

# Bill of Material

Sales code: <b>STEVAL-ILL022V1</b>	Project code: <b>MSCC00108V1</b>
Company: <b>STMicroelectronics</b>	Project name: <b>Solar-LED streetlight controller with 25W LED lamp driver and 80W battery charger based on STM32F101Rx</b>

Index	Quantity	Reference	Value / Generic Part Number	Package / Class	Manufacturer	Manufacturer's ordering code / Orderable Part Number	Supplier	Supplier's ordering code
1	1	B1	One way 6x6mm	[SMD], 4.3mm(H), tactile switch	Omron	B3FS-1010	Premier electronics	1181016
2	2	C1, C6	1 uF	[1210], 100V, ceramic capacitor				
3	27	C2, C3, C12, C14, C24, C36, C39, C41, C42, C43, C46, C48, C49, C50, C51, C52, C56, C57, C58, C59, C60, C62, C65, C66, C67, C68, C77, C79	100 nF	[0603], 50V, ceramic capacitor				
4	3	C4, C5, C13	470 uF	63V, Al-cap electrolytic capacitor	Rubycon	63ZL470M12.5X30		
5	8	C7, C8, C35, C38, C45, C53, C73, C74	1 uF	[0805], 25V, ceramic capacitor				
6	7	C9, C22, C34, C44, C75, C76, C80	22 uF	50V, Al-cap electrolytic capacitor	Rubycon	CAPPR2-5X11		
7	4	C10, C11, C25, C26	220 pF	[0805], 50V, ceramic capacitor				
8	2	C15, C20	1 uF	[1206], 50V, ceramic capacitor				
9	1	C17	560 pF	[0603], 50V, ceramic capacitor				
10	4	C18, C19, C30, C33	220 uF	50V, Al-cap electrolytic capacitor	Rubycon	50ZL220M10X16		
11	8	C23, C59, C61, C63, C69, C70, C71, C72	330 nF	[0805], 50V, ceramic capacitor				
12	5	C27, C29, C32, C64, C83	100 pF	[0603], 50V, ceramic capacitor				
13	1	C28	220 pF	[0603], 250V, ceramic capacitor				
14	1	C47	10 uF	3528-21, 16V, tantalum capacitor	Vishay	593D106X9016B22TE3		
15	2	C54, C55	20 pF	[0603], 50V, ceramic capacitor				
16	1	CN1	20-way Box header	[Right angle mounting], JTAG connector	Tyco electronics	2-1634689-0	RS components ltd	473-8377

17	24	D1, D11, D13, D17, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D34, D35, D36, D37	BAT46JFILM	[SOD323], small signal schottky diode	STMicroelectronics	BAT46JFILM		
18	3	D2, D3, D12	15V	[SOD 80C], zener diode				
19	2	D4, D10	STPS20H100CFP	[TO-220FPAB], power schottky rectifier	STMicroelectronics	STPS20H100CFP		
20	2	D5, D9	SMAJ24A-TR	[SMC or DO-214AB], 24V 400W transil (TVS)	STMicroelectronics	SMAJ24A-TR		
21	1	D7	3.9V	[SOD 80C], zener diode				
22	1	D8	STPS1H100A	[SMA or DO-214AC], power schottky rectifier	STMicroelectronics	STPS1H100A		
23	1	D14	STPS2045CFP	[TO-220FPAB], power schottky rectifier	STMicroelectronics	STPS2045CFP		
24	1	D16	STPS1L60A	[SMA or DO-214AC], power schottky rectifier	STMicroelectronics	STPS1L60A		
25	1	F1	10A	[2.54Φ x 7.2mm, axial lead], 251 series fuse	Littelfuse	251 series (P/N: 251010.)	RS components ltd	R251 010
26	1	JP1 *1)	0.64x0.64mm, 2 way	2.54mm pitch, Pin strip header	3M	2302-6111TP		
27	1	L2 *2)	39 uH	Inductor	Bobitans	T_EER28_TDK		
28	2	L5, L6	600Ohm @ 100MHz	[0603], Chip ferrite bead, 25%, 200mA max.	Murata	BLM18RK601SN1		
29	4	LD1, LD2, LD3, LD4	80 mcd, yellow	[0603], LED	Vishay	TLMY1100-GS08		
30	1	LD5	45 mcd, red	[3.0Φ, diffused, radio lead], LED	Vishay	TLDR4400		
31	1	LD6	10 mcd, green	[3.0Φ, undiffused, radio lead], LED	Vishay	TLHG4200		
32	3	P1, P2, P3	Terminal block	2 terminal, pitch 7.5mm	Degson	DG128-7.5-02P-14-05B(H)		
33	3	P4, P5, P6	Header, 2 pin	HDR1x2, pitch 2.54mm				
34	1	Q1	STP40NF10	[TO-220], N-ch MOSFET	STMicroelectronics	STP40NF10		
35	2	Q2, Q4	STP75NF75FP	[TO-220FP], N-ch MOSFET	STMicroelectronics	STP75NF75FP		
36	6	Q3, Q5, Q6, Q7, Q11, Q12	MMBTA42	[SOT-23], NPN bipolar transistor	STMicroelectronics	MMBTA42		
37	4	Q8, Q9, Q13, Q14	BC807	[SOT-23], PNP bipolar transistor		BC807		
38	1	Q10	TYN608RG	[TO-220AB], triac	STMicroelectronics	TYN608RG		
39	12	R1, R2, R3, R4, R9, R17, R18, R19, R20, R46, R47, R55	0.1 Ohm	[1206], 1%, resistor				
40	15	R5, R7, R10, R12, R15, R16, R22, R23, R24, R26, R28, R31, R40, R53, R101	10 Ohm	[0805], 1%, resistor				
41	3	R6, R13, R29	10k Ohm	[0805], 5%, resistor				
42	1	R8	0.5 Ohm	[Axial lead], cement, 2W, resistor	TOKEN	SQM2W0.5RJULK		

43	31	R11, R45, R48, R49, R59, R60, R61, R62, R63, R64, R65, R67, R69, R95, R97, R104, R105, R110, R111, R112, R113, R114, R117, R118, R119, R120, R121, R122, R123, R124, R125	10k Ohm	[0603], 5%, resistor			
44	3	R14, R27, R50	1.2k Ohm	[0805], 1%, resistor			
45	7	R21, R70, R71, R72, R73, R74, R106	330 Ohm	[0603], 1%, resistor			
46	1	R25	1.8k Ohm	[0603], 5%, resistor			
47	3	R30, R33, R54	33m Ohm	[1210], 1%, resistor			
48	2	R32, R88	NTC, 10k Ohm	[0805], NTC resistor			
49	4	R34, R107, R108, R116	1k Ohm	[0603], 1%, resistor			
50	1	R35	24 Ohm	[1206], 1%, resistor			
51	2	R36, R41	10k Ohm	[0603], 1%, resistor			
52	1	R37	12k Ohm	[0603], 1%, resistor			
53	2	R38, R39	4.7k Ohm	[0603], 1%, resistor			
54	1	R102	560 Ohm	[1206], 1%, resistor			
55	1	R43	9.1k Ohm	[0603], 1%, resistor			
56	4	R44, R89, R91, R93	3.3k Ohm	[0603], 1%, resistor			
57	1	R51	330k Ohm	[0603], 1%, resistor			
58	1	R52	120 Ohm	[0603], 1%, resistor			
59	3	R56, R58, R96	47k Ohm	[0603], 1%, resistor			
60	1	R57	3.3k Ohm	[0603], 5%, resistor			
61	1	R66	1M Ohm	[0603], 1%, resistor			
62	1	R68	1.8k Ohm	[0603], 1%, resistor			
63	1	R75	150k Ohm	[0805], 1%, resistor			
64	4	R76, R78, R81, R84	10k Ohm	[0805], 1%, resistor			
65	2	R77, R80	82k Ohm	[0805], 1%, resistor			
66	8	R79, R82, R85, R86, R87, R90, R92, R94	10 Ohm	[0603], 5%, resistor			
67	1	R83	39k Ohm	[0805], 1%, resistor			
68	4	R98, R99, R100, R103	1k Ohm	[0603], 5%, resistor			
69	2	R109, R115	20k Ohm	[0603], 1%, resistor			
70	1	S1	4 circuit DIP switch	10mm(W) * 12.74mm(L), pitch 2.54mm	Copal electronics	CES-0402MC	
71	1	T1 *3)	33uH	EER25.5, transformer	Bobitrans	T_EER28_TDK,	
72	1	T2 *4)	1mH	Driver transformer	Bobitrans	T_EE10/11_TDK	

73	2	U1, U5	LM258D	[SO8-N], dual operational amplifiers	<a href="#">STMicroelectronics</a>		
74	3	U2, U4, U8	TS391ILT	[SO], single voltage comparator	<a href="#">STMicroelectronics</a>		
75	2	U3, U9	TSC101AILT	[SO], current sense IC	<a href="#">STMicroelectronics</a>		
76	1	U6	L78L12ABD	[SO8-N], positive voltage regulator	<a href="#">STMicroelectronics</a>		
77	1	U7	LM193D	[SO8], dual voltage comparator	<a href="#">STMicroelectronics</a>		
78	1	U10	STM32F101RXT6	LQFP64, 32-bit microprocessor	<a href="#">STMicroelectronics</a>		
79	1	U11	L5970D	SO8-N, switching regulator	<a href="#">STMicroelectronics</a>		
80	1	X1	8MHz	Φ3 x 8, crystal oscillator	Yuechung International Corp.	8M20P/3X8LF	

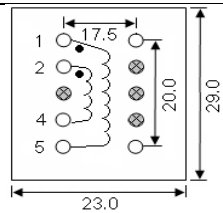
**Note 1:** Accessory for JP1

M20 series jumper socket

HARWIN

M20-7967-46

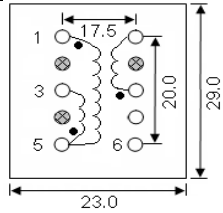
**Note 2:**



Remarks: Marking ⊗ shows no pin

- 1: 39uH +/- 4% (W1/W2 and twisted)
- 2: Winding 1: pin 1 to pin 5 (18 turns CCW)
- 3: Winding 2: pin 2 to pin 4 (18 turns CCW)
- 4: Wire gage: AWG31\*20
- 5: Core: EER28-Z-PC40
- 6: Bobbin: BEER28-1110CPFR

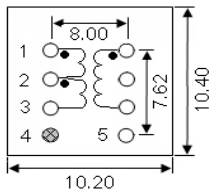
**Note 3:**



Remarks: Marking ⊗ shows no pin

- 1: 33uH +/- 4% (W1+W3 @ 50KHz, 1VRMS)
- 2: Leakage < 0.1uH (W2 short-circuit)
- 3: Winding 1: pin 1 to pin 5 (5 turns CCW)
- 4: Winding 2: pin 8 to pin 10 (10 turns CCW)
- 5: Winding 3: pin 5 to pin 3 (5 turns CCW)
- 6: Wire gage: AWG31\*20
- 7: Core: EER28-Z-PC40
- 8: Bobbin: BEER28-1110CPFR

**Note 4:**



Remarks: Marking ⊗ shows no pin

- 1: 1000uH (W1+W3 @ 50KHz, 1VRMS)
- 2: Leakage < 10uH (W2 short-circuit)
- 3: No air-gap is required
- 4: Winding 1: pin 1 to pin 2 (17 turns CCW)
- 5: Winding 2: pin 8 to pin 6 (34 turns CCW)
- 6: Winding 3: pin 2 to pin 3 (17 turns CCW)
- 7: Wire gage: AWG31
- 8: Core: EE10/11-Z-PC40
- 9: Bobbin: BE10-118CPSFR