U8
ITR9909
D13 APTD1608SYCK
U7
ITR9909
U9
ITR9909
C13 100nF
R32 2.2K
R89 39
APTD1608SYCK
C6 100nF
C12 100nF
2x BC817-40
APTD1608SYCK
R37 6.2
Q11 Q6
BC817-40 2x
Q8 Q13
R34 2.2K
R39 6.2
U6
ITR9909
U10
ITR9909
Q5 Q10 R36 6.2
2x BC817-40
C10 100nF
R35 2.2K
R40 6.2
Q14 Q9
2x BC817-40
S2
C11 100nF
R41 2.2K
MC74HC595ADTR2
U14
D1
C29 100nF
U20
IRM-3636T
R143
SW-PB
C27 100nF
R88 D23 APTD1608SYCK
5555
R62
R60
R58
R56
D4
D5
APTD1608YCR
R78
R79
R80
R81
2x666
U16
MC74HC595ADTR2
100K
R66 39
D7
D36
27-21SURC/S530-A3
D37
27-21/BHC-AN1P2/3C
R134 39
R142 4.7K
R135 33
R87 39
B1
Motor
R115 5.6K
C53 1nF
R117 10K
D33 BA554S
APTD1608SYCK
D22
19-21SURC/S530-A3/TR8
D3
B2 Motor
R116 5.6K
D34 BAT54S
X2
Con1x6
APTD1608SYCK
D16
R25 R11
22K
Q46 Q45 R67
4.7K
2x BC817-40
27-21SURC/S530-A3
C65 100nF
R150 33
R125 680K
C64
C66
R128 10K
R129
R127 C56
1uF
TD4015BPN
R126 2.2K
D8
27-21/BHC-AN1P2/3C
MC2
R26 33
R46
R42 22K
R48
C67
R47 22K
R43 R49 1K
1.5K
C62 100nF
RT1
NCP15XH103F03RC
R137 180
BC817-40
Q37 Q38
R102
2x 10K
C31 U18 C32
4.7uF 10uF
AP131-33WGCT-ND
R86 39
R104
100nF C33
10K R101
100nF C38
2x 4.7K
U13
PIC24FJ128GB106-I/PT
C35 100nF
C4 10uF
C3 100nF
C37 10uF
X5R
MMA7660FC
BC817-40
R92 4.7K
R99
R90
R100
R94 4.7K
R93 4.7K
Q35 Q33 Q36
Q32 Q31 Q34
D30 C29 D28
APTD1608SYCK
3x APTD1608SYCK
Q39 C39
100nF
C36 100nF
Q40 4.7K
R148 33
BC817-40 33
R144 4.7K
R147
R149 R146
33
4.7K
R145 4.7K
Q41
Q44
Q39
4x BC817-40
Q42
BT5050RGBC-T180
D27
C59 47nF C60
47nF
U25
LM4810M
C61 1uF
U22 C48 D38
4.7uF
AP7331-33WG-7
BT5050RGBC-T180
U24
C49 4.7uF
C50 4.7uF
AP9331-33WG-7
R55 C2
R54 6.2
R132
C57 1.5nF
R130 22K
R47K
R110 10K
R108
Speaker
R138 100K
R53 2.2K
Q18
2x
R52 2.2K
Q17
2x BC817-40
Q15
C24 100nF
U21
MCP73871-2AAI/ML
BC817-40
Q16
C23 100nF
C45 4.7uF
Battery
RT2
R139 100K
C44 4.7uF
R141 270K
U11
ITR9909
S1
C46 10uF
U23
FAN5908
R106 100
X3
D31
27-21/BHC-AN1P2/3C
D32
27-21SURC/S530-A3
R140 180
U12
ITR9909
MicroSD-Astron 5190008-XA4-R
Alstron R3190005-021-R

27-21SURC/S530-A3
D18
D17
27-21SURC/S530-A3
WP7104SRC/D
R83
R82
WP7104SRC/D
D20
39
U2
U3
R99Q8
D19
R85
39
LTR990
R84
39
C7
27-21SURC/S530-A3
D11
100nF
4.7uF
27-21SURC/S530-A3
D10
27-21SURC/S530-A3
R76
56
R14
C17
R75
56
R4
2.7K
Q1
R33 Q7
2.2K
R29
Q2
R6
R15
2.2K
C18
BC817-40
2x
R29
2x
BC817-40
2.7K
R28
C16
10K
2.2K
4.7nF
Q3
BC817-40
R2
4.7nF
10K
R30
R1
2.2K
Q4
4.7K
R13
R5
R3
R38
2.2K
4.7K
33
6.2
100nF
C9
C54
100nF
27-21SURC/S530-A3
D12
R23
R9
R8
R20
C15
4.7nF
D9
27-21SURC/S530-A3
C71
R16
C19
4x 1K5K
22K
22K
4x 1K5K
R74
56
R77
56
2x C8
2.2K
10K
4.7nF
R19
R18
R27
R12
2.2K
C70
100nF
C43
R10
R31
R26
R10
U4
R7
R17
R21
10K
100nF
4.7uF
R108
100
22K
22K
22K
MCP6L04T-E/ST
C28
MC74HC595ADTR2
100nF
U15
C64
C52
10uF
R112
XK
4.7K
C51
4.7K
BC817-40
3x
3x
T3
R114
R113
R61 R70
Q24
Q22
33
4.7K
R122
T4
4.7K
DMG1013T
4.7K
Q21
Q19
R72 R64
DMG1012T
DMG1013T
T2
R111
R68
Q26
Q29
T8
2x
4.7K
R57
Q25
Q27
R71 R63
T7
T5
2x
T6
R59 R60
Q23
Q20
D6
R120
DMG1012T
R109
R121
3x
R73 R65
100K
2x 100K
4.7K
3x
Q28
Q30
33
6x BC817-40
BT5050RGBC-T180
D2
BT5050RGBC-T180
MC74HC595ADTR2
U16
C26
100nF
C41
18pF
39 39 39
R95 R96 R97
Y1
815-ABLS-8-B2
C42
18pF
MC74HC595ADTR2
U17
C30
100nF
C69
100nF
C40 C26
C72
C25
R51 10K
R50 10K
100nF
C20
R44
C21
R45
C22
4.7uF
C63 1uF
R124
100K
AP131-33WG-7
4.7nF
D35 100nF
2.2K
R123 10K
R133
56 R91
D26
D25
27-21SURC/S530-A3
27-21SURC/S530-A3
R90
56
27-21SURC/S530-A3

Quantity	Comment	LibRef	Designator	Description	Footprint	Supplier	Supplier Nr
2	Motor	Motor	B1, B2	Motor, General Kind	RB5-10.5		
1	Battery	Battery	BT1	Multicell Battery	BAT-2		
36	100nF	100nF[[/\]]0603[[/\]]1	C1, C3, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C22, C23, C24, C25, C26, C27, C28, C29, C30, C33, C35, C36, C37, C38, C39, C55, C62, C65, C66, C67, C68, C69, C70, C71	Capacitor	RESC1608X06L	Farnell	1288255
7	10uF	4.7uF[[/\]]0603[[/\]]1, 10uF[[/\]]0603[[/\]]1	C2, C4, C32, C46, C51, C52, C72	Capacitor	RESC1608X06L	Farnell	1463375, 9227784
7	4.7nF	CAP-NP	C15, C16, C17, C18, C19, C20, C21	Capacitor	CAPC1608N		
9	4.7uF	4.7uF[[/\]]0603[[/\]]1	C31, C40, C43, C44, C45, C47, C48, C49, C50	Capacitor	RESC1608X06L	Farnell	9227784
1	10uF X5R	10uF[[/\]]0603[[/\]]1	C34	Capacitor	RESC1608X06L	Farnell	1463375
2	18pF	10pF[[/\]]0603[[/\]]3	C41, C42		RESC1608X06L	Farnell	8819815
2	1nF	100nF[[/\]]0603[[/\]]1	C53, C54	Capacitor	RESC1608X06L	Farnell	1288255
3	1uF	1uF[[/\]]0603[[/\]]1, 4.7uF[[/\]]0603[[/\]]1	C56, C61, C63	Capacitor	RESC1608X06L	Distrelec, Farnell	823495, 9227784
1	1.5nF	10nF[[/\]]0603[[/\]]1	C57	Capacitor	RESC1608X06L	Farnell	9406182
3	47nF	10nF[[/\]]0603[[/\]]1, 470nF[[/\]]0603[[/\]]1	C58, C59, C60	Capacitor	RESC1608X06L	Distrelec, Farnell	823494, 9406182
1	51pF	10nF[[/\]]0603[[/\]]1	C64	Capacitor	RESC1608X06L	Farnell	9406182
4	19-21SURC/ S530-A3/ TR8	LED	D1, D3, D4, D5	SMD Red 0603 2V@20ma 56 mcd	DIOC1608X08N		
4	BT5050RGBC-T180	LED RGB SMD 2	D2, D6, D27, D38	$0.027/ 2000k	LEDSMD5		
12	27-21SURC/ S530-A3	LED	D7, D9, D10, D11, D12, D17, D18, D25, D26, D32, D35, D36	SMD Red led right angle mount 2V@20ma 57mcd	27-21 Everlight		
2	27-21/ BHC-AN1P2/ 3C	LED	D8, D31, D37	SMD Blue led right angle mount 3.3V@20ma 28mcd	27-21 Everlight Blue		
8	APTD1608SYCK	LED	D13, D14, D15, D16, D21, D22, D23, D24	LED standard - CMS Helios SMD Yellow 590nm 480mcd	DIOC1608X08N		
2	WP7104SRC/ D	LED	D19, D20	Red led 2V@20ma 57mcd	Led_TH_3mm_20mm		
3	APTD1608CGCK	LED	D28, D29, D30	LED standard - CMS Helios SMD Green 570nm 230mcd	DIOC1608X08N		
2	BAT54S	BAT54S	D33, D34	Schottky Barrier Double Diode	SOT23_N		
1	Speaker	Speaker	LS1	Loudspeaker	PIN2		
1	TD4015BPN	Micro1	MC1	Omnidirectional Back Electret Condenser Microphone	MICRO_PANASONIC_WM-64PN		
46	BC817-40	BC817-40	Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q9, Q10, Q11, Q12, Q13, Q14, Q15, Q16, Q17, Q18, Q19, Q20, Q21, Q22, Q23, Q24, Q25, Q26, Q27, Q28, Q29, Q30, Q31, Q32, Q33, Q34, Q35, Q36, Q37, Q38, Q39, Q40, Q41, Q42, Q43, Q44, Q45, Q46	NPN General-purpose Transistor	SOT23_N		
22	4.7K	4.7K[[/\]]0603[[/\]]1	R1, R2, R57, R59, R61, R63, R64, R65, R67, R92, R93, R94, R103, R104, R111, R112, R113, R114, R142, R144, R145, R146	Resistor	RESC1608X06L	Distrelec	715604
16	33	68K[[/\]]0603[[/\]]1, RES	R3, R5, R68, R69, R70, R71, R72, R73, R98, R99, R100, R135, R147, R148, R149, R150	120, Resistor	RESC1608X06L	Distrelec	715632
2	2.7K	RES	R4, R6	Resistor	RESC1608X06L		
8	22K	22K[[/\]]0603[[/\]]1, RES	R7, R8, R9, R10, R11, R42, R43, R130	120, Resistor	RESC1608X06L	Distrelec	715620
15	2.2K	2.2K[[/\]]0603[[/\]]1, RES	R12, R13, R14, R15, R16, R32, R33, R34, R35, R41, R44, R45, R52, R53, R126	120, Resistor	RESC1608X06L	Distrelec	715596
7	1.5K	RES	R17, R18, R19, R20, R26, R46, R47	120	RESC1608X06L		
8	1K	1K[[/\]]0603[[/\]]1, RES	R21, R22, R23, R24, R25, R48, R49, R108	120, Resistor	RESC1608X06L	Distrelec	715588
15	10K	8.2K[[/\]]0603[[/\]]2, 10K[[/\]]0603[[/\]]1, 10K[[/\]]0603[[/\]]2, RES	R27, R28, R29, R30, R31, R50, R51, R101, R102, R109, R110, R117, R118, R128, R129	120, Resistor	RESC1608X06L	Distrelec, Farnell	715612, 9330399, 9331565
7	6.2	RES	R36, R37, R38, R39, R40, R54, R55	120	RESC1608X06L		
14	56	68K[[/\]]0603[[/\]]1	R56, R58, R60, R62, R74, R75, R76, R77, R78, R79, R80, R81, R90, R91	Resistor	RESC1608X06L	Distrelec	715632
14	39	68K[[/\]]0603[[/\]]1	R66, R82, R83, R84, R85, R86, R87, R88, R89, R95, R96, R97, R133, R134	Resistor	RESC1608X06L	Distrelec	715632
2	100	RES_ACORT	R105, R106	Resistance	RESC1608X06N		
2	180	180R[[/\]]0603[[/\]]1	R107, R137	Resistor	RESC1608X06L	Distrelec	715570
2	5.6K	2.2K[[/\]]0603[[/\]]1	R115, R116	Resistor	RESC1608X06L	Distrelec	715596
10	100K	10K[[/\]]0603[[/\]]1, 100K[[/\]]0603[[/\]]1	R119, R120, R121, R122, R123, R124, R138, R139, R141, R143	Resistor	RESC1608X06L	Distrelec	715612, 715636
1	680K	470K[[/\]]0603[[/\]]1	R125	Resistor	RESC1608X06L	Distrelec	715652
1	6.8K	10K[[/\]]0603[[/\]]1	R127	Resistor	RESC1608X06L	Distrelec	715612
1	820	22K[[/\]]0603[[/\]]1	R131	Resistor	RESC1608X06L	Distrelec	715620
1	47K	22K[[/\]]0603[[/\]]1	R132	Resistor	RESC1608X06L	Distrelec	715620
1	270K	270K[[/\]]0603[[/\]]2	R140	Resistor	RESC1608X06L	Farnell	9330941
1	NCP15XH103F03RC	Res Thermal	RT1	Thermistors - NTC 10K OHM 1% 0402	RESC1005X04L		
1	MicroSD-Astron 5190008-XA4-R	SD-Card-Micro-ASLTRON 5190008-XA4-R	S1	MicroSD Card connector 5190008-XA4-R	Astron 5190008-XA4-R		
1	SW-PB	SW-PB	S2	Switch	FSMRA2JH		
4	DMG1013T	DMG1013T	T1, T2, T3, T4	Transistor MOSFET 1 x P Pining : 1=G, 2=S, 3=D	SOT50P160X80-3N		
4	DMG1012T	DMG1012T	T5, T6, T7, T8	Transistor MOSFET 1 x N, Pining : 1=G, 2=S, 3=D	SOT50P160X80-3N		
1	MMA7660FC	MMA7660FC	U1	MMA7660FC: XYZ-AXIS ACCELEROMETER ±1.5 g	DFN50P300X300X100-12N		
2	ITR9909	ITR9909	U2, U3	Everlight Opto Interrupter	ITR9909_LONG		
2	MCP6L04T-E/ ST	MCP6L04T-E/ST	U4, U5	1 MHz, 85 µA Quad Op Amp, 14-Pin TSSOP, Extended Temperature Range, Tape and Reel	TSSOP-ST14_N		
7	ITR9909	ITR9909	U6, U7, U8, U9, U10, U11, U12	Everlight Opto Interrupter	ITR9909_EDGE		
5	MC74HC595ADTR2	MC74HC595AD TR2	U13, U14, U15, U16, U17	8-Bit Serial-Input/Serial or Parallel-Output Shift Register with Latched 3-State Outputs	948F-01_N		
2	AP131-33WGCT-ND	AP7331	U18, U26	300mA, Low Quiescent Current, Fast Transient LDO	SOT95P285X100-5N		
1	PIC24FJ128GB106-I/ PT	PIC24FJ128GB 106-I/PT	U19	General Purpose 16-Bit Flash Microcontroller with USB On-The-Go, 128KB Flash, 16KB SRAM, 64-Pin TQFP, Industrial Temperature	TQFP-PT64_N		
1	IRM-3636T	TSOP32236	U20	IR Receiver Module (36 kHz) for Remote Control Systems	IR-receiver		
1	MCP73871-2AAI/ML	MCP73871-2AAI/ ML	U21	Stand-Alone System Load Sharing and Li-Ion/ Li-Polymer Battery Charge Management Controller, 4.2V, 20-Pin QFN, Industrial Temperature	QFN-ML20_N		
2	AP7331-33WG-7	AP7331	U22, U24	300mA, Low Quiescent Current, Fast Transient LDO	SOT95P285X100-5N		
1	FAN3988	FAN3988	U23	USB/ Charger and Over Voltage Detection Device	MLP 1.45x1mm		
1	LM4819M	LM4819M	U25	350mW Audio Power Amplifier with Shutdown Mode	M08A_N		
1	Con1x6	Con1x6	X2	1 x 6 pins connector	MHDR1X6		
1	Alstron R3190005-021-R	USB_MINIAB	X3	USB connector Micro B	Astron 3190005-x21-r		
1	815-ABLS-8-B2	HC49/ 4H_SMX	Y1	Surface Mount Quartz Crystal 8Mhz	HC49/ 4H_SMX		

Quantity	Comment	LibRef	Designator	Description	Footprint	Supplier	Supplier Nr	Layer
1	100	RES_AC ORT	R105	Resistance	RESC1608X06N			Bottom
1	1uF	1uF[[/\]]0603[[/\]]1	C63	Capacitor	RESC1608X06L	Distrel ec	823495	Bottom
1	6.2	RES	R38	120	RESC1608X06L			Bottom
1	815-ABLS-8-B2	HC49/4 H_SMX	Y1	Surface Mount Quartz Crystal 8Mhz	HC49/4H_SMX			Bottom
1	AP131-33WGCT-ND	AP7331	U26	300mA, Low Quiescent Current, Fast Transient LDO	SOT95P285X100-5N			Bottom
1	MCP6L04T-E/ ST	MCP6L0 4T-E/ST	U4	1 MHz, 85 µA Quad Op Amp, 14-Pin TSSOP, Extended Temperature Range, Tape and Reel	TSSOP-ST14_N			Bottom
12	4.7K	4.7K[[/\]]0603[[/\]]1	R1, R2, R57, R59, R61, R63, R64, R65, R111, R112, R113, R114	Resistor	RESC1608X06L	Distrel ec	715604	Bottom
15	100nF	100nF[[/\]]0603[[/\]]1	C5, C7, C8, C9, C14, C22, C25, C26, C28, C30, C55, C68, C69, C70, C71	Capacitor	RESC1608X06L	Farnell	1288255	Bottom
18	BC817-40	BC817-40	Q1, Q2, Q3, Q4, Q7, Q12, Q19, Q20, Q21, Q22, Q23, Q24, Q25, Q26, Q27, Q28, Q29, Q30	NPN General-purpose Transistor	SOT23_N			Bottom
2	18pF	10pF[[/\]]0603[[/\]]3	C41, C42		RESC1608X06L	Farnell	8819815	Bottom
2	2.7K	RES	R4, R6	Resistor	RESC1608X06L			Bottom
2	4.7uF	4.7uF[[/\]]0603[[/\]]1	C40, C43	Capacitor	RESC1608X06L	Farnell	9227784	Bottom
2	BT5050RGBC-T180	LED RGB SMD 2	D2, D6	$0.027/2000k	LEDSMD5			Bottom
2	ITR9909	ITR9909	U2, U3	Everlight Opto Interrupter	ITR9909_LONG			Bottom
2	WP7104SRC/D	LED	D19, D20	Red led 2V@20ma 57mcd	Led_TH_3mm_20mm			Bottom
3	10uF	4.7uF[[/\]]0603[[/\]]1, 10uF[[/\]]0603[[/\]]1	C51, C52, C72	Capacitor	RESC1608X06L	Farnell	1463375, 9227784	Bottom
3	MC74HC595ADT R2	MC74HC 595ADT R2	U13, U15, U17	8-Bit Serial-Input/Serial or Prallel-Output Shift Register with Latched 3-State Outputs	948F-01_N			Bottom
4	1.5K	RES	R17, R18, R19, R20	120	RESC1608X06L			Bottom
4	1K	RES	R21, R22, R23, R24	120	RESC1608X06L			Bottom
4	22K	RES	R7, R8, R9, R10	120	RESC1608X06L			Bottom
4	DMG1012T	DMG101 2T	T5, T6, T7, T8	Transistor MOSFET 1 x N, Pining : 1=G, 2=S, 3=D	SOT50P160X80-3N			Bottom
4	DMG1013T	DMG101 3T	T1, T2, T3, T4	Transistor MOSFET 1 x P Pining : 1=G, 2=S, 3=D	SOT50P160X80-3N			Bottom
6	100K	100K[[/\]]0603[[/\]]1	R119, R120, R121, R122, R123, R124	Resistor	RESC1608X06L	Distrel ec	715636	Bottom
6	56	68K[[/\]]0603[[/\]]1	R74, R75, R76, R77, R90, R91	Resistor	RESC1608X06L	Distrel ec	715632	Bottom
7	10K	RES	R27, R28, R29, R30, R31, R50, R51	120	RESC1608X06L			Bottom
7	4.7nF	CAP-NP	C15, C16, C17, C18, C19, C20, C21	Capacitor	CAPC1608N			Bottom
8	2.2K	2.2K[[/\]]0603[[/\]]1, RES	R12, R13, R14, R15, R16, R33, R44, R45	120, Resistor	RESC1608X06L	Distrel ec	715596	Bottom
8	33	RES	R3, R5, R68, R69, R70, R71, R72, R73	120, Resistor	RESC1608X06L			Bottom
8	39	68K[[/\]]0603[[/\]]1	R82, R83, R84, R85, R95, R96, R97, R133	Resistor	RESC1608X06L	Distrel ec	715632	Bottom
9	27-21SURC/ S530-A3	LED	D9, D10, D11, D12, D17, D18, D25, D26, D35	SMD Red led right angle mount 2V@20ma 57mcd	27-21 Everlight			Bottom
1	100	RES_AC ORT	R106	Resistance	RESC1608X06N			None
1	100K	100K[[/\]]0603[[/\]]1	R143	Resistor	RESC1608X06L	Distrel ec	715636	None
1	4.7K	4.7K[[/\]]0603[[/\]]1	R67	Resistor	RESC1608X06L	Distrel ec	715604	None
1	47nF	470nF[[/\]]0603[[/\]]1	C60	Capacitor	RESC1608X06L	Distrel ec	823494	None
1	PIC24FJ128GB1 06-I/PT	PIC24FJ 128GB1 06-I/PT	U19	General Purpose 16-Bit Flash Microcontroller with USB On-The-Go, 128KB Flash, 16KB SRAM, 64-Pin TQFP, Industrial Temperature	TQFP-PT64_N			None
2	27-21/ BHC-AN1P2/ 3C	LED	D8, D31	SMD Blue led right angle mount 3.3V@20ma 28mcd	27-21 Everlight Blue			None
3	APTD1608CGCK	LED	D28, D29, D30	LED standard - CMS Helios SMD Green 570nm 230mcd	DIOC1608X08N			None
1	1.5nF	10nF[[/\]]0603[[/\]]1	C57	Capacitor	RESC1608X06L	Farnell	9406182	Top
1	10uF X5R	10uF[[/\]]0603[[/\]]1	C34	Capacitor	RESC1608X06L	Farnell	1463375	Top
1	27-21/ BHC-AN1P2/ 3C	LED	D37	SMD Blue led right angle mount 3.3V@20ma 28mcd	27-21 Everlight Blue			Top
1	270K	270K[[/\]]0603[[/\]]2	R140	Resistor	RESC1608X06L	Farnell	9330941	Top
1	47K	22K[[/\]]0603[[/\]]1	R132	Resistor	RESC1608X06L	Distrel ec	715620	Top
1	51pF	10nF[[/\]]0603[[/\]]1	C64	Capacitor	RESC1608X06L	Farnell	9406182	Top
1	6.8K	10K[[/\]]0603[[/\]]1	R127	Resistor	RESC1608X06L	Distrel ec	715612	Top
1	680K	470K[[/\]]0603[[/\]]1	R125	Resistor	RESC1608X06L	Distrel ec	715652	Top
1	820	22K[[/\]]0603[[/\]]1	R131	Resistor	RESC1608X06L	Distrel ec	715620	Top
1	Alstron R3190005-021-R	USB_MI NIAB	X3	USB connector Micro B	Astron 3190005-x21-r			Top
1	AP131-33WGCT-ND	AP7331	U18	300mA, Low Quiescent Current, Fast Transient LDO	SOT95P285X100-5N			Top
1	Battery	Battery	BT1	Multicell Battery	BAT-2			Top
1	Con1x6	Con1x6	X2	1 x 6 pins connector	MHDR1X6			Top
		FAN398		USB/ Charger and Over Voltage				

Qty	Comment	Value	Designator	Description	Footprint	Supplier	Supplier Part No	Layer
1	AP131-33WGCT-ND	AP7331	U18	300mA, Low Quiescent Current, Fast Transient LDO	SOT95P285X100-5N			Top
1	Battery	Battery	BT1	Multicell Battery	BAT-2			Top
1	Con1x6	Con1x6	X2	1 x 6 pins connector	MHDR1X6			Top
1	FAN3988	FAN3988	U23	USB/ Charger and Over Voltage Detection Device	MLP 1.45x1mm			Top
1	IRM-3636T	TSOP32236	U20	IR Receiver Module (36 kHz) for Remote Control Systems	IR-receiver			Top
1	LM4819M	LM4819M	U25	350mW Audio Power Amplifier with Shutdown Mode	M08A_N			Top
1	MCP6L04T-E/ST	MCP6L04T-E/ST	U5	1 MHz, 85 µA Quad Op Amp, 14-Pin TSSOP, Extended Temperature Range, Tape and Reel	TSSOP-ST14_N			Top
1	MCP73871-2AAI/ML	MCP73871-2AAI/ML	U21	Stand-Alone System Load Sharing and Li-Ion/ Li-Polymer Battery Charge Management Controller, 4.2V, 20-Pin QFN, Industrial Temperature	QFN-ML20_N			Top
1	MicroSD-Astron 5190008-XA4-R	SD-Card-Micro-ASLTRON 5190008-XA4-R	S1	MicroSD Card connector 5190008-XA4-R	Astron 5190008-XA4-R			Top
1	MMA7660FC	MMA7660FC	U1	MMA7660FC: XYZ-AXIS ACCELEROMETER ±1.5 g	DFN50P300X300X100-12N			Top
1	NCP15XH103F03RC	Res Thermal	RT1	Thermistors - NTC 10K OHM 1% 0402	RESC1005X04L			Top
1	Speaker	Speaker	LS1	Loudspeaker	PIN2			Top
1	SW-PB	SW-PB	S2	Switch	FSMRA2JH			Top
1	TD4015BPN	Micro1	MC1	Omnidirectional Back Electret Condenser Microphone	MICRO_PANASONIC_WM-64PN			Top
2	180	180R[[/\]]0603[[/\]]1	R107, R137	Resistor	RESC1608X06L	Distrelec	715570	Top
2	1nF	100nF[[/\]]0603[[/\]]1	C53, C54	Capacitor	RESC1608X06L	Farnell	1288255	Top
2	1uF	1uF[[/\]]0603[[/\]]1, 4.7uF[[/\]]0603[[/\]]1	C56, C61	Capacitor	RESC1608X06L	Distrelec, Farnell	823495, 9227784	Top
2	47nF	10nF[[/\]]0603[[/\]]1, 470nF[[/\]]0603[[/\]]1	C58, C59	Capacitor	RESC1608X06L	Distrelec, Farnell	823494, 9406182	Top
2	5.6K	2.2K[[/\]]0603[[/\]]1	R115, R116	Resistor	RESC1608X06L	Distrelec	715596	Top
2	AP7331-33WG-7	AP7331	U22, U24	300mA, Low Quiescent Current, Fast Transient LDO	SOT95P285X100-5N			Top
2	BAT54S	BAT54S	D33, D34	Schottky Barrier Double Diode	SOT23_N			Top
2	BT5050RGBC-T180	LED RGB SMD 2	D27, D38	$0.027/ 2000k	LEDSMD5			Top
2	MC74HC595ADTR2	MC74HC595ADTR2	U14, U16	8-Bit Serial-Input/Serial or Prallel-Output Shift Register with Latched 3-State Outputs	948F-01_N			Top
2	Motor	Motor	B1, B2	Motor, General Kind	RB5-10.5			Top
21	100nF	100nF[[/\]]0603[[/\]]1	C1, C3, C6, C10, C11, C12, C13, C23, C24, C27, C29, C33, C35, C36, C37, C38, C39, C62, C65, C66, C67	Capacitor	RESC1608X06L	Farnell	1288255	Top
28	BC817-40	BC817-40	Q5, Q6, Q8, Q9, Q10, Q11, Q13, Q14, Q15, Q16, Q17, Q18, Q31, Q32, Q33, Q34, Q35, Q36, Q37, Q38, Q39, Q40, Q41, Q42, Q43, Q44, Q45, Q46	NPN General-purpose Transistor	SOT23_N			Top
3	1.5K	RES	R26, R46, R47	120	RESC1608X06L			Top
3	100K	10K[[/\]]0603[[/\]]1, 100K[[/\]]0603[[/\]]1	R138, R139, R141	Resistor	RESC1608X06L	Distrelec	715612, 715636	Top
3	27-21SURC/S530-A3	LED	D7, D32, D36	SMD Red led right angle mount 2V@20ma 57mcd	27-21 Everlight			Top
4	10uF	4.7uF[[/\]]0603[[/\]]1, 10uF[[/\]]0603[[/\]]1	C2, C4, C32, C46	Capacitor	RESC1608X06L	Farnell	1463375, 9227784	Top
4	19-21SURC/S530-A3/TR8	LED	D1, D3, D4, D5	SMD Red 0603 2V@20ma 56 mcd	DIOC1608X08N			Top
4	1K	1K[[/\]]0603[[/\]]1, RES	R25, R48, R49, R108	120, Resistor	RESC1608X06L	Distrelec	715588	Top
4	22K	22K[[/\]]0603[[/\]]1, RES	R11, R42, R43, R130	120, Resistor	RESC1608X06L	Distrelec	715620	Top
6	39	68K[[/\]]0603[[/\]]1	R66, R86, R87, R88, R89, R134	Resistor	RESC1608X06L	Distrelec	715632	Top
6	6.2	RES	R36, R37, R39, R40, R54, R55	120	RESC1608X06L			Top
7	2.2K	2.2K[[/\]]0603[[/\]]1	R32, R34, R35, R41, R52, R53, R126	Resistor	RESC1608X06L	Distrelec	715596	Top
7	4.7uF	4.7uF[[/\]]0603[[/\]]1	C31, C44, C45, C47, C48, C49, C50	Capacitor	RESC1608X06L	Farnell	9227784	Top
7	ITR9909	ITR9909	U6, U7, U8, U9, U10, U11, U12	Everlight Opto Interrupter	ITR9909_EDGE			Top
8	10K	8.2K[[/\]]0603[[/\]]2, 10K[[/\]]0603[[/\]]1, 10K[[/\]]0603[[/\]]2	R101, R102, R109, R110, R117, R118, R128, R129	Resistor	RESC1608X06L	Distrelec, Farnell	715612, 9330399, 9331565	Top
8	33	68K[[/\]]0603[[/\]]1, RES	R98, R99, R100, R135, R147, R148, R149, R150	120, Resistor	RESC1608X06L	Distrelec	715632	Top
8	56	68K[[/\]]0603[[/\]]1	R56, R58, R60, R62, R78, R79, R80, R81	Resistor	RESC1608X06L	Distrelec	715632	Top
8	APTD1608SYCK	LED	D13, D14, D15, D16, D21, D22, D23, D24	LED standard - CMS Helios SMD Yellow 590nm 480mcd	DIOC1608X08N			Top
9	4.7K	4.7K[[/\]]1	R92, R93, R94, R103, R104, R142, R144, R145, R146	Resistor	RESC1608X06L	Distrelec	715604	Top