



SPECIFICATION

MODEL : 3030A

Product Description: EMC3030 1W 3V



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● Feature

Viewing angle: 120 deg

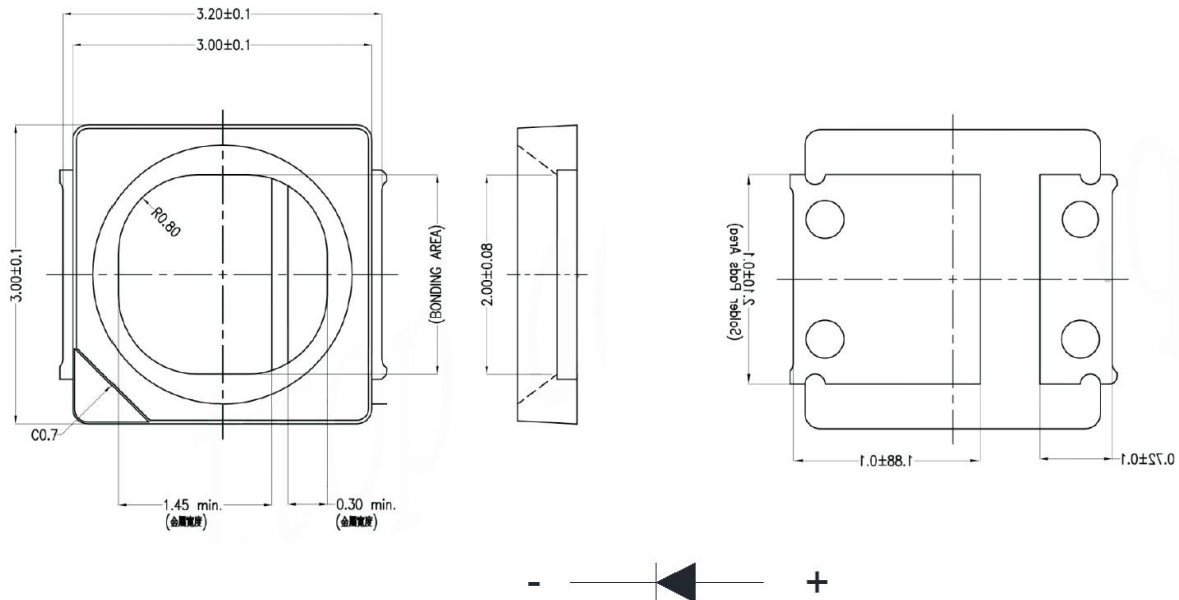
The materials of the LED dice is InGaN

3.20mm×3.00mm×0.6mm

RoHS compliant lead-free soldering compatible

● Package Outline

Unit:mm



NOTES:

1. All dimensions are in millimeters;
2. Tolerances are ± 0.03 mm unless otherwise noted.



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●Absolute maximum ratings

Ta=25±3°C

Parameter	Symbol	Value	Unit
Power dissipation	Pd	1	W
Forward current	If	350	mA
Reverse voltage	Vr	5	V
Operating temperature range	Topr	-20~+85	°C
Storage temperature range	Tstg	-40~+100	°C
Junction Temperature	Tj	100	°C
Pulse Forward Current	Ifp	450	mA
Electrostatic Discharge	ESD	2000(HBM)	V

●Electro-optical characteristics

Ta=25±3°C

Parameter	Test Condition	Symbol	Value			Unit
			Min.	Typ.	Max.	
Forward voltage	If=60 mA	Vf	2.6	--	2.9	V
Luminous intensity	If=60 mA	Φ	33	--	35	Lm
Viewing angle 50% Iv	If=60 mA	2θ 1/2	--	120	--	Deg
Reverse current	Vr=5V	Ir	--	--	10	μA
Color Temperature	If=60 mA	TC	4000	--	4500	K
Chromaticity CIE	If=60 mA	CIE				
CRI	If=60 mA	Ra	≥70			

NOTES:

- 1.Luminous Flux measurement tolerance:±10%
- 2.Forward Voltage measurement tolerance:±0.1V
- 3.Color Temperature measurement tolerance:x,y±0.01
- 4.CRI measurement tolerance:±2

• Typical optical characteristics curves

Fig.1 Relative Intensity VS. Wavelength

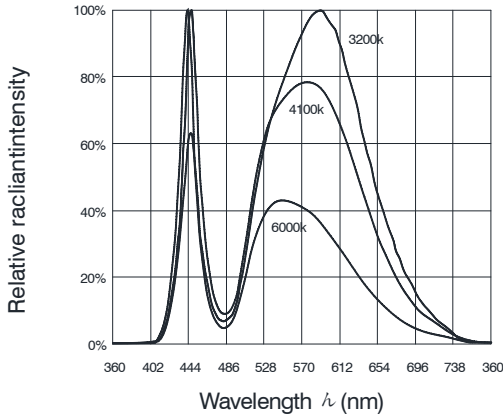


Fig.2 Forward current vs. Forward voltage

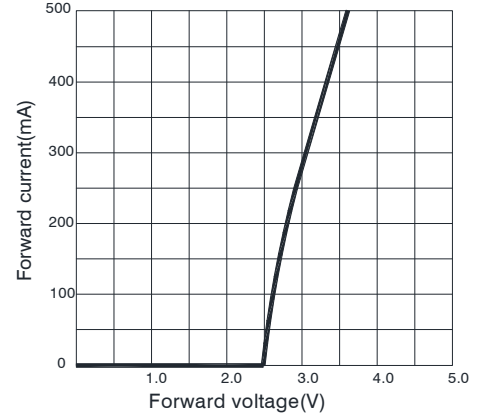


Fig.3 Forward current derating curve vs. Ambient temperature

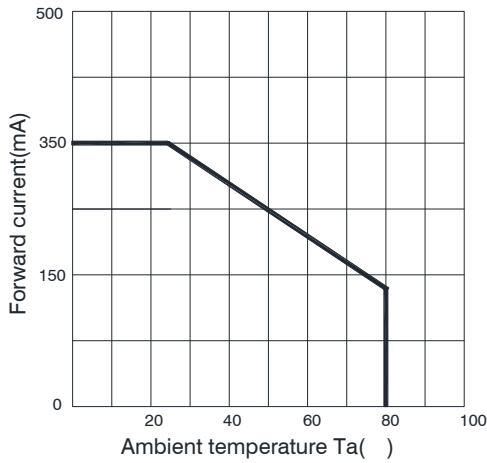


Fig.4 Relative intensity vs. Forward current

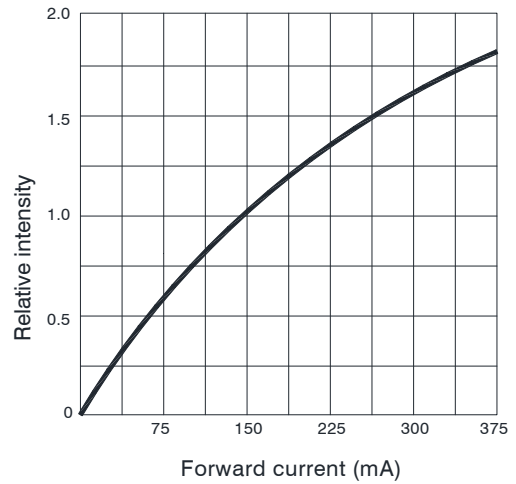
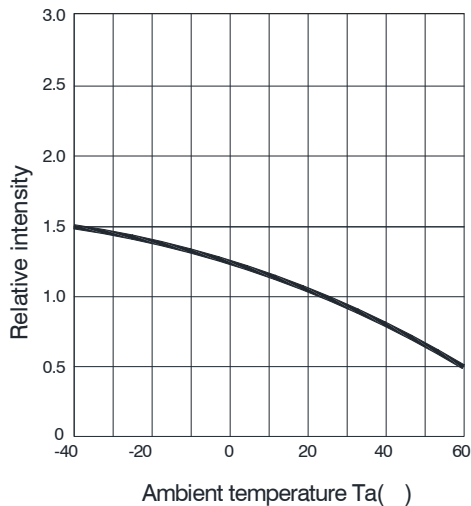
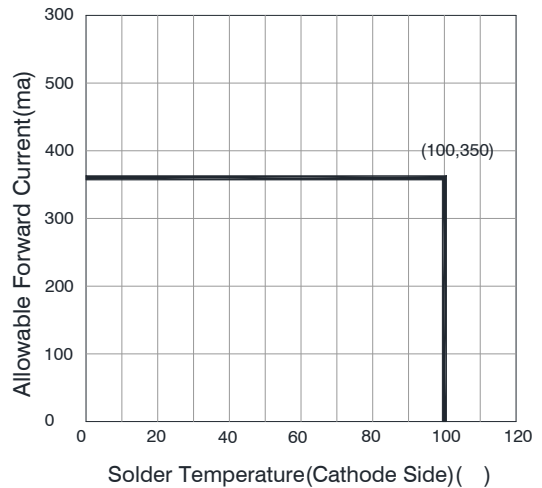


Fig.5 Relative intensity vs. Ambient temperature



Solder Temperature(Cathode Side) vs Allowable Forward Current





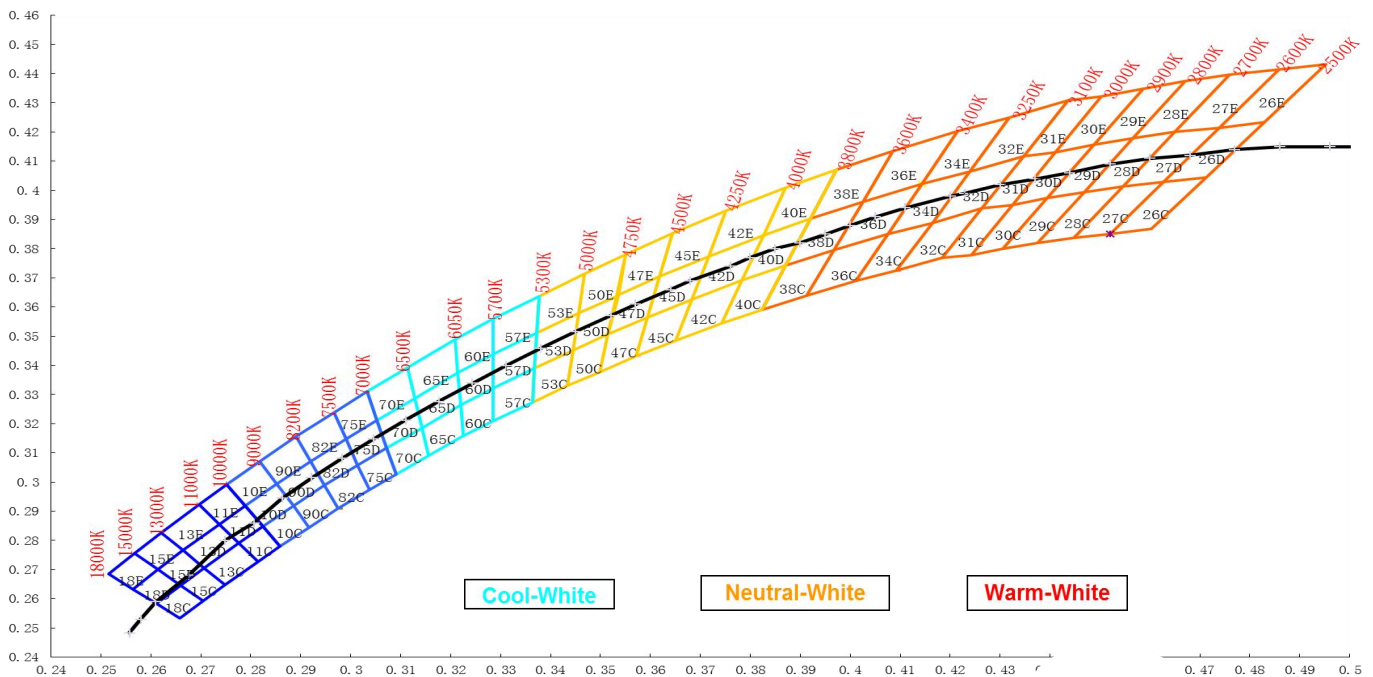
● Intensity Bin Limit (If=60 mA)

Bin code	Flux(lm) for reference	
	Min	Max
1	33	35
2		
3		
4		
5		
6		
7		

● VF Bin Limit (IF = 60 mA)

Bin code	Min.(V)	Max.(V)
1	2.6	2.7
2	2.7	2.8
3	2.8	2.9
4		
5		

● Chromaticity CIE





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• Color Bin Limit (IF = 60 mA)

2500-2600-2700K			2700-2800-2900K			2900-3000-3100K			3100-3250-3400K			3400-3600-3800K			3800-4000-4250K			4250-4500-47500K		
代码	X	Y	代码	X	Y	代码	X	Y	代码	X	Y	代码	X	Y	代码	X	Y	代码	X	Y
26C	0.452	0.385	28C	0.438	0.382	30C	0.424	0.378	32C	0.409	0.372	36C	0.391	0.364	40C	0.374	0.355	45C	0.357	0.343
	0.463	0.403		0.447	0.399		0.432	0.395		0.416	0.389		0.397	0.38		0.378	0.369		0.359	0.357
	0.471	0.405		0.455	0.401		0.439	0.397		0.426	0.394		0.408	0.385		0.387	0.374		0.368	0.363
2500-2600	0.46	0.387	2700-2800	0.445	0.384	2900-3000	0.431	0.38	3100-3250	0.418	0.377	3400-3600	0.401	0.369	3800-4000	0.382	0.359	4250-4500	0.365	0.349
	0.452	0.385		0.438	0.382		0.424	0.378		0.409	0.372		0.391	0.364		0.374	0.355		0.357	0.343
26D	0.463	0.403	28D	0.447	0.399	30D	0.432	0.395	32D	0.416	0.389	36D	0.397	0.38	40D	0.378	0.369	45D	0.359	0.357
	0.474	0.422		0.457	0.418		0.441	0.413		0.424	0.406		0.403	0.396		0.383	0.385		0.362	0.371
	0.483	0.423		0.465	0.42		0.449	0.416		0.435	0.412		0.414	0.402		0.392	0.39		0.372	0.377
2500-2600	0.471	0.405	2700-2800	0.455	0.401	2900-3000	0.439	0.397	3100-3250	0.426	0.394	3400-3600	0.408	0.385	3800-4000	0.387	0.374	4250-4500	0.368	0.363
	0.463	0.403		0.447	0.399		0.432	0.395		0.416	0.389		0.397	0.38		0.378	0.369		0.359	0.357
26E	0.474	0.422	28E	0.457	0.418	30E	0.441	0.413	32E	0.424	0.406	36E	0.403	0.396	40E	0.383	0.385	45E	0.362	0.371
	0.486	0.441		0.467	0.437		0.45	0.432		0.432	0.425		0.409	0.414		0.387	0.401		0.364	0.385
	0.495	0.443		0.476	0.44		0.459	0.435		0.444	0.431		0.421	0.42		0.397	0.407		0.375	0.393
2500-2600	0.483	0.423	2700-2800	0.465	0.42	2900-3000	0.449	0.416	3100-3250	0.435	0.412	3400-3600	0.414	0.402	3800-4000	0.392	0.39	4250-4500	0.372	0.377
	0.474	0.422		0.457	0.418		0.441	0.413		0.424	0.406		0.403	0.396		0.383	0.385		0.362	0.371
27C	0.445	0.384	29C	0.431	0.38	31C	0.418	0.377	34C	0.401	0.369	38C	0.382	0.359	42C	0.365	0.349	47C	0.35	0.338
	0.455	0.401		0.439	0.397		0.426	0.394		0.408	0.385		0.387	0.374		0.368	0.363		0.352	0.351
	0.463	0.403		0.447	0.399		0.432	0.395		0.416	0.389		0.397	0.38		0.378	0.369		0.359	0.357
2600-2700	0.452	0.385	2800-2900	0.438	0.382	3000-3100	0.424	0.378	3250-3400	0.409	0.372	3600-3800	0.391	0.364	4000-4250	0.374	0.355	4500-4750	0.357	0.343
	0.445	0.384		0.431	0.38		0.418	0.377		0.401	0.369		0.382	0.359		0.365	0.349		0.35	0.338
27D	0.455	0.401	29D	0.439	0.397	31D	0.426	0.394	34D	0.408	0.385	38D	0.387	0.374	42D	0.368	0.363	47D	0.352	0.351
	0.465	0.42		0.449	0.416		0.435	0.412		0.414	0.402		0.392	0.39		0.372	0.377		0.353	0.364
	0.474	0.422		0.457	0.418		0.441	0.413		0.424	0.406		0.403	0.396		0.383	0.385		0.362	0.371
2600-2700	0.463	0.403	2800-2900	0.447	0.399	3000-3100	0.432	0.395	3250-3400	0.416	0.389	3600-3800	0.397	0.38	4000-4250	0.378	0.369	4500-4750	0.359	0.357
	0.455	0.401		0.439	0.397		0.426	0.394		0.408	0.385		0.387	0.374		0.368	0.363		0.352	0.351
27E	0.465	0.42	29E	0.449	0.416	31E	0.435	0.412	34E	0.414	0.402	38E	0.392	0.39	42E	0.372	0.377	47E	0.353	0.364
	0.476	0.44		0.459	0.435		0.444	0.431		0.421	0.42		0.397	0.407		0.375	0.393		0.355	0.378
	0.486	0.441		0.467	0.437		0.45	0.432		0.432	0.425		0.409	0.414		0.387	0.401		0.364	0.385
2600-2700	0.474	0.422	2800-2900	0.457	0.418	3000-3100	0.441	0.413	3250-3400	0.424	0.406	3600-3800	0.403	0.396	4000-4250	0.383	0.385	4500-4750	0.362	0.371
	0.465	0.42		0.449	0.416		0.435	0.412		0.414	0.402		0.392	0.39		0.372	0.377		0.353	0.364

4750-5000-5300K			5300-5700-6050K			6050-6500-7000K			7000-7500-8200K			8200-9000-10000K			10000-11000-13000K			13000-15000-18000K		
代码	X	Y	代码	X	Y	代码	X	Y	代码	X	Y	代码	X	Y	代码	X	Y	代码	X	Y
50C	0.343	0.333	57C	0.329	0.321	65C	0.316	0.309	75C	0.304	0.297	90C	0.292	0.285	11C	0.281	0.273	15C	0.27	0.259
	0.345	0.345		0.329	0.332		0.314	0.319		0.301	0.306		0.289	0.292		0.278	0.279		0.266	0.265
	0.352	0.351		0.337	0.339		0.322	0.326		0.307	0.312		0.295	0.299		0.282	0.285		0.271	0.271
4750-50500	0.35	0.338	5300-5700	0.336	0.327	6050-6500	0.323	0.316	7000-7500	0.309	0.303	8200-9000	0.297	0.291	10000-11000	0.286	0.278	13000-15000	0.275	0.265
	0.343	0.333		0.329	0.321		0.316	0.309		0.304	0.297		0.292	0.285		0.281	0.273		0.27	0.259
50D	0.345	0.345	57D	0.329	0.332	65D	0.314	0.319	75D	0.301	0.306	90D	0.289	0.292	11D	0.278	0.279	15D	0.266	0.265
	0.346	0.358		0.329	0.344		0.313	0.329		0.299	0.315		0.285	0.299		0.274	0.286		0.261	0.27
	0.354	0.364		0.337	0.351		0.321	0.337		0.305	0.321		0.292	0.307		0.279	0.292		0.267	0.277
4750-5000	0.352	0.351	5300-5700	0.337	0.339	6050-6500	0.322	0.326	7000-7500	0.307	0.312	8200-9000	0.295	0.299	10000-11000	0.282	0.285	13000-15000	0.271	0.271
	0.345	0.345		0.329	0.332		0.314	0.319		0.301	0.306		0.289	0.292		0.278	0.279		0.266	0.265
50E	0.346	0.358	57E	0.329	0.344	65E	0.313	0.329	75E	0.299	0.315	90E	0.285	0.299	11E	0.274	0.286	15E	0.261	0.27
	0.347	0.372		0.329	0.356		0.311	0.339		0.297	0.324		0.282	0.307		0.27	0.292		0.257	0.276
	0.355	0.378		0.338	0.364		0.321	0.349		0.303	0.331		0.289	0.316		0.275	0.299		0.262	0.283
4750-5000	0.354	0.364	5300-5700	0.337	0.351	6050-6500	0.321	0.337	7000-7500	0.305	0.321	8200-9000	0.292	0.307	10000-11000	0.279	0.292	13000-15000	0.267	0.277
	0.346	0.358		0.329	0.344		0.313	0.329		0.299	0.315		0.285	0.299		0.274	0.286		0.261	0.27
53C	0.336	0.327	60C	0.323	0.316	70C	0.309	0.303	82C	0.297	0.291	10C	0.286	0.278	13C	0.275	0.265	18C	0.266	0.253
	0.337	0.339		0.322	0.326		0.307	0.312		0.295	0.299		0.282	0.285		0.271	0.271		0.261	0.258
	0.345	0.345		0.329	0.332		0.314	0.319		0.301	0.306		0.289	0.292		0.278	0.279		0.266	0.265
5000-5300	0.343	0.333	5700-6050	0.329	0.321	6500-7000	0.316	0.309	7500-8200	0.304	0.297	9000-10000	0.292	0.285	11000-13000	0.281	0.273	15000-18000	0.27	0.259
	0.336	0.327		0.323	0.316		0.309	0.303		0.297	0.291		0.286	0.278		0.275	0.265		0.266	0.253
53D	0.337	0.339	60D	0.322	0.326	70D	0.307	0.312	82D	0.295	0.299	10D	0.282	0.285	13D	0.271	0.271	18D	0.261	0.258
	0.337	0.351		0.321	0.337		0.305	0.321		0.292	0.307		0.279	0.292		0.267	0.277		0.256	0.263
	0.346	0.358		0.329	0.344		0.313	0.329		0.299	0.315		0.285	0.299		0.274	0.286		0.261	0.27
5000-5300	0.345	0.345	5700-6050	0.329	0.332	6500-7000	0.314	0.319	7500-8200	0.301	0.306	9000-10000	0.289	0.292	11000-13000	0.278	0.279	15000-18000	0.266	0.265
	0.337	0.339		0.322	0.326		0.307	0.312		0.295	0.299		0.282	0.285		0.271	0.271		0.261	0.258
53E	0.337	0.351	60E	0.321	0.337	70E	0.305	0.321	82E	0.292	0.307	10E	0.279	0.292	13E	0.267	0.277	18E	0.256	0.263
	0.338	0.364		0.321	0.349		0.303	0.331		0.289	0.316		0.275	0.299		0.262	0.283		0.252	0.269
	0.347	0.372		0.329	0.356		0.311	0.339		0.297	0.324		0.282	0.307		0.27	0.292		0.257	0.276
5000-5300	0.346	0.358	5700-6050	0.329	0.344	6500-7000	0.313	0.329	7500-8200	0.299	0.315	9000-10000	0.285	0.299	11000-13000	0.274	0.286	15000-18000	0.261	0.27
	0.337	0.351		0.321	0.337		0.305	0.321		0.292	0.307		0.279	0.292		0.267	0.277		0.256	0.263

●Requirements for application and reflow soldering

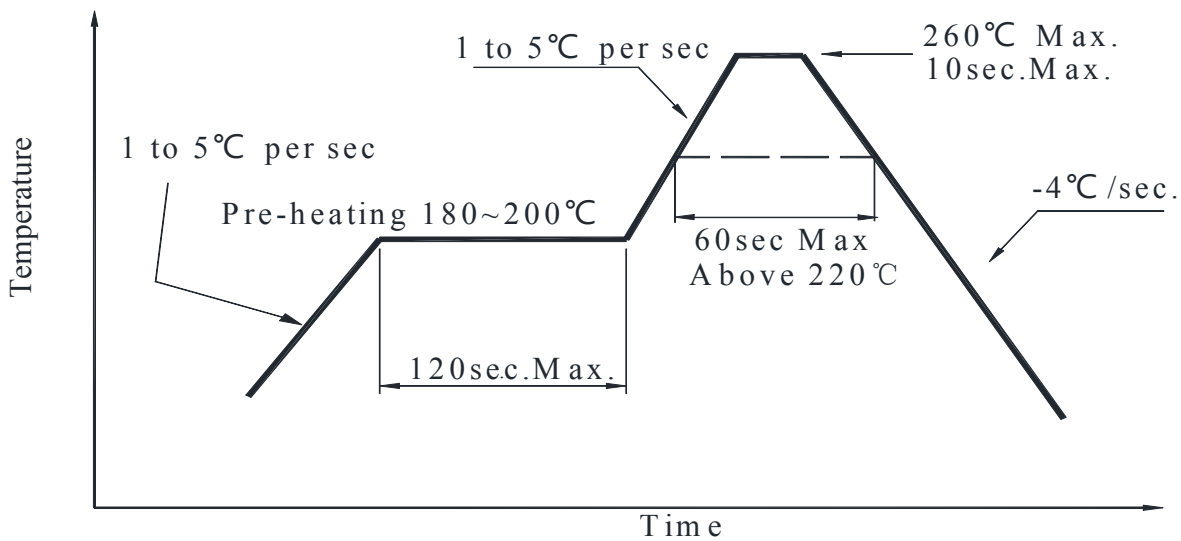
Reflow Soldering	
Pre-heat	120~160℃
Pro-heat time	120 seconds Max.
Peak temperature	260℃ Max.
Soldering time	10 seconds Max.
Condition	Refer to Temperature-profile

After reflow soldering rapid cooling should be avoided

Temperature-profile(Surface of circuit board)

Use the following conditions shown in the figure.

<Pb-free solder>



- 1.Reflow soldering should not be done more than two times
- 2.When soldering,do not put stress on the LEDs during heating

●Handling Precautions

Compare to epoxy encapsulation that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more prone to damage by external mechanical force. As a result, Special handling precautions must be observed during assembling using silicone encapsulated LED product, Failure to comply might leads to damage and premature failure of the LED.



- ◆ Handle the component along the side surface by using forceps or appropriate tools; do not directly touch or handle the silicone lens surface, it may damage the internal circuitry.
- ◆ Not suitable to operate in acidic environment, PH<7.

- ◆ LED operating environment and sulfur element composition cannot be over 25 PPM in the LED mating usage material.

When we need to use external glue for LEDs application products, please make sure that the external glue matches the LEDs packaging glue. Additionally, as most of LEDs packaging glue is silica gel, and it has strong Oxygen permeability as well as strong moisture permeability; in order to prevent external material from getting into the inside of LEDs, which may cause the malfunction of LEDs, the single content of Bromine element is required to be less than 225 PPM, the single content of Chlorine element is required to be less than 225 PPM, the total content of Bromine element and Chlorine element in the external glue of the application products is required to be less than 375 PPM.

- ◆ The encapsulated material of the LEDs is silicone. Therefore the LEDs have a soft surface on the top of package. The pressure to the top surface will be influence to the reliability of the LEDs. Precautions should be taken to avoid the strong pressure on the encapsulated part. So when using the picking up nozzle, the pressure on the silicone resin should be proper.

- ◆ Static electricity or surge voltage damages the LEDs. Damaged LEDs will show some unusual characteristics such as the lower forward voltage, or the not light at low current, even not light. All devices, equipment and machinery must be properly grounded. At the same time, it is recommended that wrist bands or anti-electrostatic gloves, anti-electrostatic containers be used when dealing with the LEDs.

Storage

- ◆ Before opening the package, the LEDs should be kept at 30°C or less and 60%RH or less. The LEDs should be used within a year.

- ◆ After opening the package, the product should be stored at 30°C or less and humidity less than 10% RH, and be soldered within 24 H. It is recommended that the product be operated at the workshop condition of 30°C or less and humidity less than 60% RH. If unused LEDs remain, they should be stored in moisture proof packages, such as sealed containers with packages of moisture absorbent material (silica gel). It is also recommended to return the LEDs to the original moisture proof bag and to reseal the moisture proof bag again.



●Reliability

(1) TEST ITEMS AND RESULTS

Type	Test Item	Ref. Standard	Test Conditions	Note	Number of Damaged
Environmental Sequence	Resistance to Soldering Heat(Reflow Soldering)	JESD22-B106	Tsld=260°C , 10sec	2 times	0/100
	Temperature Cycle	JESD22-A104	-40°C30min ↑↓5min 100°C 30min	100 cycle	0/100
	Thermal Shock	JESD22-A106	-40°C15min ↑↓5min 100°C 15min	100 cycle	0/100
	High Temperature Storage	JESD22-A103	Ta=100°C	1000 hrs	0/100
	Low Temperature Storage	JESD22-A119	Ta=-40°C	1000 hrs	0/100
	Power temperature Cycling	JESD22-A105	On 5min -40°C > 15min ↑↓ ↑↓ < 15min Off5min 100°C > 15min	100 cycle	0/100
Operation Sequence	Life Test	JESD22-A108	Ta=25°C IF=150mA	1000 hrs	0/100
	High Humidity Heat Life Test	JESD22-A101	80°CRH=80% IF=150mA	1000 hrs	0/100

(2) CRITERRIA FOR JUDGING THE DAMAGE

Item	Symbol	Test Conditions	Criteria for Judgement	
			Min	Max.
Forward Voltage	VF	IF=150mA	--	U.S.L*)×1.1
Reverse Current	IR	VR=5V	--	U.S.L*)×2.0
Luminous Intensity	IV	IF=150mA	L.S.L**)×0.7	

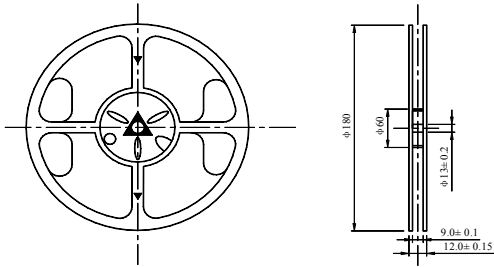
U.S.L.:Upper Standard Level

L.S.L.:Lower Standard Level

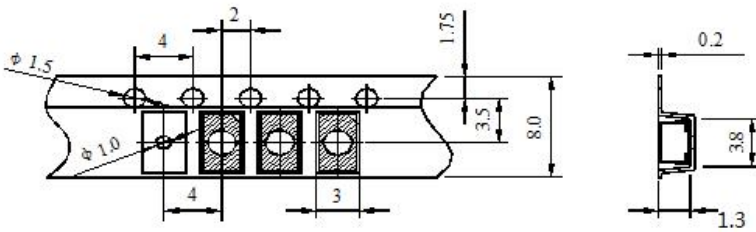


●Packaging Specifications

Package Tape Specifications : (4000 pcs/Reel)



Dimensions of Tape(Unit:mm)



Reel Lead Min.60mm No LEDs

NOTES

1. Empty component pockets are sealed with top cover tape;
2. The maximum number of missing lamps is two ;
3. The cathode is oriented towards the tape sprocket hole in accordance with data sheet specifications.
- 4 4,000 pcs/Reel.