

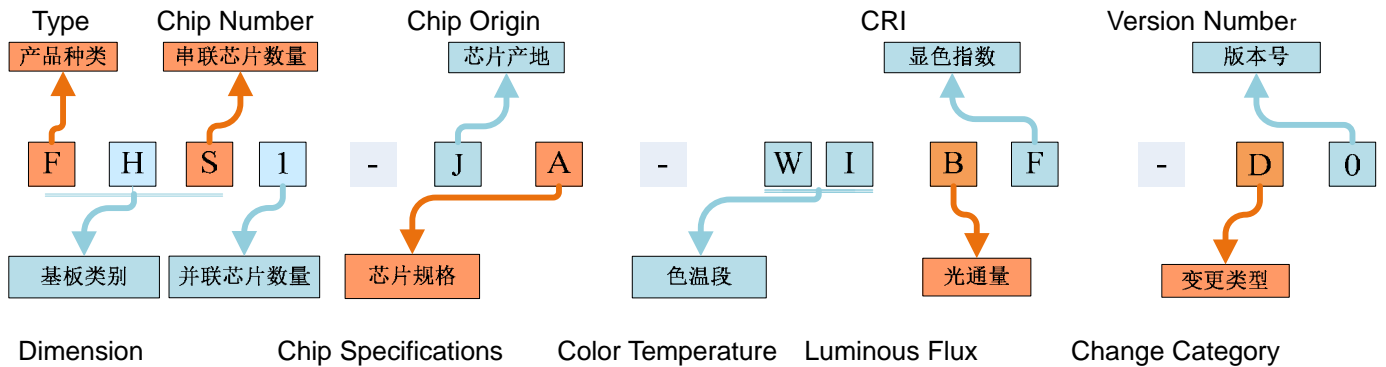


Filament Series Data Sheet

● Features

- High Ra and high efficiency
- High Viewing angle (360°)
- High Voltage Drive
- High Optical Quality
- Complied with RoHS directive

● Product Definition Code



Part Number for order:

- FSS1-JG-CEEF-D0**-----75~80V@10mA / 110-120Lm / 6020-6530K / Ra>80
- FSS1-JG-NBFF-D0**-----75~80V @10mA / 110-120Lm / 4060±163K / Ra>80
- FSS1-JG-WJDF-D0**-----75~80V @10mA / 100-110Lm / 2940±85K / Ra>80
- FSS1-JG-WJDF-D0**-----75~80V @10mA / 100-110Lm / 2725±80K / Ra>80
- FSQ1-JG-CEAF-D0**-----60~65V @10mA / 70-80Lm / 6020-6530K / Ra>80
- FSQ1-JG-WIAF-D0**-----60~65V @10mA / 70-80Lm / 2725±80K / Ra>80
- FSQ1-JG-WELJ-D0**-----60~65V @10mA / 40-50Lm / 2200-2300K / Ra>80

● Dimension



1. The **cutting PIN is the cathode end.**
2. The filament products manufacturing for finished products, need to fill the cooling gas inside the bubble
3. PIN feet for Metal, please pay attention to weld ability assessment

All dimensions are in millimeter
Tolerance is ±0.1mm unless otherwise noted

● (Ta=25°C) Absolute maximum ratings at Ta=25°C

Item	Symbol	Absolute Maximum Rating	Unit
Forward Current	I _f	10	mA
Pulse Forward Current	I _{fp}	20	mA
Power Dissipation	P _D	800	mW
Operating Temperature	T _{opr}	-30~85	°C
Storage Temperature	T _{stg}	-10~40	°C
Storage Humidity		60	%
Junction Temperature	T _j	85	°C

Notes: I_{fp} conditions with pulse width ≤2ms and duty cycle ≤2%

● (Ta=25°C) Optical-Electrical Characteristics at Ta=25°C

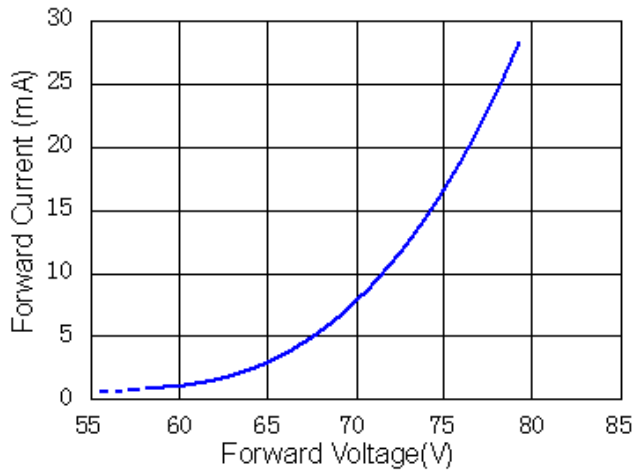
Parameter	Symbol	Value			Unit	Test condition
		Min.	Typ.	Max.		
Forward Voltage	V _F	60 70	65 75	70 80	V	I _f =10mA
Luminous Flux	Φ	40 100		80 120	LM	I _f =10mA
Color Temperature	CCT	2200		6530	K	I _f =10mA
Color Rendering Index	CRI	80	---		---	I _f =10mA
Reverse Current	I _R	---	---	10	uA	V _R =5V
Viewing angle	2θ _{1/2}	---	360	---	Deg	I _f =10mA
Antistatic ability	ESD	HBM		4000V/ class 2		
		MM		300V/ Class M3		

Notes: Luminous Flux (LM) ±5%
 Forward Voltage (VF) ±0.1V
 Wavelength (X,Y) ±0.01 (CCT±5%)
 Color Rendering Index (CRI) ±2
 Viewing angle (2θ_{1/2}) ±5

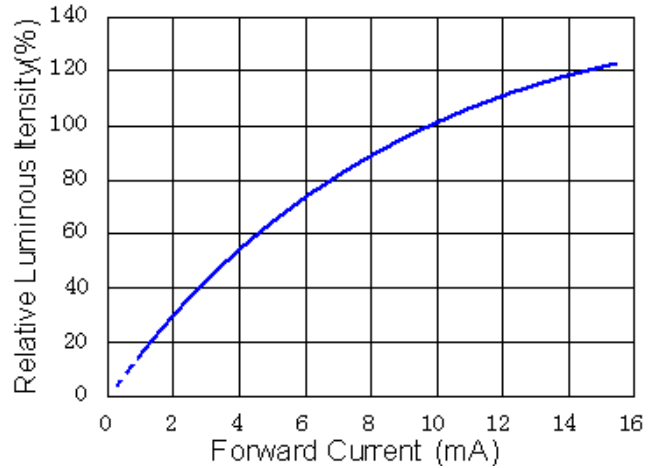
● Typical Optical-Electrical Characteristics curves

Environment Parameter: Temperature=25°C, Humidity=45%

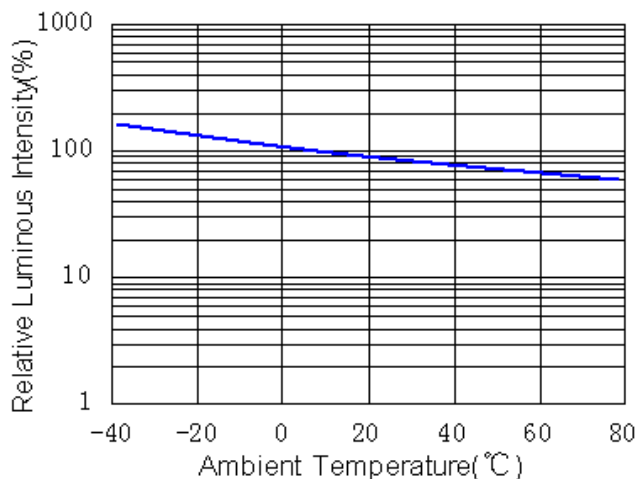
Forward Current VS Forward Voltage



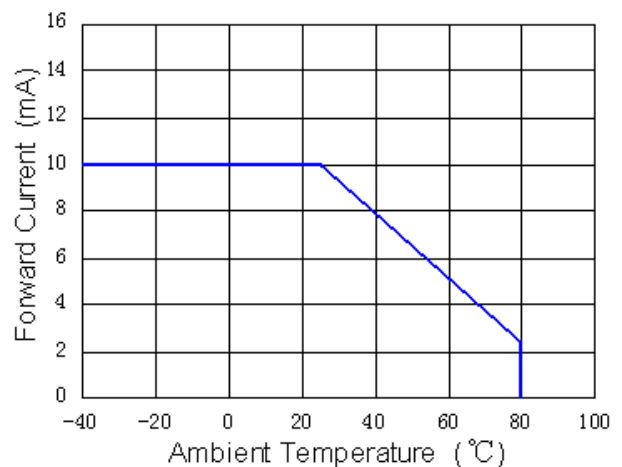
Relative Flux VS Forward Current



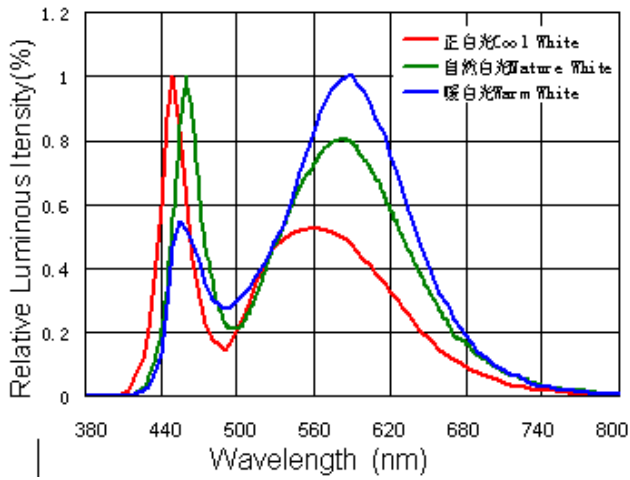
Relative Flux VS Ambient Temperature



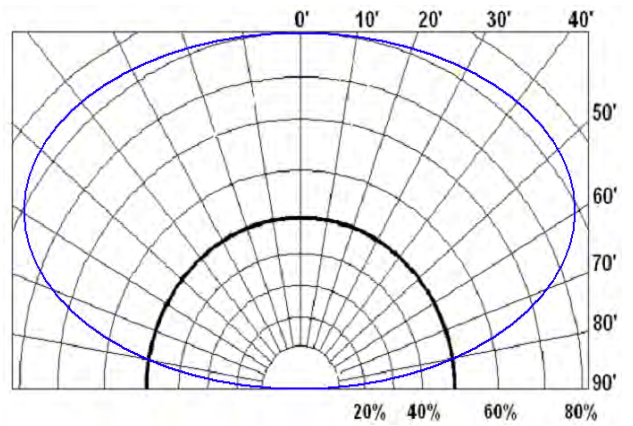
Forward Current VS Ambient Temperature



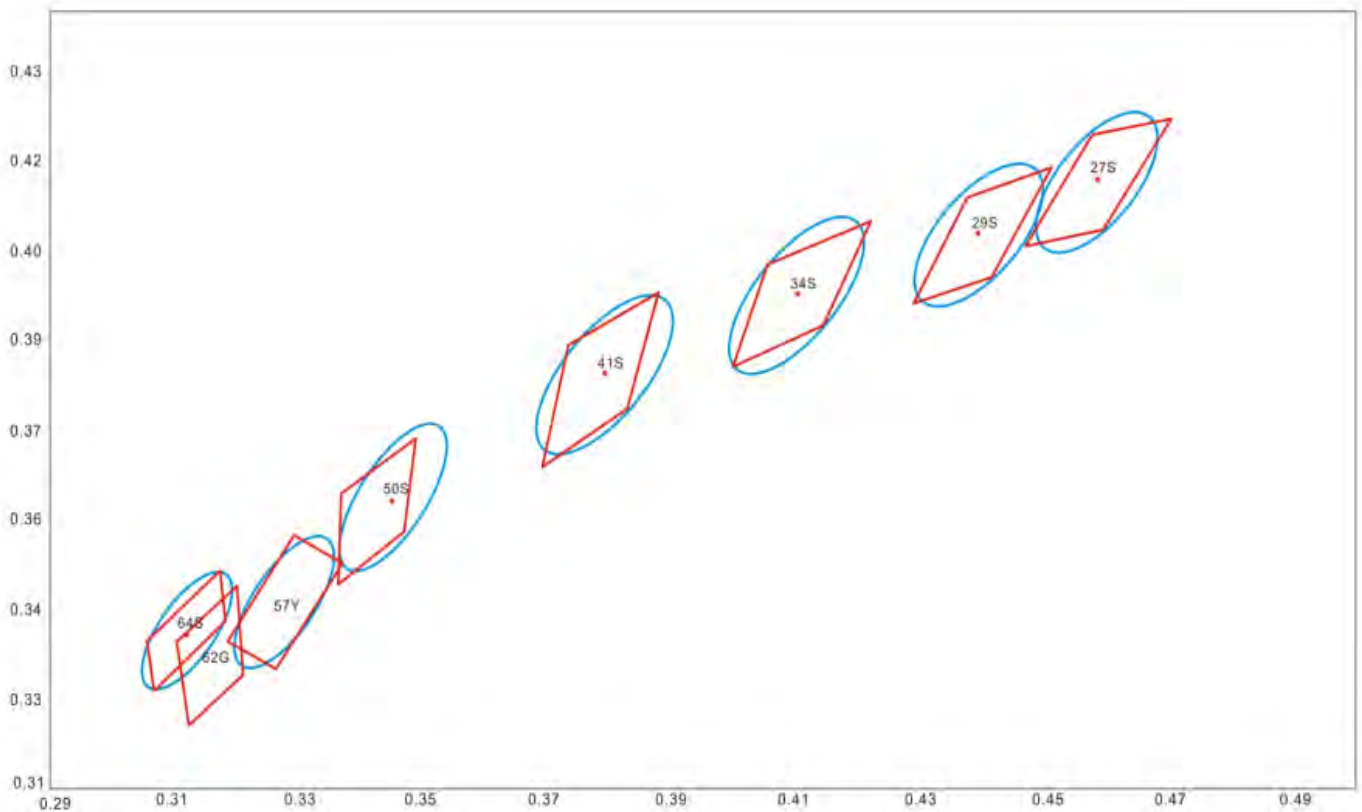
Relative Spectral Distribution



Typical Spectral Distribution



● Chromaticity range & Color lineup



Runlite shooting figure based on IEC60081 color tolerance standard coordinates
Coordinates within ellipse in blue by SDCM < 5

● Range of bins

CCT	Bin Code	CIE-X	CIE-Y	CCT	Bin Code	CIE-X	CIE-Y
2725±80K	27S	0.4475	0.4012	5100±200K	50S	0.3372	0.3449
		0.4582	0.4199			0.3378	0.3596
		0.470	0.4228			0.3496	0.3694
		0.4598	0.4041			0.3478	0.3533
	Central point	0.459	0.412		Central point	0.346	0.359
2940±85K	29S	0.4295	0.3918	6500±325K	64S	0.3079	0.3274
		0.4381	0.4097			0.3068	0.3354
		0.4515	0.4145			0.3181	0.3467
		0.442	0.3962			0.3192	0.3387
	Central point	0.44	0.403		Central point	0.313	0.337
3400±135K	34S	0.4006	0.3811	6020-6530K	62G	0.3133	0.3214
		0.4061	0.3980			0.3113	0.3350
		0.4226	0.4056			0.3208	0.3444
		0.4150	0.3930			0.3219	0.3296
	Central point	0.411	0.393		Central point	0.3168	0.3328
4060±163K	41S	0.3699	0.3646	5665±380K	57Y	0.3273	0.3306
		0.3743	0.3846			0.3196	0.3352
		0.3885	0.3934			0.3301	0.3529
		0.3835	0.3741			0.3379	0.3482
	Central point	0.38	0.38		Central point	0.3287	0.3417

● Voltage classes

Group	Min.	Max.	Unlit	Condition
1	Step 3 v		V	IF=10mA

● Luminous flux standard step

Color	CRI	CCT Range		Lumen (10mA)		
		Min	Max	Code	Lumen	
					Min	Max
Warm white	80	2645	2805	27S	80	90
		2855	3025	29S	85	95

● Electro-Optical Characteristics (Warm white)

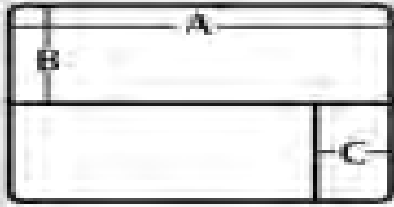
If(mA)	Vf(v)	Power(w)	Flux(LM)	LM/W	CCT	Ra
5	73.155	0.365	48.05	134.05	2844.75	82.70
10	75.745	0.757	93.95	125.28	2851.50	82.12
15	77.832	1.167	135.30	116.72	2855.75	81.85
20	79.327	1.586	171.25	108.52	2865.75	81.57

● Test items and results of reliability

Test Item	Test Conditions	Duration/Cycle	Number of damage	Reference
Temperature	-40°C 30min ↑↓25°C(2min) 100°C 30min	100 times	0/100	JEITA ED-4701300 303
Thermal Shock	-40°C 30min ↑↓ 5sec 100°C 30min	100 times	0/100	JEITA ED-4701200 303
High Temperature Storage	Ta=100°C	1000 hours	0/100	EIAJED-4701200 201
Humidity Heat Storage	Ta=85°C RH=85%	1000 hours	0/100	EIAJED-4701100 103
Low Temperature Storage	Ta=-40°C	1000 hours	0/100	EIAJED-4701200 202
Room Temperature Test	Ta=25°C IF=10mA	1000 hours	0/100	Tested with Runlite standard
High Humidity Heat Test	60°C RH=90% IF=10mA	1000 hours	0/100	Tested with Runlite standard
Low Temperature Test	Ta=-40°C IF=10mA	1000 hours	0/100	Tested with Runlite standard
ESD(HBM)	-4KV at 1.5KΩ; 100pF	3 times	0/100	MIL-STD-883D

● Packaging

1.
(Unit:cm)



A:12.5cm B:4.5cm
C:2.4cm H:2.4cm

13.4 x 10.5 x 3.1cm

2.
(Unit:cm)

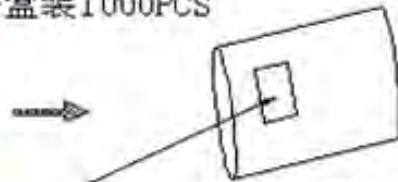


3.
Package Dimension (Unit:mm)

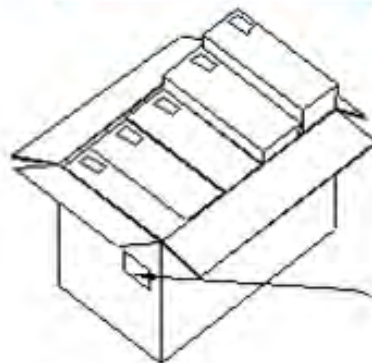
深圳市源磊科技有限公司	
品名	
规格	
数量	
日期	
备注	
单号	



每盒装1000PCS



静电屏蔽袋
Moisture-proof bag



Lable3

每个外箱装8个卷袋
外箱尺寸=495*358*357mm
Outside box
Maximums for inside
bases

每盒装1袋，每袋8000PCS
内箱尺寸：357*357*35
Inside box Maximums seven

Instruction

Thanks for using relevant filament products of Shenzhen Runlite Technology Co., Ltd., in order to enhance your understanding of the characteristics of our products, as far as possible to reduce or avoid unnecessary damage to the product due to human factors, and make it can better service your production. we give corresponding instructions, According to the characteristic in the process of standard use. At the same time, even if the same specifications filament, in the practical application field its reliability are related to overall system design level, mode of operation and conditions of use. This Instructions can't cover all questions may encounter during customer use process; we sincerely apologize for any inconvenience this may cause.

1、Declaring:

In order to confirm if it is right for the purpose, Pretest is necessary before use the product. This product presentation does not guarantee not contravene any patent. Relate to imports and exports filament product Legal liability should be responsible by customer, so please verify relevant provision about the filament product in your Target market. We may change specifications from time to time in the interest of product development, without prior notification or public announcement. An agreement of formal product specifications is required prior to mass production.

2、Before use:

We suggest that the same parameters products should be used together, such as BIN coordinate, VF and luminous flux etc. Feasibility should be checked before applying to product (different VF or CIE BIN would lead to brightness and color discrepancy) to see if workable.

3、Package and Storage:

3.1、To avoid the moisture penetration, it is recommended to store filament s in a dry box(or desiccator) with a desiccant. The recommended storage conditions are Temperature 5 to 30degrees Centigrade with humidity 50% maximum.

3.2、Precaution after opening packaging

However filament is correspond, when filament be soldered dip, interfacial separation may affect the light transmission efficiency, causing the light intensity to drop.

Attentions needed

a. Soldering should be done right after opening the package(within 24Hrs).

b. Keeping of a fraction- Sealing Temperature : 5 ~ 40℃ Humidity : Less than 30%

c. If the package has been opened more than 1week or the humidity indicator color changes from blue to pink (over 30%), components should be dried for 24hrs at 60±5℃

d. You have to dehumidify filament at 60±5℃ for 12 hours when indicator card changes color from blue to pink and exceed safe value of 30% or exposed to the air for more than one day.

4、Heat Sinking

4.1、Thermal design of the end product is of paramount importance. Please consider the heat generation of the filament when making the system design. The coefficient of temperature increase per input electric power is affected by the thermal resistance of the circuit board and density of filament placement on the board, as well as other components. It is necessary to avoid intense heat generation and operate within the maximum ratings given in this specification.

4.2、The operating current should be decided after considering the ambient maximum temperature of filament s.

5、Recommended soldering conditions

5.1、Please refer to filament specification corresponded whether the product is adaptable to reflow process. Runlite is not responsible for dip soldering method on filament.

5.2、Do not apply AC current to filament and avoid welding more than twice. Filament is suitable for point welding, please make evaluation when want to try other method to ensure normal function.

5.3、Components should not be mounted on warped direction of PCB. Please avoid rapid cooling after soldering. Any mechanical force or any excess vibration shall not be accepted to apply during cooling process to normal temp after soldering. After soldering, do not warp the filament.

5.4、Repairing should not be done after the filament have been soldered. When repairing is unavoidable, a double-head soldering iron is suggested.

6、Handling of static electricity :

These products are sensitive to static electricity charge. Please take measures to prevent any static electricity being produced such as the wearing of a wristband or anti-static gloves when handling this product. All devices, equipment and machinery must be properly grounded. It is recommended that precautions be taken against surge voltage to the equipment. When inspecting the final products in which filaments were assembly filament, it is recommended to check whether the assembled filaments are damaged by static electricity or not. It is easy to find static-damaged filaments by a light-on test @1mA/ a dice (reference)

7. Please identify polarity electrode first before use.

8、Other caution:

8.1、The White filaments are devices which are materialized by combining Blue chip and special phosphors. Consequently, the color temperature varies from current to current. Please take this into consideration while application expect.

8.2、3V is rated range for filament, better use filaments together with the same characteristics and mixture may bring bad effect.

8.3、In order to ensure the filament photoelectric property, please keep the lighting district clean and fingerprint and other staff off.

8.4、Long time exposure of sunlight or occasional UV exposure will cause lens discoloration.

8.5、filament electrode and lead frame are comprised of a silver plated copper alloy. The silver surface may be affected by environments which contain corrosive gases and so on. Please avoid conditions which may cause the filament to corrode, tarnish or discolor. This corrosion or discoloration might lower solderability or might affect on optical characteristics.

8.6、Please do not recommend to cover the silicone resin of the filaments with other resin (epoxy, urethane, etc)

8.7、Please make sure assembly process workable since process varies from different users.

8.8、Please be aware that this product should not come into contact with other parts in assembled status.

8.9、Please design a circuit that prevents any reverse voltage (excess current) from being applied to this product instantaneously when the circuit is ON or OFF.

8.10、filament electrode and lead frame are comprised of a silver plated copper alloy. it is easy to chemical reaction with sulfur. It will be results in filament exterior and color have been changed. So during produce process and storage condition should avoid or far away for the sulfur materials.

8.11、Avoid touching silicone resin parts especially by sharp tools such as Pincette(Tweezers)