

Explorer Board HAT

. PN: 1287 Rev B1

As of: 6/2/2018 Patrick Kelly, Jack Kelly © Copyright 2018

Item	Qty	Location (bottom)	Mfg Part #	Description	Rating	Footprint	Mfg	Mouser	DigiKey	Notes	\$ each	Total
1	1	<u>A1</u>	1909763-1	Conn UMCC Jack Str 50 Ohm SMD		SMD	TE	571-1909763-1	A118077CT-ND		0.322	0.322
2	2	C6 , C7	GRM1555C1H180JA01D	Cap Cer 18pF 50V COG 5% 0402	COG	0402	Murata	81-GRM1555C1H180JA1D	490-5858-1-ND		0.006	0.012
		C1, C2, <u>C5</u> , C9, C21,										
3	8	C22, C24, C30	CC0603KRX7R7BB104	Cap Cer 0.1uF 16V X7R 10% 0603	X7R	0603	Yageo	603-CC603KRX7R7BB104	311-1088-1-ND		0.005	0.040
		C1, C2, C5, C9, C21,										
3	0	C22, C24, C30	C0603C104K4RACTU	Cap Cer 0.1uF 16V X7R 10% 0603	X7R	0603	Kemet	80-C0603C104K4R	399-1096-1-ND		0.011	0.000
		C1, C2, C5, C9, C21,										
3	0	C22, C24, C30	GRM188R71C104KA01D	Cap Cer 0.1uF 16V X7R 10% 0603	X7R	0603	Murata	81-GRM39X104K16	490-1532-1-ND		0.031	0.000
		C1, C2, C5, C9, C21,									0.00	-
3	0	C22, C24, C30	GCM188R71C104KA37D	Cap Cer 0.1uF 16V X7R 10% 0603	X7R	0603	Murata	81-GCM188R71C104KA7D	490-4774-1-ND		0.034	0.000
		C12, C13, C14, C15,									0.00	
4	7	C16, C17, C23	GRM155R71C104KA88J	Cap Cer 0.1uF 16V X7R 10% 0402	X7R	0402	Murata	81-GRM155R71C104KA8J	490-6328-1-ND		0.006	0.042
5	3	C3. C4. C27	CC0603KRX5R7BB475	Cap Cer 4.7uF 16V X5R 10% 0603	X5R	0603	Yageo	603-CC603KRX5R7BB475	311-1785-1-ND		0.072	0.216
6	3	C8, C28, C29	GRT188R61C106KE13D	Cap Cer 10uF 6.3V X5R 10% 0603	X5R	0603	Murata	81-GRT188R61C106KE3D	490-12317-1-ND		0.154	0.462
7	1	C10	CC1206KKX7R6BB225	Cap Cer 2.2uF 10V X7R 10% 1206	X7R	1206	Yageo	603-CC126KKX7R6BB225	311-1953-1-ND		0.037	0.037
7	0	C10	GRM31MR71A225KA01L	Cap Cer 2.2uF 10V X7R 10% 1206	X7R	1206	Murata	81-GRM426X225K010L	490-1803-1-ND		0.118	0.000
7	0	C10	C1206C225K8RACTU	Cap Cer 2.2uF 10V X7R 10% 1206	X7R	1206	Kemet	80-C1206C225K8R	399-8182-1-ND		0.470	0.000
7	0	C10	LMK316B7225KL-T	Cap Cer 2.2uF 10V X7R 10% 1206	X7R	1206	Taiyo Yuden	963-LMK316B7225KL-T	587-2232-1-ND		0.074	0.000
8	1	C11	GRM31CR60J107KE39L	Cap Cer 100uF 6.3V X5R 10% 1206	X5R	1206	Murata	81-GRM31CR60J107KE9L	490-13982-1-ND		0.290	0.290
8	0	C11	CL31A107MQHNNNE	Cap Cer 100uF 6.3V X5R 20% 1206	X5R	1206	Samsung	NA	1276-1782-1-ND		0.261	0.000
8	0	C11	JMK316BJ107ML-T	Cap Cer 100uF 6.3V X5R 20% 1206	X5R	1206	Taiyo Yuden	963-JMK316BJ107ML-T	587-1963-6-ND		0.472	0.000
9	3	C18 , C25, C26	CC0603KRX5R5BB475	Cap Cer 4.7uF 6.3V X5R 10% 0603	X5R	0603	Yageo	603-CC603KRX5R5BB475	311-1521-1-ND		0.025	0.075
10	1	C19	LMK105BJ105KV-F	Cap Cer 1uF 10V X5R 10% 0402	X5R	0402	Taiyo Yuden	963-LMK105BJ105KV-F	587-1454-1-ND		0.023	0.023
10	0	C19	EMK105BJ105KV-F	Cap Cer 1uF 16V X5R 10% 0402	X5R	0402	Taiyo Yuden	963-EMK105BJ105KV-F	587-2477-1-ND		0.023	0.000
10	0	C19	CL05A105KO5NNNC	Cap Cer 1uF 16V X5R 10% 0402	X5R	0402	Samsung	NA	1276-1067-1-ND		0.024	0.000
10	0	C19	C1005X5R1E105K050BC	Cap Cer 1uF 25V X5R 10% 0402	X5R	0402	TDK	810-C1005X5R1E105K	445-9066-1-ND		0.024	0.000
11	1	C20	CC0603KRX7R9BB331	Cap Cer 330pF 50V X7R 10% 0603	X7R	0603	Yageo	603-C0603KRX7R9BB331	311-1186-1-ND		0.008	0.024
12	2	<u>D1</u> , <u>D4</u>	LTST-C190KRKT	LED Red Clear 0603	XXX	0603	Lite-On	859-LTST-C190KRKT	160-1436-1-ND		0.068	0.136
13	1	D2	LTST-C190KKKT	LED Orange Clear 0603		0603	Lite-On	859-LTST-C191KFKT	160-1445-1-ND		0.068	0.068
14	1	D3	LTST-C190KGKT	LED Green Clear 0603		0603	Lite-On	859-LTST-C191KFKT	160-1445-1-ND		0.068	0.068
15	1	F1	OZCK0100FF2E	Fuse PTC Resttable 1.0A 6V Chip 0805		0805	Bel Fuse	530-0ZCK0100FF2E	507-1815-1-ND		0.185	0.185
16	1	J1	CS25582-40G-M36-0A	Conn Socket 2x20 0.100 inch SMD		0.100	Kaweei Tech	(Buy from Adafruit #2187)	NA		1.950	1.950
17	1	J2	S2B-PH-SM4-TB(LF)(SN)	Conn Header PH Side 2 Pos 2mm SMD		SMD	JST	NA	455-1749-1-ND		0.419	0.419
18	0	13	20021121-00010C4LF	Conn Header 10 Pos DL 0.050 in SMD		SMD	Amphenol	649-202112100010C4LF	609-3695-1-ND		0.606	0.000
19	0	J5	M22-2510246	Header 2 Pos 2mm		2mm	Harwin	855-M22-2510246	952-2280-ND	5,6	0.082	0.000
20	0	J5 Shunt	M22-1900005	Shunt Jumper 2mm		2mm	Harwin	855-M22-1900005	952-1305-ND	3,0	0.215	0.000
21	1	L1	PA4341.682NLT	Inductor 6.8uH 4.5A 60 Mohm SMD			Pulse	673-PA4341.682NLT	553-3420-1-ND		0.702	0.702
21	0	L1	PA4341.682NLT	Inductor 6.8uH 4.5A 60 Mohm SMD			Pulse	buy from Arrow	333 3420 1 113		0.663	0.000
22	2	Q1, Q4	FDN340P	MOSFET P-Chan 20V 2A SSOT-3		SSOT-3	On Semi	512-FDN340P	FDN340PCT-ND		0.157	0.314
23	1	Q2	MMUN2133LT1G	Trans Prebias PNP 246mW SOT23-3		SOT23-3	On Semi	863-MMUN2133LT1G	MMUN2133LT1GOSCT-ND		0.039	0.039
24	1	Q3	BSS138-7-F	MOSFET N-Chan 50V 200mA SOT-23		SOT-23	Diodes Inc	621-BSS138-7-F	BSS138-FDICT-ND		0.099	0.099
24	0	Q3	BSS138LT1G	MOSFET N-Chan 50V 200mA SOT-23		SOT-23	On Semi	863-BSS138LT1G	BSS138LT1GOSCT-ND		0.070	0.000
25	3	R14, R15 , R17	RC0603FR-071KL	Res 1.0K Ohm 1% Thick Film 0603	1%	0603	Yageo	603-RC0603FR-071KI	311-1.00KHRCT-ND		0.076	0.000
26	1	R1	RT0805BRD07732KL	Res 732K Ohm 0.1% Thin Film 0805	0.1%	0805	Yageo	603-RT0805BRD07732KL	YAG4938CT-ND		0.000	0.018
27	1	R22	ERA-6AEB6653V	Res 665K Ohm 0.1% Thin Film 0805	0.1%	0805	Panasonic		P665KDACT-ND		0.114	0.114
28	1	R7	RT0603BRD07200KL	Res 200K Ohm 0.1% Thin Film 0603	0.1%	0603	Yageo	667-ERA-6AEB6653V 603-RT0603BRD07200KL	YAG1578CT-ND		0.118	0.118
29	2	R3, R21	RT0603BRD074K99L	Res 4.99K Ohm 0.1% Thin Film 0603	0.1%	0603		603-RT0603BRD07200KL	YAG1578CT-ND YAG1678CT-ND		0.127	0.127
30	1	R3, R21	ERA-3AEB2433V	Res 243K Ohm 0.1% Thin Film 0603	0.1%	0603	Yageo Panasonic	667-ERA-3AEB2433V			0.127	0.254
31	1	R23	RN73C1J402KBTD	Res 402K Ohm 0.1% Thin Film 0603	0.1%	0603	TE		P243KDBCT-ND		0.117	0.117
32	1	R23 R6	CPF0603B1M0E1	Res 1M Ohm 0.1% Thin Film 0603	0.1%	0603	TE	279-RN73C1J402KBTDF	A124747CT-ND		0.437	0.437
33	1	_	ERJ-3EKF1004V	Res 1M Ohm 1% Thick Film 0603	1.0%	0603	Panasonic	279-CPF0603B1M0E1	A102234CT-ND		0.157	0.157
33	1	1/20	LIVI-SEKLTOO4A	IVES TIM OHILL TW THICK FILLI 0003	1.0%	0003	r dildSUIIC	667-ERJ-3EKF1004V	P1.00MHCT-ND	<u> </u>	0.018	0.018

34	1	R33	CPF0603B750KE1	Res 750K Ohm 0.1% Thin Film 0603	0.1%	0603	TE	279-CPF0603B750KE1	A102315CT-ND		0.199	0.199
35	1	R25	ERA-3AEB8061V	Res 8.06K Ohm 0.1% Thin Film 0603	0.1%	0603	Panasonic	667-ERA-3AEB8061V	P8.06KDBCT-ND		0.199	0.199
36	1	R9	RN73C1J340KBTD	Res 340K Ohm 0.1% Thin Film	0.1%	0603	TE	279-RN73C1J340KBTDF	A124740CT-ND		0.117	0.117
37	0	R12, R13	RC0603FR-071KL	Res 1.0K Ohm 1% Thick Film 0603	1%	0603	Yageo	603-RC0603FR-071KL	311-1.00KHRCT-ND		0.006	0.000
38	3	R5, R10, R20	RC0603FR-072KL	Res 2.0K Ohm 1% Thick Film 0603	1%	0603	Yageo	603-RC0603FR-072KL	311-2.00KHRCT-ND		0.006	0.000
39	2	R4, <u>R24</u>	RC0603FR-07100KL	Res 100K Ohm 1% Thick Film 0603	1%	0603	Yageo	603-RC0603FR-07100KL	311-100KHRCT-ND		0.006	0.012
40	2	R8, R34	CRCW06032M10FKEA	Res 2.1M Ohm 1% Thick Film 0603	1%	0603	Vishay Dale	71-CRCW06032M10FKEA	541-2.10MHCT-ND		0.014	0.028
41	1	R35	RC0603FR-0710RL	Res 10 Ohm 1% Thick Film 0603	1%	0603	Yageo	603-RC0603FR-0710RL	311-10.0HRCT-ND		0.006	0.006
42	2	R18, R19	RC0603FR-073K9L	Res 3.9K Ohm 1% Thick Film 0603	1%	0603	Yageo	603-RC0603FR-073K9L	311-3.90KHRCT-ND		0.006	0.012
43	1	R26	RT0603BRD07442RL	Res 442 Ohm 0.1% Thin Film 0603	0.1%	0603	Yageo	603-RT0603BRD07442RL	YAG4558CT-ND		0.069	0.069
44	1	R11	RC0603FR-0710KL	Res 10K Ohm 1% Thick Film 0603	1%	0603	Yageo	603-RC0603FR-0710KL	311-10.0KHRCT-ND		0.003	0.003
45	1	R16	RC0402FR-0756KL	Res 56K Ohm 1% Thick Film 0402	1%	0402	Yageo	603-RC0402FR-0756KL	311-56.0KLRCT-ND		0.005	0.005
46	2	R27, R32	RT0603BRD071KL	Res 1K Ohm 0.1% Thin Film 0603	0.1%	0603	Yageo	603-RT0603BRD071KL	YAG1237CT-ND		0.069	0.138
47	3	R28, R31, <i>R36</i>	RC0402JR-070RL	Res 0 Ohm Jumper Thick Film 0402	0.170	0402	Yageo	603-RC0402JR-070RL	311-0.0JRCT-ND		0.003	0.009
48	0	R29, R30, <i>R37</i>	RC0402JR-070RL	Res 0 Ohm Jumper Thick Film 0402		0402	Yageo	603-RC0402JR-070RL	311-0.0JRCT-ND		0.003	0.000
49	1	SW1	JS102011JAQN	Switch Slide SPDT 300mA 6V SMD			C&K	611-JS102011JAQN	CKN10720CT-ND		0.350	0.350
50	2	SW2, SW3	PTS645SK43SMTR92 LFS	Switch Tactile SPST-NO 0.05A 12V SMT			C&K	611-PTS645SK43SMTR92	CKN9084CT-ND		0.176	0.352
51	1	U1	MCP73831-2ATI/MC	IC Controller Li-Ion 4.2V 8DFN		8DFN	Microchip	579-MCP73831T-2ATIMC	MCP73831-2ATI/MC-ND		0.450	0.450
52	2	U2, U8	MIC842HYC5-TR	IC Compartor w/Ref Open Drain		SC-70-5	Microchip	998-MIC842HYC5TR	576-2926-1-ND		0.420	0.840
53	1	U3	ADS1014BQDGSRQ1	IC ADC 12-Bit I2C SMD			TI	595-ADS1014BQDGSRQ1	296-45252-1-ND		2.170	2.170
54	1	U4	TPS61090RSAR	IC Reg Boost Adj 2A Sync 16VQFN		16VQFN	TI	595-TPS61090RSAR	296-15259-1-ND		1.720	1.720
55	1	<u>U5</u>	CC1110F32RHHT	IC RF TxRx MCU ISM<1GHz 36-VFQFN		36-VFQFN	TI	595-CC1110F32RHHR	296-38889-1-ND		4.480	4.480
56	1	U6	0896BM15A0001	RF Balun Filter 863-928 MHz		0805	Johanson	609-0896BM15A0001E	712-1474-1-ND		0.522	0.522
57	1	U7	CAT24C32WI-G	IC EEPROM 32KBit 400KHz 8SOIC		SOIC-8	On Semi	698-CAT24C32WI-G	CAT24C32WI-GOS-ND		0.220	0.220
58	2	U10, <i>U11</i>	SN74LVC1G06DBVR	IC Inverter SGL 1 input SOT23-5		SOT23-5	TI	595-SN74LVC1G06DBVR	296-8483-1-ND		0.134	0.268
59	1	U9	LTC4411ES5#TRMPBF	IC OR Controller TSOT23-5		TSOT23-5	Linear Tech	584-LTC4411ES5TRMPBF	LTC4411ES5#TRMPBFCT-ND		2.328	2.328
60	1	U12	74LVC1G07DBVT	IC Buffer Non-Invert 1 input SOT23-5		SOT23-5	TI	595-SN74LVC1G07DBVT	296-26590-1-ND		0.400	0.400
61	1	V1	VC120605D150DP	TVS 5.6VDC 150A 1206		1206	AVX	581-VC120605D150DP	478-2517-1-ND		0.370	0.370
62	1	X1	7V-24.000MAHJ-T	Crystal 24.0000MHz 18pF SMD		SMD	TXC Corp	717-7V-24.000MAHJ-T	887-2580-1-ND		0.522	0.522
63	1			PCB Bare								0.000
						Sub	total:		\$22.93			
				Assemble Display and Antenna to Explore	r Board I	HAT						
1	1	<u>Display</u>	NA	Display 128X64 I2C OLED 0.96 inch white			еВау	NA	NA	6,2	3.670	3.670
2	0	<u>J4</u>	68000-404HLF	Header 4 Pos 0.100 in Str Tin		0.100	Amphenol	649-68000-404HLF	609-3262-ND	6,2	0.155	0.000
3	2	M1, M2, M3,M4	R30-6700394	Spacer M3 nylon 3mm			Harwin	855-R30-6700394	952-1526-ND		0.127	0.254
4	2	M1, M2, M3,M4	MPMS 002 0008 PH	Screw Machine Pan M2 x 8 Phillips			B&F Fastener	945-SCREWM2.0-8	H739-ND		0.070	0.140
5	2	M1, M2, M3,M4	MHNZ 002 4	Nut Hex 0.157" M2			B&F Fastener	NA	H761-ND		0.049	0.098
6	2	M1, M2, M3,M4	3114	Washer Flat #2 Nylon			Keystone	534-3114	36-3114-ND		0.070	0.140
7	0	M1, M2, M3,M4	222 (Purple)	Threadlocker 222 tube 6 ml			Loctite	(on M2 nut end)	Amazon		8.140	0.000
8	0	<u>A1</u>	66089-0930	Antenna U.FL 915MHz 30MM			Anaren	620-66089-0930	1173-1135-ND		3.560	0.000
8	1	<u>A1</u>	66089-0930	Antenna U.FL 915MHz 30MM			Anaren	RichardsonRFPD			2.180	2.180
9	1	<u>Under Display</u>	Cat 111-24	3M Scotch 111 Heavy Duty 1 inch Mountin	ng Square	s	Scotch	Amazon		4	0.100	0.100
						Sub	total:		\$4.30			
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Notes:

These components should be stocked due to concerns over lead time and/or limited substitutions available

Cut pins flush to this board (0.030 inch or less)

³ Do not wash

Stack 2 squares on top of each other, then cut to about 0.5 x 0.33 inch, then place under Display to support it

⁵ Leave holes open (do not fill with solder)

⁶ Thru-hole component

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