

SPECIFICATION FOR CERAMIC COB LED

Part No: SW1919-24W-XXXXFR90

Description:

18.9*18.9mm COB LED

Dice Material: InGaN

Confirmed by Customer: _____

Approved by

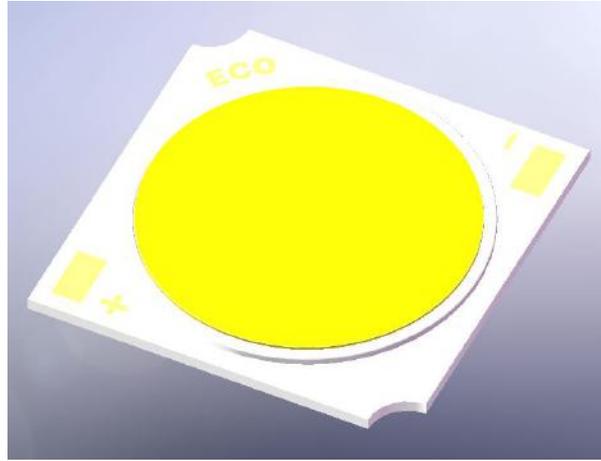
Checked by

Prepared by



SW1919-24W-XXXXFR90

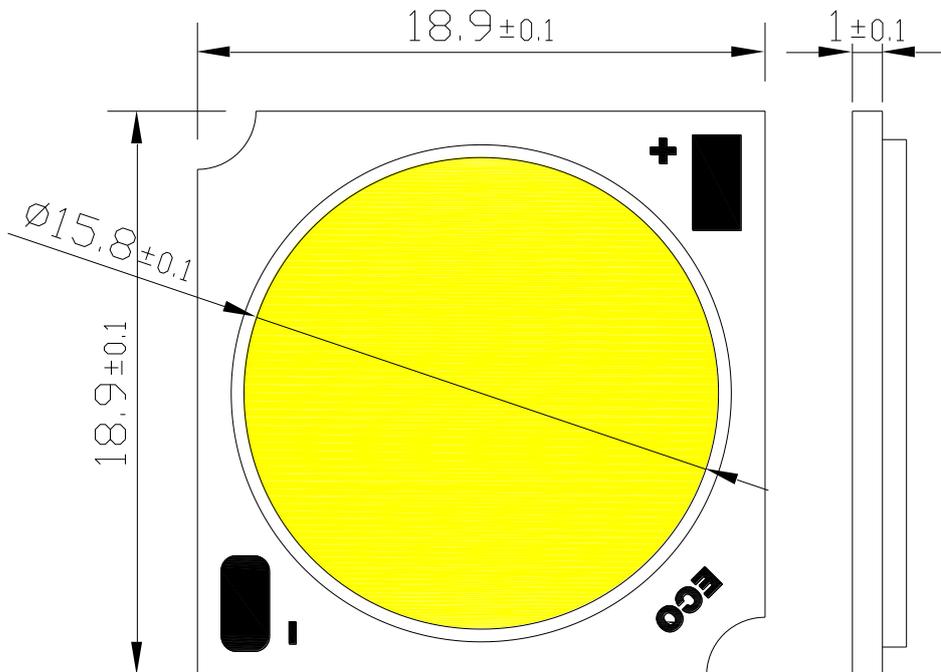
Sterilize White Series



Introduction

The **Sterilize White series**: kill bacteria and viruses effectively by continuous radiation

Outline Dimensions:



SW1919-24W-XXXXFR90

Absolute Maximum Ratings at Ta=25°C:

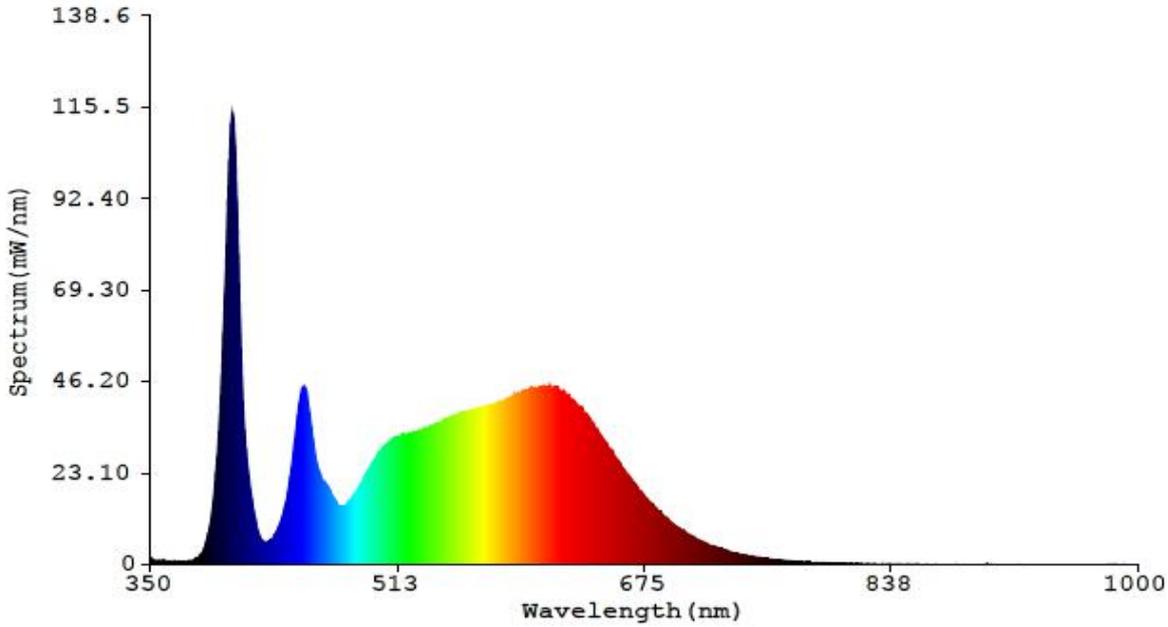
Parameter	Part No.	Symbol	Value	Unit	
Power Dissipation	SW1919-24W-XXX XFR90	Pd(max.)	35.6	W	*1
Peak Forward Current (1/10 Duty Cycle,0.1ms Pulse Width)		If (max.)	900	mA	*1
Continuous Forward Current		If (Typ.)	660	mA	
case temperature		Tp	120	°C	*2
LED junction temperature		Tj	150	°C	*3
Reverse Voltage		Vr	-60	V	
Thermal Resistance, junction to case	SW1919-24W-XXX XFR90	Rθ j-c	0.73	°C/W	
Soldering Temperature °C		5 seconds, 260°C or lower			
Operating temperature range		Topr	-30°C to + 85°C		
Storage Temperature Range		Tstg	-40°C to + 100°C		

● Electro-optical characteristics at Ta=25°C

Parameter	Part No.	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Color Rendering	SW1919-24W-XXX XFR90	CRI Ra		90	90	92	
Color Quality Scale		CQS Qa		90	91	92	
Fidelity		Rf		90	91		
Gamut		Rg		98	99	101	
Television Lighting Consistency Index of 99		TLCI		80	82		
Viewing Angle		2θ1/2			118		deg
Forward Voltage		V _f	I _f =660mA	36	38.0	39.6	V
Reverse Current		I _r	V _r =-60V			100	uA
Color Temperature-4000K		CCT			4000		K
Luminous flux		φ	I _f =660mA	2570	2710		lm

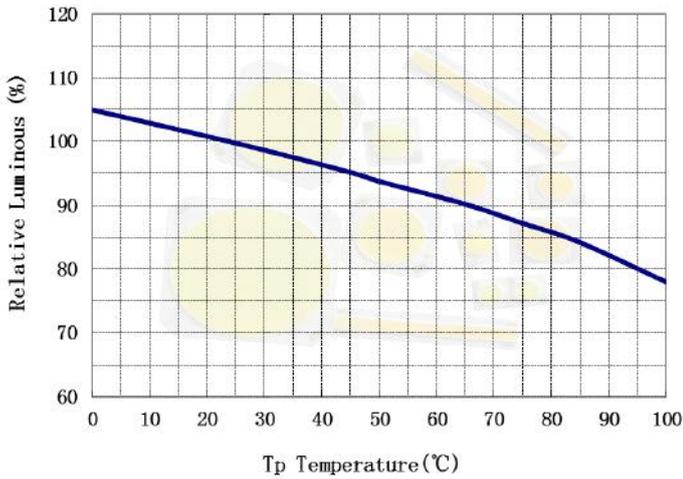
- 1、 The luminous intensity data did not include ±10% testing tolerance.
 - 2、 Tolerance of CRI is ±1.
- * Values of Luminous flux at Tp=25°C are provided as reference only.

Relative Spectral Power Distribution

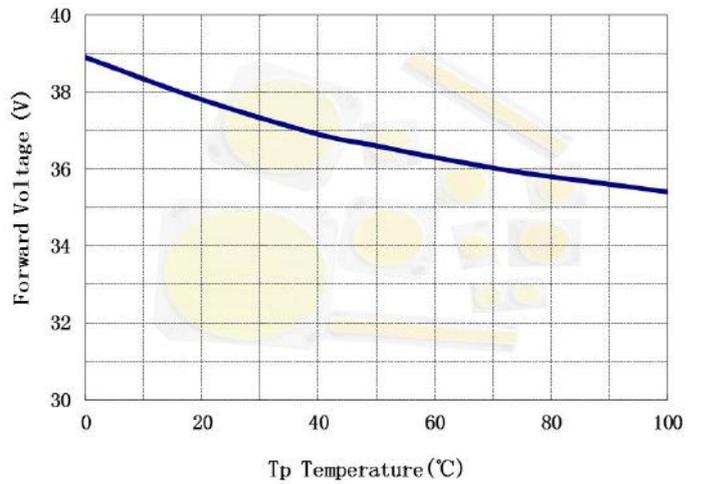


Temperature Characteristics

Relative Luminous (@600mA) VS. T_p Temperature

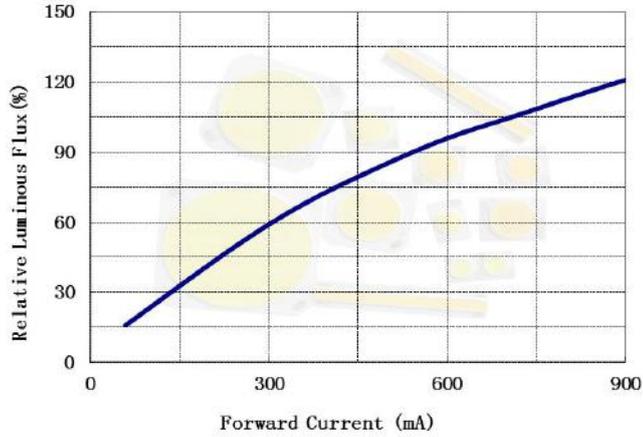


Forward Voltage (@600mA) VS. T_p Temperature

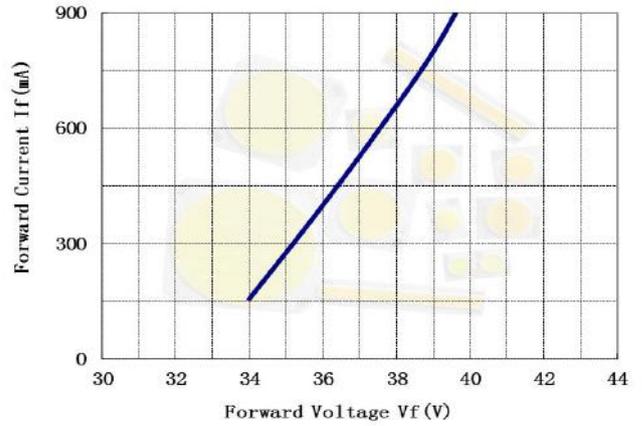


Electrical Characteristics

Relative Luminous Flux VS. Forward Current
(Tp=25°C)

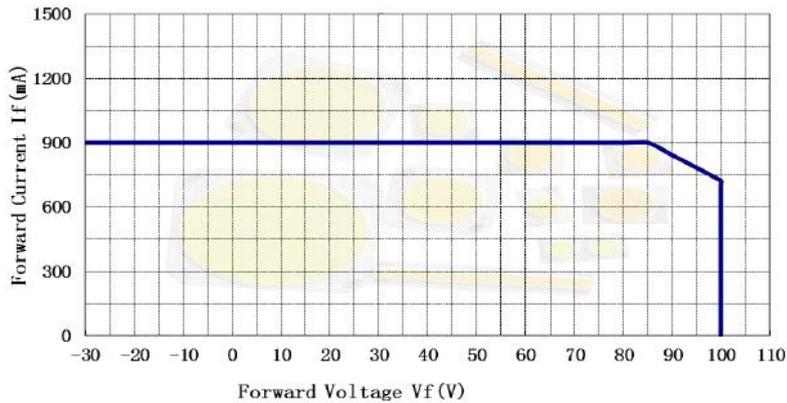


Forward Current VS. Forward Voltage
(Tp=25°C)



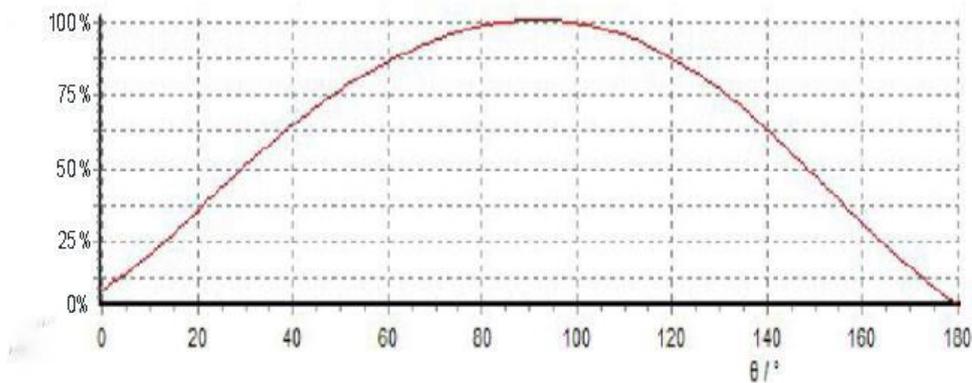
Derating Curves characteristics

Forward Current Derating Curve



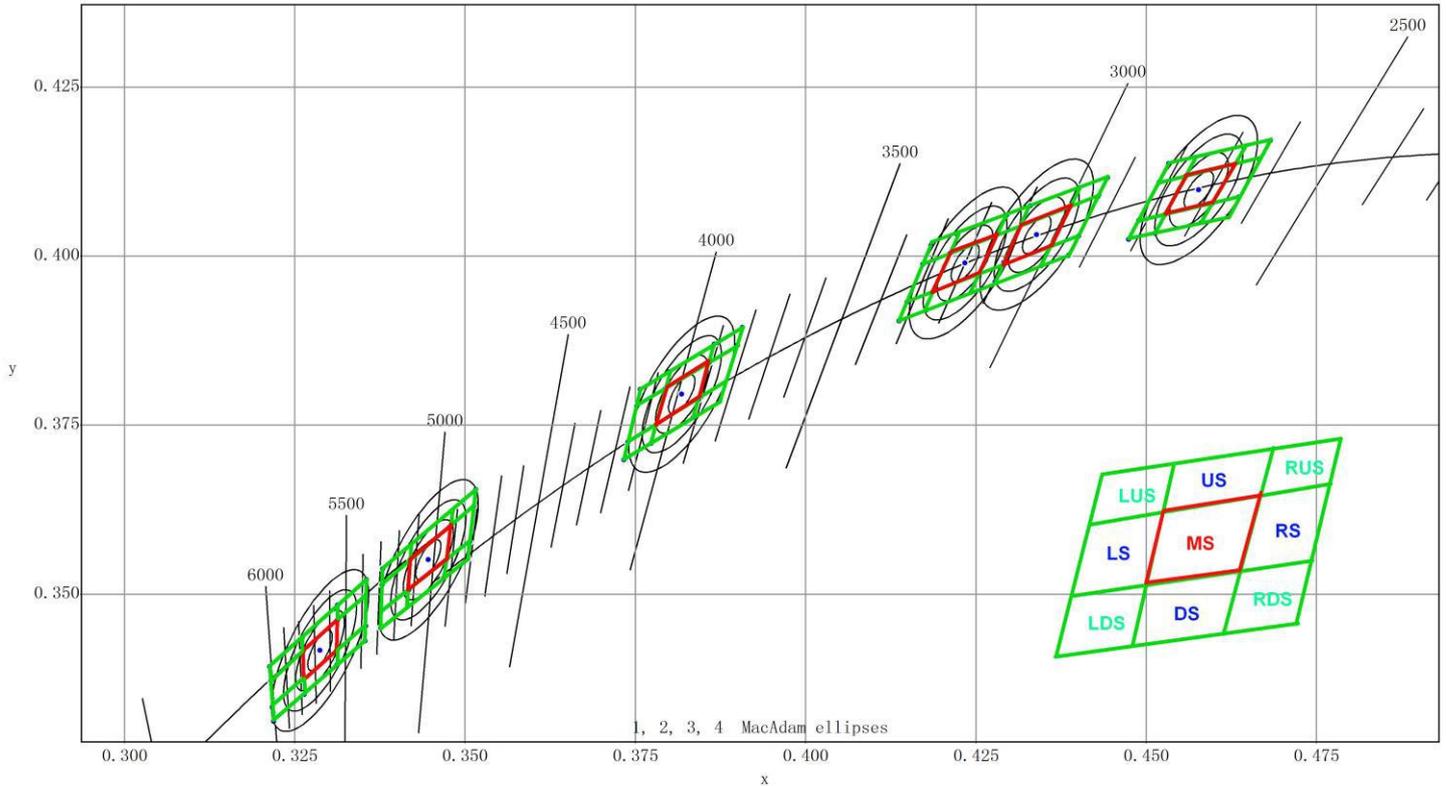
To keep Tp temperature lower than rating enough heat-radiation performance needs to be secured by using an adequate heat sink.

Typical Polar Radiation Pattern



Typical Spatial Radiation Pattern

Chromaticity rank table



Nominal CCT	Center Point(x,y)		Center Point(u',v')		CCT	Duv	Du'v'
	CIE-X	CIE-Y	u'	v'			
2700K	0.4577	0.4098	0.2615	0.5267	2724	-0.0001	-0.0002
3000K	0.4339	0.4032	0.2490	0.5206	3045	0.0001	0.0001
3200K	0.4234	0.3990	0.2440	0.5173	3200	0.0000	0.0000
4000K	0.3818	0.3796	0.2249	0.5030	3984	0.0009	0.0013
5000K	0.3446	0.3551	0.2097	0.4863	5031	0.0020	0.0025
5600K	0.3287	0.3417	0.2041	0.4773	5666	0.0020	0.0025

CCT	BIN code	CIE-X	CIE-Y												
2700K	MS	0.4528	0.4062	LS	0.4528	0.4062	RS	0.4618	0.4083	DS	0.4602	0.4055	US	0.4649	0.414
		0.4558	0.4118		0.4507	0.4057		0.4597	0.4078		0.4492	0.4028		0.4537	0.4113
		0.4629	0.4135		0.4537	0.4113		0.4629	0.4135		0.4507	0.4057		0.4552	0.4141
		0.4597	0.4078		0.4558	0.4118		0.4649	0.414		0.4618	0.4083		0.4665	0.4168
3000K	MS	0.4291	0.3991	LS	0.4317	0.4048	RS	0.4388	0.4073	DS	0.4361	0.4016	US	0.4317	0.4048
		0.4317	0.4048		0.4282	0.4033		0.4429	0.4088		0.4346	0.3986		0.433	0.4075
		0.4388	0.4073		0.4256	0.3975		0.4401	0.403		0.4278	0.3962		0.4402	0.4101
		0.4361	0.4016		0.4291	0.3991		0.4361	0.4016		0.4291	0.3991		0.4388	0.4073
390K	MS	0.4187	0.3948	LS	0.4187	0.3948	RS	0.4278	0.3985	DS	0.4265	0.3956	US	0.4304	0.4043
		0.4212	0.4005		0.4166	0.3939		0.4257	0.3977		0.4155	0.3911		0.419	0.3996
		0.4282	0.4034		0.419	0.3996		0.4282	0.4034		0.4166	0.3939		0.4201	0.4023
		0.4257	0.3977		0.4212	0.4005		0.4304	0.4043		0.4278	0.3985		0.4317	0.407
4000K	MS	0.378	0.375	LS	0.378	0.375	RS	0.3865	0.3802	DS	0.3857	0.3775	US	0.3881	0.3856
		0.3793	0.3803		0.3758	0.3736		0.384	0.3787		0.3751	0.371		0.3771	0.3788
		0.3857	0.3842		0.3771	0.3788		0.3857	0.3842		0.3758	0.3736		0.3777	0.3815
		0.384	0.3787		0.3793	0.3803		0.3881	0.3856		0.3865	0.3802		0.3888	0.3884
5000K	MS	0.3411	0.3499	LS	0.3411	0.3499	RS	0.3498	0.3571	DS	0.3495	0.3547	US	0.3503	0.3619
		0.3414	0.3546		0.3391	0.3483		0.3476	0.3554		0.339	0.3459		0.3393	0.3529
		0.3482	0.3602		0.3393	0.3529		0.3482	0.3602		0.3391	0.3483		0.3395	0.3552
		0.3476	0.3554		0.3414	0.3546		0.3503	0.3619		0.3498	0.3571		0.3505	0.3644
5600K	MS	0.3253	0.3365	LS	0.3482	0.3602	RS	0.334	0.344	DS	0.3339	0.3418	US	0.3341	0.3488
		0.3252	0.3407		0.3234	0.3348		0.3321	0.3424		0.3235	0.3327		0.3231	0.3388
		0.3321	0.347		0.3231	0.3388		0.3321	0.347		0.3234	0.3348		0.323	0.3409
		0.3321	0.3424		0.3252	0.3407		0.3341	0.3488		0.334	0.344		0.3342	0.351

CCT	BIN code	CIE-X	CIE-Y									
2700K	LUS	0.4519	0.4109	RUS	0.4627	0.4134	LDS	0.4528	0.4062	RDS	0.4635	0.4087
		0.4533	0.4137		0.4643	0.4162		0.4513	0.4034		0.462	0.4059
		0.4572	0.4146		0.4682	0.4171		0.4474	0.4025		0.4581	0.405
		0.4558	0.4118		0.4666	0.4143		0.4489	0.4053		0.4597	0.4078
3000K	LUS	0.433	0.4075	RUS	0.4388	0.4073	LDS	0.4291	0.3991	RDS	0.4401	0.403
		0.4295	0.4061		0.4402	0.4101		0.4256	0.3975		0.4386	0.4001
		0.4282	0.4033		0.4443	0.4116		0.4243	0.3947		0.4346	0.3986
		0.4317	0.4048		0.4429	0.4088		0.4278	0.3962		0.4361	0.4016
390K	LUS	0.4172	0.3988	RUS	0.4282	0.4033	LDS	0.4188	0.3948	RDS	0.4256	0.3975
		0.4184	0.4016		0.4295	0.4061		0.4177	0.392		0.4291	0.3991
		0.4223	0.4032		0.433	0.4075		0.4137	0.3904		0.4278	0.3962
		0.4212	0.4004		0.4317	0.4048		0.4149	0.3932		0.4243	0.3947
4000K	LUS	0.3752	0.3778	RUS	0.3859	0.3843	LDS	0.378	0.375	RDS	0.3882	0.3813
		0.3757	0.3803		0.3866	0.387		0.3773	0.3723		0.3874	0.3785
		0.38	0.3829		0.3907	0.3895		0.3733	0.3699		0.3835	0.3761
		0.3793	0.3803		0.3899	0.3868		0.3739	0.3725		0.3843	0.3788
5000K	LUS	0.3378	0.3514	RUS	0.3477	0.3599	LDS	0.3376	0.3473	RDS	0.3472	0.3549
		0.3379	0.3538		0.348	0.3623		0.3376	0.345		0.3469	0.3524
		0.342	0.3573		0.3516	0.3655		0.3416	0.3482		0.3504	0.3552
		0.3419	0.355		0.3513	0.363		0.3417	0.3506		0.3507	0.3577
5600K	LUS	0.3215	0.3372	RUS	0.3313	0.3462	LDS	0.3217	0.3333	RDS	0.3312	0.3417
		0.3213	0.3393		0.3313	0.3484		0.3219	0.3312		0.3312	0.3395
		0.3261	0.3436		0.3355	0.3522		0.3264	0.3352		0.3353	0.3431
		0.3262	0.3415		0.3355	0.35		0.3263	0.3373		0.3354	0.3453

Reliability Test

Test Items

Test Items	Test Conditions	Test Hours/Cycles
Room Temperature life test	25° C, IF = Max	1,000 h
High Temperature humidity life test	85° C, 85% RH, DC Derating IF = Max	1,000 h
High Temperature life test	85° C, DC Derating IF = Max	1,000 h
Low Temperature life test	-40° C, DC 900 mA	1,000 h
High Temperature Storage	120° C	1,000 h
Low Temperature Storage	-40° C	1,000 h
Thermal Shock	-45° C/15min → 125° C/15min Temperature changes in 5min.	200 cycles
Temperature Cycle On/Off test	-40 / 85° C, each 20min, 100min transfer Power On/off each 5min, DC 660 mA	100 cycles
Temperature humidity Cycle Storage	-10° C ↔ 25° C, 95%RH ↔ 85° C, 95%RH [24h/1Cycle]	100 cycles
Vibration	20~80Hz (Displacement:0.06inch, Max 20G) 80~2kHz (Max 20G) Min. Frequency ↔ Max. Frequency 4min transfer	4 times
Shock	1500G, 0.5ms, Every 6faces (3axis X 2faces)	5 times
Salt Spray	35° C, salt water 5% 8h spray → 16h leaving alone	2 cycles

Failure Criteria

Item	Symbol	Test Condition [Ta = 25° C]	Limit	
			Min.	Max.
Forward Voltage	Vf	600 mA	L. S. L. × 0.9	U. S. L. × 1.1
Luminous flux	lm	600 mA	L. S. L. × 0.7	U. S. L. × 1.3
* U. S. L. : Upper Standard Level L. S. L. : Lower Standard Level				

Precautions:

1. Ceramic cob is high power product,pls don't light up without enough heat sink.Pls don't look straight at light source when light up ,or your eyes maybe uncomfortable or be hurted.
2. Lightspot ceramic COB LED has antioxidant and anti-sulfide design, have a better adaptability to the environment than other type of led light source. But don't prevent oxidation and sulfide,pls be careful when used in strong oxygen and sulfur environment.
3. Universal Ceramic COB light source is not design for strong corrosive environment . Do not expose the light source to acidic environments, it may cause color drift.
4. Directly fixed with screws or screws too tight or light source fixed out of flatness surface may cause ceramic broken and doesn't work.
5. Press the out-light surface colloid can lead to internal gold thread open welding without light or lack of light.

Handling precautions:

1. Do not touch the light emitting surface or the white dams when handling , They are made of elastic colloid, Pressing force, sharp objects may lead to internal gold thread open welding without light or lack of light.When handling with forceps,pls avoid touching colloid.

Installation precautions:

1. Please put light source with high thermal conductive colloid or silicone joint on the heat dissipation body directly. Please check the fitting place before installation to ensure the smooth, clean, no insulation layer such as paint and other coverage.
2. One of the main effects of high thermal insulation gel or grease is to fill the gap between the light source and the heat sink, Make heat be quickly guided to the heat radiating body.
3. If can ensure the the gap is filled with thermally conductive materials, thermal conductivity material, the thinner the less the thermal resistance.Lightspot recommend the ST0903 from Silanex, Thermal conductivity 30, The thickness of the colloid is 0.1mm, Can be directly adhesive curing.
4. When you need to use the screws, please do not use screws fastening ceramic directly.
5. You can use Bakelite gasket, High temperature resistant rubber gasket or dedicated fixtures.(You can contact lightspot for technical support of dedicated fixtures). screws too tight or light source fixed out of flatness surface may cause ceramic broken and doesn't work.
6. Reflective glass or lens do not directly press to the out-light surface.or the light source may be broken.
7. When other structures press the ceramic substrate, it may cause ceramic broken and doesn't work.
8. Since the ceramic thermal expansion coefficient is small and metal thermal expansion coefficient is big,pls keep distance from screws to ceramic holes.The distance between Screw thread with ceramic hole should keep 0.5 mm or more.

Usage environment precautions:

1. Some seals and adhesive material containing corrosive substances, such as acetic acid-type glass glue, the use of such materials may lead to changes in light color drift and other optical indicators, So it should be banned.
2. When use in strong sulfur and strong oxygen environment, pls make sure that the light source model is designed antioxidant & anti-sulfide. pls cover the unused solder pad with solder tin. After use in this environment for a long time, Visually around the dam edge will deepen the color, It doesn't affect the reliability of light source.

Heat sink precautions:

1. No matter what kind of heat sink material or what type of radiator body you use, Please ensure that the solder pad temperature less than 85 °C. If you use 6063 aluminum, we suggest 1W led need at least 50cm² bare surface area for heat sink.

Soldering precautions :

1. Please notes follows when do the welding connection
2. Please use the temperature contro soldering stations and ensure good grounding.
3. Solder iron temperature should not exceed 380 °C, pls finish each soldering spot in 3.5 seconds,
4. For soldering spot amendments should also follow the above conditions, About amendment, less times is better.. Too many times amendment may cause soldering pad failure.
5. If the light source is already mounted on the heat sink, It will be difficult for soldering due to its excellent thermal performance. In this case, please use the pre-heated soldering methods. The recommend pre-heating temperature is 100°C-150°C, 60 seconds.
6. Soldering iron do not touch the out-light surface colloid and DAMS colloid.

Static :

1. This product is a semiconductor light-emitting electronic products sensitive to static electricity. In the process of fixed installation shall prevent static electricity. Wrist strap antistatic bracelet Anti-static gloves Anti-static work clothes are all necessary.. Besides, Must ensure that the production line installation workstation, testing equipment, Transfer units etc grounding is good. Pls add electrostatic protection circuit or device in the driver part if it's necessary.
2. Power supply

LED is a current-driven devices, please use the constant current power supply. Drive current can not exceed the maximum current value in the specification datasheet.

Order Code

SW 1919 - 24W - xx xx F R90 - 0660-1206-xx

x1 x2 x3 x4 x5 x6 x7 x8 x9 x10

Part Number System :

X1: SW: Sterilize White Series

X2: LED Outline: 1919-18.9mm x 18.9mm

X3: LED Power. 24W represent 24Watt

X4: Color temperature:(27、 30、 35、 40、 45、 50、 57、 65...)x100

X5: Chip specification, Factory used only

X6: Light efficiency (lm/W) 70lm/w≤E<90lm/w; 90lm/w≤F<110lm/w; 110lm/w≤G<120lm/w; 120lm/w≤H<130lm/w; 130lm/w≤J<140lm/w

X7: Color rendering Index(CRI) : 60≤R60<65 ; 65≤R65<70 ; 70≤R70<75; 75≤R75<80 ; 80≤R80<85 ; 85≤R85<90 ; 90≤R90<95 ; 95≤R95<97 ; 97≤R98≤98 ;

X8: Default Forward Current(I_f). 0660 - 660mA

X9: Series and Parallel: 1206=12 series and 06 parallels

X10: Chromaticity bin code

NOTICE:

- All dimensions are in millimeter.
- Tolerance is ±0.1mm unless otherwise noted.
- It is strongly recommended that the temperature of lead be not higher than 70°C.
- This information in this document is subject to change in order to improve reliability, design or function without prior notice and does not represent a commitment on the part of this company.

Avoids preserving in the high temperature, the high-moisture, as well as in the acidic environment .