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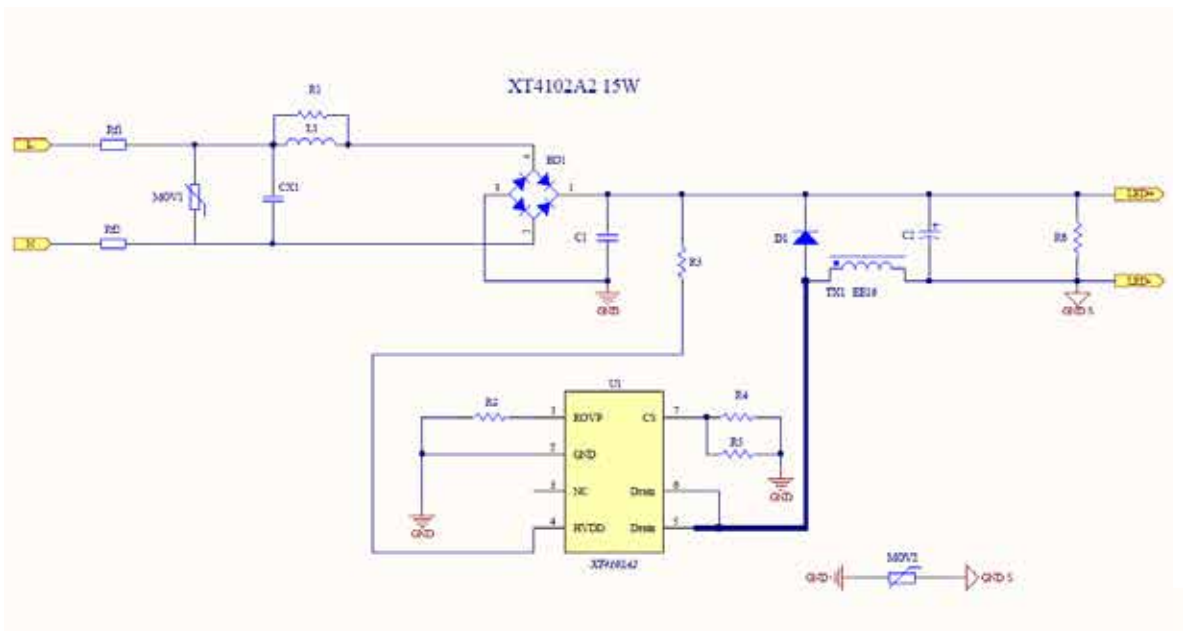
15W-81V/170mA BULB Driver



General Specification

Solution	XT4102A2
AC Input	90~300VAC
DC Output	63-81V/0.17A
Efficiency	>88%@230VAC
Power Factor	0.99 @81V 0.17A
Over Voltage Foldback	>300VAC
Under Voltage Foldback	<190VAC
Max. Withstanding Voltage	440VAC
Surge	4KV

Schematic



Bill Of Material

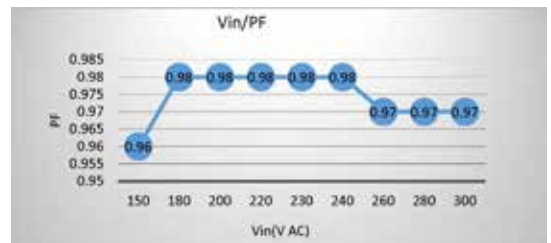
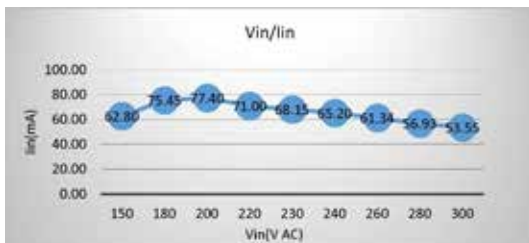
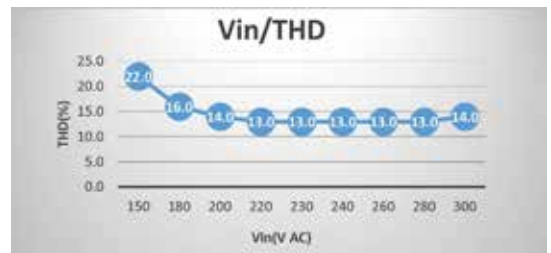
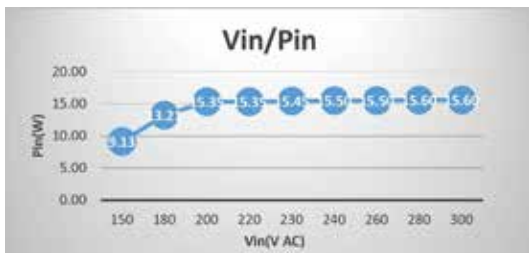
		BILL OF MATERIAL			Effective Date: 11/11/2020		
		PRODUCT: 15W BULB 18LED NXT02 T15			Revision: 00		
		PRODUCT DESCRIPTION : 18LED (2835 9S2P 1W 9V 100mA) LTD 15WR12 EE16 1.25mH XT4102A2					
SR NO	TH/SMD	ITEM	ITEM DESCRIPTION	LOCATION	QTY	MAKE	ALTERNATE MAKE/VALUE
1	SMD	IC	XT4102A2 SOP-7	U1	1	NXTON	NO ALERNATE MAKE
2		Diode	ES1J	D1	1	ETRON	
3		BRIDGE	MB10F	BD1	1	ETRON	
4		SMD Resistor	5.1K 1206 5%	R1	1	HKR	
5		SMD Resistor	240K 1206 1%	R2	1	HKR	
6		SMD Resistor	22K 1206 1%	R3	1	HKR	
7		SMD Resistor	2R 1206 1%	R4	1	HKR	
8		SMD Resistor	2.7R 1206 5%	R5	1	HKR	
		SMD Resistor	100K 1206 5%	R6	1	HKR	
9	TH	DRUM INDUCTOR	DRUM INDUCTOR 6*8mm 3mH	L1	1		
10		WWR	47R/1W	RF1,RF2	2	THAKOR	
11		MOV	7D621K	MOV1	1	ELKO	
12		MOV	7D561K	MOV2	1	ELKO	
13		MPP	47nF/630V 7.5mm	C1	1	INNER MANGOLIA	
14		MPP	100nF/630V 10mm	CX1	1	INNER MANGOLIA	
15		Electrolytic Capacitor	100uF/100V 10*17mm 5-8Khrs	C2	1	SHELKON	
16		Transformer	EE16 180T 34SWG 1.25mH(+/-5%)	TX1	1		
<p>Note: Parallel Current sense resistance combination may be changed but the value remains the same. (Output current should be constant)</p>							
Prepared By:		Verified By:					



Electricals Parameters

Measuring instrument :	MEASUREFINE CP2080LED									
Project Name:	15W BULB									
Project Start Date :										
Measuring Date :										
Checked By :	Ram Shinde									
PRODUCT: 15W BULB 18LED NXT02 T15										
LINE REGULATION										
S.No.	Vin(V AC)	Iin(mA)	Pin(W)	PF	THD(Current	VOUT(V DC)	IOUT(mA)	POUT(W)	EFFICIENCY	
1	150	62.80	9.13	0.96	22.0	81.4	99	8.00	87	
2	180	75.45	13.21	0.98	16.0	81.4	139	11.31	87	
3	200	77.40	15.35	0.98	14.0	81.4	166	13.50	88	
4	220	71.00	15.35	0.98	13.0	81.4	167	13.60	88	
5	230	68.15	15.45	0.98	13.0	81.4	167	13.64	88	
6	240	65.20	15.50	0.98	13.0	81.4	167	13.74	88	
7	260	61.34	15.50	0.97	13.0	81.4	168	13.70	88	
8	280	56.93	15.60	0.97	13.0	81.4	170	13.80	88	
9	300	53.55	15.60	0.97	14.0	81.4	170	13.90	88	
NO LOAD VOLTAGE					Inductor/Transformer					
S.No.	Vin(V AC)	VOUT(V DC)			Turns	Value	Wire Gauge			
1	230	109VDC			Core Type					
FOLDBACK VOLTAGE					Winding 1	180T	1.25mH	31SWG	EE16	
1		190Vac			Winding 2					
					Winding 3					

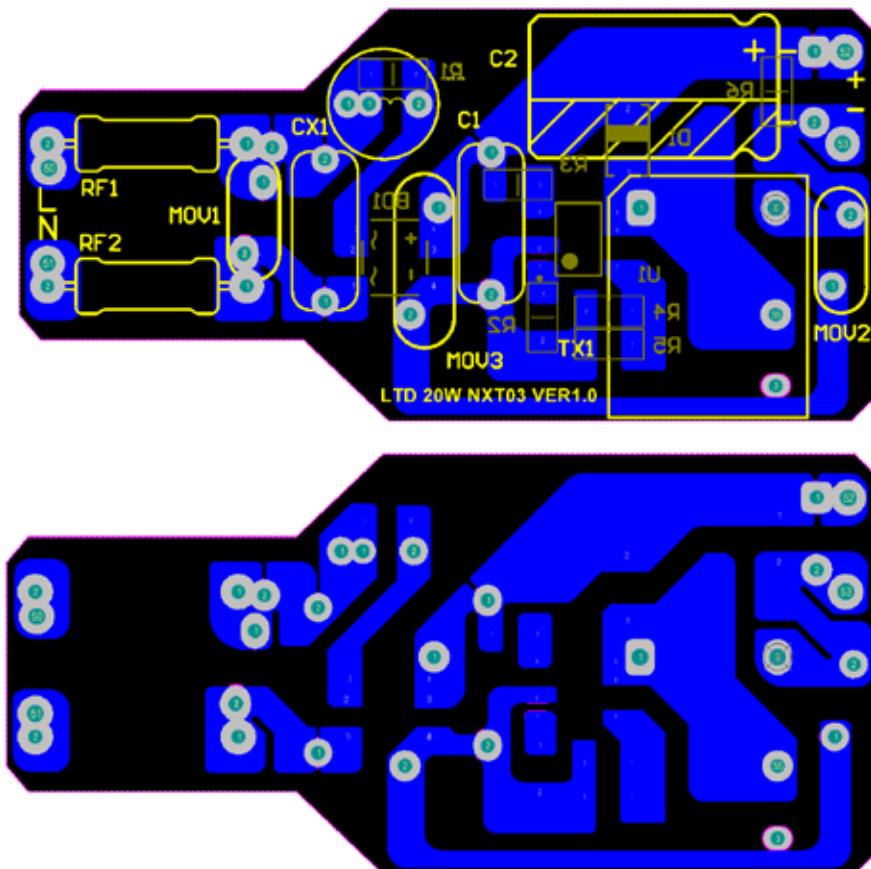
Graphical Representation



Inductor Details

15W TRANSFORMER DESIGN					
CORE EE16(5+5)					INDUCTANCE
	WINDING	TURNS	PIN	WIRE GUAGE(SWG)	
	N1	180	6-9	31SWG	PRI INDUCTANCE (PIN 6-9) 1.25mH(+/-5%)
			3 (DUMMY PIN)		

PCB layout



XT4102A2 15W THERMAL REPORT@25°C AMBIENT

SR NO.	TEST VOLTAGE	TIME	IC TEMPERATURE	CORE TEMPERATURE
1	230	30MIN	85°C	75°C
2	230	50MIN	110°C	104°C
3	230	80MIN	112°C	105°C
4	230	120MIN	112°C	105°C

HV TEST REPORT

Measuring instrument :		Note : Should Pass 380V,30min test (Unless otherwise Specified)						
Project Name:	15W BULB							
Project Start Date :								
Measuring date :								
Checked By :	Ram Shinde	Pass						
Result :		Fail						
Product:	15W BULB 18LED NXT02 T15							
S.NO.	Voltage(L-N)	Time	Number of Sample					Failure component
			1	2	3	4	5	
4	440V	2Hrs	pass	pass	pass	pass	pass	

Surge Report

SURGE TEST REPORT

Measuring instrument :	EVERFINE EMS61000-5H	1. For Trade should Pass 2.5 KV 2. For Professional should Pass 4.0 KV 3. For Outdoor should Pass 4.0 KV + SPD of 10/20KV		
Project name :	15W BULB			
Project Start Date :				
Measuring date :				
Checked By :	Ram Shinde	Pass		
Result :	4KV PASS	Fail		

PRODUCT:		15W BULB 18LED NXT02 T15									
S.No	SURGE VOLTAGE	COUPLING	ANGLE	POSITIVE/NEGATIVE	NO. OF PULSE	INTERVAL(SEC)	Sample1	Sample2	Sample3	Sample4	Sample5
1	1KV	L-N Synchronu s mode	0	+	5	10	PASS	PASS	PASS	PASS	PASS
				-	5	10	PASS	PASS	PASS	PASS	PASS
			90	+	5	10	PASS	PASS	PASS	PASS	PASS
				-	5	10	PASS	PASS	PASS	PASS	PASS
			180	+	5	10	PASS	PASS	PASS	PASS	PASS
				-	5	10	PASS	PASS	PASS	PASS	PASS
270	+	5	10	PASS	PASS	PASS	PASS	PASS			
	-	5	10	PASS	PASS	PASS	PASS	PASS			
2	1.5KV	L-N Synchronu s mode	0	+	5	10	PASS	PASS	PASS	PASS	PASS
				-	5	10	PASS	PASS	PASS	PASS	PASS
			90	+	5	10	PASS	PASS	PASS	PASS	PASS
				-	5	10	PASS	PASS	PASS	PASS	PASS
			180	+	5	10	PASS	PASS	PASS	PASS	PASS
				-	5	10	PASS	PASS	PASS	PASS	PASS
270	+	5	10	PASS	PASS	PASS	PASS	PASS			
	-	5	10	PASS	PASS	PASS	PASS	PASS			
3	2KV	L-N Synchronu s mode	0	+	5	10	PASS	PASS	PASS	PASS	PASS
				-	5	10	PASS	PASS	PASS	PASS	PASS
			90	+	5	10	PASS	PASS	PASS	PASS	PASS
				-	5	10	PASS	PASS	PASS	PASS	PASS
			180	+	5	10	PASS	PASS	PASS	PASS	PASS
				-	5	10	PASS	PASS	PASS	PASS	PASS
270	+	5	10	PASS	PASS	PASS	PASS	PASS			
	-	5	10	PASS	PASS	PASS	PASS	PASS			

4	2.5KV	L-N Synchronu s mode	0	+	5	10	PASS	PASS	PASS	PASS	PASS
				-	5	10	PASS	PASS	PASS	PASS	PASS
			90	+	5	10	PASS	PASS	PASS	PASS	PASS
				-	5	10	PASS	PASS	PASS	PASS	PASS
			180	+	5	10	PASS	PASS	PASS	PASS	PASS
				-	5	10	PASS	PASS	PASS	PASS	PASS
270	+	5	10	PASS	PASS	PASS	PASS	PASS			
	-	5	10	PASS	PASS	PASS	PASS	PASS			
5	3.0KV	L-N Synchronu s mode	0	+	5	10	PASS	PASS	PASS	PASS	PASS
				-	5	10	PASS	PASS	PASS	PASS	PASS
			90	+	5	10	PASS	PASS	PASS	PASS	PASS
				-	5	10	PASS	PASS	PASS	PASS	PASS
			180	+	5	10	PASS	PASS	PASS	PASS	PASS
				-	5	10	PASS	PASS	PASS	PASS	PASS
270	+	5	10	PASS	PASS	PASS	PASS	PASS			
	-	5	10	PASS	PASS	PASS	PASS	PASS			
6	3.5KV	L-N Synchronu s mode	0	+	5	10	PASS	PASS	PASS	PASS	PASS
				-	5	10	PASS	PASS	PASS	PASS	PASS
			90	+	5	10	PASS	PASS	PASS	PASS	PASS
				-	5	10	PASS	PASS	PASS	PASS	PASS
			180	+	5	10	PASS	PASS	PASS	PASS	PASS
				-	5	10	PASS	PASS	PASS	PASS	PASS
270	+	5	10	PASS	PASS	PASS	PASS	PASS			
	-	5	10	PASS	PASS	PASS	PASS	PASS			
7	4.0KV	L-N Synchronu s mode	0	+	5	10	PASS	PASS	PASS	PASS	PASS
				-	5	10	PASS	PASS	PASS	PASS	PASS
			90	+	5	10	PASS	PASS	PASS	PASS	PASS
				-	5	10	PASS	PASS	PASS	PASS	PASS
			180	+	5	10	PASS	PASS	PASS	PASS	PASS
				-	5	10	PASS	PASS	PASS	PASS	PASS
270	+	5	10	PASS	PASS	PASS	PASS	PASS			
	-	5	10	PASS	PASS	PASS	PASS	PASS			