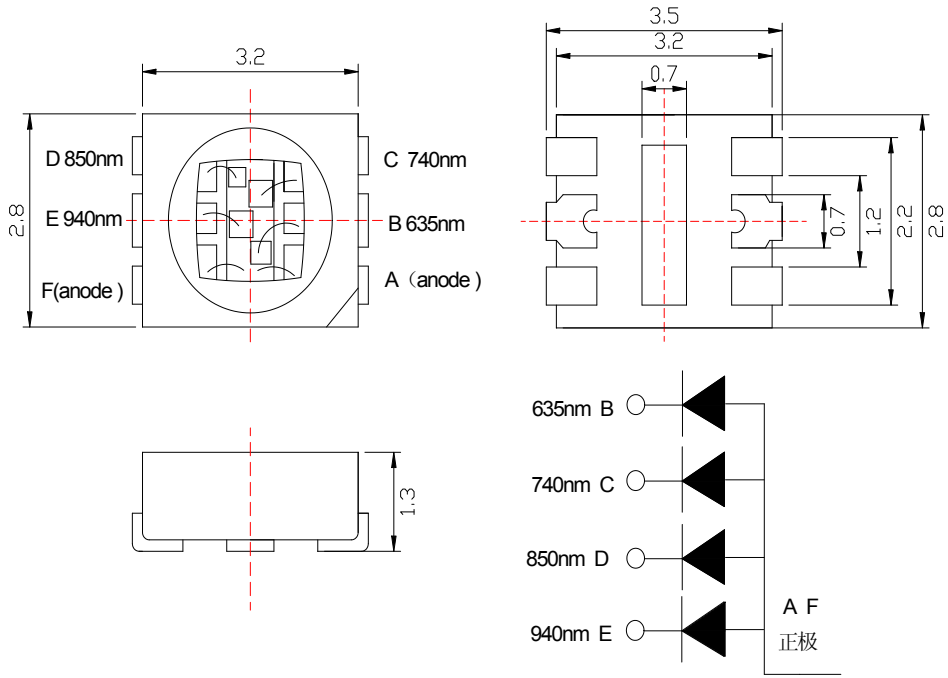


LED: 3.5X2.8mm. 635nm 740nm 850nm 940nm Red、 Infrared

Part No(部件型号) :YL-3528F(120)-RIRC

Package Dimension:



PART NO(產品型號)	LED Emitted Color (LED 的发光颜色)	LensColor (鏡片颜色)
YL-3528F(120)-RIRC	Red Infrared (红色 红外线)	Water Clear (无色透明)

Notes:

1. All dimensions are in millimeters (所有尺寸以毫米為單位)
2. Tolerance is ±0.25mm unless otherwise noted..(未標注公差為：±0.25.，另有標注除外).
3. Specifications are subject to change without notice(規格若有變動，恕不另行通知).

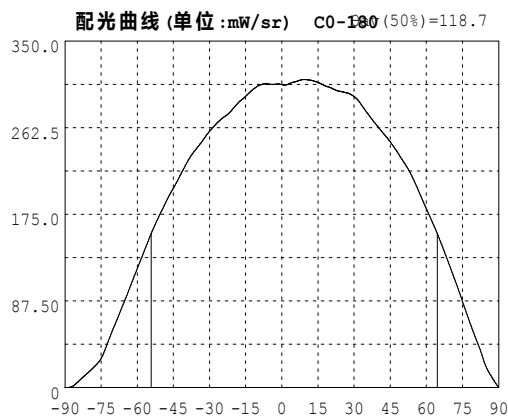
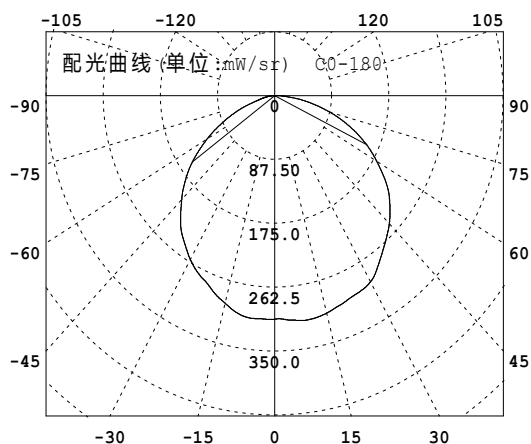
■ Absolute Maximum Ratings at Ta=25°C (绝对最大额定值在 Ta=25°C)

Parameter 参数	Symbol 符号	Rating 额定值	Unit 单位	
Forward Current 正向电流	I _F	635nm	30	mA
		740nm	70	
		850nm	50	
		940nm	70	
Operating Temperature 工作温度	Topr	-40 to +85	°C	
Storage Temperature 储存温度	Tstg	-40 to +85	°C	
Soldering Temperature 焊接温度	Tsol	240 ±5 for 5sec	°C	
Electrostatic Discharge 静电	ESD	8000	V	
Peak Forward Current (Duty 1/10@1KHz) 峰值正向电流	IF(Peak)	100	mA	
Reverse Voltage 反向电压	V _R	5	V	

■ Electronic Optical Characteristics : (电子光学特性)

Parameter	Condition	Symbol	Values				Unit
			635nm	745nm	850nm	940nm	
Luminous Intensity	I _F =20mA	I _v (min)	6	7	6	6	mW
		I _v (typ)	8	10	8	10	
		I _v (max)	/	/	/	/	
Viewing Angle	I _F =20mA	2 θ 1/2	120				deg
Peak Wavelength	I _F =20mA	λ _p (min)	625	730	840	930	nm
		λ _p (typ)	635	745	850	940	
		λ _p (max)	645	750	860	950	
Forward Voltage	I _F =20mA	V _F (min)	1.7	1.4	1.4	1.2	V
		V _F (typ)	2.0	1.6	1.5	1.4	
		V _F (max)	2.6	2.0	1.8	1.6	
Reverse Current	V _R =5V	I _R			10 uA		V

■ Typical electro-optical characteristics curves :(典型的光电特性曲线):625nm



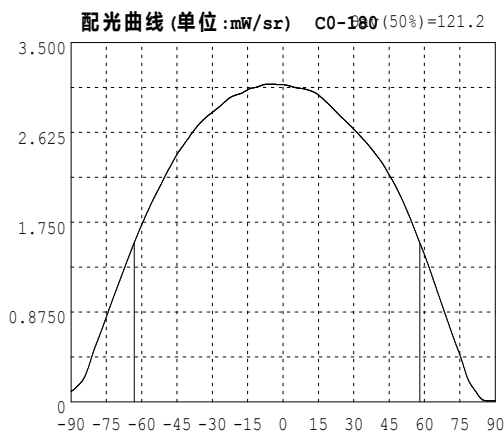
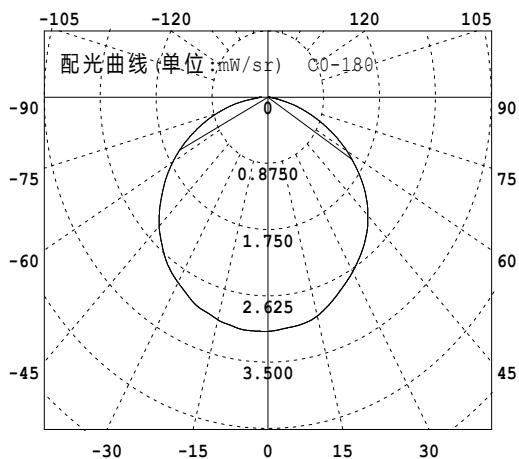
辐射强度分布数据:(角度°, 辐射强度mW/sr) C0-180

角度	强度	角度	强度	角度	强度	角度	强度	角度	强度	角度	强度
-90.0	0.2809	-58.0	132.4	-26.0	269.4	6.0	309.3	38.0	269.2	70.0	120.9
-88.0	0.3741	-56.0	144.7	-24.0	273.4	8.0	310.9	40.0	263.2	72.0	107.8
-86.0	2.800	-54.0	156.9	-22.0	277.1	10.0	311.1	42.0	257.3	74.0	94.29
-84.0	7.238	-52.0	167.8	-20.0	282.6	12.0	310.5	44.0	251.5	76.0	79.97
-82.0	11.68	-50.0	178.0	-18.0	287.9	14.0	309.2	46.0	245.0	78.0	66.19
-80.0	16.07	-48.0	188.0	-16.0	292.1	16.0	307.3	48.0	237.9	80.0	52.97
-78.0	20.74	-46.0	197.3	-14.0	296.7	18.0	304.9	50.0	230.2	82.0	40.56
-76.0	26.02	-44.0	205.9	-12.0	301.1	20.0	303.3	52.0	222.6	84.0	25.98
-74.0	34.49	-42.0	215.3	-10.0	304.6	22.0	301.0	54.0	213.6	86.0	15.40
-72.0	47.13	-40.0	224.5	-8.0	306.5	24.0	299.4	56.0	203.2	88.0	7.411
-70.0	59.43	-38.0	233.0	-6.0	306.9	26.0	298.4	58.0	191.8	90.0	0
-68.0	71.13	-36.0	239.7	-4.0	306.3	28.0	297.1	60.0	180.7		
-66.0	83.18	-34.0	245.8	-2.0	306.6	30.0	294.1	62.0	169.9		
-64.0	95.24	-32.0	252.4	0.0	306.2	32.0	289.3	64.0	158.8		
-62.0	107.8	-30.0	259.0	2.0	306.0	34.0	282.4	66.0	146.7		
-60.0	120.2	-28.0	264.5	4.0	308.1	36.0	275.7	68.0	134.0		

电学参数:

工作电流 I_f : 20.08mA 工作电压 V_f : 1.989V
 反向电压 V_z : 10.01V (偏置 $I_r=0.10\mu A$)
 反向漏电流 I_r : 0.00 μA (偏置 $V_r=5.00V$)
 电功率 P : 39.93mW

■ Typical electro-optical characteristics curves :(典型的光电特性曲线):740nm



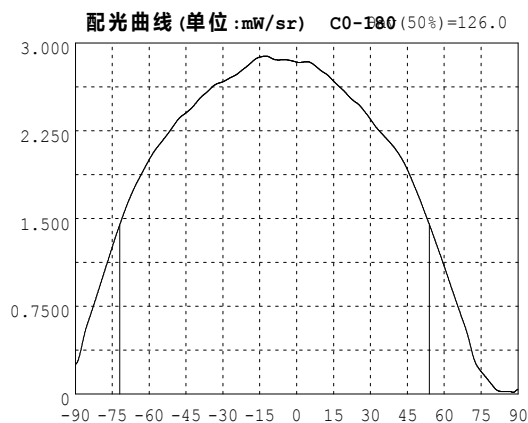
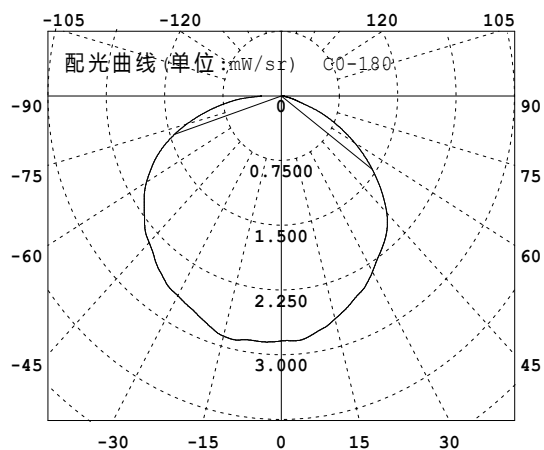
辐射强度分布数据:(角度°, 辐射强度mW/sr) C0-180

角度	强度	角度	强度	角度	强度	角度	强度	角度	强度	角度	强度
-90.0	0.1068	-58.0	1.830	-26.0	2.896	6.0	3.059	38.0	2.453	70.0	0.7774
-88.0	0.1385	-56.0	1.930	-24.0	2.937	8.0	3.054	40.0	2.392	72.0	0.6466
-86.0	0.1844	-54.0	2.021	-22.0	2.971	10.0	3.043	42.0	2.330	74.0	0.5227
-84.0	0.2551	-52.0	2.111	-20.0	2.990	12.0	3.029	44.0	2.254	76.0	0.3949
-82.0	0.3807	-50.0	2.203	-18.0	3.004	14.0	3.007	46.0	2.175	78.0	0.2508
-80.0	0.5212	-48.0	2.289	-16.0	3.029	16.0	2.972	48.0	2.092	80.0	0.1594
-78.0	0.6397	-46.0	2.371	-14.0	3.053	18.0	2.930	50.0	1.998	82.0	0.0945
-76.0	0.7634	-44.0	2.447	-12.0	3.062	20.0	2.886	52.0	1.896	84.0	0.0337
-74.0	0.8925	-42.0	2.511	-10.0	3.076	22.0	2.839	54.0	1.787	86.0	0.0134
-72.0	1.018	-40.0	2.575	-8.0	3.092	24.0	2.791	56.0	1.670	88.0	0.0115
-70.0	1.140	-38.0	2.640	-6.0	3.095	26.0	2.748	58.0	1.552	90.0	0.0113
-68.0	1.263	-36.0	2.697	-4.0	3.094	28.0	2.704	60.0	1.435		
-66.0	1.383	-34.0	2.744	-2.0	3.092	30.0	2.658	62.0	1.309		
-64.0	1.503	-32.0	2.786	0.0	3.091	32.0	2.610	64.0	1.176		
-62.0	1.617	-30.0	2.822	2.0	3.083	34.0	2.560	66.0	1.042		
-60.0	1.726	-28.0	2.858	4.0	3.070	36.0	2.509	68.0	0.9109		

电学参数:

工作电流 I_f : 19.28mA 工作电压 V_f : 1.557V
 反向电压 V_z : 10.01V (偏置 $I_r=0.10\mu A$)
 反向漏电流 I_r : 0.00 μA (偏置 $V_r=5.00V$)
 电功率 P : 30.01mW

■ Typical electro-optical characteristics curves :(典型的光电特性曲线):850nm



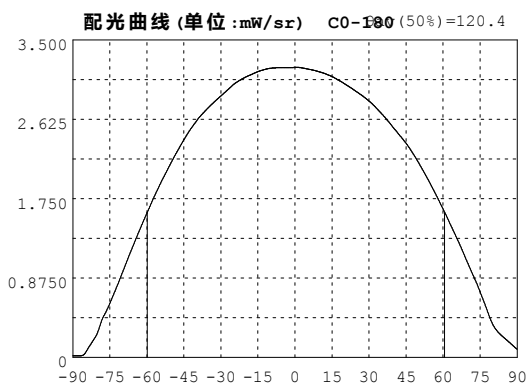
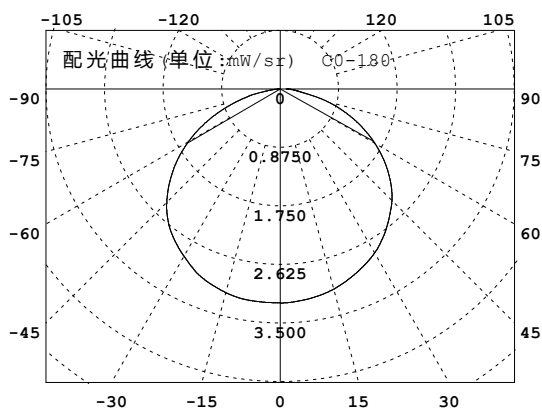
辐射强度分布数据:(角度°, 辐射强度mW/sr) C0-180

角度	强度	角度	强度	角度	强度	角度	强度	角度	强度	角度	强度
-90.0	0.2582	-58.0	2.073	-26.0	2.715	6.0	2.830	38.0	2.150	70.0	0.4700
-88.0	0.3548	-56.0	2.129	-24.0	2.738	8.0	2.798	40.0	2.099	72.0	0.3092
-86.0	0.5386	-54.0	2.181	-22.0	2.772	10.0	2.763	42.0	2.038	74.0	0.2203
-84.0	0.6686	-52.0	2.236	-20.0	2.805	12.0	2.737	44.0	1.964	76.0	0.1687
-82.0	0.7959	-50.0	2.296	-18.0	2.842	14.0	2.697	46.0	1.873	78.0	0.1172
-80.0	0.9277	-48.0	2.352	-16.0	2.873	16.0	2.655	48.0	1.772	80.0	0.0647
-78.0	1.059	-46.0	2.388	-14.0	2.885	18.0	2.616	50.0	1.670	82.0	0.0281
-76.0	1.190	-44.0	2.421	-12.0	2.888	20.0	2.574	52.0	1.558	84.0	0.0222
-74.0	1.322	-42.0	2.461	-10.0	2.869	22.0	2.529	54.0	1.447	86.0	0.0219
-72.0	1.446	-40.0	2.513	-8.0	2.857	24.0	2.495	56.0	1.333	88.0	0.0158
-70.0	1.561	-38.0	2.556	-6.0	2.858	26.0	2.459	58.0	1.214	90.0	0.0419
-68.0	1.669	-36.0	2.592	-4.0	2.857	28.0	2.406	60.0	1.093		
-66.0	1.764	-34.0	2.632	-2.0	2.849	30.0	2.350	62.0	0.9695		
-64.0	1.847	-32.0	2.656	0.0	2.838	32.0	2.290	64.0	0.8459		
-62.0	1.926	-30.0	2.670	2.0	2.836	34.0	2.240	66.0	0.7242		
-60.0	2.004	-28.0	2.692	4.0	2.841	36.0	2.196	68.0	0.6051		

电学参数:

工作电流 I_f : 19.98mA 工作电压 V_f : 1.536V
 反向电压 V_z : 10.01V (偏置 $I_r=0.10\mu A$)
 反向漏电流 I_r : 0.00 μA (偏置 $V_r=5.00V$)
 电功率 P : 30.69mW

■ Typical electro-optical characteristics curves :(典型的光电特性曲线:) 940nm



辐射强度分布数据 : (角度 ° , 辐射强度 mW/sr) C0-180

角度	强度	角度	强度	角度	强度	角度	强度	角度	强度	角度	强度
-90.0	0.0197	-58.0	1.713	-26.0	2.982	6.0	3.176	38.0	2.597	70.0	1.041
-88.0	0.0194	-56.0	1.832	-24.0	3.028	8.0	3.164	40.0	2.530	72.0	0.9175
-86.0	0.0240	-54.0	1.945	-22.0	3.062	10.0	3.149	42.0	2.463	74.0	0.7936
-84.0	0.0925	-52.0	2.051	-20.0	3.092	12.0	3.132	44.0	2.398	76.0	0.6546
-82.0	0.1777	-50.0	2.157	-18.0	3.116	14.0	3.109	46.0	2.325	78.0	0.5098
-80.0	0.2713	-48.0	2.258	-16.0	3.140	16.0	3.084	48.0	2.241	80.0	0.3731
-78.0	0.4271	-46.0	2.354	-14.0	3.162	18.0	3.053	50.0	2.152	82.0	0.2896
-76.0	0.5355	-44.0	2.445	-12.0	3.177	20.0	3.019	52.0	2.057	84.0	0.2347
-74.0	0.6606	-42.0	2.528	-10.0	3.188	22.0	2.985	54.0	1.958	86.0	0.1876
-72.0	0.7922	-40.0	2.603	-8.0	3.194	24.0	2.948	56.0	1.855	88.0	0.1390
-70.0	0.9282	-38.0	2.671	-6.0	3.195	26.0	2.911	58.0	1.748	90.0	0.0903
-68.0	1.067	-36.0	2.729	-4.0	3.197	28.0	2.872	60.0	1.637		
-66.0	1.203	-34.0	2.784	-2.0	3.196	30.0	2.828	62.0	1.524		
-64.0	1.336	-32.0	2.835	0.0	3.198	32.0	2.778	64.0	1.407		
-62.0	1.465	-30.0	2.884	2.0	3.197	34.0	2.720	66.0	1.290		
-60.0	1.590	-28.0	2.932	4.0	3.187	36.0	2.662	68.0	1.168		

电学参数 :

工作电流 I_f : 19.98mA 工作电压 V_f : 1.281V
 反向电压 V_z : 10.01V (偏置 $I_r=0.10\mu A$)
 反向漏电流 I_r : 0.00 μA (偏置 $V_r=5.00V$)
 电功率 P : 25.59mW

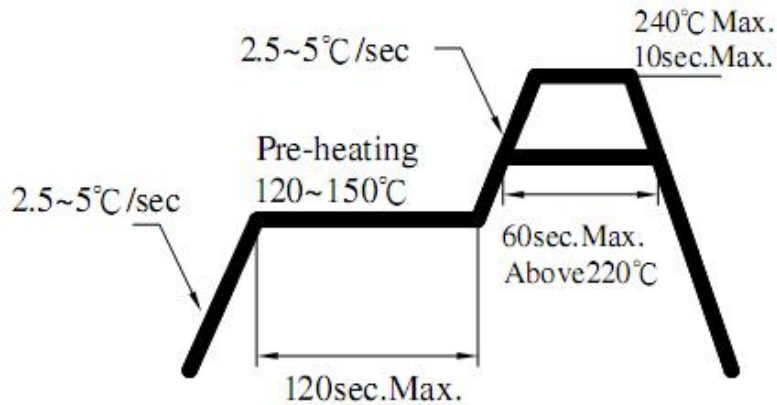
■ Reliability Test Items And Conditions: (可靠性测试项目及条件:)

No. ion	Items 项目	Test Condition 测试条件	Test Hours/Cycles 测试时间/周期	Sample Size 样本数	Ac/Re
1	Reflow Soldering 回流焊	Temp. : 240°C±5°C Min. 5sec.	5sec.	22 PCS.	0/1
2	Temperature Cycle 温度循环	H : +85°C 15min ∫ 5 min L : -40°C 15min	100Cycles	22 PCS.	0/1
3	Thermal Shock 热冲击	H : +85°C 5min ∫ 10 sec L : -10°C 5min	100 Cycles	22 PCS.	0/1
4	High Temperature Storage 高温存储	Temp. : 100°C 。	1000 Hrs.	22 PCS.	0/1
5	Low Temperature Storage 低温贮藏	Temp. : -40°C	1000 Hrs.	22 PCS.	0/1
6	DC Operating Life 直流工作寿命	IF =20 mA / 25°C	1000 Hrs.	22 PCS.	0/1
7	High Temperature / High Humidity 高温/高湿度	85°C / 85%RH	1000 Hrs.	22 PCS.	0/1

■ Precautions For Use 使用注意事项

Soldering Condition: 焊接条件:

Pb-free solder temperature profile 无铅焊料的温度曲线



1. Reflow soldering should not be done more than two times. 回流焊不可做两次以上。
2. When soldering, do not put stress on the LEDs during heating.
焊接时，在加热过程中勿对 LED 施加压力。
3. After soldering, do not warp the circuit board. 焊接后，勿弯曲电路板。

备注:

!请注意洗板水的使用，劣质的洗板水有可能会造成发光区及外观的伤害。