier 40V 500mA
D6	48.18	8.48	0	0603		Rohm	SMLE13WB8W1	2762565			White LED 0603
D7	9.53	16.51	270	0603		Kingbright	KP-1608CGCK	2290328			Green LED 0603
D8	17.65	9.27	0	SOD-323		Nexperia	PMEG4005EJ	1757776			Schottky Rectifier 40V 500mA
D9	17.65	14.35	180	0603		Kingbright	KP-1608SYCK	2290330			Yellow LED 0603
D10	28.45	10.54	90	SOD-323		Nexperia	PMEG4005EJ	1757776			Schottky Rectifier 40V 500mA
D11	42.04	37.72	90	SOD-323		Nexperia	PMEG4005EJ	1757776			Schottky Rectifier 40V 500mA
D12	42.04	33.53	270	SOD-323		Nexperia	PMEG4005EJ	1757776			Schottky Rectifier 40V 500mA
D13	7.87	16.51	270	0603		Kingbright	KP-1608SYCK	2290330			Yellow LED 0603
D14	26.42	10.54	90	SOD-323		Nexperia	PMEG4005EJ	1757776			Schottky Rectifier 40V 500mA
J1	25.40	36.88	0		SS4-10-3.50	Samtec	SS4-10-3.50-L-D-K-TR	2085336			Samtec SS4-10-3.50-L-D-K-TR
J2	10.79	4.01	0			Valcon	CSP-USC16-TR				USB-C 16-way (Toby Electronics)
J3	32.38	4.78	180		S2B-PH-SM4-TB	JST	S2B-PH-SM4-TB			474-PRT-08612	2-way 2mm connector SparkFun PRT-08612
J5	22.23	4.78	180		S2B-PH-SM4-TB	JST	S2B-PH-SM4-TB			474-PRT-08612	2-way 2mm connector SparkFun PRT-08612
J6	37.59	50.80	90	uFL		Hirose	U.F.L-R-SMT(01)	3908021			HIROSE U.F.L-R-SMT(01); U.F.L. Coaxial; Straight Jack; 50 ohm
L1	41.40	48.03	270	0806		Murata	DFE201610E-2R2M=P2			81-DFE201610E-2R2MP2	Fixed Inductor 0806 2.2uH
Q1	29.46	49.28	0	SOT23	DMG3414U-7	Diodes Inc.	DMG3414U-7	2061404			MOSFET; N Channel; SOT23-WIDE
Q2	41.07	44.07	0	SOT23	DMG3415U-7	Diodes Inc.	DMG3415U-7	1843688			MOSFET; P Channel; SOT23-WIDE
Q3	36.32	36.96	90	SOT23	DMG3415U-7	Diodes Inc.	DMG3415U-7	1843688			MOSFET; P Channel; SOT23-WIDE
Q4	37.34	33.02	0	SOT23	2N2222	Fairchild	MMBT2222A	9846700			Bipolar (BJT) Single Transistor, NPN, 40 V, 350 mW, 1 A
QWIIIC	41.27	3.37	0		SM048-SR55-TB	JST	SM048-SR55-TB	1830839			4-way 1mm Qwiiic connector SparkFun PRT-14417
R1	43.10	13.56	180	0603	1k	Multicomp	MCWR06X1001FTL	2447272			Chip Resistor; Thick Film; 1k; 50V; 0603; 100mW
R2	7.87	12.83	90	0603	1k	Multicomp	MCWR06X1001FTL	2447272			Chip Resistor; Thick Film; 1k; 50V; 0603; 100mW
R3	9.53	12.83	90	0603	1k	Multicomp	MCWR06X1001FTL	2447272			Chip Resistor; Thick Film; 1k; 50V; 0603; 100mW
R4	13.46	8.76	180	0603	5.1k	Multicomp	MCWR06X5101FTL	2447404			Chip Resistor; Thick Film; 5.1k; 75V; 0603; 100mW
R5	7.01	53.29	90	0603	10k	Multicomp	MCWR06X1002FTL	2447230			Chip Resistor; Thick Film; 10k; 50V; 0603; 100mW
R6	13.21	49.78	90	0603	12k	Multicomp	MCWR06X1202FTL	2447243			Chip Resistor; Thick Film; 12k; 50V; 0603; 100mW
R7	15.11	49.78	270	0603	30.1k	Multicomp	MCWR06X3012FTL	2447334			Chip Resistor; Thick Film; 30.1k; 50V; 0603; 100mW
R8	9.83	52.25	0	0603	100k	Multicomp	MCWR06X1003FTL	2447226			Chip Resistor; Thick Film; 100k; 50V; 0603; 100mW
R9	32.89	50.16	90	0603	0.012 Ohm	Yageo	RL0603FR-070R012L			603-RL0603FR070R012L	Current Sense Resistor; 12 mOhms; 0603; 100mW
R10	36.32	45.85	270	0603	100R	Multicomp	MCWR06X1000FTL	2447227			Chip Resistor; Thick Film; 100R; 50V; 0603; 100mW
R11	34.42	42.29	270	0603	100R	Multicomp	MCWR06X1000FTL	2447227			Chip Resistor; Thick Film; 100R; 50V; 0603; 100mW
R12	43.10	16.10	180	0603	1k	Multicomp	MCWR06X1001FTL	2447272			Chip Resistor; Thick Film; 1k; 50V; 0603; 100mW
R13	43.10	18.64	180	0603	2.2k	Multicomp	MCWR06X2201FTL	2447320			Chip Resistor; Thick Film; 2.2k; 50V; 0603; 100mW
R14	31.24	43.05	0	0603	10k	Multicomp	MCWR06X1002FTL	2447230			Chip Resistor; Thick Film; 10k; 50V; 0603; 100mW
R15	36.58	11.56	180	0603	62k	Multicomp	MCWR06X6202FTL	2447414			Chip Resistor; Thick Film; 62k; 75V; 0603; 100mW
R16	43.10	11.02	180	0603	1k	Multicomp	MCWR06X1001FTL	2447272			Chip Resistor; Thick Film; 1k; 50V; 0603; 100mW
R17	41.17	41.02	0	0603	10k	Multicomp	MCWR06X1002FTL	2447230			Chip Resistor; Thick Film; 10k; 50V; 0603; 100mW
R20	8.64	8.76	0	0603	5.1k	Multicomp	MCWR06X5101FTL	2447404			Chip Resistor; Thick Film; 5.1k; 75V; 0603; 100mW
R21	43.10	8.48	180	0603	1k	Multicomp	MCWR06X1001FTL	2447272			Chip Resistor; Thick Film; 1k; 50V; 0603; 100mW
R22	39.24	36.96	90	0603	10k	Multicomp	MCWR06X1002FTL	2447230			Chip Resistor; Thick Film; 10k; 50V; 0603; 100mW
R23	33.53	32.38	270	0603	10k	Multicomp	MCWR06X1002FTL	2447230			Chip Resistor; Thick Film; 10k; 50V; 0603; 100mW
R24	33.53	36.07	270	0603	20k	Multicomp	MCWR06X2002FTL	2447293			Chip Resistor; Thick Film; 20k; 75V; 0603; 100mW
R25	35.18	29.72	0	0603	1k	Multicomp	MCWR06X1001FTL	2447272			Chip Resistor; Thick Film; 1k; 50V; 0603; 100mW
R26	3.81	29.85	90	0603	100k	Multicomp	MCWR06X1003FTL	2447226			Chip Resistor; Thick Film; 100k; 50V; 0603; 100mW
R27	10.79	29.85	270	0603	220k	Multicomp	MCWR06X2203FTL	2447297			Chip Resistor; Thick Film; 220k; 75V; 0603; 100mW
R28	26.67	13.72	180	0603	2k	Multicomp	MCWR06X2001FTL	2447319			Chip Resistor; Thick Film; 2k; 75V; 0603; 100mW
R29	17.65	12.70	180	0603	1k	Multicomp	MCWR06X1001FTL	2447272			Chip Resistor; Thick Film; 1k; 50V; 0603; 100mW
R30	38.61	29.72	0	0603	10k	Multicomp	MCWR06X1002FTL	2447230			Chip Resistor; Thick Film; 10k; 50V; 0603; 100mW
S1	4.06	25.02	0			C&K	PTSS26-SK15-SMTR2-LF5			611-PTSS26SK15SMR2L	Tactile switch 5.2mm x 5.2mm
U1	12.57	12.83	90	MSOP-10		WCH	CH340E_MSOP10				USB to Serial converter
U2	9.91	55.50	0	DFN-10	LTC3225EDDB	Linear Technology	LTC3225EDDB#TRMPBF	1715231		584-C3225EDDBTRMPBF	Supercapacitor Charger
U3	32.89	46.48	270	TSOT6	ADM4210-1	Analog Devices	ADM4210-1			584-ADM4210-1AUJZ-R7	Hot Swap Controller
U4	45.22	49.91	0		ZOE-M8Q	u-blox	ZOE-M8Q				<a href="https://www.u-blox.com/en/product/zoe-m8-series">https://www.u-blox.com/en/product/zoe-m8-series</a>
U5	41.15	54.99	90	SOT6P220X100-6N	AS179-92LF	Skyworks Solutions	AS179-92LF			873-AS179-92LF	Skyworks AS179-92LF RF Switch
U6	8.51	40.64	180			TE	MS860702BA01-50			824-MS860702BA01-50	Fusion PHT Sensor
U7	25.40	25.13	270			SparkFun	Artemis Module			474-WRL-15484	<a href="https://www.sparkfun.com/products/15484">https://www.sparkfun.com/products/15484</a>
U9	22.48	11.81	270	SOT23-5	MCP73831T-2ACI/OT	Microchip	MCP73831T-2ACI/OT			579-MCP73831T-2ACIOT	Battery Charge Controller
U11	5.33	33.66	270	SOT23-5	AP2112K-3.3TRG1	Diodes Inc.	AP2112K-3.3TRG1	3257429		621-AP2112K-3.3TRG1	Low Dropout Linear Regulator; 600mA; Iq=50uA
X1	22.48	34.29	270	3.2x1.5	32.768	Epson	Q13FC13500004	1278036			Crystal; 32.768kHz; 12.5pF; 3.2 x 1.5mm
X2	45.85	45.21	0	3.2x1.5	32.768	Epson	Q13FC13500004	12780			

Select on test (may be required for solar power):

U10	14.61	29.85	90	SOT23-3	MCP111T-240E/TT	Microchip	MCP111T-240E/TT	1627192	Reset Supervisor; SOT23-3; 2.40V; Open Drain; Active Low
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Non-surface mount components:

C5 & C6	See notes below	1F 2.7V	Bussmann	HV0810-2R7105-R	2148482	Supercapacitor; 1F; 2.7V; +30%, -10%; 3.5mm Pitch
SC1 & SC2		10F 2.7V	Bussmann	HV1030-2R7106-R	2148486	Supercapacitor; 10F; 2.7V; +30%, -10%; 5.0mm Pitch
J7		SMA Jack	Samtec	SMA-J-P-H-ST-EM1	2856818	SMA End Launch Jack 50 Ohm

Iridium 9603N:

9603N	Iridium	9603N	<a href="https://www.rock7.com/shop-product-detail?productId=50">https://www.rock7.com/shop-product-detail?productId=50</a>
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Mounting hardware for Iridium 9603N:

SCREWS_x2	90116A010	M2 x 6mm Screws for Iridium Module
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Cable for Iridium 9603N:

CABLE	Amphenol	A-1PA-132-025B2	2664624	Amphenol AMC cable (u.FL compatible) 50ohm 25mm
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SMA Antenna:

Iridium + GNSS	Maxtena	M1600HCT-P-SMA	2281621	Iridium + GPS Passive Antenna with SMA connector
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Notes:

SC1 and SC2 are optional - they are only required if you select 60mA charge current. Install them flat against the underside of the PCB, carefully bending the legs first. Glue them in place if required.