

SPECIFICATION

MODEL : 5630 PKG

Part no. : **LMLTP5621C4K1Z060-C80 (CCT - 4100 kelvin)**
LMLTP5621C3K6Z060-C80 (CCT - 3600 kelvin)

Customer Approval		Model	LMLTP5621CWHZ060-C80	
		Issued Date	2014 - 05 - 16	
Checked By	Approved By	Description	SMD Type LED	
		Written By	Checked By	Approved by

Contact Point
 Tel: 82-31-213-9200
 Fax: 82-31-213-9210
 Homepage: www.Lumimicro.com

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1. Description

1) Feature

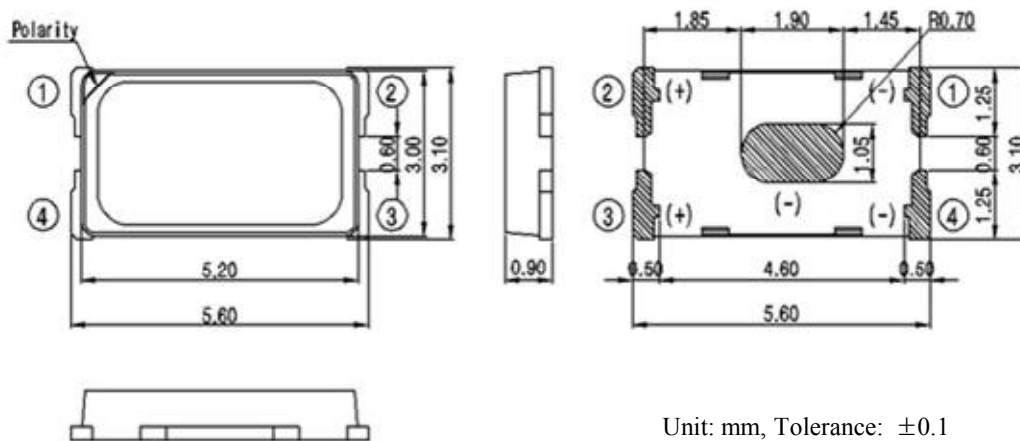
- . Built-in One Chip LED
- . Wide viewing angle : 120°
- . External dimensions: 5.6 x 3.0 x 0.9 mm
- . Lead frame package with individual 2 pin

2) Part No

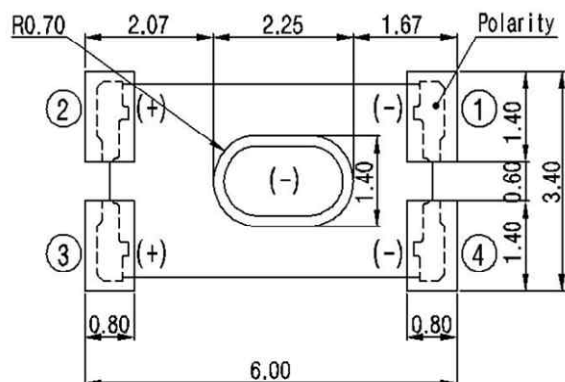
Part No : LMLTP561C5K0Z060-C80

LUMIMICRO LED Part No. Explanation	
LM	: LUMIMICRO.Ltd
L	: Lumimicro.Ltd C.I.E. Standard
TP	: Top View LED(SMD Type)
562	: Package Size (5.6*3.0*0.9T Rev 02)
1	: Chip Quantity
C	: Polarity (A : Anode / C : Cathode)
5K0	: 5,000K White Color
Z	: Built in Zener (X : NO ZENER / Z : ZENER)
060	: Forward Current 60mA
C80	: CRI Min. 80

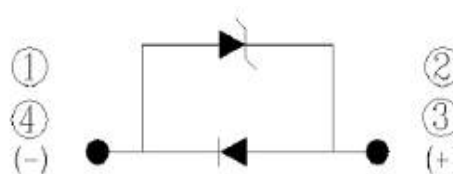
3) Outline Dimensions



4) Recommend Solder Pattern



5) LED Circuit Diagram



2. Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Forward Current	I_F	150	mA
Power Dissipation	P_D	500	W
Storage Temperature	T_{stg}	-40 ~ +100	°C
Operating Temperature	T_{opr}	-30 ~ +85	°C
Soldering Temperature	T_{sld}	260 (for 10 sec)	°C
Junction Temperature	T_j	120	°C

3. Characteristics

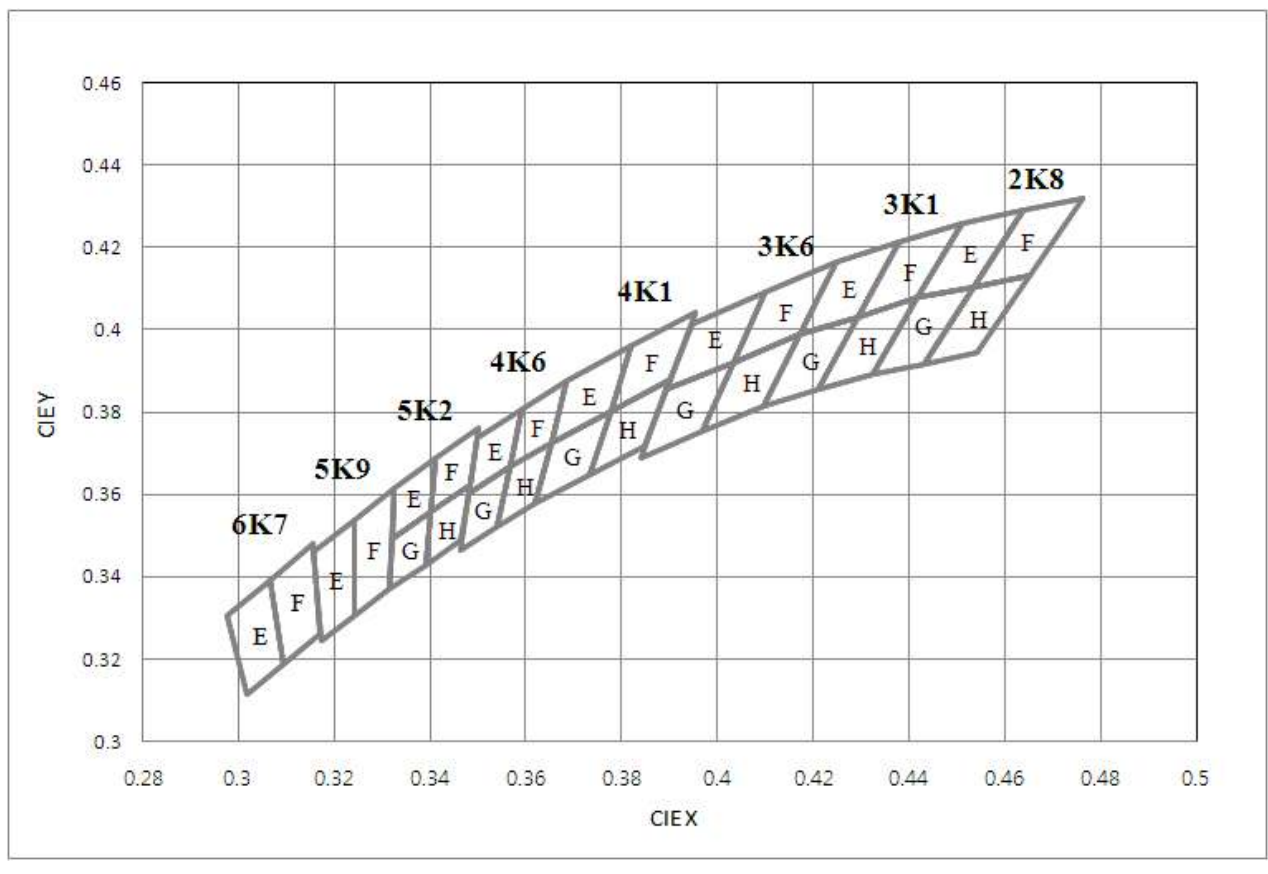
1) Electro / Optical Characteristics

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	V_F	$I_F=60\text{mA}$	2.8		3.2	V
Reverse Voltage	I_R	$V_R = 5\text{V}$	-	-	10	μA
Luminous Intensity	I_v	$I_F=60\text{mA}$	7.5			cd
Color Correlated Temperature	CCT	$I_F=60\text{mA}$	2800		6700	K
Color Rendering Index	Ra	$I_F=60\text{mA}$	80	-	-	-
Viewing Angle	$2\theta_{1/2}$	$I_F=60\text{mA}$		120		deg.
ESD		1.5k Ω , 100pF	5	-	-	KV
Thermal Resistance ^[1]	$R_{th(J-S)}$	$I_F=60\text{mA}$		-	30	°C/W

[1] Thermal Resistance : Rth(Junction - Solder)

* Tolerance : $V_F=\pm 0.1\text{V}$, $I_v=\pm 5\%$, $Ra=\pm 2$, Chromaticity Coordinate : ± 0.005

2) Color Coordinates Rank



6K7E		6K7F		5K9E		5K9F	
X	Y	X	Y	X	Y	X	Y
0.2978	0.3304	0.3066	0.3392	0.3157	0.3462	0.3241	0.3539
0.3066	0.3392	0.3155	0.3481	0.3241	0.3539	0.3326	0.3616
0.3094	0.3187	0.3171	0.3261	0.3244	0.3306	0.3316	0.3369
0.3018	0.3113	0.3094	0.3187	0.3172	0.3243	0.3244	0.3306

5K2E		5K2F		5K2G		5K2H	
X	Y	X	Y	X	Y	X	Y
0.3413	0.3688	0.3501	0.376	0.3402	0.3558	0.3483	0.3623
0.3326	0.3616	0.3413	0.3688	0.3321	0.3492	0.3402	0.3558
0.3321	0.3493	0.3402	0.3558	0.3316	0.3369	0.3391	0.3428
0.3402	0.3558	0.3483	0.3623	0.3391	0.3428	0.3465	0.3487

4K6E		4K6F		4K6G		4K6H	
X	Y	X	Y	X	Y	X	Y
0.3498	0.3736	0.3592	0.3805	0.348	0.3601	0.3568	0.3666
0.3592	0.3805	0.3686	0.3874	0.3568	0.3666	0.3655	0.3726
0.3568	0.3666	0.3655	0.3726	0.3541	0.3521	0.362	0.3578
0.348	0.3601	0.3568	0.3666	0.3462	0.3465	0.3541	0.3521

4K1E		4K1F		4K1G		4K1H	
X	Y	X	Y	X	Y	X	Y
0.3653	0.3726	0.3777	0.3801	0.362	0.3578	0.3734	0.3647
0.3686	0.3874	0.3821	0.396	0.3653	0.3726	0.3777	0.3801
0.3821	0.396	0.3956	0.4044	0.3777	0.3801	0.3902	0.388
0.3777	0.3801	0.3902	0.388	0.3734	0.3647	0.3848	0.3716

3K6E		3K6F		3K6G		3K6H	
X	Y	X	Y	X	Y	X	Y
0.3946	0.4015	0.4098	0.409	0.3892	0.3853	0.4033	0.3921
0.4098	0.409	0.4249	0.4165	0.4033	0.3921	0.4173	0.399
0.4033	0.3921	0.4173	0.399	0.3968	0.3752	0.4097	0.3814
0.3892	0.3853	0.4033	0.3921	0.3839	0.369	0.3968	0.3752

3K1E		3K1F		3K1G		3K1H	
X	Y	X	Y	X	Y	X	Y
0.4294	0.4031	0.4418	0.4077	0.421	0.3854	0.4323	0.3893
0.4381	0.4213	0.4512	0.426	0.4294	0.4031	0.4418	0.4077
0.4249	0.4165	0.4381	0.4213	0.4173	0.399	0.4294	0.4031
0.4173	0.399	0.4294	0.4031	0.4097	0.3814	0.421	0.3854

2K8E		2K8F		2K8G		2K8H	
X	Y	X	Y	X	Y	X	Y
0.4417	0.4077	0.4535	0.4104	0.4323	0.3893	0.4433	0.3918
0.4512	0.426	0.4638	0.429	0.4417	0.4077	0.4535	0.4104
0.4638	0.429	0.4763	0.4319	0.4535	0.4104	0.4653	0.4132
0.4535	0.4104	0.4653	0.4132	0.4433	0.3918	0.4543	0.3944

3) VF Rank

Rank	MIN.	MAX.	Unit
2V9	2.8	2.9	[V] @60mA
3V0	2.9	3.0	
3V1	3.0	3.1	
3V2	3.1	3.2	

4) CRI Rank

Symbol	MIN.	MAX.
Ra	80	–

5) Luminous Intensity Rank

Rank	Iv		Flux	Unit
	MIN.	MAX.	Typ.	
1L7A	7.0	7.5	21.8	cd, lm @60mA
1L7B	7.5	8.0	23.3	
1L8A	8.0	8.5	24.8	
1L8B	8.5	9.0	26.3	
1L9A	9.0	9.5	27.8	
1L9B	9.5	10.0	29.3	

* Luminous Flux : Only reference data.

6) RANK[Bin] Description

RANK Name		
CCT Rank	Iv Rank	VF Rank
5K2F-	1L8B-	3V0

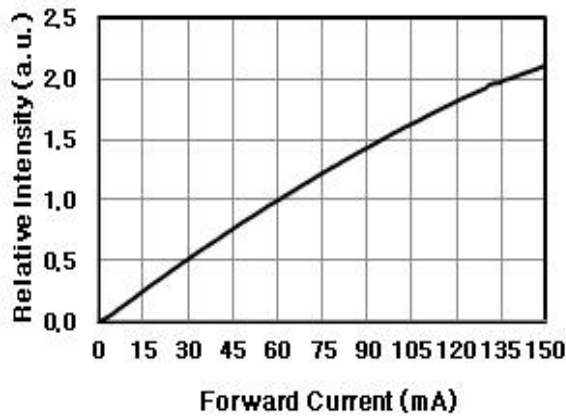
4. Luminous Flux Characteristics (Ta=25 °C)

CCT	Flux [lm]	If [mA]	Vf[V]	Power [W]	Effi. [lm/w]
3100K	20.0	50	2.87	0.14	139.2
	23.6	60 (typ.)	2.91	0.18	135.0
	25.3	65	2.93	0.19	132.8
	30.3	80	2.98	0.24	127.0
	37.6	100	3.07	0.31	122.4
	51.0	150	3.21	0.48	106.2
5200K	22.7	50	2.87	0.14	158.1
	26.8	60 (typ.)	2.91	0.17	153.5
	28.8	65	2.93	0.19	151.1
	34.6	80	2.98	0.24	144.9
	42.7	100	3.07	0.31	139.1
	58.9	150	3.21	0.48	122.4
5900K	22.5	50	2.87	0.14	156.4
	26.6	60 (typ.)	2.91	0.17	152.1
	28.5	65	2.93	0.19	149.8
	34.2	80	2.98	0.24	143.5
	42.2	100	3.07	0.31	137.6
	58.4	150	3.21	0.48	121.2

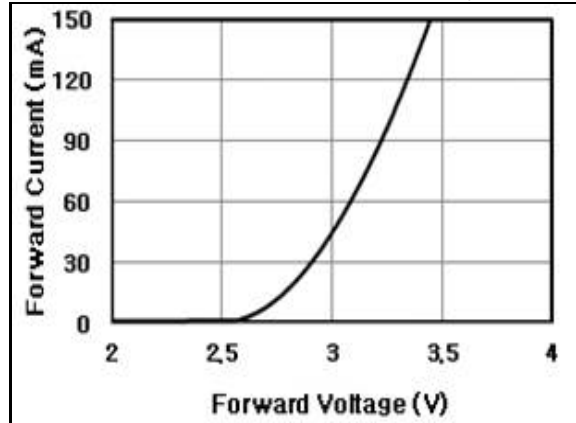
*Luminous Flux values are representative reference only.

5. Typical Characteristics

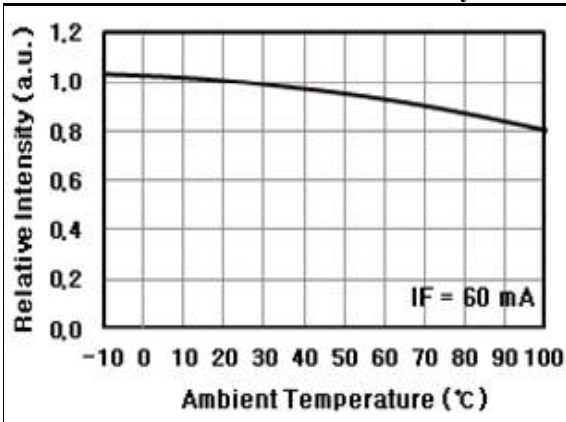
► **Forward Voltage vs. Forward Current**



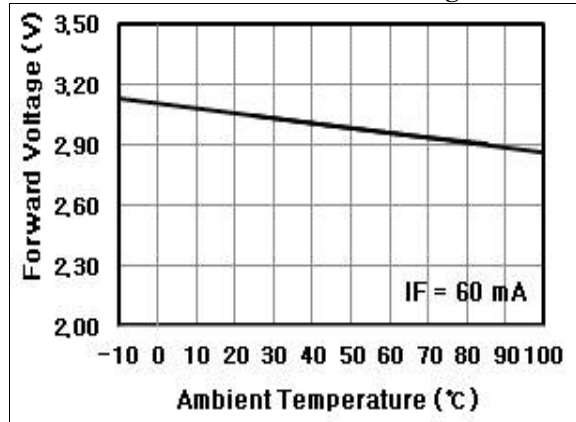
► **Forward Current vs. Relative Luminous Intensity**



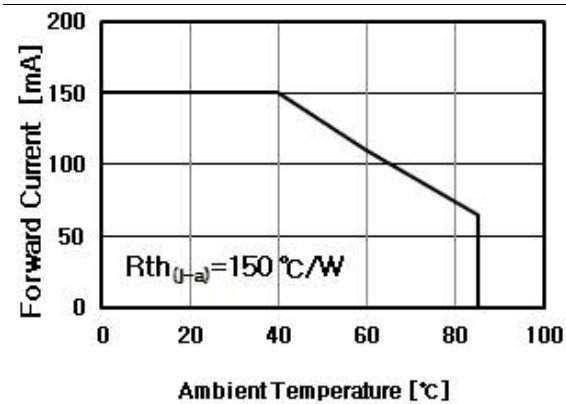
► **Ambient Temperature vs. Relative Luminous Intensity**



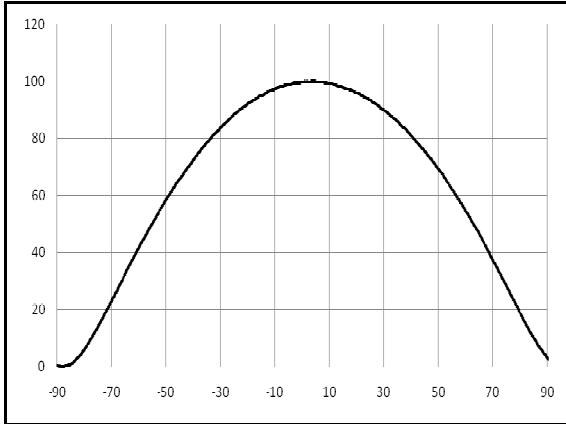
► **Ambient Temperature vs. Forward Voltage**



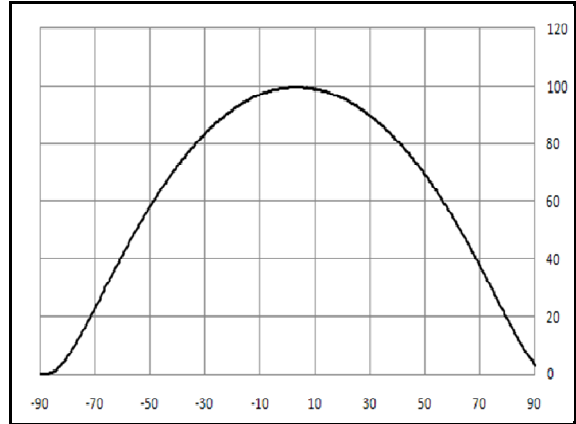
► **Ambient Temperature vs. Maximum Forward Current**



► Viewing Angle[X-X']



► Viewing Angle[Y-Y']



6. Reliability Test Items & Conditions

► Test Item

No	ITEMS	CONDITION	NOTE	Fail /Sample
1	RESISTANCE TO SOLDERING HEAT (REFLOW SOLDERING)	TSID=260℃, 10sec (PRE TREATMENT 30℃, 70%, 168hr)	2TIMES	0/30
2	THERMAL SHOCK	-20℃ ~ 100℃, 15min AT EACH TEMP.	100CYCLES	0/30
3	MOISTURE RESISTANCE CYCLE	25℃ ~ 65℃ ~ -10℃, 90%RH 24hr / 1cycle	500HRS	0/30
4	HIGH TEMPERATURE STORAGE	Ta = 100℃	500HRS	0/30
5	TEMPERATURE HUMIDITY STORAGE	Ta = 60℃, RH = 90%	1,000HRS	0/30
6	LOW TEMPERATURE STORAGE	Ta = -40℃	1,000HRS	0/30
7	ROOM TEMPERATURE LIFE TEST	Ta = 25℃, IF=60mA/chip each*	1,000HRS	0/30
8	HIGH TEMPERATURE HUMIDITY LIFE TEST	60℃, RH=90%, IF=60mA/chip each*	500HRS	0/30
9	LOW TEMPERATURE LIFE TEST	Ta = -30℃, IF=60mA/chip each*	1,000HRS	0/30
10	HIGH TEMPERATURE LIFE TEST	Ta = 85℃, IF=60mA/chip each*	500HRS	0/30

*) ; Tested with LUMIMICRO standard circuit board

► Failure Criteria

ITEM	SYMBOL	Failure Criteria	
		MIN	MAX
Forward Voltage	VF	-	U.S.L*)×1.1
C.I.E. x, y	x, y	L.S.L*)×0.8	U.S.L*)×1.2
Luminous Intensity	IV	L.S.L*)×0.7	-

U.S.L*) ; Upper Standard Level

L.S.L*) ; Lower Standard Level

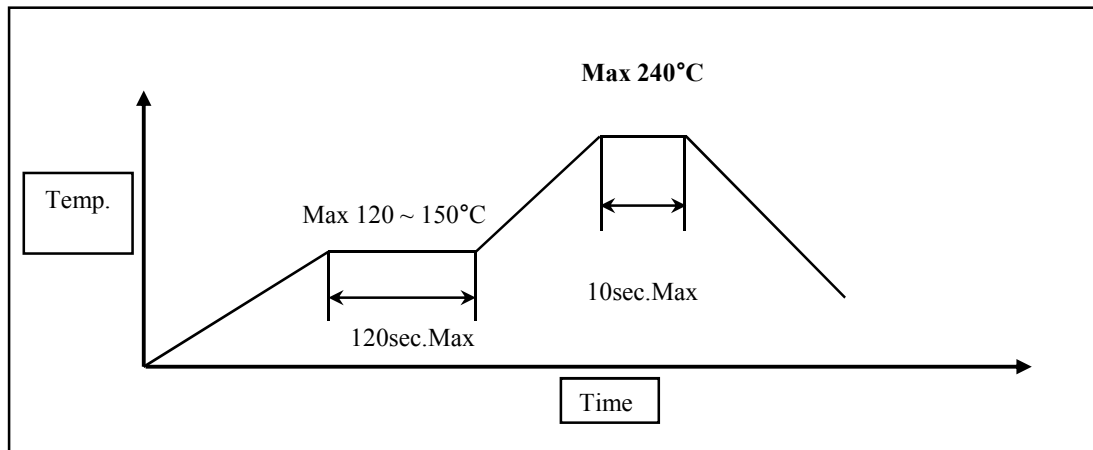
7. Soldering conditions

1) Reflow Conditions (With Pb)

Preliminary heating to be at 150°C max. for 2 minutes max.

Soldering heat to be at 240°C max. for 10 seconds max.

Recommended Solder Paste : Alloy- 63Sn/37Pb Model: OL107B,

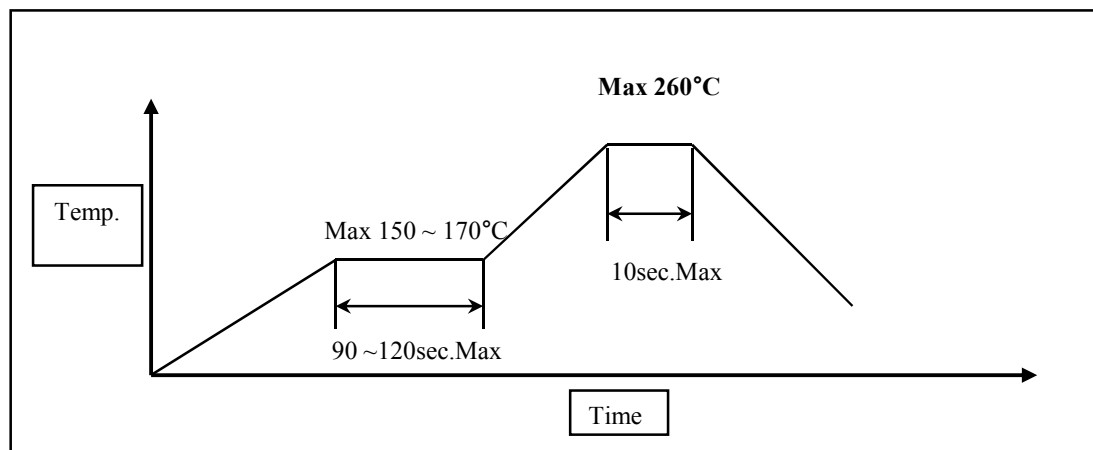


2) Pb free Reflow Conditions

Preliminary heating to be at 170°C max. for 2 minutes max.

Soldering heat to be at 260°C max. for 10 seconds max.

Recommended Pb free Paste Alloy: 96.5Sn/3Ag/0.5Cu. - Model: OL204

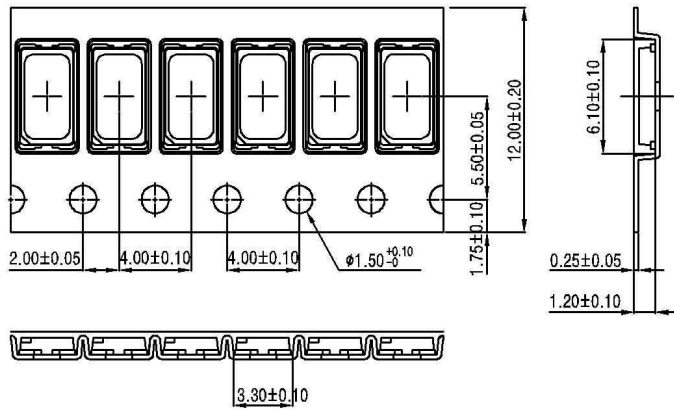


3) For Manual Soldering

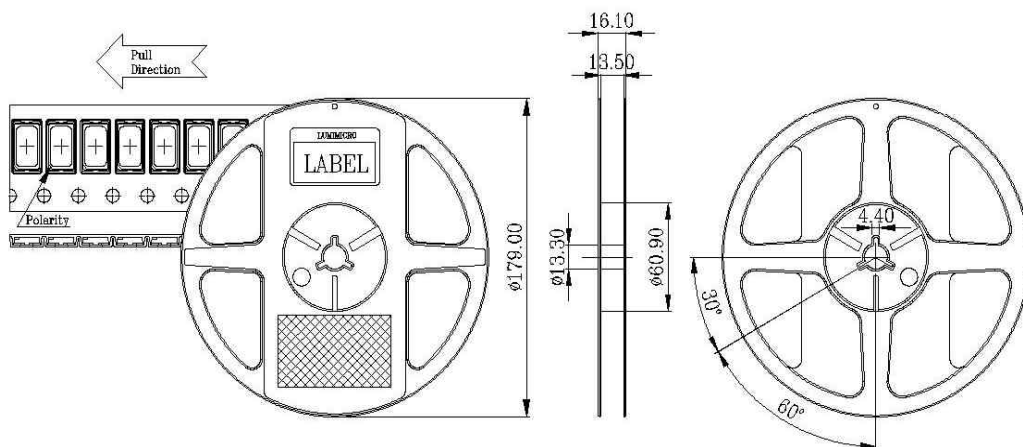
Not more than 5seconds @MAX300°C, under soldering iron

8. Packing

1) Taping pocket Dimension

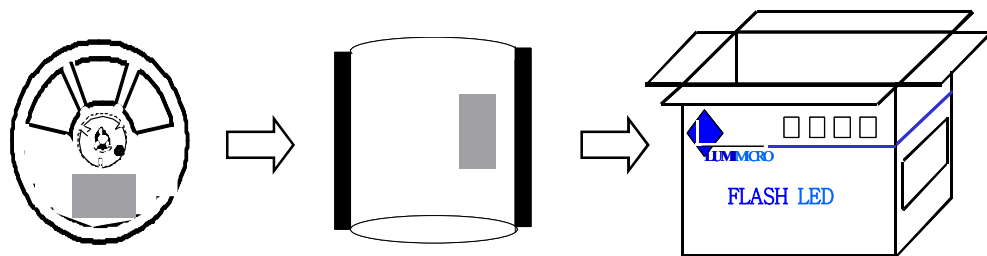


2) Reel Dimensions



One Reel	Unit	Tolerance
Max 3,500 EA	mm	0.1

3) Packing Spec



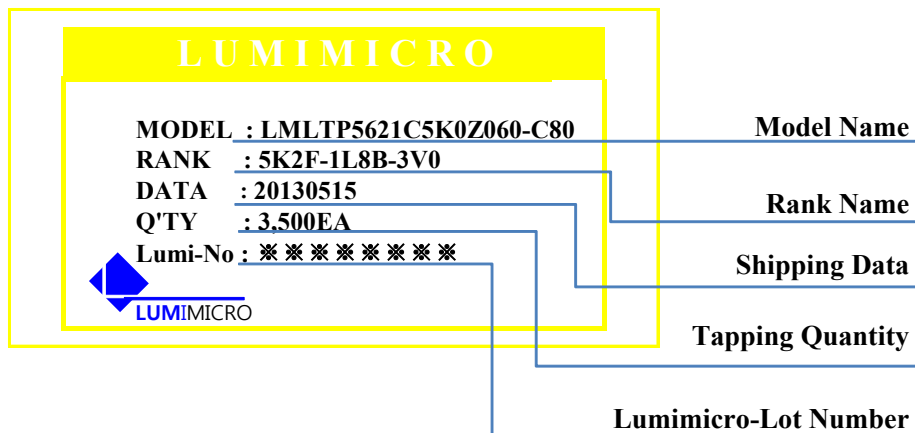
. Aluminum Bag

	Reel in a Bag	Silica in a Bag	Goods QNT in a Bag
Aluminum Bag	1 Reel	1 Silica, 1 Indicator	Max : 3,500ea

. Box Spec

Dimensions(Width/Thickness)	Reels in Box	Goods in QNT in Box
275/ 285/ 200[mm]	10	Max : 35,000ea

4) Label Spec



9. Precaution For Use

This device should not be used in any type of fluid such as water, oil, organic solvent, etc

When washing is required, IPA should be used. .

When the LEDs are illuminating, operating current should be decided after considering the ambient maximum temperature.

LEDs must be stored to maintain a clean atmosphere. If the LEDs are stored for 3months or more after being shipped from LUMIMICRO, sealed container with a nitrogen atmosphere should be used for storage.

The LEDs must be dip soldered within Two days after opening the moisture-proof packing.

Repack unused Products with anti-moisture packing, fold to close any opening and then store in dry place. The appearance and specifications of the product may be modified for improvement without notice. These LEDs are sensitive to the static electricity and surge. It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs. If Over voltage which exceeds the absolute maximum rating is applied to LEDs, it will cause damage in LEDs and result in destruction. Damaged LEDs will show some unusual characteristics such as remarkably increased leak current, turn-on voltage becomes lower and the LEDs get unlighted at low current.



10. Hazard Substance Analysis


CTK Co., Ltd.

CTK Co., Ltd.

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 Seongnam-si, Gyeonggi-do, Korea, 463-760
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Test Report

Applicant Name :	LUMIMICRO
Address :	64-1, Bongmu-ri, Namsa-myeon, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea
Test Report No. :	CTK1211-RS-002306
Date of Issue :	December 10, 2012
Sample Name :	LED (5630 Type)
Sample Received :	November 26, 2012
Test Performing Date :	December 10, 2012
Test Performed :	CTK Co., Ltd. tested the sample and item(s) which were selected by applicant with following result.
Test Results :	Refer to following page.
Tested by	 <hr/> Ho Jung Kim
Reviewed by	 <hr/> Moon-Hee Park / Lab. Manager

Test Report No. : CTK1211-RS-002306

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Date of Issue : December 10, 2012

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CTK Co., Ltd.

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1. TEST RESULTS

1) LED (5630 Type)

Heavy Metals					
Test Item	Unit	Test Results	MDL	Test Methods	
Pb	mg/kg	N.D	5.0	IEC 62321	
Cd		N.D	0.5		
Hg		N.D	1.0		
Cr ⁶⁺		N.D	0.2		
Flame Retardants					
Test Item		Unit	Test Results	MDL	Test Methods
PBBs	Bromobiphenyl	mg/kg	N.D	20.0	IEC 62321
	Dibromobiphenyl		N.D	20.0	
	Tribromobiphenyl		N.D	20.0	
	Tetrabromobiphenyl		N.D	20.0	
	Pentabromobiphenyl		N.D	20.0	
	Hexabromobiphenyl		N.D	20.0	
	Heptabromobiphenyl		N.D	20.0	
	Octabromobiphenyl		N.D	20.0	
	Nonabromobiphenyl		N.D	20.0	
	Decabromobiphenyl		N.D	50.0	
PBDEs	Bromodiphenyl ether	mg/kg	N.D	20.0	IEC 62321
	Dibromodiphenyl ether		N.D	20.0	
	Tribromodiphenyl ether		N.D	20.0	
	Tetrabromodiphenyl ether		N.D	20.0	
	Pentabromodiphenyl ether		N.D	20.0	
	Hexabromodiphenyl ether		N.D	20.0	
	Heptabromodiphenyl ether		N.D	20.0	
	Octabromodiphenyl ether		N.D	20.0	
	Nonabromodiphenyl ether		N.D	20.0	
	Decabromodiphenyl ether		N.D	50.0	

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- LED (5630 Type)

Halogen contents				
Test Item	Unit	Test Results	MDL	Test Methods
Fluorine (F)	mg/kg	N.D	50.0	EN 14562
Chlorine (Cl)		N.D	50.0	
Bromine (Br)		N.D	50.0	
Iodine (I)		N.D	50.0	

Others				
Test Item	Unit	Test Results	MDL	Test Methods
Perfluorooctanesulfonate (PFOS) [CAS No. : 1763-23-1]	mg/kg	N.D	1.0	In-House method_ LC/MS/MS

* MDL : Method Detection limit, N.D : Not Detected, N.A : Not Applicable

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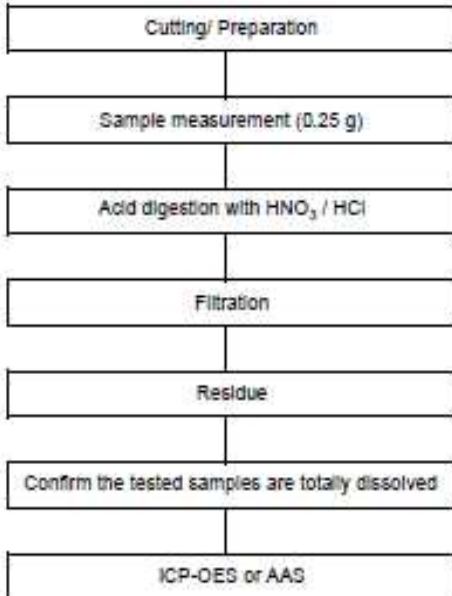
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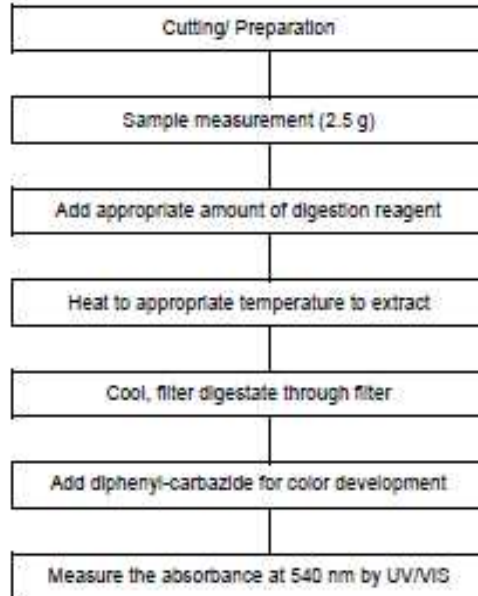
CTK Co., Ltd.
 C-204, Bundang Technopark, 145, Yatap-dong, Bundang-gu,
 Seongnam-si, Gyeonggi-do, Korea, 463-760
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2. Flow Chart

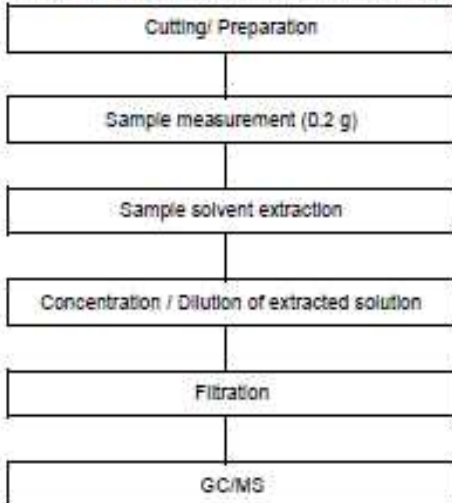
Digestion for material_IEC 62321 for Pb, Cd, Hg



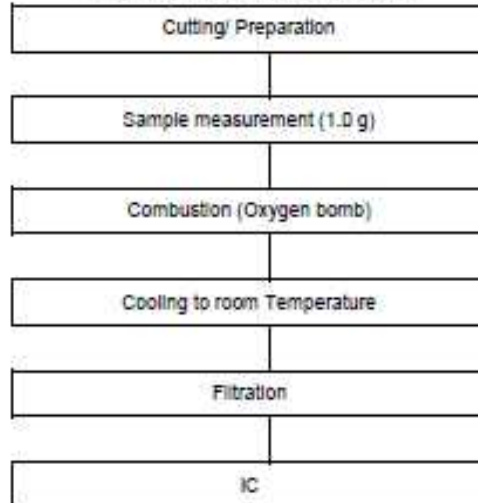
Extraction for polymer_IEC 62321 for Cr⁶⁺



Extraction for polymer_IEC 62321 for PBBs, PBDEs



Oxygen bomb for halogen_EN 14582



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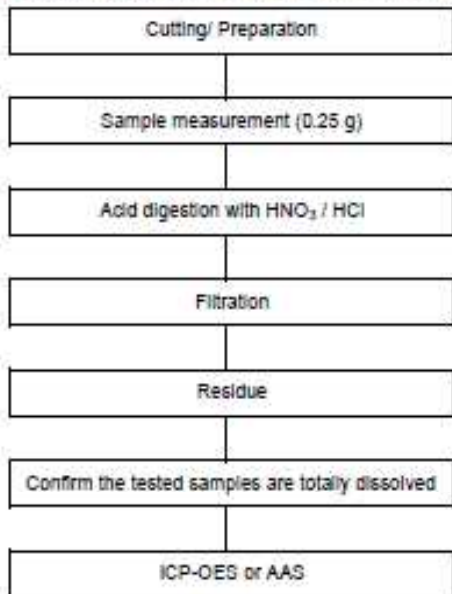
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Extraction for polymer_In-House method for PFOS



- End of Report -

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