

Lumichip's Aurorics series 5630 LED devices are available both as single and multi epi die packaging. Due to the package design, the LED has a wide viewing angle, high luminous flux output and low operation temperature, LC5630 is the right choice for general lighting applications wherein wide viewing angle and diffuse light source is preferred. The package also provides excellent thermal performance.

Features

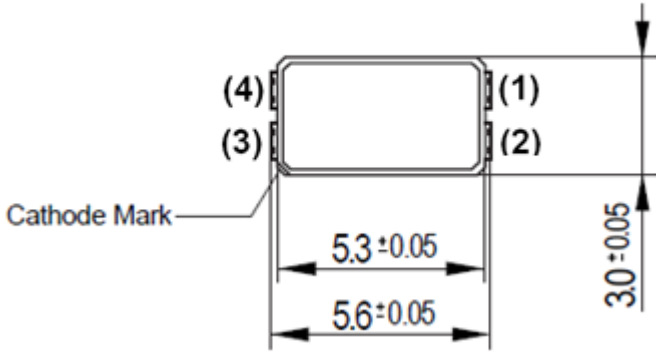
- 5.6mm × 3.0mm × 0.77mm standard package.
- Compatible with vapor phase reflow solder process.
- Suitable for all SMT assembly methods.
- Single epi chip LED device.
- RoHS compliant.

Applications

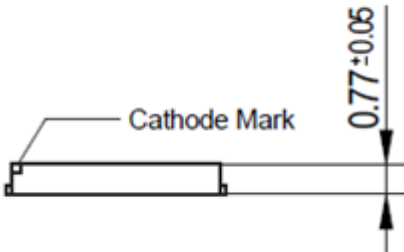
- General lighting.
- Automotive.
- High lumen intensity signage.
- General indoor and outdoor illumination.
- Industrial lighting.

Package dimensions

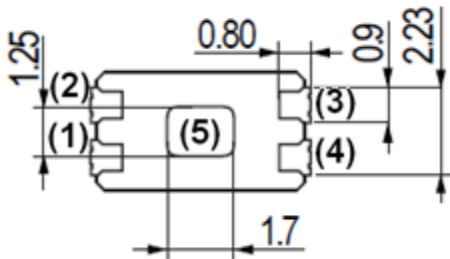
Top View (5:1)



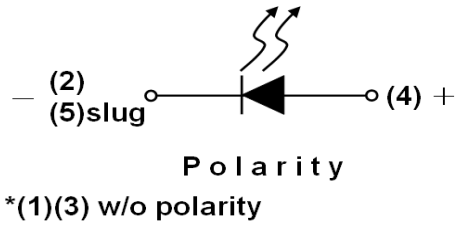
Side View



Bottom View (5:1)



Input Power :120mA



Note:

- A. All dimensions are in millimeters.
Tolerance is ±0.1mm unless otherwise noted.

Product Code

Product Code	Resin Color	Material	Emitted Color	Substrate Type
LC-5630CWPN-G1X	Water Clear	InGaN	Cool White	PLCC
LC-5630NWPN-G1X	Water Clear	InGaN	Nature White	PLCC
LC-5630WWPN-G1X	Water Clear	InGaN	Warm White	PLCC

Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	Iv	29	-	44	lm	If = 120mA
Viewing Angle	2θ1/2	-	120	-	deg	
Color Temperature	CCT	2670	-	6300	K	
Forward Voltage	VF	2.9	-	3.5	V	
Color Rendering Index	CRI	-	80		Ra	
Reverse Current	Ir	-	-	50	μA	VR= 5V

Absolute Maximum Ratings(Ta=25°C/120mA current)

Parameter	Rating	Unit
Power Dissipation	420	mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	150	mA
Continuous Forward Current	250	mA
Reverse Voltage	5	V
Operating Temperature Range	-30°C ~+ 85°C	
Storage Temperature Range	-40°C ~+ 100°C	
Wave Soldering Condition	260°C For 10 Seconds	

Bin Range of Luminous Intensity

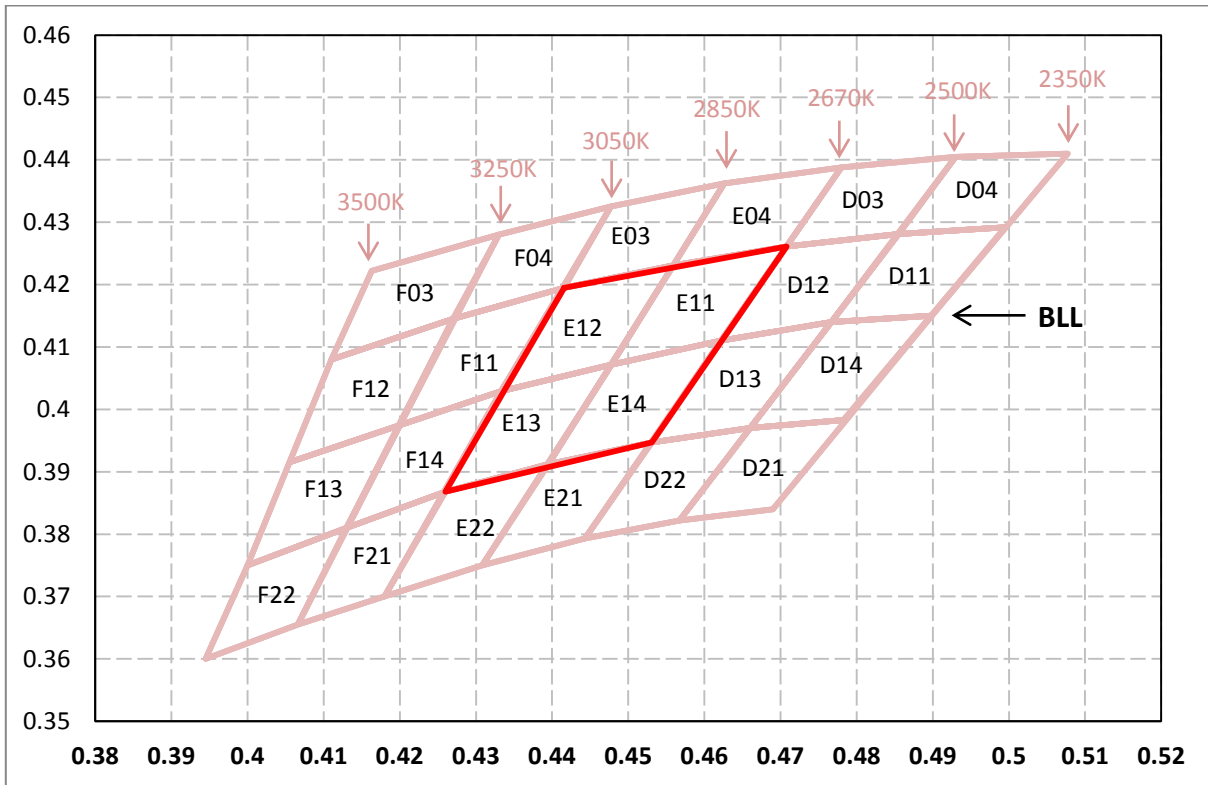
Bin Code	Min.	Max.	Unit	Condition
J12	29.0	31.0	Lumen	If = 120mA
J21	31.0	33.0		
J22	33.0	35.0		
K11	35.0	38.0		
K12	38.0	41.0		
K21	41.0	44.0		

Bin Range of Forward Voltage

Bin Code	Min.	Max.	Unit	Condition
E0	2.90	3.00	V	IF = 120mA
E1	3.00	3.10		
E2	3.10	3.20		
E3	3.20	3.30		
E4	3.30	3.40		
E5	3.40	3.50		

The C.I.E 1931 Chromaticity Diagram

Warm White



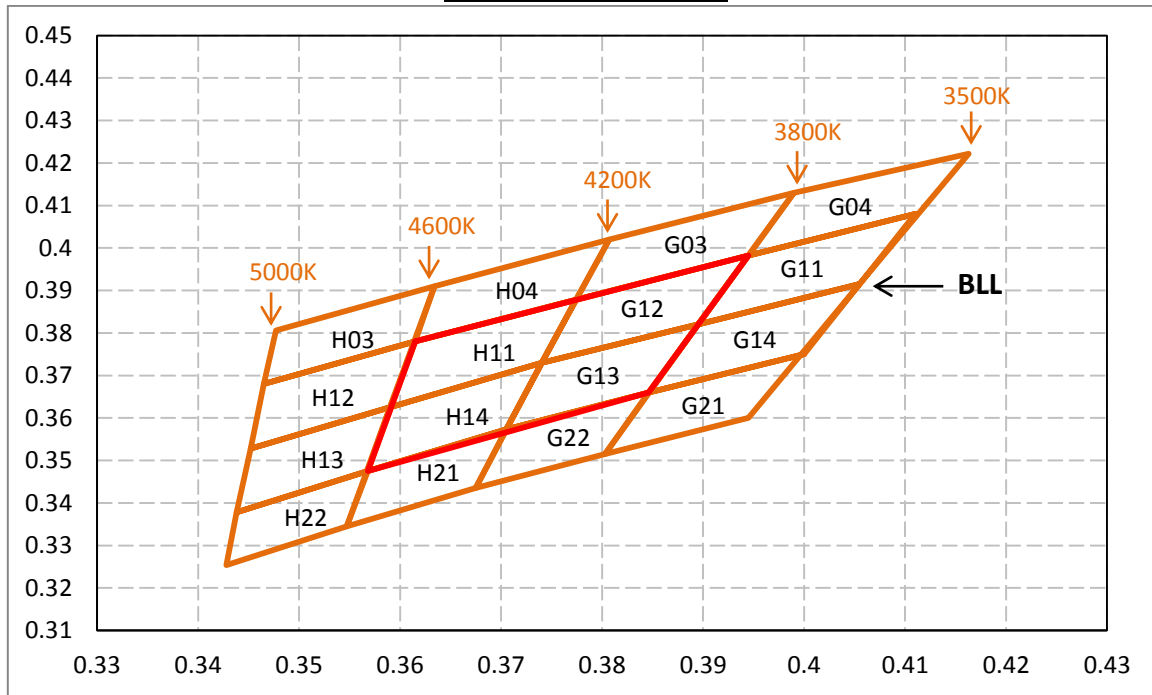
Bin Range of Chromaticity Coordinates

Warm White

	CIE-X	CIE-Y		CIE-X	CIE-Y		CIE-X	CIE-Y
F22	0.413	0.381	E22	0.4395	0.3912	D22	0.466	0.397
	0.4	0.375		0.426	0.3868		0.4531	0.3947
	0.3945	0.36		0.418	0.37		0.4443	0.3793
	0.4066	0.3655		0.4308	0.375		0.4567	0.3822
F13	0.42	0.3975	E13	0.4478	0.4072	D13	0.4767	0.414
	0.4055	0.3915		0.4333	0.4029		0.4622	0.411
	0.4	0.375		0.426	0.3868		0.4531	0.3947
	0.413	0.381		0.4395	0.3912		0.466	0.397
F12	0.427	0.4145	E12	0.4559	0.4231	D12	0.4855	0.4281
	0.411	0.408		0.4416	0.4195		0.4708	0.4261
	0.4055	0.3915		0.4333	0.4029		0.4622	0.411
	0.42	0.3975		0.4478	0.4072		0.4767	0.414
F03	0.433	0.428	E03	0.4626	0.4362	D03	0.493	0.4405
	0.4163	0.4222		0.4477	0.4325		0.478	0.4388
	0.411	0.408		0.4416	0.4195		0.4708	0.4261
	0.427	0.4145		0.4559	0.4231		0.4855	0.4281
F21	0.426	0.3868	E21	0.4531	0.3947	D21	0.4783	0.3983
	0.413	0.381		0.4395	0.3912		0.466	0.397
	0.4066	0.3655		0.4308	0.375		0.4567	0.3822
	0.418	0.37		0.4443	0.3793		0.469	0.384
F14	0.4333	0.4029	E14	0.4622	0.411	D14	0.4899	0.415
	0.42	0.3975		0.4478	0.4072		0.4767	0.414
	0.413	0.381		0.4395	0.3912		0.466	0.397
	0.426	0.3868		0.4531	0.3947		0.4783	0.3983
F11	0.4416	0.4195	E11	0.4708	0.4261	D11	0.4995	0.4292
	0.427	0.4145		0.4559	0.4231		0.4855	0.4281
	0.42	0.3975		0.4478	0.4072		0.4767	0.414
	0.4333	0.4029		0.4622	0.411		0.4899	0.415
F04	0.4477	0.4325	E04	0.478	0.4388	D04	0.5077	0.441
	0.433	0.428		0.4626	0.4362		0.493	0.4405
	0.427	0.4145		0.4559	0.4231		0.4855	0.4281
	0.4416	0.4195		0.4708	0.4261		0.4995	0.4292

The C.I.E 1931 Chromaticity Diagram

Neutral White



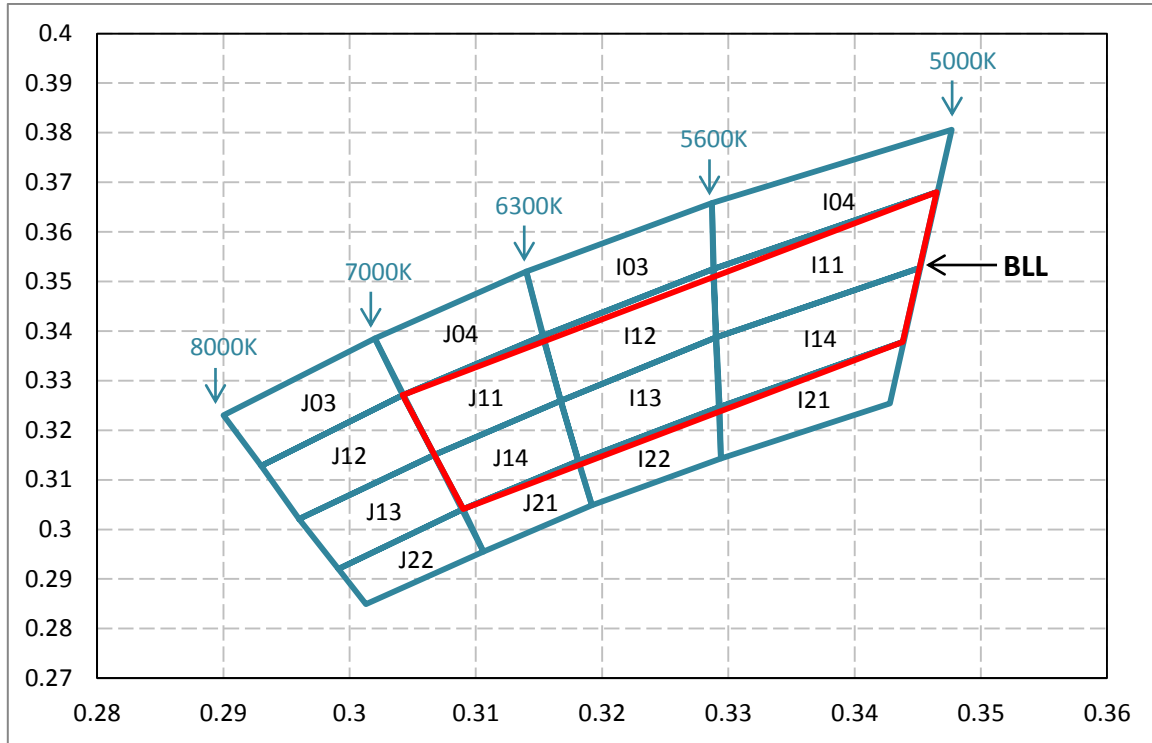
Bin Range of Chromaticity Coordinates

Neutral White

	CIE-X	CIE-Y		CIE-X	CIE-Y		CIE-X	CIE-Y		CIE-X	CIE-Y		
H22	0.3568	0.3475	H21	0.3705	0.3573	G22	0.3846	0.366	G21	0.4	0.375		
	0.3438	0.3378		0.3568	0.3475		0.3705	0.3573		0.3846	0.366	0.3846	0.366
	0.3428	0.3254		0.3547	0.3345		0.3675	0.3435		0.3803	0.3515	0.3803	0.3515
	0.3547	0.3345		0.3675	0.3435		0.3803	0.3515		0.3945	0.36	0.3945	0.36
H13	0.359	0.3625	H14	0.374	0.373	G13	0.3895	0.382	G14	0.4055	0.3915		
	0.3452	0.3528		0.359	0.3625		0.374	0.373		0.3895	0.382	0.3895	0.382
	0.3438	0.3378		0.3568	0.3475		0.3705	0.3573		0.3846	0.366	0.3846	0.366
	0.3568	0.3475		0.3705	0.3573		0.3846	0.366		0.4	0.375	0.4	0.375
H12	0.3615	0.378	H11	0.3774	0.3878	G12	0.3945	0.3982	G11	0.411	0.408		
	0.3465	0.368		0.3615	0.378		0.3774	0.3878		0.3945	0.3982	0.3945	0.3982
	0.3452	0.3528		0.359	0.3625		0.374	0.373		0.3895	0.382	0.3895	0.382
	0.359	0.3625		0.374	0.373		0.3895	0.382		0.4055	0.3915	0.4055	0.3915
H03	0.3634	0.391	H04	0.3807	0.402	G03	0.399	0.413	G04	0.4163	0.4222		
	0.3477	0.3806		0.3634	0.391		0.3807	0.402		0.399	0.413	0.399	0.413
	0.3465	0.368		0.3615	0.378		0.3774	0.3878		0.3945	0.3982	0.3945	0.3982
	0.3615	0.378		0.3774	0.3878		0.3945	0.3982		0.411	0.408	0.411	0.408

The C.I.E 1931 Chromaticity Diagram

Cool White



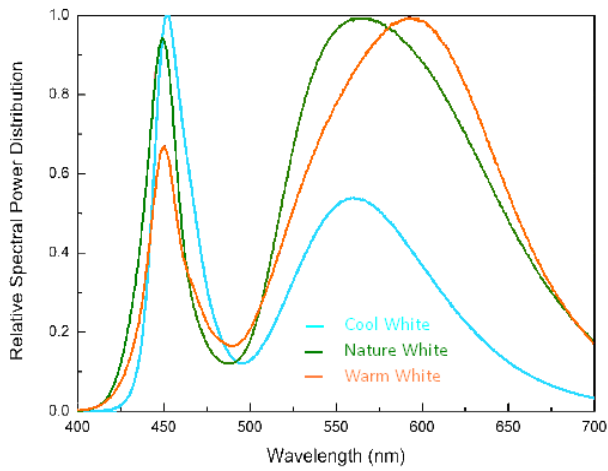
Bin Range of Chromaticity Coordinates

Cool White

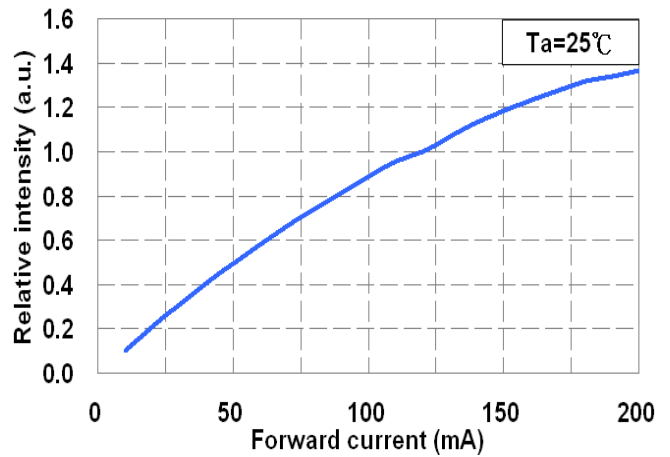
	CIE-X	CIE-Y		CIE-X	CIE-Y		CIE-X	CIE-Y		CIE-X	CIE-Y
I21	0.3438	0.3378	I22	0.3293	0.3247	J21	0.3181	0.3138	J22	0.309	0.3041
	0.3293	0.3247		0.3181	0.3138		0.309	0.3041			
	0.3294	0.3143		0.3192	0.3049		0.3106	0.2955			
	0.3428	0.3254		0.3294	0.3143		0.3192	0.3049			
I14	0.3452	0.3528	I13	0.329	0.3387	J14	0.3167	0.3259	J13	0.3067	0.315
	0.329	0.3387		0.3167	0.3259		0.3067	0.315			
	0.3293	0.3247		0.3181	0.3138		0.309	0.3041			
	0.3438	0.3378		0.3293	0.3247		0.3181	0.3138			
I11	0.3465	0.368	I12	0.3288	0.3525	J11	0.3153	0.339	J12	0.3042	0.3271
	0.3288	0.3525		0.3153	0.339		0.3042	0.3271			
	0.329	0.3387		0.3167	0.3259		0.3067	0.315			
	0.3452	0.3528		0.329	0.3387		0.3167	0.3259			
I04	0.3477	0.3806	I03	0.3287	0.3658	J04	0.314	0.352	J03	0.302	0.3385
	0.3287	0.3658		0.314	0.352		0.302	0.3385			
	0.3288	0.3525		0.3153	0.339		0.3042	0.3271			
	0.3465	0.368		0.3288	0.3525		0.3153	0.339			

Optical & Electrical Characteristic Curves

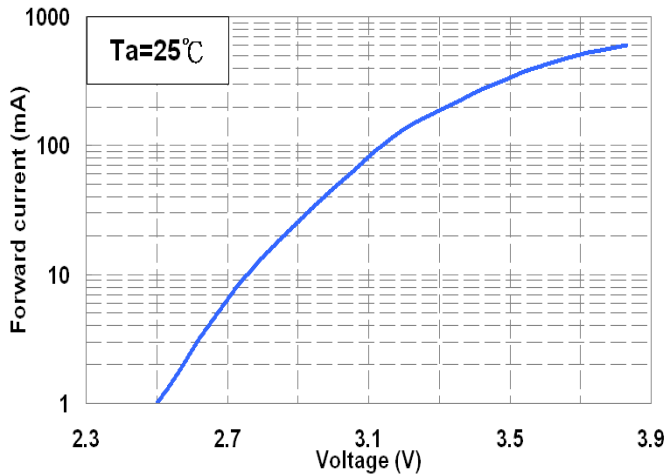
Relative Spectral Power VS. Wavelength



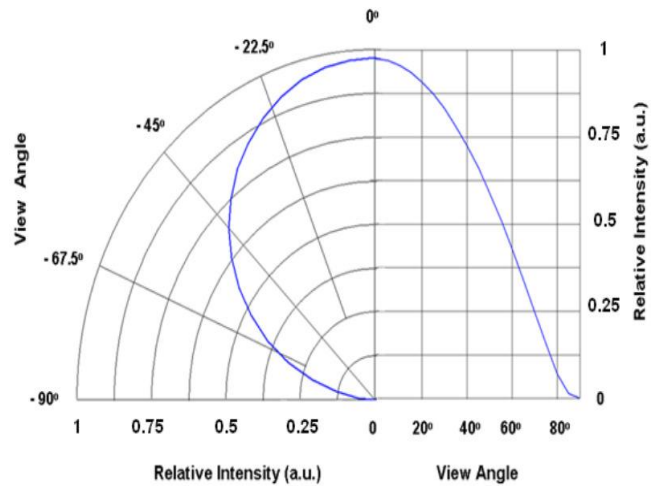
Relative Luminous Intensity VS. Forward Current



Forward Current VS. Forward Voltage



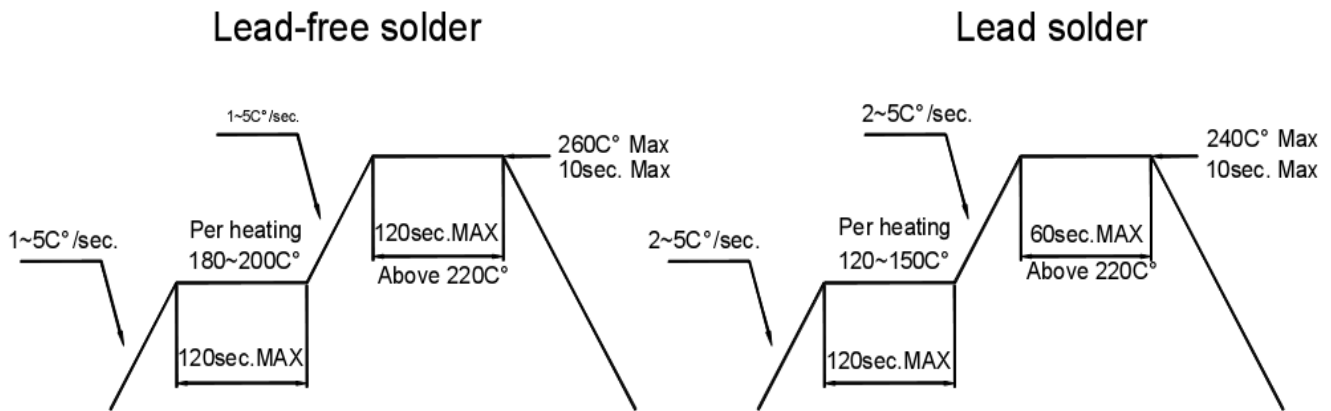
Radiation Pattern



Reliability Test Information

Test Item	Test Condition	Test Hours / Cycle	Sample Q'ty	# of Failed
Life Time Test	Ta=25°C, If=120mA	1000hrs	20 EA	0/20
Steady state of operating life of high current	Ta=25°C, If=150mA	1000hrs	20 EA	0/20
Steady state of operating life of high current	Ta=85°C, If=120mA	1000hrs	20 EA	0/20
High Temperature Storage Test	Ta=100°C± 5°C	1000hrs	20 EA	0/20
Low Temperature Storage Test	Ta= -40°C± 5°C	1000hrs	20 EA	0/20
High Temperature/ High Humidity Storage Test	Ta=60°C RH=90%	1000hrs	20 EA	0/20
Thermal Shock	0°C~100°C 15 sec 15sec	20 Cycle	20 EA	0/20
Temperature Cycle	-40°C~25°C~100°C~25°C 20min 5min 20min 5min	200 Cycle	20 EA	0/20
Soldering Heat	260°C,10 Sec	2 Cycle	20 EA	0/20

Reflow Condition Guideline



Reflow Soldering Profile & Note

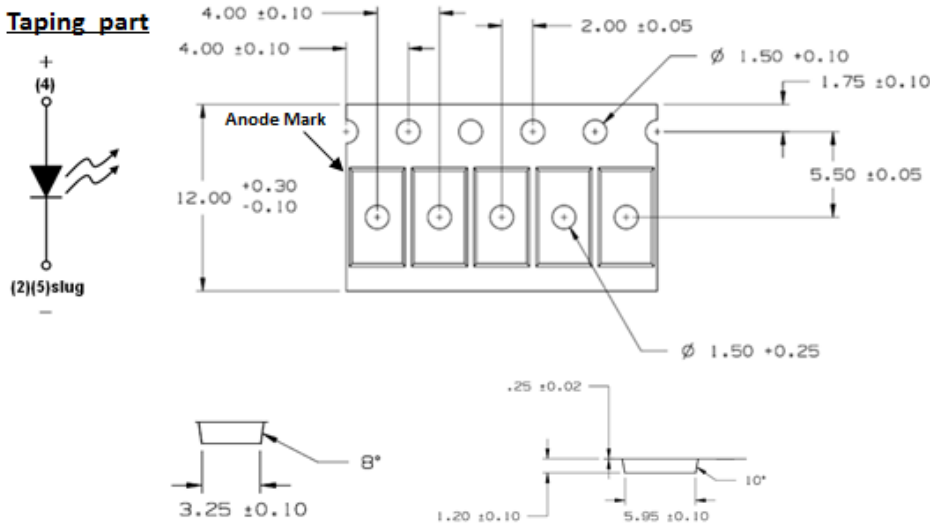
Soldering of the LC 5630 LEDs shall confirm the Soldering condition in the individual spec. In the Reflow Soldering, too high temperature and too large temperature gradient such as rapid heating (or cooling) may cause electrical and optical failures in the devices.

- Reflow soldering should not be done more than twice.
- After soldering, do not bend the circuit board.
- Maximum allowable soldering conditions are: Reflow Solder: 260 degrees C max., 10 seconds max.

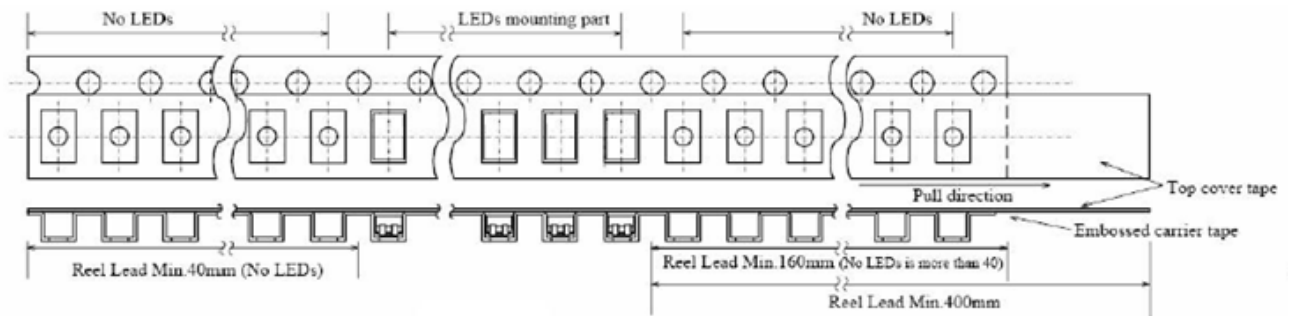
Packaging

Typical Load Quantity 3500 pcs Per Reel

Taping part



Reel end of tape



Reel

Lumichip
P/N
SPEC
Q'ty
Lot No

