

TTB0034-03

1

DOCUMENT NUMBER

DOC REV.

NOTES

- 1 If a "YES" appears in the "CM Equivalent OK?" column, alternate components meeting the same specifications as the listed component may be substituted by the contract manufacturer.
- 2 Revision history documented at the bottom of the page.

Item	Qty.	Ref.	Value	Tol.	Voltage	Dielectric	Description	PCB Footprint	Manf.	Manf. P/N	CM Equivalent OK?	Placement	RoHS
1	1	C41	47pF	5%	50V	COG	CAP, CERAMIC, 0402	402	MURATA	GRM1555C1H470J201D		NP	YES
2	1	C42	15pF	5%	50V	COG	CAP, CERAMIC, 0402	402	MURATA	GRM1555C1H150J201D		NP	YES
3	2	C6,C15	1000pF	10%	50V	X7R	CAP, CERAMIC, 0402	402	MURATA	GRM155R71H102KA01D		NP	YES
4	1	C60	10pF	5%	50V	COG	CAP, CERAMIC, 0402	402	MURATA	GRM1555C1H100J201D		NP	YES
5	3	C70,C110,C111	.1uF	10%	16V	X7R	CAP, CERAMIC, 0402	402	MURATA	GRM155R71C104KA88D		NP	YES
6	1	D10	MMBZ33VAL				DIODE, ESD PROTECTION, DUAL	SOT-23	NXP	MMBZ33VAL,215		NP	YES
7	1	D11	GREEN				LED, SMD, 0402, GREEN	LED_LUMEX_SML-LX0402S_SERIES	LUMEX	SML-LX0402SUGC-TR		NP	YES
8	1	E2	EMI SHIELD				SHIELD, EMI, CUSTOM	TT10312-01	TBD-CUSTOM	TT10312-01		NP	YES
9	1	J1	HIROSE UFL-R-SMT[01] [COAX]				CONNECTOR,COAX, ULTRA SMALL, VERTICAL	HIROSE_UFL-R_SMT_01	HIROSE	U.FL-R-SMT(10)		NP	YES
10	1	J4	WIRE HOLE				CONNECTOR, WIRE HOLE, P/O PCB	WIREHOLE_45R25				NP	YES
11	1	J6	(TEST)				CONNECTOR TYPE TBD	5pin_1row_2mmctc	TBD	TBD		NP	YES
12	1	L16	51uH				DUAL CHOKE COIL, 51uH, 250 OHM, 300mA	EPCOS_B82789	EPCOS	B82789C0513N002		NP	YES
13	2	L5,L6	1500 ohm @ 100MHz	+/- 25%	500mA		INDUCTOR, SMD, FERRITE	603	MURATA	BLM18HE1525N1D		NP	YES
14	1	L7	2.2nH	5%			INDUCTOR, SMD, WIRE WOUND	COILCRAFT_0402_SERIES	COILCRAFT	0402CS-2N2XILW		NP	YES
15	2	R114,R131	10k	5%			RES, CERAMIC, .0625W, 0402	402	KOA	RK73B1ETTP103J		NP	YES
16	3	R21,R24,R28	2.2k	5%			RES, CERAMIC, .0625W, 0402	402	KOA	RK73B1ETTP222J		NP	YES
17	1	R5	51	5%			RES, CERAMIC, .0625W, 0402	402	KOA	RK73B1ETTP510J		NP	YES
18	2	R56,R61	62	5%			RES, CERAMIC, .0625W, 0402	402	KOA	RK73B1ETTP620J		NP	YES
19	22	R57,R63,R81,R82,R83,R84,R85,R86,R87,R88,R90,R96,R98,R100,R101,R102,R103,R104,R105,R106,R107,R132	0	5%			RES, CERAMIC, .0625W, 0402	402	KOA	RK7321ETTP		NP	YES
20	1	R70	300	5%			RES, CERAMIC, .0625W, 0402	402	KOA	RK73B1ETTP301J		NP	YES
21	3	TP14,TP18,TP34	IDI 100445				TESTPOINT, RF, P/O PCB	TP_IDI_100445	TBD	TBD		NP	YES
22	69	TP5,TP6,TP7,TP8,TP9,TP10,TP11,TP12,TP13,TP15,TP16,TP17,TP19,TP20,TP21,TP22,TP23,TP24,TP25,TP26,TP27,TP28,TP29,TP30,TP31,TP32,TP33,TP35,TP36,TP37,TP38,TP39,TP40,TP41,TP42,TP43,TP44,TP45,TP46,TP47,TP48,TP49,TP50,TP51,TP52,TP53,TP54,TP55,TP56,TP57,TP58,TP59,TP60,TP61,TP62,TP63,TP64,TP65,TP66,TP67,TP68,TP69,TP70,TP71,TP72,TP73,TP74,TP75,TP76	TEST POINT, SMD PAD, .035 DIA				TESTPOINT, SMD PAD, .035 DIA	TESTPOINT_SMD_ROUND_35				NP	YES
23	1	U21	TJA1042T/3				IC, TRANSCEIVER, CAN	SOIC-8	NXP	TJA1042T/3,118		NP	YES
24	2	W1,W2	U.FL TO SMA COAX CABLE				CABLE, COAX, U.FL TO SMA		LIGHTHORSE	CB1.13-IPX-SAF3GT-4IN		NP	YES
25	2	C1,C4	5pF	+/- 25pF	50V	COG	CAP, CERAMIC, 0402	402	MURATA	GRM1555C1H50C201D			YES
26	12	C10,C19,C32,C39,C40,C75,C78,C86,C90,C91,C92,C93	10pF	5%	50V	COG	CAP, CERAMIC, 0402	402	MURATA	GRM1555C1H100J201D			YES
27	2	C102,C103	1000uF	10%	6.3V	TANT	CAP, TANTALUM, SMD	TANT_D_CASE	KEMET	T495X108K0062TE100			YES
28	3	C11,C30,C33	100pF	5%	50V	COG	CAP, CERAMIC, 0402	402	MURATA	GRM1555C1H101JA01D			YES
29	1	C118	.047uF	10%	25V	X7R	CAP, CERAMIC, 0402	402	MURATA	GRM155R71E473KA88D			YES
30	2	C12,C18	12pF	5%	50V	COG	CAP, CERAMIC, 0402	402	MURATA	GRM1555C1H120J201D			YES
31	1	C13	3pF	+/- 25pF	50V	COG	CAP, CERAMIC, 0402	402	MURATA	GRM1555C1H3R0C201D			YES
32	4	C14,C34,C105,C106	1uF	10%	10V	X5R	CAP, CERAMIC, 0402	402	MURATA	GRM155R61A105KE15D			YES
33	5	C2,C5,C17,C25,C29	47pF	5%	50V	COG	CAP, CERAMIC, 0402	402	MURATA	GRM1555C1H470J201D			YES
34	2	C21,C24	15pF	5%	50V	COG	CAP, CERAMIC, 0402	402	MURATA	GRM1555C1H150J201D			YES
35	2	C22,C23	20pF	5%	50V	COG	CAP, CERAMIC, 0402	402	MURATA	GRM1555C1H200J201D			YES
36	1	C28	39pF	5%	50V	COG	CAP, CERAMIC, 0402	402	MURATA	GRM1555C1H390J201D			YES
37	35	C3,C20,C31,C35,C37,C38,C43,C45,C47,C48,C50,C52,C54,C56,C58,C63,C64,C65,C76,C83,C88,C94,C97,C98,C100,C101,C104,C108,C109,C112,C113,C114,C115,C116,C117	.1uF	10%	16V	X7R	CAP, CERAMIC, 0402	402	MURATA	GRM155R71C104KA88D			YES
38	7	C44,C46,C53,C55,C57,C61,C62	1000pF	10%	50V	X7R	CAP, CERAMIC, 0402	402	MURATA	GRM155R71H102KA01D			YES
39	2	C49,C99	10uF	20%	10V	X5R	CAP, CERAMIC, 0603	603	TAIYO YUDEN	LMK107BJ106MALTD			YES
40	1	C51	4.7uF	10%	6.3V	X5R	CAP, CERAMIC, 0603	603	MURATA	GRM188R60I475KE19D			YES
41	1	C59	3.3pF	+/- 25pF	50V	COG	CAP, CERAMIC, 0402	402	MURATA	GRM1555C1H3R3C201D			YES
42	1	C66	4.7uF	10%	10V	X5R	CAP, CERAMIC, 0603	603	TDK	C1608X5R1A475K080AB			YES
43	2	C68,C79	22uF	20%	10V	X5R	CAP, CERAMIC, 0805	805	TAIYO YUDEN	LMK212BJ226MG-T			YES
44	1	C69	6.8uF	10%	16V	X7R	CAP, CERAMIC, 1206	1206	TDK	C3216X7R1C685K			YES
45	8	C7,C8,C16,C26,C27,C36,C67,C107	.01uF	10%	25V	X7R	CAP, CERAMIC, 0402	402	MURATA	GRM155R71E103KA01D			YES
46	4	C71,C77,C80,C85	10uF	10%	25V	X7R	CAP, CERAMIC, 1206	1206	MURATA	GRM31CR71E106KA12L			YES
47	3	C72,C73,C82	.1uF	10%	50V	X7R	CAP, CERAMIC, 0603	603	MURATA	GRM188R71H104KA93D			YES
48	1	C74	47uF	20%	6.3V	X5R	CAP, CERAMIC, 0805	805	TAIYO YUDEN	JMK212BJ476MG-T			YES
49	3	C81,C84,C87	1uF	10%	25V	X7R	CAP, CERAMIC, 0805	805	MURATA	GRM21BR71E105KA99L			YES
50	1	C89	10uF	10%	35V	X7R	CAP, CERAMIC, 1210	1210	MURATA	GRM32ER7YA106KA12L			YES
51	1	C9	2.2uF	20%	6.3V	X5R	CAP, CERAMIC, 0402	402	MURATA	GRM155R60I225ME15D			YES
52	2	C95,C96	6.0pF	+/- 5pF	50V	COG	CAP, CERAMIC, 0603	603	MURATA	GRM1885C1H6R0D201D			YES
53	2	D1,D4	NZL6V8AXV3T1G		6.8V		DIODE, SCHOTTKY BARRIER, DUAL	SC-89	ON SEMICONDUCTOR	NZL6V8AXV3T1G			YES
54	1	D12	GREEN				LED, SMD, GREEN	LED_KINGBRIGHT_APT_3-2X1-6_SERIES	KINGBRIGHT	APT3216SGC			YES
55	1	D13	YEL				LED, SMD, YELLOW	KINGBRIGHT_APHM1608	KINGBRIGHT	APT1608SYC			YES

twistthink

DESIGN TECHNOLOGY STRATEGY

130 Central Ave., Suite 400
Holland, Michigan 49423

TITLE: BILL OF MATERIALS

CUSTOMER: TWISTHINK

PROJECT: M2M REFERENCE DESIGN

CODE:

PROJECT LEAD: KD

IND. DESIGNER: XX

ELECT ENGINEER: RT

MECH. ENGINEER: RW

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56	1	D14	RED				LED, SMD, RED	KINGBRIGHT_APHM1608	KINGBRIGHT	APT1608SURCK			YES
57	1	D15	RED/GRN				LED, DUAL, RED/GREEN, SMD	STANLEY_1211C_SERIES	STANLEY	BRPG1211C			YES
58	1	D17	BZX84-C15		15V		DIODE, ZENER, SMD	SOT-23	NXP	BZX84-C15			YES
59	3	D18,D19,D20	LXES2588B4-026		5V		DIODE ARRAY, ESD	SOT-23_6PIN	MURATA	LXES2588B4-026			YES
60	1	D2	ESD0P8RFL				DIODE, RF ESD PROTECTION	TSLP-4-7	INFINEON	ESD0P8RFL			YES
61	1	D21	ESD7C3.3D75G				DIODE, ESD PROTECTION, DUAL	SOT-723	ON SEMICONDUCTOR	ESD7C3.3D75G			YES
62	1	D3	VESD05A18-HD1		6.8V		DIODE, ESD PROTECTION	LLP1006-2L	VISHAY	VESD05A18-HD1-G508			YES
63	2	D5,D9	GREEN				LED, SMD, 0402, GREEN	LED_LUMEX_SML-LX0402S_SERIES	LUMEX	SML-LX0402SUGC-TR			YES
64	1	D6	MBR0520LT1G				DIODE, SCHOTTKY BARRIER	SOD-123	ON SEMICONDUCTOR	MBR0520LT1G			YES
65	2	D7,D16	SS22				DIODE, SCHOTTKY, POWER RECTIFIER	SMB	FAIRCHILD	SS22			YES
66	1	D8	BAV99				DIODE, SWITCHING, DUAL, SERIES, SOT23	SOT-23	ON SEMICONDUCTOR	BAV99LT1G			YES
67	1	E1	ANTENNA				ANT, CHIP, MULTI BAND	ANTENOVA_A10204	ANTENOVA	A10204			YES
68	1	E3	ANTENNA				ANT, CHIP, MULTI BAND	TAOGLAS_PA25A	TAOGLAS	PA.25A			YES
69	1	FL1	1575.42 MHz				SAW FILTER, 1575.42 MHz	EPCOS_87839_SERIES	EPCOS	B39162B7839K410			YES
70	1	J11	NORCOMP 190-009-263R001[DB-9]				CONNECTOR, DB-9, RA, FEMALE	NORCOMP_190-009-263R001	NORCOMP	190-009-263R001			YES
71	1	J12	CUI INC PJ-036A-SMT [DC JACK]				CONNECTOR, DC POWER JACK, 2.0MM	PJ-036-SMT_SERIES	CUI INC.	PJ-036A-SMT			YES
72	1	J13	2 PIN				CONNECTOR, SMD, 2 PIN, VERT	MOLEX_53398-0271	MOLEX	53398-0271			YES
73	1	J14	MOLEX 51338-1074 [100 PIN]				CONNECTOR, FEMALE, 100 PIN, SMD	MOLEX_51338-1074	MOLEX	51338-1074			YES
74	1	J15	AMPHENOL 101-00581-59 [microSD]				CONNECTOR, MICRO-SD	AMPHENOL_101-00581-59	AMPHENOL	101-00581-59			YES
75	3	J2,J5,J10	HIROSE UFL-R-SMT[01] [COAX]				CONNECTOR,COAX, ULTRA SMALL, VERTICAL	HIROSE_UFL-R_SMT_01	HIROSE	U.FL-R-SMT[10]			YES
76	1	J3	MICRO USB				CONNECTOR, MICRO USB, STANDARD	FCI_10103594-0001LF	FCI	10103594-0001LF			YES
77	1	J7	MOLEX 480749001 [RJ45 W/LED5]				CONN, INTEGRATED MAGNETICS	MOLEX_480749001	MOLEX	48074-9001			YES
78	1	J8	MICRO USB				CONNECTOR, MICRO USB, VERTICAL	MOLEX_105133_MICRO-USB	MOLEX	105133-001			YES
79	1	J9	MOLEX 85513-5014 [6 pin]				CONN, 6PIN, RJ11	MOLEX_85513	MOLEX	85513-5014			YES
80	1	L1	5.6nH	5%			INDUCTOR, SMD, WIRE WOUND	COILCRAFT_0402_SERIES	COILCRAFT	0402CS-5N6XILW			YES
81	1	L10	3.3uH	5%			INDUCTOR, POWER, SHIELDED	TAIYO_YUDEN_NR4012_SERIES	TAIYO YUDEN	NRS4012T3R3MDGJ			YES
82	1	L11	15uH	20%			INDUCTOR, SHIELDED, SMT	TAIYO_YUDEN_NRS040_SERIES	TAIYO YUDEN	NRS040T150M			YES
83	3	L12,L14,L15	600 ohm @ 100MHz	+/- 25%	2A		INDUCTOR, SMD, FERRITE	805	TDK	MP22012S601AT			YES
84	1	L13	6.8uH	30%			INDUCTOR, POWER, SHIELDED	TDK_SLF7055_SERIES	TDK	SLF7055T-6R8N2R8-3PF			YES
85	3	L2,L3,L8	10nH	5%			INDUCTOR, SMD, WIRE WOUND	COILCRAFT_0402_SERIES	COILCRAFT	0402CS-10NXILW			YES
86	1	L4	6.8nH	5%			INDUCTOR, SMD, WIRE WOUND	COILCRAFT_0603_SERIES	COILCRAFT	0603CS-6N8XILW			YES
87	1	L9	6.8nH	5%			INDUCTOR, SMD, WIRE WOUND	COILCRAFT_0402_SERIES	COILCRAFT	0402CS-6N8XILW			YES
88	1	M1	HS 3001				CELL MODULE	NOVATEL_HS3001	NOVATEL	HS3001			YES
89	1	PCB1	PRINTED CIRCUIT BOARD				PRINTED CIRCUIT BOARD	TBD	TBD	04-TTF0034-03			YES
90	2	Q1,Q2	MMBT3904				TRANSISTOR, NPN, SMD	SOT-23	ON SEMICONDUCTOR	MMBT3904LT1G			YES
91	2	Q3,Q4	MBT3946				TRANSISTOR, NPN/PNP, DOUBLE	SOT-363	ON SEMICONDUCTOR	MBT3946DW1T1G			YES
92	1	R1	1.2k	5%			RES, CERAMIC, 0625W, 0402	402	KOA	RK73B1ETTP122J			YES
93	2	R10,R23	360	5%			RES, CERAMIC, 0625W, 0402	402	KOA	RK73B1ETTP361J			YES
94	1	R108	576.0k	1%			RES, CERAMIC, 0625W, 0402	402	KOA	RK73H1ETTP5763F			YES
95	1	R109	249.0k	1%			RES, CERAMIC, 0625W, 0402	402	KOA	RK73H1ETTP2493F			YES
96	7	R11,R12,R13,R15,R49,R54,R130	4.7k	5%			RES, CERAMIC, 0625W, 0402	402	KOA	RK73B1ETTP472J			YES
97	7	R118,R119,R124,R125,R126,R127,R128	51	5%			RES, CERAMIC, 0625W, 0402	402	KOA	RK73B1ETTP510J			YES
98	1	R121	150	5%			RES, CERAMIC, 0625W, 0402	402	KOA	RK73B1ETTP151J			YES
99	1	R122	4.87k	1%			RES, CERAMIC, 0625W, 0402	402	KOA	RK73H1ETTP4871F			YES
100	2	R135,R138	118	1%			RES, CERAMIC, 1W, 0603	603	KOA	RK73H1JTTD1180F			YES
101	1	R139	15	5%			RES, CERAMIC, 1W, 0603	603	KOA	RK73B1JTTD150J			YES
102	1	R140	4.7k	5%			RES, CERAMIC, 1W, 0603	603	KOA	RK73B1JTTD472J			YES
103	1	R141	4.70k	1%			RES, CERAMIC, 1W, 0603	603	PANASONIC	ERJ-3EKF4701V			YES
104	1	R142	22k	5%			RES, CERAMIC, 1W, 0603	603	KOA	RK73B1JTTD223J			YES
105	10	R18,R20,R22,R25,R26,R27,R30,R32,R35,R37	47	5%			RES, CERAMIC, 0625W, 0402	402	KOA	RK73B1ETTP470J			YES
106	1	R19	1.5k	5%			RES, CERAMIC, 0625W, 0402	402	KOA	RK73B1ETTP152J			YES
107	1	R2	2.2k	5%			RES, CERAMIC, 0625W, 0402	402	KOA	RK73B1ETTP222J			YES
108	16	R3,R29,R47,R64,R68,R76,R79,R92,R99,R111,R112,R113,R120,R123,R129,R133	10k	5%			RES, CERAMIC, 0625W, 0402	402	KOA	RK73B1ETTP102J			YES
109	2	R33,R36	3.6	5%			RES, CERAMIC, 0625W, 0402	402	KOA	RK73B1ETTP3R6J			YES
110	5	R38,R39,R40,R42,R43	33	5%			RES, CERAMIC, 0625W, 0402	402	KOA	RK73B1ETTP330J			YES
111	1	R4	100	5%			RES, CERAMIC, 0625W, 0402	402	KOA	RK73B1ETTP101J			YES
112	1	R44	1k	5%			RES, CERAMIC, 0625W, 0402	402	KOA	RK73B1ETTP102J			YES
113	3	R46,R60,R72	100k	5%			RES, CERAMIC, 0625W, 0402	402	KOA	RK73B1ETTP104J			YES
114	6	R48,R59,R62,R65,R66,R67	300	5%			RES, CERAMIC, 0625W, 0402	402	KOA	RK73B1ETTP301J			YES
115	1	R50	3k	5%			RES, CERAMIC, 0625W, 0402	402	KOA	RK73B1ETTP302J			YES
116	1	R51	0.15	1%			RES, CERAMIC, 25W, 1206	1206	ROHM	MCR18EZHFLR150			YES
117	1	R53	3.09k	1%			RES, CERAMIC, 0625W, 0402	402	KOA	RK73H1ETTP3091F			YES
118	1	R55	240	5%			RES, CERAMIC, 0625W, 0402	402	KOA	RK73B1ETTP241J			YES
119	1	R58	22k	5%			RES, CERAMIC, 0625W, 0402	402	KOA	RK73B1ETTP223J			YES
120	3	R6,R14,R41	499	1%			RES, CERAMIC, 1W, 0603	603	KOA	RK73H1JTTD4990F			YES

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121	1	R7	24k	5%			RES, CERAMIC, .0625W, .0402	402	KOA	RK73B1ETTP243J			YES
122	3	R71,R77,R91	0	5%			RES, CERAMIC, .1W, .0603	603	KOA	RK7321J1TP			YES
123	2	R73,R93	130.0k	1%			RES, CERAMIC, .0625W, .0402	402	KOA	RK73H1ETTP1303F			YES
124	1	R74	681.0k	1%			RES, CERAMIC, .0625W, .0402	402	KOA	RK73H1ETTP6813F			YES
125	1	R78	412.0k	1%			RES, CERAMIC, .0625W, .0402	402	KOA	RK73H1ETTP4123F			YES
126	1	R8	3.3k	5%			RES, CERAMIC, .0625W, .0402	402	KOA	RK73B1ETTP332J			YES
127	20	R9,R16,R17,R31,R34,R45,R52,R69,R75,R80,R89,R97,R110,R115,R116,R117,R134,R136,R137	0	5%			RES, CERAMIC, .0625W, .0402	402	KOA	RK7321ETTP			YES
128	1	R94	6.98k	1%			RES, CERAMIC, .0625W, .0402	402	KOA	RK73H1ETTP6981F			YES
129	1	R95	5.11k	1%			RES, CERAMIC, .0625W, .0402	402	KOA	RK73H1ETTP5111F			YES
130	2	SW1,SW2	E-SWITCH TL3301NF160QJ				SWITCH, MOM, SMD	ESWITCH_TL3301_JLEAD_SERIES	E-SWITCH	TL3301NF160QJ			YES
131	4	SW3,SW4,SW5,SW6	COPAL SPDT 2 POS DIP				SWITCH, DIP, SPDT (2 POS)	COPAL_CAS-D_SERIES	COPAL	CAS-D20TA			YES
132	2	TB1,TB2	PHOENIX 1771088 [8 PIN TB]				CONN, DUAL ROW, .100 CTC, 10 PIN, VERT	PHOENIX_1771088_special	PHOENIX	1771088			YES
133	3	TP1,TP2,TP4	TEST POINT, KEYSTONE 5011 RED				TESTPOINT, WIRE LOOP	KEYSTONE_5010	KEYSTONE	5010			YES
134	1	TP3	TEST POINT, KEYSTONE 5011 BLK				TESTPOINT, WIRE LOOP	KEYSTONE_5010	KEYSTONE	5011			YES
135	1	U1	SE2431L-R				RF FRONT END MODULE	QFN-24_3x4	SKYWORKS SOLUTIONS	SE2431L-R			YES
136	1	U10	MCP121-315				IC, VOLTAGE, SUPERVISOR	SC-70	MICROCHIP	MCP121T-315E/LB			YES
137	1	U11	TPS62160				REGULATOR, ADJUSTABLE, LDO	WS0N-8	TEXAS INSTRUMENTS	TPS62160DSGR			YES
138	1	U12	AP7165				IC, REG, ADJUSTABLE	SOP-8L-EP	DIODES INC.	AP7165-SP-G-13			YES
139	1	U13	BQ24103				IC, BATTERY MGMT	R-PVQFN-N20	TEXAS INSTRUMENTS	BQ24103ARHLR			YES
140	1	U14	MCP9800				TEMPERATURE SENSOR	SOT-23_5PIN	MICROCHIP	MCP9800A0T-M/OTG			YES
141	1	U15	SST25VF080B				IC, SERIAL FLASH, 8 MEGABIT	SOIC-8	MICROCHIP	SST25VF080B-80-4I-SAE			YES
142	1	U16	TPS62110				IC, REGULATOR, ADJUSTABLE	QFN-16_4MM_WVIAS	TEXAS INSTRUMENTS	TPS62110RSAR			YES
143	2	U17,U20	ST2149				IC, LEVEL TRANSLATOR	QFN-16_3X2MM	ST MICROELECTRONICS	ST2149QTR			YES
144	1	U18	TSL12T				IC, COLOR LIGHT TO VOLTAGE CNVRTR	taos_ts1t2t	TAOS	TSL12T			YES
145	1	U19	MCP1700				IC, REG, 1.8V, SMD	SOT-23	MICROCHIP	MCP1700T-1802E/TT			YES
146	1	U2	MRF24J40T				TRANSCIVER, 2.4 GHz	QFN-40_VIAS	MICROCHIP	MRF24J40T-I/JML			YES
147	1	U22	SN65176				IC, TRANSCIVER, DIFFERENTIAL BUS	SOIC-8	TEXAS INSTRUMENTS	SN65176BDR			YES
148	1	U23	MAX3232				RS-232 DRIVER/RECEIVER	TSSOP-16	TEXAS INSTRUMENTS	MAX3232IPWR			YES
149	1	U24	MCP6232				IC, OP AMP, DUAL	MSOP-8	MICROCHIP	MCP6232T-E/MS			YES
150	1	U3	NC75Z125				BUFFER, THREE-STATE OUTPUT	SC-70-5	FAIRCHILD	NC75Z125P5X			YES
151	1	U4	MAX-6Q-0				MODULE, GPS	LCC-18	UBLOX	MAX-6Q-0			YES
152	1	U5	MAX2674				IC, AMPLIFIER, LNA, WITH SWITCH	6WLP	MAXIM	MAX2674EWT+T			YES
153	1	U6	24LC01BT				IC, SERIAL EEPROM, 1K	SOT-23_5PIN	MICROCHIP	24LC01BT-E/OT			YES
154	1	U7	ADXL345				IC, ACCELEROMETER, 3-AXIS	LGA-14	ANALOG DEVICES	ADXL345BCCZ-RLTR			YES
155	1	U8	PIC32MX795F512L				IC, MICROCONTROLLER	TQFP-100_14X14MM	MICROCHIP	PIC32MX795F512LT-80IPF			YES
156	1	U9	DP83848M				TRANSCIVER, ETHERNET	QFN-40_ALT	TEXAS INSTRUMENTS	DP83848MSQ/NOPB			YES
157	2	Y1,Y4	20.00 MHz				CRYSTAL, 20.000 MHz, SMD	NDK_NX3225SA_SERIES	NDK	NX3225SA-20.000000MHZ			YES
158	2	Y2,Y3	2450BP39C100A				FILTER, CERAMIC, 2.4MHz LOW PASS	JOHANSON_2450BP39D100A	JOHANSON TECHNOLOGY	2450BP39C100AE			YES
159	1	Y5	25.00 MHz		+/-30PPM		CRYSTAL, 25.000 MHz, SMD	MURATA_XRCGB_F_M_SERIES	MURATA	XRCGB25M000F3M00RD			YES

ECO #	REV	DESCRIPTION	BY	DATE
	1	REPLACES TTB0034-02 REVISED AND REDRAWN	DF	1/31/2013