









Quantity	Comment	Designator	Description	Footprint
2	Motor connector 89400-02	B1, B2	Motor, General Kind	BAT-2
1	Battery connector 1 08940	BT1	Multicell Battery	BAT-2
38	100nF	C1, C3, C5, C6, C7, C8, C9, C10, C11,	Capacitor	CAPC1005X06N
8	10uF	C2, C31, C40, C46, C51, C52, C73, C7	Capacitor	CAPC1005X06N
2	51pF	C4, C64	Capacitor	CAPC1005X06N
7	4.7nF	C15, C16, C17, C18, C19, C20, C21	Capacitor	CAPC1005X06N
9	4.7uF	C32, C43, C44, C45, C47, C48, C49, C	Capacitor	CAPC1005X06N
1	10uF X5R	C34	Capacitor	CAPC1005X06N
2	18pF	C41, C42	Capacitor	CAPC1005X06N
2	1nF	C53, C54	Capacitor	CAPC1005X06N
3	1uF	C56, C61, C63	Capacitor	CAPC1005X06N
1	1.5nF	C57	Capacitor	CAPC1005X06N
3	47nF	C58, C59, C60	Capacitor	CAPC1005X06N
4	19-21SURC/S530-A3/TR8	D1, D3, D4, D5	SMD Red 0603 2V@20ma 56 mcd	DIOC1608X06N
4	YLL-T50GRB-3-BJ-05	D2, D6, D27, D38	LED TH_3MM_20MM	QBLP679E-RGB
12	27-21SURC/S530-A3	D7, D9, D10, D11, D12, D17, D18, D2	SMD Red led right angle mount 2V	27-21 EVERLIGHT
3	27-21/BHC-AN1P2/3C	D8, D31, D37	SMD Blue led right angle mount 3.2V	27-21 Everlight Blue
8	APT D1608SYCK	D13, D14, D15, D16, D21, D22, D23,	LED standard - CMS Helios SMD Y	DIOC1608X06N
2	WP7104SRC/D	D19, D20	Red led 2V@20ma 57mcd	LED_TH_3MM_20MM
3	APT D1608CGK	D28, D29, D30	LED standard - CMS Helios SMD G	DIOC1608X06N
2	BAT54S	D33, D34	Schottky Barrier Double Diode	SOT23,N
5	2508056017Y2	L1, L2, L3, L4, L5	SMD EMI Suppression Ferrite Bead	INDC201211XL
1	Speaker	LS1	Loudspeaker	PIN2
1	TD4015BPN	MC1	Omnidirectional Back Electret Con	MICRO_TD4015BPN
36	BC817-40	Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q9,	NPN General-purpose Transistor	SOT23,N
18	4.7K	R1, R2, R57, R59, R61, R63, R64, R65	Resistor	RESC1005X04N
2	33	R3, R5	120, Resistor	RESC1005X04N
2	2.7K	R4, R6	Resistor	RESC1005X04N
10	22K	R7, R8, R9, R10, R11, R42, R43, R67,	120, Resistor	RESC1005X04N
17	2.2K	R12, R13, R14, R15, R16, R32, R33, R	120, Resistor	RESC1005X04N
7	1.5K	R17, R18, R19, R20, R26, R46, R47	120	RESC1005X04N
10	1K	R21, R22, R23, R24, R25, R48, R49, R	120, Resistor	RESC1005X04N
16	10K	R27, R28, R29, R30, R31, R50, R51, R	120, Resistor	RESC1005X04N
7	6.2	R36, R37, R38, R39, R40, R54, R55	120	RESC1005X04N
18	56	R56, R58, R60, R62, R69, R72, R74, R	Resistor, 56	RESC1005X04N
14	39	R66, R82, R83, R84, R85, R86, R87, R	Resistor	RESC1005X04N
4	200	R68, R71, R98, R147	200	RESC1005X04N
4	82	R70, R73, R100, R149	82	RESC1005X04N
4	100	R105, R106, R135, R150	Resistance, Resistor	RESC1005X04N
2	180	R107, R137	Resistor	RESC1005X04N
2	5.6K	R115, R116	Resistor	RESC1005X04N
15	100K	R119, R120, R121, R122, R123, R124,	Resistor	RESC1005X04N
1	680K	R125	Resistor	RESC1005X04N
1	6.8K	R127	Resistor	RESC1005X04N
5	820	R131, R151, R152, R153, R154	Resistor	RESC1005X04N
1	47K	R132	Resistor	RESC1005X04N
1	270K	R140	Resistor	RESC1005X04N
6	0	R160, R161, R168, R169, R170, R171	Resistor	RESC1005X04N
1	NCP15XH103F03RC	RT1	Thermistors - NTC 10K OHM 1% 0	RESC1005X04L
1	MicroSD-Astron 5190008-X	S1	MicroSD Card connector 5190008	Astron 5190008-XA4-R
1	SW-PB	S2	Switch	FSMRA2JH
4	DMG1013UJW-7	T1, T2, T3, T4	Transistor MOSFET 1 x P Pining :	SOT65P210X100-3N
4	DMG1012UJW	T5, T6, T7, T8	Transistor MOSFET 1 x N, Pining :	SOT65P210X100-3N
1	STM-LIS2DE12-LGA-12	U1	STM-LGA-12	STM-LGA-12
2	1TR9909	U2, U3	Everlight Opto Interrupter	1TR9909_LONG
2	MCP6L04T-EST	U4, U5	1MHz, 85 uA Quad Op Amp, 14-Pi	TSSOP-ST14_N
7	1TR9909	U6, U7, U8, U9, U10, U11, U12	Everlight Opto Interrupter	1TR9909_EDGE
5	SN74HC595PWR	U13, U14, U15, U16, U17	8-Bit Serial-Input/Serial-or Prallel-	Q948F-01_N
1	AP2112K-3.3TRG1	U18	300mA, Low Quiescent Current, F	SOT79SP285X100-5N
1	PIC24FJ128GB106-I/PT	U19	General Purpose 16-Bit Flash Micro	TOF-P-P164_N
1	IRM-36387	U20	IR Receiver Module (38 kHz) for Re	IR-receiver
1	MCP73871-2C AI/ML	U21	Stand-Alone System Load Sharing	QFN-ML20_N
3	AP2210K-3.3TRG1	U22, U24, U26	300mA, Low Quiescent Current, F	SOT79SP285X100-5N
1	FAN3988	U23	USB/Charger and Over Voltage D	MLP_1.45X1MM
1	LM4819M	U25	350mW Audio Power Amplifier with	MM08A_N
1	Con1x6	X2	1 x 6 pins connector	MHDR1X6
1	WR-Communication Conn	X3	WR-COM_USB_Micro Type B_Hor	629105150521
1	B15-ABLS-B-82	Y1	Surface Mount Quartz Crystal 8MHz	HC49/4H_SMX

Quantity	Comment
1	1uF
1	6.2
1	100
1	815-ABLS-8-B2
1	AP2210K-3.3TRG1
1	Batteryconnector t 08940
1	MCP6L04T-E/ST
2	2.7K
2	4.7uF
2	18pF
2	33
2	82
2	200
2	1TR9909
2	Motor connector 89400-022
2	WP7104SRC/D
2	YLL-T50GRB-3-BH05
3	SN74HC595PWR
4	0
4	1K
4	1.5K
4	22K
4	820
4	2508056017Y2
4	DMG1012UW
4	DMG1013UW7
5	10uF
7	4.7nF
8	2.2K
8	10K
8	39
8	56
9	27-21SURC/S530-A3
10	100K
12	4.7K
14	BC817-40
17	100nF
1	1.5nF
1	6.8K
1	10uF XSR
1	47K
1	270K
1	680K
1	820
1	2508056017Y2
1	AP2112K-3.3TRG1
1	Con1x6
1	FAN3988
1	IRM-3638T
1	LM4819M
1	MCP6L04T-E/ST
1	MCP73871-2CA/ML
1	MicroSD-Astron 5190008-X
1	NCP15XH103F03RC
1	PIC24FJ128GB106-I/PT
1	Speaker
1	STM-LIS2DE12-LGA-12
1	SW-PB
1	TD4015BPN
1	WR-Communication Conn
2	0
2	1nF
2	1uF
2	5.6K
2	51pF
2	82
2	180
2	200
2	AP2210K-3.3TRG1
2	BAT54S
2	SN74HC595PWR
2	YLL-T50GRB-3-BH05
3	1.5K
3	10uF
3	27-21/BHC-AN1P2/3C
3	27-21SURC/S530-A3
3	47nF
3	100
3	APTD1608CGOK
4	19-21SURC/S530-A3/1R8
5	100K
6	1K
6	4.7K
6	6.2
6	22K
6	39
7	4.7uF
7	1TR9909
8	10K
8	APTD1608SYOK
9	2.2K
10	56
21	100nF
22	BC817-40

Designator
C43
R38
R105
Y1
U26
R11
U4
R4, R6
C43, C72
C41, C42
R3, R5
R70, R73
R68, R71
U2, U3
R1, R2
D19, D20
D2, D6
U13, U15, U17
R160, R161, R168, R169
R21, R22, R23, R24
R17, R18, R19, R20
R7, R8, R9, R10
R151, R152, R153, R154
T1, T2, T3, T4
T5, T6, T7, T8
T1, T2, T3, T4
C40, C51, C52, C73, C78
C15, C16, C17, C18, C19, C20, C21
R12, R13, R14, R15, R16, R33, R44, R45
R27, R28, R29, R30, R31, R50, R51, R136
R82, R83, R84, R85, R95, R96, R97, R133
R69, R72, R74, R75, R76, R77, R90, R91
D9, D10, D11, D12, D17, D18, D25, D26, D28
R119, R120, R121, R122, R123, R124, R155, R156, R157, R158
R1, R2, R57, R59, R61, R63, R64, R65, R111, R112, R113, R114
Q1, Q2, Q3, Q4, Q7, Q12, Q19, Q20, Q22, Q25, Q26, Q28, Q47, Q48
C5, C7, C8, C9, C14, C22, C25, C26, C28, C30, C55, C68, C69, C70, C71, C74, C75
C3
R127
C34
R132
R140
R125
R131
L5
U18
X2
U23
U20
U5
U21
S1
R11
U19
U31
U1
S2
MCT
X3
R170, R171
C53, C54
C56, C61
R115, R116
C4, C64
R100, R149
R107, R137
R98, R147
U22, U24
D33, D34
U14, U16
D27, D38
R26, R46, R47
C2, C31, C46
D8, D31, D37
D7, D32, D36
C58, C59, C60
R106, R135, R130
D28, D29, D30
D1, D3, D4, D5
R138, R139, R141, R143, R159
R25, R48, R49, R108, R166, R167
R92, R93, R94, R144, R145, R146
R36, R37, R39, R40, R54, R55
R11, R42, R43, R67, R130, R142
R66, R86, R87, R88, R89, R134
C32, C44, C45, C47, C48, C49, C50
U6, U7, U8, U9, U10, U11, U12
R101, R102, R109, R110, R117, R118, R128, R129
D13, D14, D15, D16, D21, D22, D23, D24
R32, R34, R35, R41, R52, R53, R103, R104, R126
R56, R58, R60, R62, R72, R79, R80, R81, R99, R148
C1, C3, C4, C10, C11, C12, C13, C23, C24, C27, C29, C33, C35, C36, C37, C38, C39, C62, C65, C66, C67
C5, C6, C8, C9, C10, C11, C13, C14, C15, C16, C17, C18, C31, C32, C34, C37, C38, C39, C40, C42, C45, C46

Description	Footprint	Layer
Capacitor	CAPC1005X06N	Bottom
120	RESC1005X04N	Bottom
Resistor	RESC1005X04N	Bottom
Surface Mount Quartz Crystal 8MHz	HC49/4H_SMK	Bottom
300mA, Low Quiescent Current, F	SOT95P285X100-5N	Bottom
Multicell Battery	BAT-2	Bottom
1 MHz, 85 µA Quad Op Amp, 14-Pin	TSSOP-ST14_N	Bottom
Resistor	RESC1005X04N	Bottom
Capacitor	CAPC1005X06N	Bottom
	CAPC1005X06N	Bottom
120, Resistor	RESC1005X04N	Bottom
82	RESC1005X04N	Bottom
200	RESC1005X04N	Bottom
Everlight Opto Interrupter	1TR9909_LONG	Bottom
Motor, General Kind	BAT-2	Bottom
Red led 2V@20ma 57mod	LED_TH_3MM_20MM	Bottom
	QBLP679E-RCB	Bottom
8-Bit Serial-Input/Serial or Parallel	948F-01_N	Bottom
Resistor	RESC1005X04N	Bottom
120	RESC1005X04N	Bottom
120	RESC1005X04N	Bottom
120	RESC1005X04N	Bottom
Resistor	RESC1005X04N	Bottom
SMD EMI Suppression Ferrite Bead	1NDC2012X11L	Bottom
Transistor MOSFET 1 xN, Pining: 1	SOT65P210X100-3N	Bottom
Transistor MOSFET 1 xP Pining: 1	SOT65P210X100-3N	Bottom
Capacitor	CAPC1005X06N	Bottom
Capacitor	CAPC1005X06N	Bottom
120, Resistor	RESC1005X04N	Bottom
120, Resistor	RESC1005X04N	Bottom
Resistor	RESC1005X04N	Bottom
56, Resistor	RESC1005X04N	Bottom
SMD Red led right angle mount 2V	27-21 EVERLIGHT	Bottom
Resistor	RESC1005X04N	Bottom
Resistor	RESC1005X04N	Bottom
NPN General-purpose Transistor	SOT23_N	Bottom
Capacitor	CAPC1005X06N	Bottom
Capacitor	CAPC1005X06N	Top
Resistor	RESC1005X04N	Top
Capacitor	CAPC1005X06N	Top
Resistor	RESC1005X04N	Top
Resistor	RESC1005X04N	Top
Resistor	RESC1005X04N	Top
Resistor	RESC1005X04N	Top
SMD EMI Suppression Ferrite Bead	1NDC2012X11L	Top
300mA, Low Quiescent Current, F	SOT95P285X100-5N	Top
1 x6 pins connector	MHDR1X6	Top
USB/Charger and Over Voltage Detect	MLP1.45X1MM	Top
IR Receiver Module (38 kHz) for Remote	IR-receiver	Top
350mW Audio Power Amplifier with	MO8A_N	Top
1 MHz, 85 µA Quad Op Amp, 14-Pin	TSSOP-ST14_N	Top
Stand-Alone System Load Sharing	OFN-ML20_N	Top
MicroSD Card connector 5190008	Astron 5190008-XM-R	Top
Thermistors - NTC 10K OHM 1% 0	RESC1005X04L	Top
General Purpose 16-Bit Flash Micro	TOFP-P-PT64_N	Top
Loudspeaker	PIN2	Top
	STM-LGA-12	Top
Switch	FSMRA2H	Top
Omnidirectional Back Electret Cond	MICRO_TD4015BPN	Top
WR-COM_USB_Micro Type B_Hor	629T05150521	Top
Resistor	RESC1005X04N	Top
Capacitor	CAPC1005X06N	Top
Capacitor	CAPC1005X06N	Top
Resistor	RESC1005X04N	Top
Capacitor	CAPC1005X06N	Top
82	RESC1005X04N	Top
Resistor	RESC1005X04N	Top
200	RESC1005X04N	Top
300mA, Low Quiescent Current, F	SOT95P285X100-5N	Top
Schottky Barrier Double Diode	SOT23_N	Top
8-Bit Serial-Input/Serial or Parallel	948F-01_N	Top
	QBLP679E-RCB	Top
120	RESC1005X04N	Top
Capacitor	CAPC1005X06N	Top
SMD Blue led right angle mount 3V	27-21 Everlight Blue	Top
SMD Red led right angle mount 2V	27-21 EVERLIGHT	Top
Capacitor	CAPC1005X06N	Top
Resistance, Resistor	RESC1005X04N	Top
LED standard - CMS Helios SMD G	D1OC1608X08N	Top
SMD Red 0603 2V@20ma 56 mod	D1OC1608X08N	Top
Resistor	RESC1005X04N	Top
120, Resistor	RESC1005X04N	Top
Resistor	RESC1005X04N	Top
120	RESC1005X04N	Top
120, Resistor	RESC1005X04N	Top
Resistor	RESC1005X04N	Top
Capacitor	CAPC1005X06N	Top
Everlight Opto Interrupter	1TR9909_EDGE	Top
Resistor	RESC1005X04N	Top
LED standard - CMS Helios SMD Ye	D1OC1608X08N	Top
Resistor	RESC1005X04N	Top
Resistor, 56	RESC1005X04N	Top
Capacitor	CAPC1005X06N	Top
NPN General-purpose Transistor	SOT23_N	Top