

CUSTOMER : _____

DATE : 2011. 1. 8

SPECIFICATIONS FOR APPROVAL

PRODUCT NAME : White LED Module

MODEL NAME : LNB56-10J401A

CUSTOMER P/N :

APPROVAL	REMARK

APPENDIX

Designed	Checked	Approved	LG Innotek Co., Ltd.	
			DOCUMENT No.	
강일영	최태영	홍성호	PAGE	01/21

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1. Features

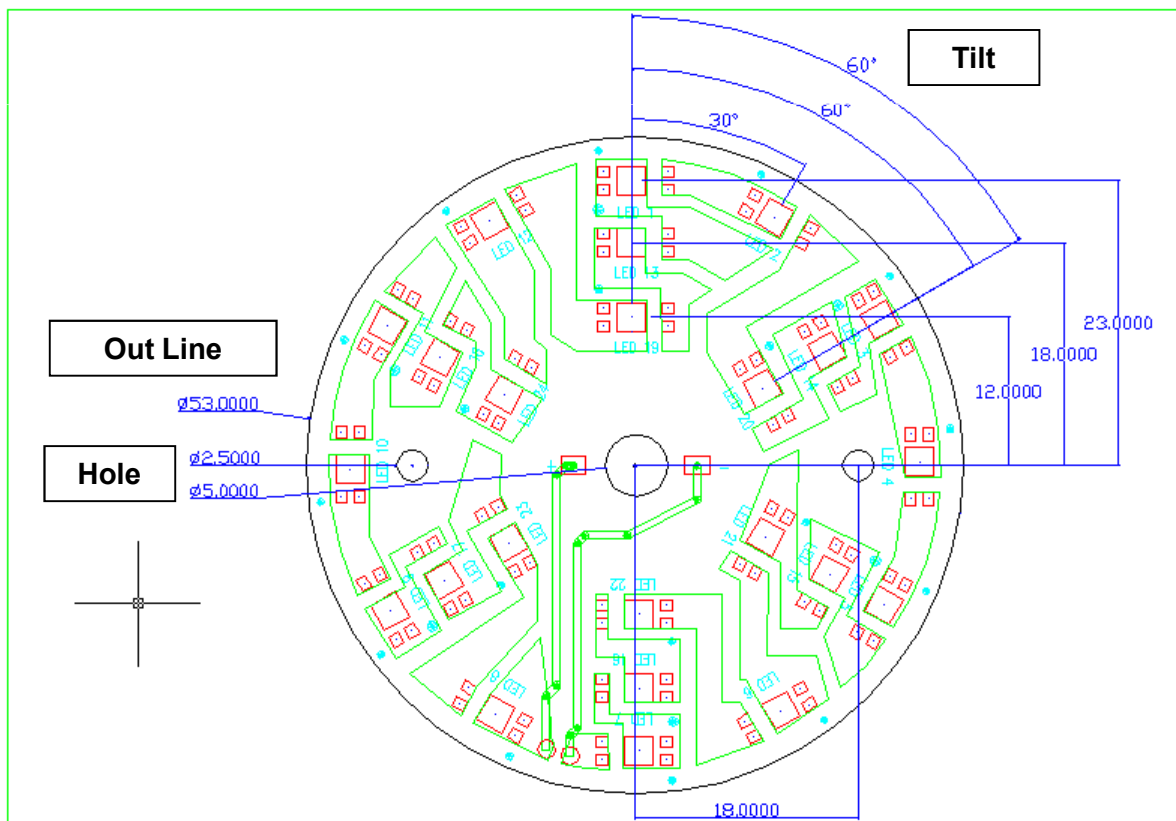
- White color LED module
- 1.0T Top View type LED array on MPCB (24 LEDs)
- High reflective coating is applied to improve light efficiency

2. Outline Dimensions and Part List

2-1. LED module dimensions

(Unit : mm)

- Size : $53\Phi \times 1.2T$
- PCB Material : MPCB
- PKG : 5630 PKG(LGIT)



2-2. Parts List

Item	P/N	Q'ty(ea)	Marker	UL Type	UL File No.	Remark
LED		24	LGIT	-		
MPCB		1	알파그린	HD		

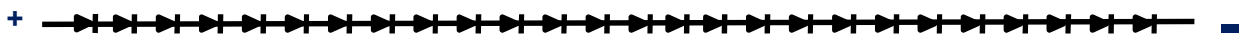
3. Applications

- Lighting source for A-Bulb (TK)

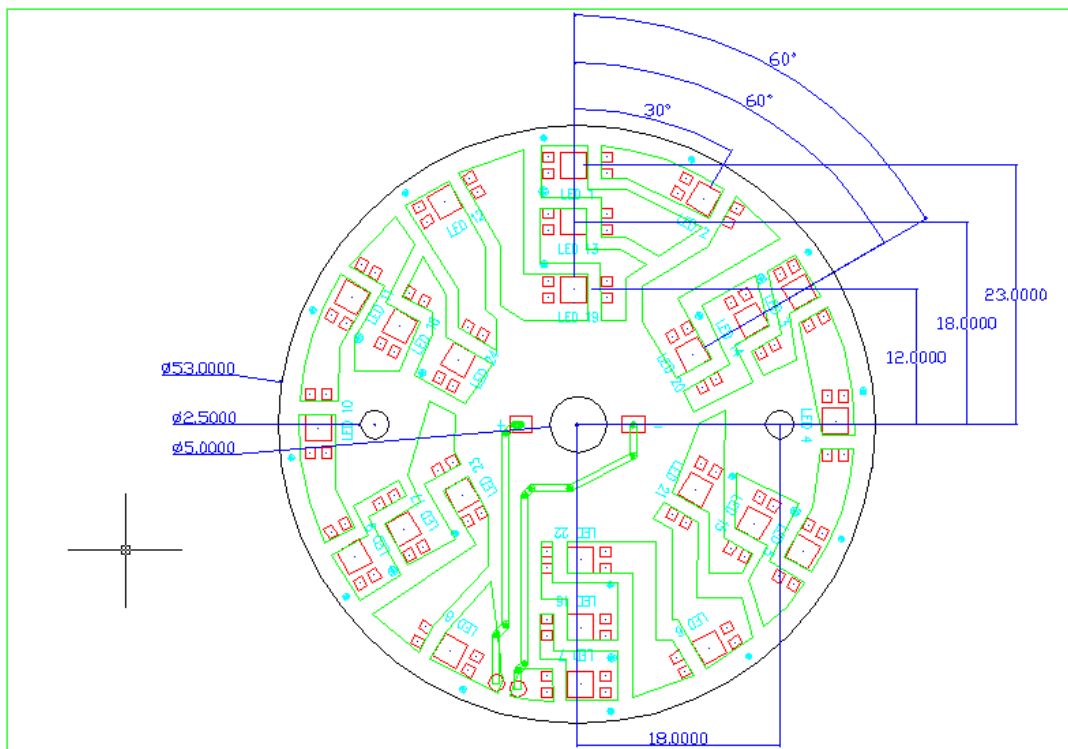
4. Schematic (Module circuit)

- 1 strings (24 LEDs per string)

- LED Array



- LED 도면



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5. Absolute Maximum Ratings

(Ta=25℃)

Items	Symbols	Ratings	Unit
Forward Current	I_F	160	(mA)
Operating Temperature	Topr	-30 ~ +85	(℃)
Storage Temperature	Tstg	-40 ~ +100	(℃)

6. Electro - Optical Characteristics

(Ta=25℃)

Items	Symbol	Condition	Min	Typ	Max	Unit
Module Current	I_F	-	-	130 ^{*1)}	-	mA
Module Voltage Drop ^{*2)}	V_F	$I_{FM}=Typ.$	72	-	79.2	V
Luminous Flux	Φ	$I_{FM}=Typ.$	820 ^{*3)}	-	-	lm
Color Temperature	CCT	$I_{FM}=Typ.$	5490	6000	6510	K
Color Rendering Index	Ra	$I_{FM}=Typ.$	70	-	-	-
Viewing Angle	2 Θ 1/2	$I_{FM}=Typ.$	-	120	-	Deg
Life Time ^{*4)}	-	$T_j \leq 70^\circ C$	15,000	-	-	Hour

※ These values are measured by the Integrating Sphere System of LG Innotek and tolerances are followings as the specifications of the measuring system (LMS 200-1, J&C Tech.)

※ Typ. $I_F=120[mA]$ ^{*1)} : This value is determined by the specific LED current (20mA per LED)

※ Module voltage drop ^{*2)} : Average value for each LED string (Vf Measurement allowance is $\pm 5\%$)
VF Range is 3.0~3.3V (Not sorted)

※ Min. Luminous Flux = 485[lm] ^{*3)} : This Value depends on the value of LED PKG's Iv rank
(Luminous flux Measurement allowance is $\pm 5\%$)

※ Life Time ^{*4)} : "Life Time" is defined as the luminous flux of LED module decrease to 50% initial value at $I_{FM}=Typ.$ (This is just estimated from test data in the LGIT test condition and not be guaranteed)

※ Color Coordinates Measurement allowance is ± 0.005

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7. Reliability Test Items and Conditions

7-1. The Reliability criteria of LED Module

Item	Symbol	Test Condition	Limit	
			Min.	Max.
Module Voltage Drop	V _{FM}	I _{FM} =Typ.		1.2X * U.S.L
Luminous Flux	L _X	I _{FM} =Typ.	0.7 X * S	—

*U.S.L : Upper Spec Limit, *L.S.L : Lower Spec Limit *S : Initial Value

* Voltage Drop *¹ : Each LED PKG is measured by a voltage meter

7-2. Results of Reliability Test

NO.	Test	Stress Condition	Stress Duration	SPL NO	Remark
1	Low Temperature Storage Life	Ta - 40℃	1000 Hrs	5	
2	High Temperature Storage Test	Ta 100℃	1000 Hrs	5	
3	Temp. & Humidity Storage Test	Ta 85℃, 85% RH	1000 Hrs	5	
4	High Temperature Operating Life	Ta 60℃ (130mA)	1000 Hrs	5	
5	Room Temperature Operating Life	Ta 25℃ (130mA)	1000 Hrs	5	
6	Low Temperature Storage Test	Ta - 30℃(130mA)	1000 Hrs	5	
7	Temp. & Humidity Operating Test	Ta 60℃, 90% RH (130mA)	1000 Hrs	5	
8	On / Off	On(10sec) / Off(10sec)	30K Cycles	5	
9	Thermal Shock	- 40℃(30min) 25℃(5min) 100℃(30min) min	100 cycles	5	
10	ESD, Human Body Mode	IEC 61000- 4- 2 HBM Contact 8kV / Air 15kV 3 times	3times	5	

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8. Cautions on use**8-1.Storage**

When storing this products for al long time (over one week)

- Store them in a dark place. Do not expose these product to sunlight
- Keep the temperature 5 °C ~ 35 °C at RH 60%.
- Do not open water-proof vinyl pack before this products are ready to assemble into BLU

During transportation and storage for a short time

- Keep the temperature under 100°C at normal humidity

8-2. *LG Innotek* will not be held responsible for any damage to the user that may result from accidents or any other reasons during operation of the user's unit if use to exceed the absolute maximum ratings, or not keep the matters that demand special attention.

8-3. Operation

Customer must apply constant current driver and heat sink.

9. Visual Inspection Standard

NO.	Inspection Item	Inspection Area	Judgment Criteria	Inspection Method
1	Soldering defective		- No soldering or Not melt - Soldering separate from electrode - Too much soldering to over PKG height → NG	SCOPE
2	Short		No short	SCOPE
3	Come-off		No come-off	SCOPE Magnifier
4	Tilt		$a : + 0.10/-0.2\text{mm}$	SCOPE
5	Solder Ball		- 1 Solder Ball < 100 μm - No short risk	SCOPE
6	SMT missing		No missing	SCOPE (naked eye)
7	SMT Upside Down		No upside down	SCOPE (naked eye)