



# Kelly Designs

Explorer Board HAT (wire antenna)  
PN: 1287  
Rev P3

As of: 12/1/2017  
Patrick Kelly, Jack Kelly  
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Item	Qty	Location (bottom)	Mfg Part #	Description	Rating	Footprint	Mfg	Mouser	DigiKey	Notes	\$ each	Total
1	1	A1	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-GRM1555C1H180JA01D	490-5858-1-ND		0.006	0.012
3	8	C1, C2, C5, C9, C21, C22, C24, C30	CC0603KRX7R7BB104	Cap Cer 0.1uF 16V X7R 10% 0603	X7R	0603	Yageo	603-CC0603KRX7R7BB104	311-1088-1-ND		0.005	0.040
4	7	C12, C13, C14, C15, C16, C17, C23	GRM155R71C104KA88J	Cap Cer 0.1uF 16V X7R 10% 0402	X7R	0402	Murata	81-GRM155R71C104KA88J	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-CC0603KRX5R7BB475	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-GRT188R61C106KE13D	490-12317-1-ND		0.154	0.462
7	1	C10	CC1206KKX7R6BB225	Cap Cer 2.2uF 10V X7R 10% 1206	X7R	1206	Yageo	603-CC1206KKX7R6BB225	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-CC0603KRX5R5BB475	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
11	2	D1, D4	LTST-C190KRKT	LED Red Clear 0603		0603	Lite-On	859-LTST-C190KRKT	160-1436-1-ND		0.068	0.136
12	1	D2	LTST-C191KFKT	LED Orange Clear 0603		0603	Lite-On	859-LTST-C191KFKT	160-1445-1-ND		0.068	0.068
13	1	D3	LTST-C190KGKT	LED Green Clear 0603		0603	Lite-On	859-LTST-C190KGKT	160-1435-1-ND		0.068	0.068
14	1	F1	OZCK0100FF2E	Fuse PTC Resttable 1.0A 6V Chip 0805		0805	Bel Fuse	530-OZCK0100FF2E	507-1815-1-ND		0.185	0.185
15	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
16	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
17	0	J3	20021121-00010C4LF	Conn Header 10 Pos DL 0.050 in SMD		SMD	Amphenol	649-202112100010C4LF	609-3695-1-ND		0.606	0.000
18	0	J5	M22-2510246	Header 2 Pos 2mm		2mm	Harwin	855-M22-2510246	952-2280-ND	5,6	0.082	0.000
19	0	J5 Shunt	M22-1900005	Shunt Jumper 2mm		2mm	Harwin	855-M22-1900005	952-1305-ND		0.215	0.000
20	1	L1	PA4341.682NLT	Inductor 6.8uH 4.5A 60 Mohm SMD			Pulse	673-PA4341.682NLT	553-3420-1-ND		0.702	0.702
20	0	L1	PA4341.682NLT	Inductor 6.8uH 4.5A 60 Mohm SMD			Pulse	buy from Arrow			0.663	0.000
21	2	Q1, Q4	FDN340P	MOSFET P-Chan 20V 2A SSOT-3		SSOT-3	On Semi	512-FDN340P	FDN340PCT-ND		0.157	0.314
22	1	Q2	MMUN2133LT1G	Trans Prebias PNP 246mW SOT23-3		SOT23-3	On Semi	863-MMUN2133LT1G	MMUN2133LT1GOSCT-ND		0.039	0.039
23	1	Q3	MMBT2222ALT1G	Trans NPN 40V 0.6A SOT-23		SOT-23	On Semi	863-MMBT2222ALT1G	MMBT2222ALT1GOSCT-ND		0.034	0.034
24	3	R14, R15, R17	RC0603FR-071KL	Res 1.0K Ohm 1% Thick Film 0603	1%	0603	Yageo	603-RC0603FR-071KL	311-1.00KHRCT-ND		0.006	0.018
25	1	R1	RT0805BRD07732KL	Res 732K Ohm 0.1% Thin Film 0805	0.1%	0805	Yageo	603-RT0805BRD07732KL	YAG4938CT-ND		0.114	0.114
26	1	R22	ERA-6AEB6653V	Res 665K Ohm 0.1% Thin Film 0805	0.1%	0805	Panasonic	667-ERA-6AEB6653V	P665KDACT-ND		0.118	0.118
27	1	R7	RT0603BRD07200KL	Res 200K Ohm 0.1% Thin Film 0603	0.1%	0603	Yageo	603-RT0603BRD07200KL	YAG1578CT-ND		0.127	0.127
28	2	R3, R21	RT0603BRD074K99L	Res 4.99K Ohm 0.1% Thin Film 0603	0.1%	0603	Yageo	603-RT0603BRD074K99L	YAG1678CT-ND		0.127	0.254
29	1	R2	ERA-3AEB2433V	Res 243K Ohm 0.1% Thin Film 0603	0.1%	0603	Panasonic	667-ERA-3AEB2433V	P243KDBCT-ND		0.117	0.117
30	1	R23	RN73C1J402KBTDF	Res 402K Ohm 0.1% Thin Film 0603	0.1%	0603	TE	279-RN73C1J402KBTDF	A124747CT-ND		0.437	0.437
31	1	R6	CPF0603B1M0E1	Res 1M Ohm 0.1% Thin Film 0603	0.1%	0603	TE	279-CPF0603B1M0E1	A102234CT-ND		0.157	0.157
32	1	R33	CPF0603B750KE1	Res 750K Ohm 0.1% Thin Film 0603	0.1%	0603	TE	279-CPF0603B750KE1	A102315CT-ND		0.199	0.199
33	1	R25	ERA-3AEB8061V	Res 8.06K Ohm 0.1% Thin Film 0603	0.1%	0603	Panasonic	667-ERA-3AEB8061V	P8.06KDBCT-ND		0.117	0.117
34	1	R9	RN73C1J340KBTDF	Res 340K Ohm 0.1% Thin Film	0.1%	0603	TE	279-RN73C1J340KBTDF	A124740CT-ND		0.437	0.437
35	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
36	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	0.018
37	3	R4, R24, R35	RC0603FR-07100KL	Res 100K Ohm 1% Thick Film 0603	1%	0603	Yageo	603-RC0603FR-07100KL	311-100KHRCT-ND		0.006	0.018
38	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

39	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
40	1	R26	RT0603BRD07442RL	Res 442 Ohm 0.1% Thin Film 0603	0.1%	0603	Yageo	603-RT0603BRD07442RL	YAG4558CT-ND		0.069	0.069
41	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
42	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
43	2	R27, R32	RT0603BRD071KL	Res 1K Ohm 0.1% Thin Film 0603	0.1%	0603	Yageo	603-RT0603BRD071KL	YAG1237CT-ND		0.069	0.138
44	2	R28, R31	RC0402JR-070RL	Res 0 Ohm Jumper Thick Film 0402		0402	Yageo	603-RC0402JR-070RL	311-0.0JRCT-ND		0.003	0.006
45	0	R29, R30	RC0402JR-070RL	Res 0 Ohm Jumper Thick Film 0402		0402	Yageo	603-RC0402JR-070RL	311-0.0JRCT-ND		0.003	0.000
46	1	SW1	JS102011JAQN	Switch Slide SPDT 300mA 6V SMD			C&K	611-JS102011JAQN	CKN10720CT-ND		0.350	0.350
47	2	SW2, SW3	PTS6455K43SMTR92 LFS	Switch Tactile SPST-NO 0.05A 12V SMT			C&K	611-PTS6455K43SMTR92	CKN9084CT-ND		0.176	0.352
48	1	U1	MCP73831-2ATI/MC	IC Controller Li-Ion 4.2V 8DFN		8DFN	Microchip	579-MCP73831-2ATIMC	MCP73831-2ATI/MC-ND		0.450	0.450
49	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
50	1	U3	ADS1014BQDGSRQ1	IC ADC 12-Bit I2C SMD			TI	595-ADS1014BQDGSRQ1	296-45252-1-ND		2.170	2.170
51	1	U4	TPS61090RSAR	IC Reg Boost Adj 2A Sync 16VQFN		16VQFN	TI	595-TPS61090RSAR	296-15259-1-ND		1.720	1.720
52	1	U5	CC1110F32RHHT	IC RF TxRx MCU ISM<1GHz 36-VFQFN		36-VFQFN	TI	595-CC1110F32RHHR	296-38889-1-ND		4.480	4.480
53	1	U6	0896BM15A0001	RF Balun Filter 863-928 MHz		0805	Johanson	609-0896BM15A0001E	712-1474-1-ND		0.522	0.522
54	1	U7	CAT24C32WI-G	IC EEPROM 32KBit 400KHz 8SOIC		SOIC-8	On Semi	698-CAT24C32WI-G	CAT24C32WI-GOS-ND		0.220	0.220
55	2	U10, U11	SN74LVC1G06DBVR	IC Inverter SGL 1 input SOT23-5		SOT23-5	TI	595-SN74LVC1G06DBVR	296-8483-1-ND		0.134	0.268
56	1	U9	LTC4411ES5#TRMPBF	IC OR Controller TSOT23-5		TSOT23-5	Linear Tech	NA	LTC4411ES5#TRMPBFCT-ND		2.328	2.328
57	1	U12	74LVC1G07DBVT	IC Buffer Non-Invert 1 input SOT23-5		SOT23-5	TI	595-SN74LVC1G07DBVT	296-26590-1-ND		0.400	0.400
58	1	V1	VC120605D150DP	TVS 5.6VDC 150A 1206		1206	AVX	581-VC120605D150DP	478-2517-1-ND		0.370	0.370
59	1	X1	7V-24.000MAHJ-T	Crystal 24.000MHz 18pF SMD			TXC Corp	717-7V-24.000MAHJ-T	887-2580-1-ND		0.522	0.522
60	1			PCB Bare								0.000
							<b>Sub total:</b>		<b>\$22.82</b>			
				<b>Assemble Display to Explorer Board HAT and Antenna</b>								
1	1	Display	NA	Display 128X64 I2C OLED 0.96 inch white			eBay	NA	NA		3.670	3.670
2	0	J4	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	6,2	0.127	0.254
4	2	M1, M2, M3,M4	MPMS 002 0008 PH	Screw Machine Pan M2 x 8 Phillips			B&F Fastener	NA	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	1	A1	66089-0930	Antenna U.FL 915MHz 30MM			Anaren	620-66089-0930	1173-1135-ND		3.560	3.560
							<b>Sub total:</b>		<b>\$4.19</b>			

**Notes:**

1	These components should be stocked due to concerns over lead time and/or limited substitutions available.
2	Cut pins flush to this board (0.030 inch or less)
3	Do not wash
4	
5	Leave holes open (do not fill with solder)
6	Thru-hole component
7	