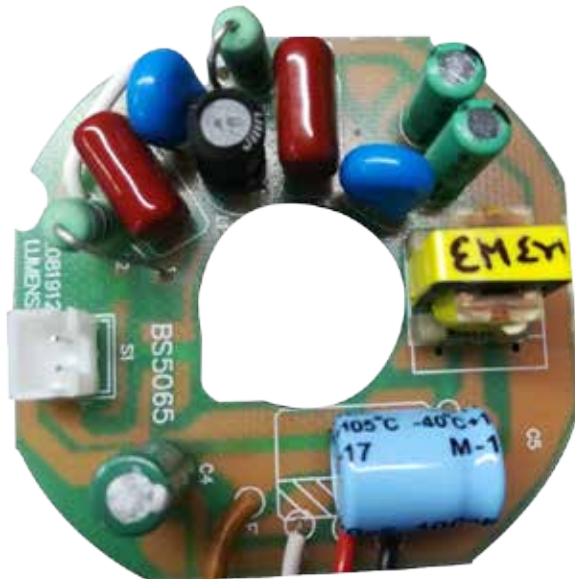




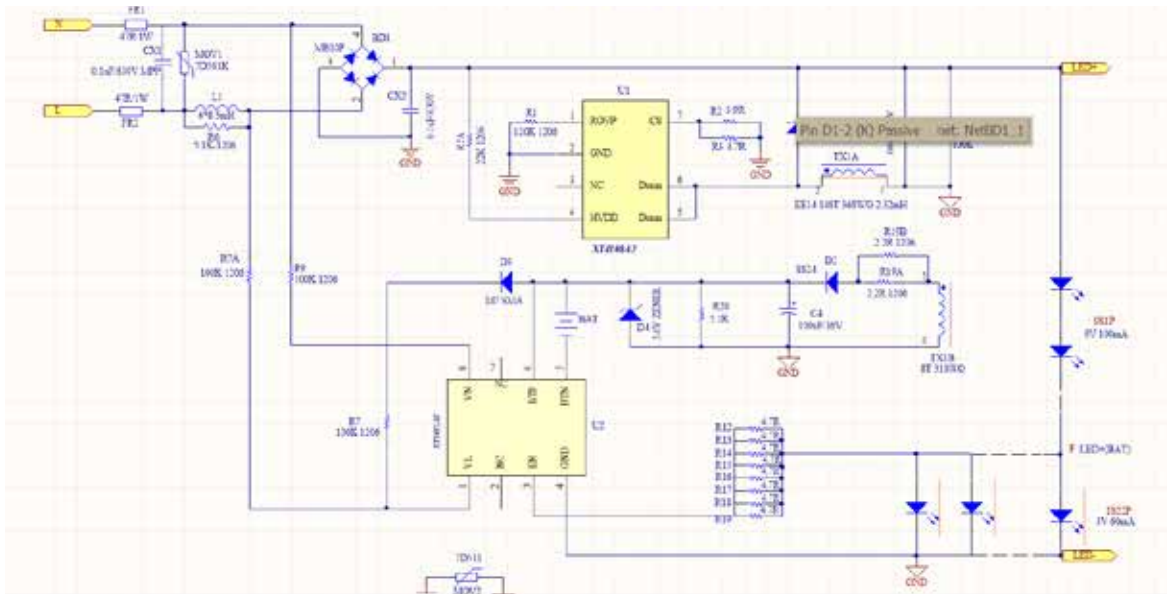
9W AC/DC BULB SOLUTION



General Specification

Description	Symbol	Min	Typ	Max	Unit	Comment
Input						
Voltage	V _{in}	176	230	300	Vac	2 wire
Power	P _{in}		8.5-9.5		W	
Power Factor	PF		0.9			
Total Harmonic Distortion	THD		<20		%	
Surge			4		Kv	
Output						
LED Voltage	V _{LED+DC}		81+3		V	
LED current	I _{LED}		85		mA	

Schematic



Bill Of Material

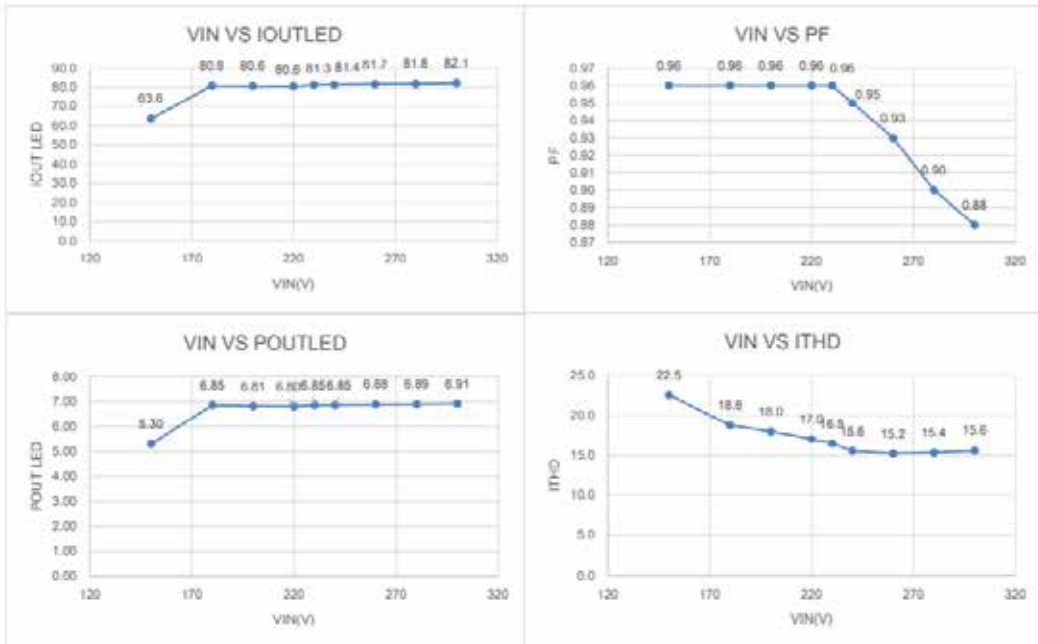
ITEM	Designator	Description	Quantity
1	BD1	SMT diode bridge, MB10F	1
2	FR1,FR2	Fuse resistor, 47R, 1W	2
3	MOV1	Varistor, 7D561	1
4	MOV2	Varistor, 7D511	1
5	CX1,CX2	Capacitor, 100nF/630V MPP	2
6	C5	Capacitor, radial electrolytic,105 °C, 68uF/160V	1
7	C4	Capacitor, radial electrolytic,105 °C, 100uF/16V	1
8	D1	SMT Ultra fast recovery diode, 1A/600V, ES1J	1
9	D2	SCHOTTKY DIODE SS24	1
10	D3	SMA General Purpose diode, M7	1
11	D4	Zener diode, 5.6V	1
12	R1	SMT resistor 1206, 120K	1
13	R2	SMT resistor 1206, 3.9R	1
14	R2A	SMT resistor 1206, 22K	1
15	R3	SMT resistor 1206, 4.7R	1
16	R4,R7,R7A,R9	SMT resistor 1206, 100K	4
17	R6,R20	SMT resistor 1206, 5.1K	2
18	R12 TO R19	SMT resistor 1206, 4.7R	8
19	R19A,R19B	SMT resistor 1206, 2.2R	2
20	L1	Inductor 5mH, Φ6*8mm	1
21	TX1	Transformer, EE14 vertical	1
22	U1	IC XT4108A2	1
23	U2	IC XT1011AS	1
24	S1	BATTERY CONNECTOR	1

Test Report

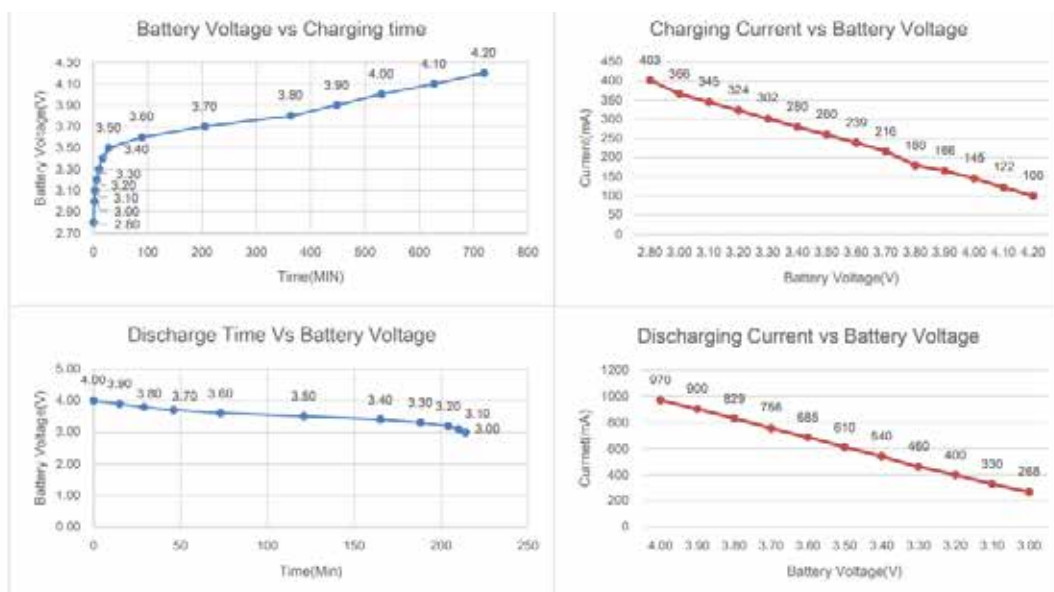
S.NO.	V _{IN} (V)	I _{in} (mA)	P _{in} (W)	PF	I THD	V _{LEDMAIN} (V)	V _{LEDDC} (V)	V _{TOTAL} (V)	I _{outLED} (mA)	P _{OutLED} (W)
1	150	48.68	6.97	0.96	22.5	80.70	2.66	83.4	63.6	5.30
2	180	51.11	9.01	0.96	18.8	82.04	2.68	84.7	80.8	6.85
3	200	47.70	9.10	0.96	18.0	81.85	2.69	84.5	80.6	6.81
4	220	43.32	9.18	0.96	17.0	81.78	2.69	84.5	80.6	6.80
5	230	42.35	9.18	0.96	16.5	81.52	2.69	84.2	81.3	6.85
6	240	40.89	9.13	0.95	15.6	81.51	2.69	84.2	81.4	6.85
7	260	38.46	9.27	0.93	15.2	81.51	2.69	84.2	81.7	6.88
8	280	36.99	9.39	0.90	15.4	81.51	2.69	84.2	81.8	6.89
9	300	36.02	9.56	0.88	15.6	81.51	2.69	84.2	82.1	6.91



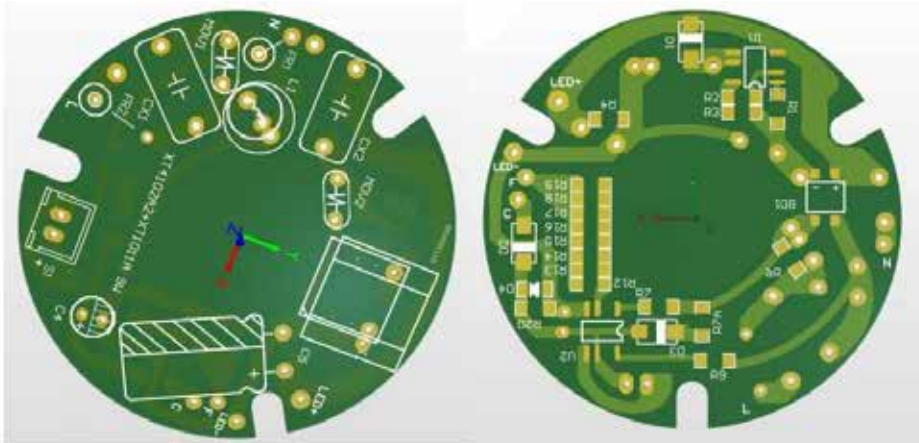
Graphical Representation



DC Performance



PCB Layout



Transformer Specification (TX1)



Note:

- 1) Bobbin: EE14 vertical (4+4pin)
- 2) CORE: PC40 or equivalent
- 3) $L(2-7) = 2.32\text{mH} \pm 5\%$ (1KHz, 25°C)
- 4) $L(5-4) = 10\mu\text{H}$ (1KHz, 25°C)

Transformer winding data

Winding	Material	Start pin	End pin	Turns
N1	37 SWG	2	7	146
N2	31 SWG	5	4	8

Working

Status	AC	Switch	LED1	LED2	Battery
1	ON	ON	ON	ON	Charging up to 4.2V
2	ON	OFF	OFF	OFF	-
3	OFF	ON	OFF	ON	Discharge to 3V
4	OFF	OFF	OFF	OFF	-

Surge report

Pass 4kv surge with two Varistor

Units	Pass	Failed
#1	4000	0
#2	4000	0