



BT1

P5 P2 P3 C1 U1 U2 U3 C4

B- A+ GND GND +12 GND +5

Node LoraWAN  
Ver1.0

R11 R10

F2

U4

TVS2

C14

F1

U5

R3

C12

R7

C13

D1

LED1

LED2

R4

R6

R5

R6

R7

R8

R9

R10

R11

R12

R13

R14

R15

R16

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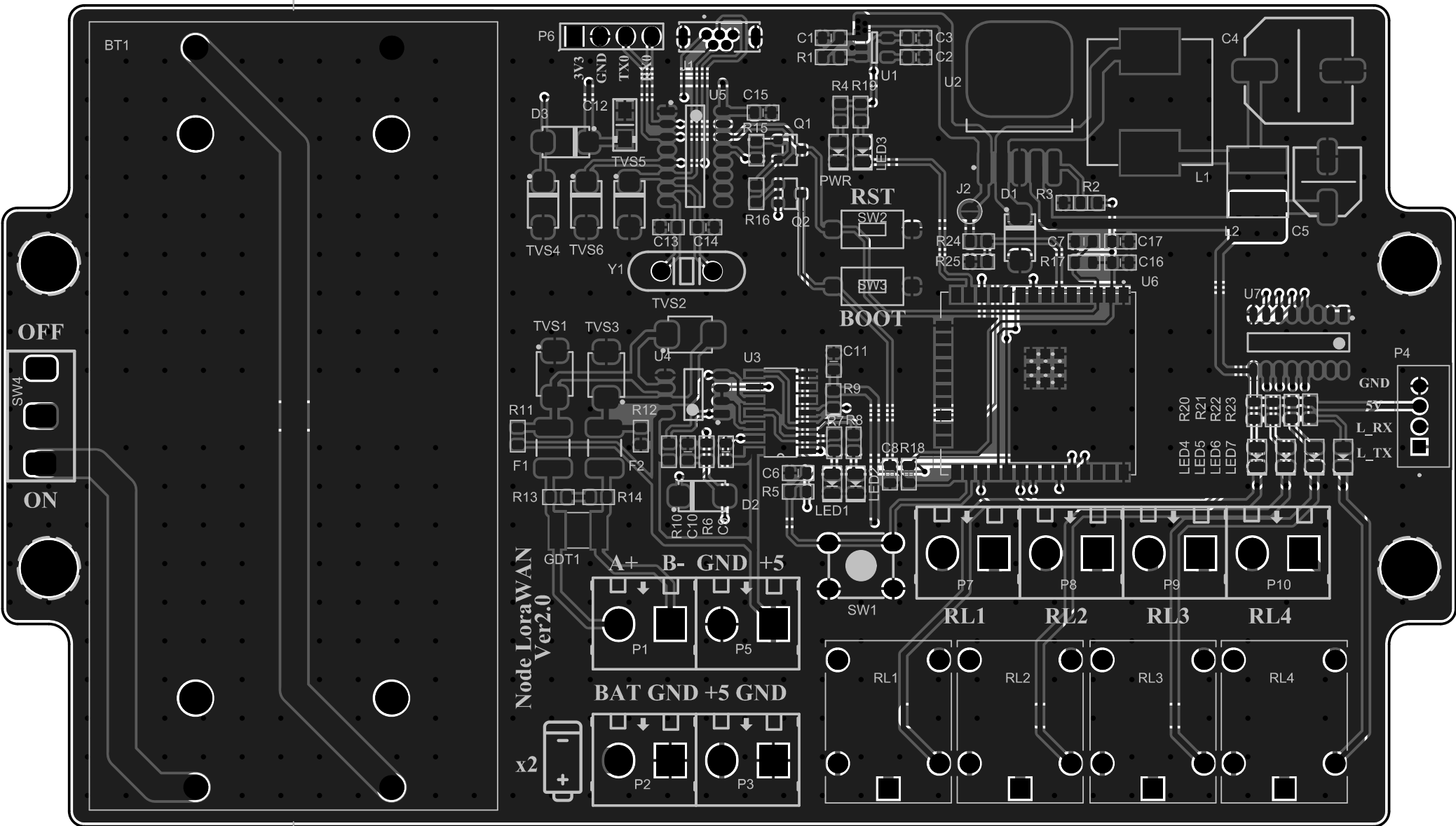
R326

R327

R328

R329

R330



Comment	Description	Designator	Footprint	LibRef	Quantity
BK-18650-PC4	Battery Holder (Open) 18650 2 Cell PC Pin	BT1	BAT_BK-18650-PC4	BK-18650-PC4	1
1uF	Capacitor non-pol	C1	C 0603 (1608)	Capacitor NP	1
10uF	Capacitor non-pol	C2, C16	C 0603 (1608)	Capacitor NP	2
2.2uF	Capacitor non-pol	C3	C 0603 (1608)	Capacitor NP	1
25V/470uF	Capacitor pol	C4	C SMD ALU (G)	Capacitor	1
16V/220uF	Capacitor pol	C5	C SMD ALU (D8)	Capacitor	1
0.1uF	Capacitor non-pol	C6, C7, C8, C9, C11, C15, C17	C 0603 (1608)	Capacitor NP	7
33pF	Capacitor non-pol	C10	C 0603 (1608)	Capacitor NP	1
10uF/25V(20%)	Capacitor pol	C12	C SMD TAN 1206 (A)	Capacitor	1
22pF	Capacitor non-pol	C13, C14	C 0603 (1608)	Capacitor NP	2
Diode Schottky	Schottky Diode	D1	DO-214AC (SMA)	Diode Schottky	1
Diode	Default Diode	D2, D4, D5, D6, D7	DO-214AC (SMA)	Diode	5
1N5819	Default Diode	D3	DO-214AC (SMA)	Diode	1
MS_MSMF	Fuse	F1, F2	Fuse 1812P050	Fuse	2
Gas Discharge Tube	Gas Discharge Tube	GD11	CAPC4532X110N	Gas Discharge Tube	1
Header 1	Header, 1-Pin	H1, H2, H3, H4	M3	Header 1	4
USB3131-30-0230-A_REVB	USB - micro B USB 2.0 Receptacle Connector 5 Position Through Hole	J1	GCT_USB3131-30- 0230-A_REVB	USB3131-30-0230- A_REVB	1
33uH	Inductor	L1	Inductor SMD 12x12x8	Inductor	1
2.4uH	Inductor	L2	Inductor SMD 5.2x5.8x4.5mm	Inductor	1
Led	Typical LED	LED1, LED2, LED3, LED4, LED5, LED6, LED7, PWR	Led SMD 0805	Led	8
Header 2	Header, 2-Pin	P1, P2, P3, P5, P7, P8, P9, P10	HDR Domino 2 - 5MM	Header 2	8
110990030		P4	SEED_110990030	110990030	1
Header 4	Header, 4-Pin	P6	Header 4	Header 4	1
S8050	NPN Bipolar Transistor	Q1, Q2	SOT-23	Transistor NPN	2
0R	Resistor	R1	R 0603 (1608)	Resistor	1
470	Resistor	R2, R4, R7, R8, R19, R20, R21, R22, R23	R 0603 (1608)	Resistor	9
470(DNF)	Resistor	R3	R 0603 (1608)	Resistor	1
10k	Resistor	R5, R17, R18, R25	R 0603 (1608)	Resistor	4
22k	Resistor	R6	R 0603 (1608)	Resistor	1
4k7	Resistor	R9, R10, R11, R12	R 0603 (1608)	Resistor	4
121	Resistor	R13	R 0603 (1608)	Resistor	1
0_Open	Resistor	R14	R 0603 (1608)	Resistor	1
104	Resistor	R15, R16	R 0603 (1608)	Resistor	2
20k	Resistor	R24	R 0603 (1608)	Resistor	1
SRA-05VDC-CL		RL1, RL2, RL3, RL4	RELAY_SRA-05VDC-CL	SRA-05VDC-CL	4
Tact Switch	Tact switch 4 pin	SW1	SW/4/DIP/SMALL	SW SPST-4	1
Button	Tact switch 2 pin	SW2, SW3	SW/2/SMD	SW SPST	2
SW SPDT		SW4	SW/3/SPDT/SS12D10	SW SPDT	1
Diode TVS	Bi-directional TVS Diode	TVS1, TVS2, TVS3	DO-214AA (SMB)	Diode TVS Bi-Dir	3
Diode TVS	Bi-directional TVS Diode	TVS4, TVS5, TVS6	DO-214AC (SMA)	Diode TVS Bi-Dir	3
LP2985	LP2985 150-mA, Low- noise 30 µV(RMS) With 10-nF Bypass Capacitor, Low- dropout Regulator 280mV@150mA, With Shutdown 0.01µA Typ	U1	SOT-23-5	LP2985	1
LM2576-5	SIMPLE SWITCHER® 3A Step-Down Voltage Regulator	U2	TO-263-5	LM2576/96	1
74HC14D	Inverter IC 6 Channel Schmitt Trigger 14- SOIC	U3	SOIC127P600X175- 14N	74HC14D	1
SP485EN-L	SP485 Series 5 Mbps 5 V Low Power Half Duplex RS-485 Transceiver - NSOIC-8	U4	SOIC-8	SP485EN-L	1
CH340G		U5	SOIC-16	CH340G	1
ESP32-WROOM-32U	Bluetooth, WIFI 802.11b/g/n, Bluetooth v4.2 +EDR, Class 1, 2 and 3 Transceiver Module 2.4GHz ~ 2.5GHz Antenna Not Included, U.FL Surface Mount	U6	XCVR_ESP32-WROOM- 32U	ESP32-WROOM-32U	1
ULN2003	High-voltage, high- current Darlington transistor arrays	U7	SOIC-16	ULN2003	1
12MHz		Y1	Crystal HC49S DIP	Crystal	1