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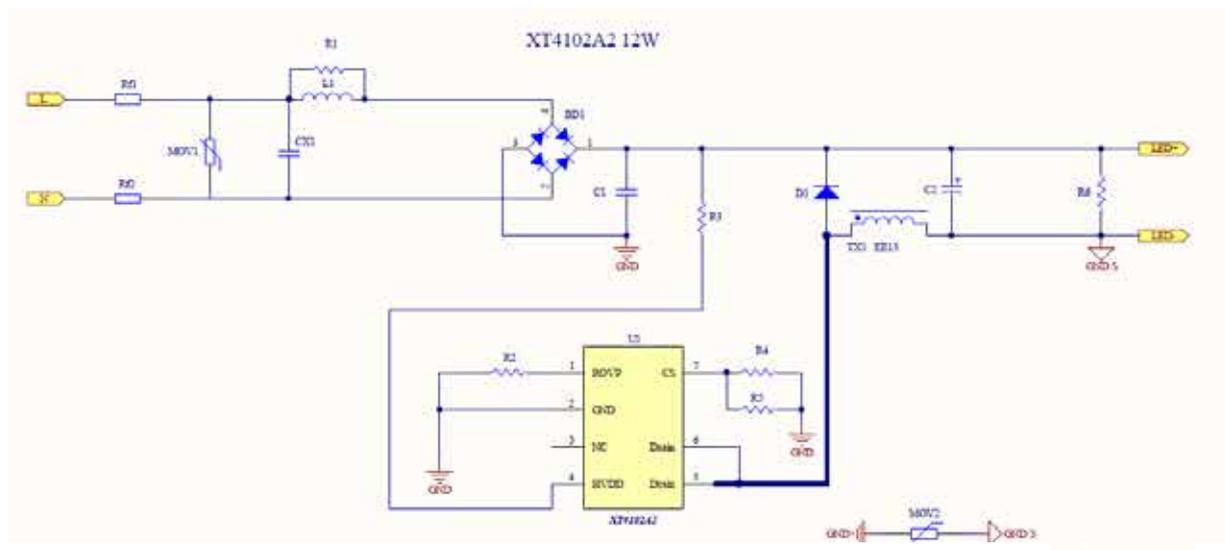
12W-63V/170mA BULB Driver



General Specification

Solution	XT4102A2
AC Input	90~300VAC
DC Output	54-63V/0.17A
Efficiency	>88%@230VAC
Power Factor	0.99 @63V 0.17A
Over Voltage Foldback	>300VAC
Under Voltage Foldback	<180VAC
Max. Withstanding Voltage	440VAC
Surge	4KV

Schematic



Bill Of Material

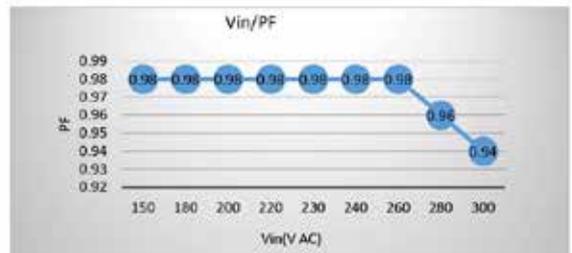
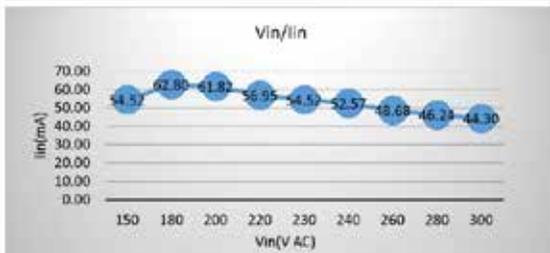
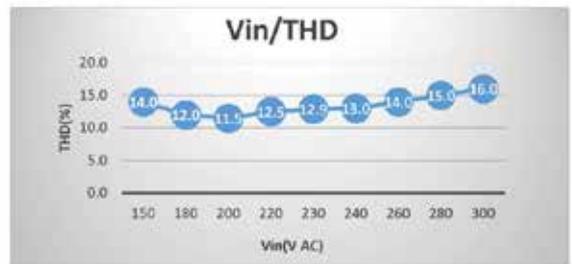
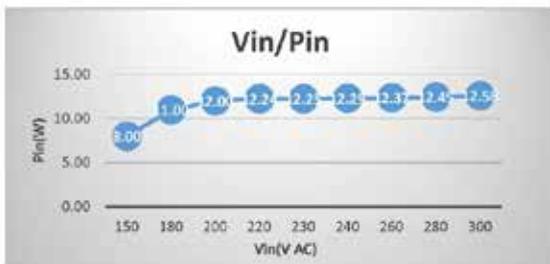
		BILL OF MATERIAL				Effective Date: 11/11/2020	
		PRODUCT: 12W BULB 14LED NXT02 T15				Revision: 00	
		PRODUCT DESCRIPTION : 14LED (2835 752P 1W 9V 100mA) LTD 12WR12 EE13 1.4mH XT4102A2					
SR NO	TH/SMD	ITEM	ITEM DESCRIPTION	LOCATION	QTY	MAKE	ALTERNATE MAKE/VALUE
1	SMD	IC	XT4102A2 SOP-7	U1	1	NXTON	NO 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	330K 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	EE13 168T 34SWG 1.4mH(+/-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

ELECTRICAL TEST REPORT									
Measuring instrument :	MEASUREFINE CP2080LED								
Project Name:	12W BULB								
Project Start Date :									
Measuring Date :									
Checked By :	Ram Shinde								
PRODUCT :					12W BULB 14LED 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	54.52	8.00	0.98	14.0	63.3	110	6.97	88
2	180	62.80	11.00	0.98	12.0	63.3	152	9.70	88
3	200	61.82	12.00	0.98	11.5	63.3	170	10.76	88
4	220	56.95	12.24	0.98	12.5	63.3	170	10.85	88
5	230	54.52	12.25	0.98	12.9	63.3	172	10.83	88
6	240	52.57	12.29	0.98	13.0	63.3	172	10.90	88
7	260	48.68	12.37	0.98	14.0	63.3	173	11.00	88
8	280	46.24	12.45	0.96	15.0	63.3	174	11.00	88
9	300	44.30	12.58	0.94	16.0	63.3	175	11.12	88
NO LOAD VOLTAGE					Inductor/Transformer				
S.No.	Vin(V AC)	VOUT(V DC)			Turns		Value	Wire Gauge	Core Type
1	230	97VDC							
FOLDBACK VOLTAGE				Winding 1	168T	1.4mH	34SWG	EE13	
1		180Vac		Winding 2					
				Winding 3					

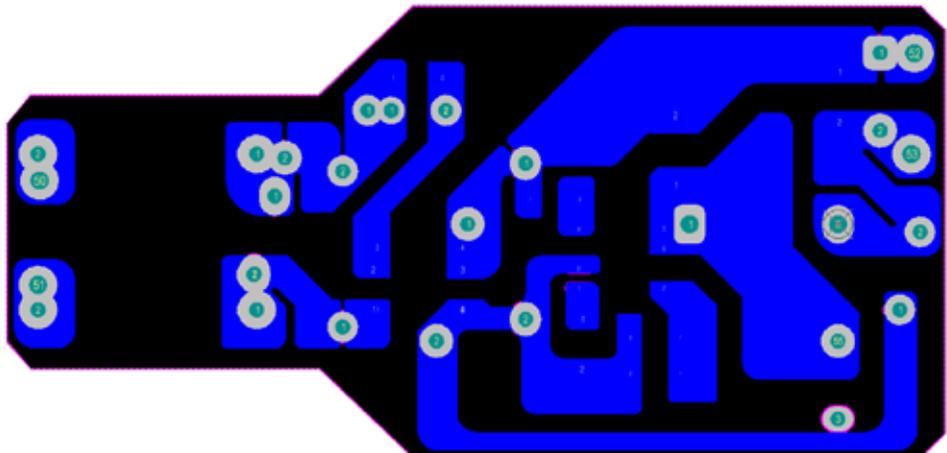
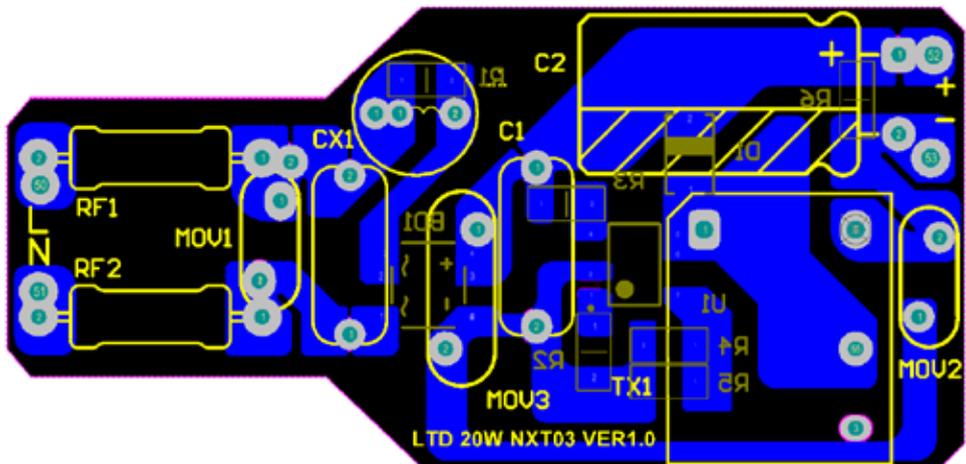
Graphical Representation



Inductor Details

12W TRANSFORMER DESIGN					
CORE EE13(2+2)					
WINDING	TURNS	PIN	WIRE GAUGE(SWG)	INDUCTANCE	
N1	168	1-4	34SWG	PRI INDUCTANCE (PIN 1-4) 1.4mH(+/-5%)	
		2 (DUMMY PIN)			

PCB layout



XT4102A2 12W THERMAL REPORT@25°C AMBIENT

SR NO.	TEST VOLTAGE (VAC)	TIME	IC TEMPERATURE	CORE TEMPERATURE
1	230	30MIN	83°C	77°C
2	230	50MIN	99°C	94°C
3	230	80MIN	105°C	99°C
4	230	120MIN	106°C	99°C

HV TEST REPORT

Measuring instrument :		Note : Should Pass 380V,30min test (Unless otherwise Specified)						
Project Name:	12W BULB							
Project Start Date :								
Measuring date :								
Checked By :	Ram Shinde	Pass						
Result :		Fail						
Product:	12W BULB 14LED 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				
Project name :		12W BULB					2. For Professional should Pass 4.0 KV				
Project Start Date :							3. For Outdoor should Pass 4.0 KV + SPD of 10/20KV				
Measuring date :											
Checked By :		Ram Shinde					Pass				
Result :		4KV PASS					Fail				
PRODUCT: 12W BULB 14LED NXT02 T15											
S.No.	SURGE VOLTAGE	COUPLING	ANGLE	POSITIV E/NEGA TIVE	NO. OF PULSE	INTERVAL(SEC)	Sample1	Sample2	Sample3	Sample4	Sample5
1	1KV	L-N Synchronous 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 Synchronous 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 Synchronous 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 Synchronous 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 Synchronous 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 Synchronous 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 Synchronous 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

