DATA SHEET

PART NO. : ESH-350DWPC006

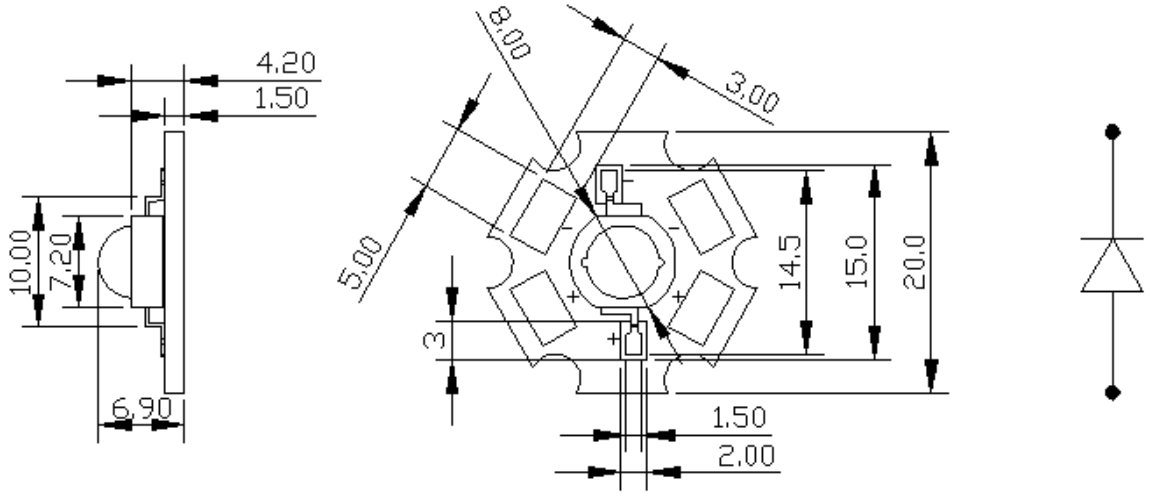
CUS NO. : 90593

REV : A / 0

Producer：_____ Auditor：_____ Approver：_____

CUSTOMER'S APPROVAL : _____ DCC : _____

■ Package Dimensions



Notes:

1. All dimensions are in millimeters.
2. Tolerance is ± 0.25mm (.020") unless otherwise noted.

■ Features：

- More energy efficient than incandescent and most halogen lamps
- low voltage operation
- Instant light
- Long operating life
- Anti UV

■ Applications：

- Indoor lighting： spot light，ceiling light，bulb…..
- Architectural and landscape lighting： down light，wall lamp，garden light
- Roadway lighting： Street light，garden light，tunnel light
- Display lighting： Showcase lighting

■ Absolute Maximum Ratings （Ta=25℃）

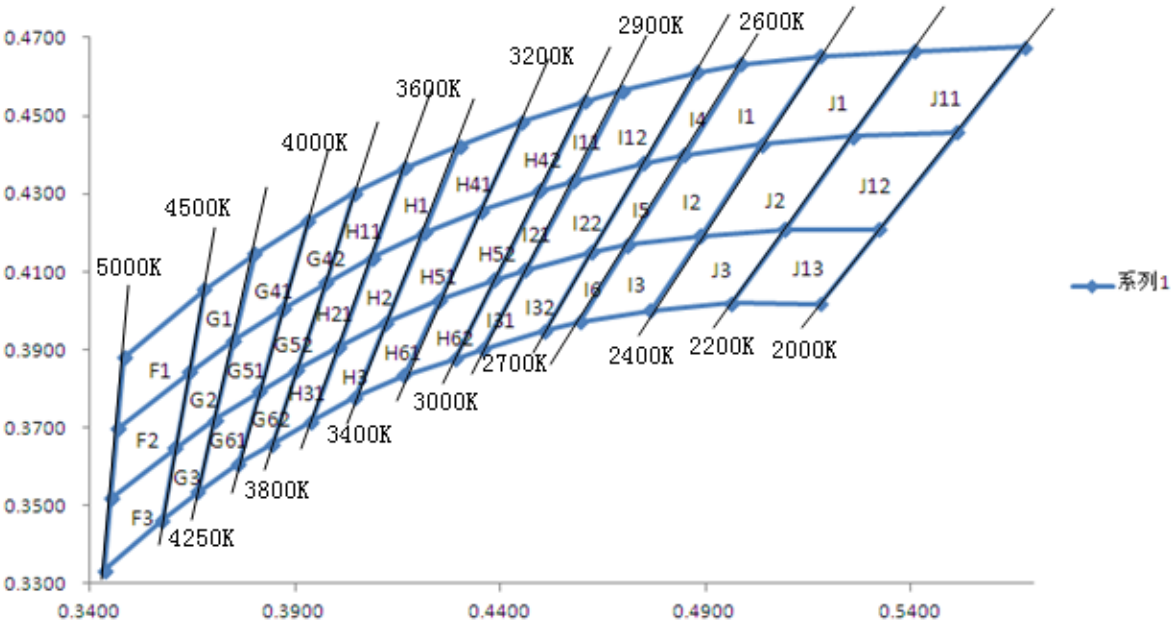
Parameter	Symbol	Rating	Unit
DC Forward Current	I_F	350	m A
Peak pulse Current*	I_{FP}	400	m A
Reverse Voltage	V_R	5	V
Power Dissipation	P_D	1	W
Operating Temperature Range	T_{OPR}	-30 ~ +75	°C
Storage Temperature Range	T_{STG}	-40 ~ +85	°C
LED Junction Temperature	T_J	125	°C

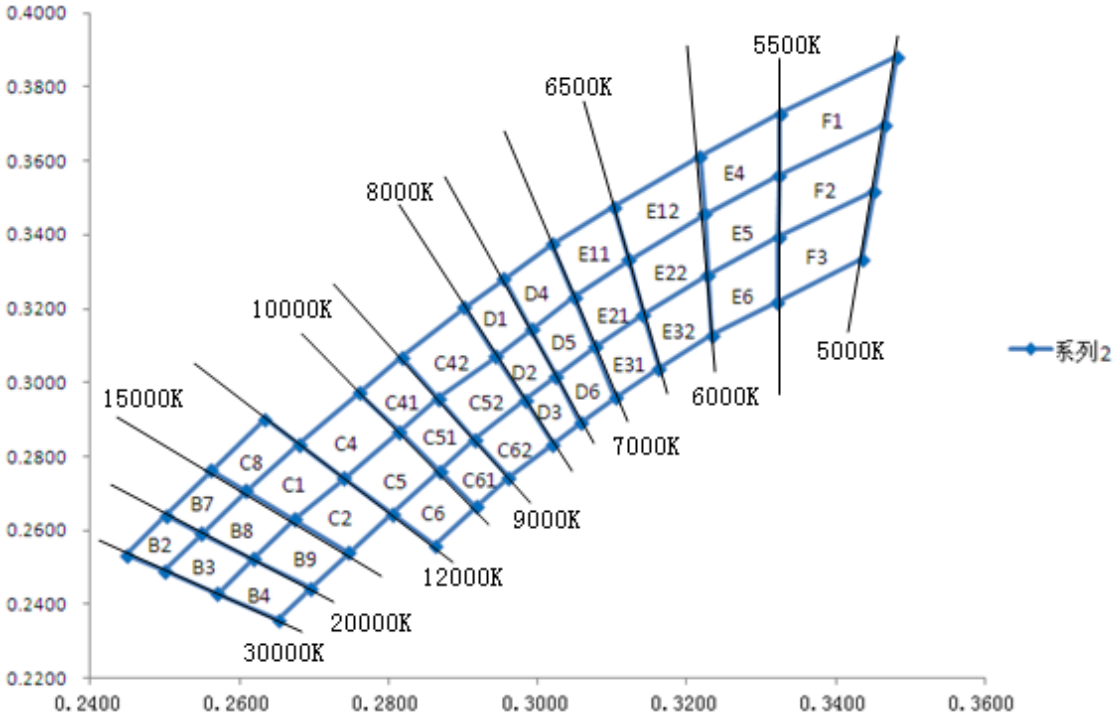
Notes：1. 1/10 Duty Cycle 0.1ms Pulse Width.

■ Electrical/Optical Characteristics--White (At TA=25°C)

Parameter	Symbol	Conditions	Min	Avg.	Max	Units
Forward Voltage	V_F	I_F=350mA	3.00	--	3.40	V
Thermal Resistance Junction To Board	$R\Theta_{J-B}$	I_F=350mA	--	10	--	°C/W
Luminous Flux	Φv	I_F=350mA	100		110	lm
Color Temperature	CCT	I_F=350mA	2800		3200	K
CRI	Ra	I_F=350mA	80	--	--	--
Temperature Coefficient of Forward Voltage	$\Delta V_F/\Delta T$	I_F=350mA	--	-2	--	mV/°C
Reverse Current	I_R	V_R=5V	--	--	10	μ A
Viewing Angle [1]	$2\Theta_{1/2}$	I_F=350mA	--	120	--	Deg

■ Color & binning





J11	0.5409	0.4666	**J12**	0.5258	0.4447	**J13**	0.5093	0.4209
	0.5677	0.4675		0.5513	0.4458		0.5323	0.4208
	0.5513	0.4458		0.5323	0.4208		0.5179	0.4018
	0.5258	0.4447		0.5093	0.4209		0.4963	0.4020
J1	0.5180	0.4653	**J2**	0.5036	0.4426	**J3**	0.4888	0.4192
	0.5409	0.4666		0.5258	0.4447		0.5093	0.4209
	0.5258	0.4447		0.5093	0.4209		0.4963	0.4020
	0.5036	0.4426		0.4888	0.4192		0.4766	0.4001
I1	0.4988	0.4632	**I2**	0.4849	0.4399	**I3**	0.4711	0.4169
	0.5180	0.4653		0.5036	0.4426		0.4888	0.4192
	0.5036	0.4426		0.4888	0.4192		0.4766	0.4001
	0.4849	0.4399		0.4711	0.4169		0.4593	0.3972
I4	0.4880	0.4611	**I5**	0.4750	0.4379	**I6**	0.4622	0.4150
	0.4988	0.4632		0.4849	0.4399		0.4711	0.4169
	0.4849	0.4399		0.4711	0.4169		0.4593	0.3972
	0.4750	0.4379		0.4622	0.4150		0.4509	0.3948
I12	0.4697	0.4563	**I22**	0.4579	0.4334	**I32**	0.4461	0.4104
	0.4880	0.4611		0.4750	0.4379		0.4622	0.4150
	0.4750	0.4379		0.4622	0.4150		0.4509	0.3948
	0.4579	0.4334		0.4461	0.4104		0.4357	0.3901
I11	0.4605	0.4536	**I21**	0.4496	0.4308	**I31**	0.4386	0.4080
	0.4697	0.4563		0.4579	0.4334		0.4461	0.4104
	0.4579	0.4334		0.4461	0.4104		0.4357	0.3901
	0.4496	0.4308		0.4386	0.4080		0.4289	0.3877
H42	0.4454	0.4484	**H52**	0.4353	0.4257	**H62**	0.4251	0.4028
	0.4605	0.4536		0.4496	0.4308		0.4386	0.4080
	0.4496	0.4308		0.4386	0.4080		0.4289	0.3877
	0.4353	0.4257		0.4251	0.4028		0.4164	0.3834
H41	0.4302	0.4423	**H51**	0.4214	0.4200	**H61**	0.4122	0.3969
	0.4454	0.4484		0.4353	0.4257		0.4251	0.4028
	0.4353	0.4257		0.4251	0.4028		0.4164	0.3834
	0.4214	0.4200		0.4122	0.3969		0.4047	0.3779

H1	0.4167	0.4366	**H2**	0.4087	0.4136	**H3**	0.4007	0.3908
	0.4302	0.4423		0.4214	0.4200		0.4122	0.3969
	0.4214	0.4200		0.4122	0.3969		0.4047	0.3779
	0.4087	0.4136		0.4007	0.3908		0.3940	0.3717
H11	0.4045	0.4301	**H21**	0.3974	0.4072	**H31**	0.3904	0.3850
	0.4167	0.4366		0.4087	0.4136		0.4007	0.3908
	0.4087	0.4136		0.4007	0.3908		0.3940	0.3717
	0.3974	0.4072		0.3904	0.3850		0.3845	0.3659
G42	0.3932	0.4232	**G52**	0.3870	0.4005	**G62**	0.3812	0.3793
	0.4045	0.4301		0.3974	0.4072		0.3904	0.3850
	0.3974	0.4072		0.3904	0.3850		0.3845	0.3659
	0.3870	0.4005		0.3812	0.3793		0.3761	0.3608
G41	0.3800	0.4146	**G51**	0.3750	0.3923	**G61**	0.3704	0.3720
	0.3932	0.4232		0.3870	0.4005		0.3812	0.3793
	0.3870	0.4005		0.3812	0.3793		0.3761	0.3608
	0.3750	0.3923		0.3704	0.3720		0.3662	0.3536
G1	0.3679	0.4055	**G2**	0.3642	0.3843	**G3**	0.3608	0.3648
	0.3800	0.4146		0.3750	0.3923		0.3704	0.3720
	0.3750	0.3923		0.3704	0.3720		0.3662	0.3536
	0.3642	0.3843		0.3608	0.3648		0.3576	0.3463
F4	0.3482	0.3881	**F5**	0.3466	0.3698	**F6**	0.3451	0.3519
	0.3679	0.4055		0.3642	0.3843		0.3608	0.3648
	0.3642	0.3843		0.3608	0.3648		0.3576	0.3463
	0.3466	0.3698		0.3451	0.3519		0.3435	0.3335

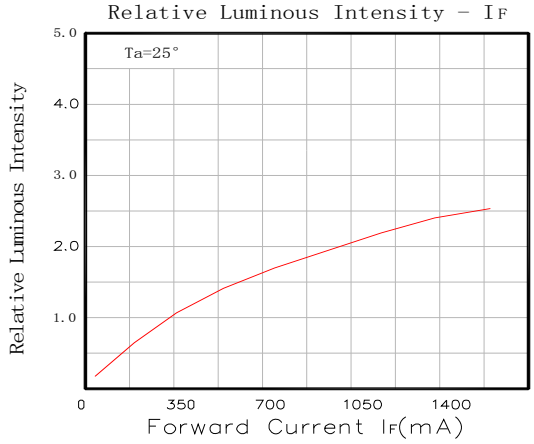
F1	0.3325	0.3728	**F2**	0.3324	0.3560	**F3**	0.3323	0.3394
	0.3482	0.3881		0.3466	0.3698		0.3451	0.3519
	0.3466	0.3698		0.3451	0.3519		0.3435	0.3335
	0.3324	0.3560		0.3323	0.3394		0.3322	0.3219
E4	0.3218	0.3613	**E5**	0.3224	0.3456	**E6**	0.3229	0.3291
	0.3325	0.3728		0.3324	0.3560		0.3323	0.3394
	0.3324	0.3560		0.3323	0.3394		0.3322	0.3219
	0.3224	0.3456		0.3229	0.3291		0.3234	0.3129
E12	0.3102	0.3475	**E22**	0.3122	0.3332	**E32**	0.3142	0.3184
	0.3218	0.3613		0.3224	0.3456		0.3229	0.3291
	0.3224	0.3456		0.3229	0.3291		0.3234	0.3129
	0.3122	0.3332		0.3142	0.3184		0.3163	0.3038
E11	0.3020	0.3374	**E21**	0.3049	0.3232	**E31**	0.3077	0.3096
	0.3102	0.3475		0.3122	0.3332		0.3142	0.3184
	0.3122	0.3332		0.3142	0.3184		0.3163	0.3038
	0.3049	0.3232		0.3077	0.3096		0.3104	0.2960
D4	0.2955	0.3281	**D5**	0.2992	0.3143	**D6**	0.3025	0.3018
	0.3020	0.3374		0.3049	0.3232		0.3077	0.3096
	0.3049	0.3232		0.3077	0.3096		0.3104	0.2960
	0.2992	0.3143		0.3025	0.3018		0.3058	0.2892

D1	0.2902	0.3203	**D2**	0.2944	0.3070	**D3**	0.2983	0.2952
	0.2955	0.3281		0.2992	0.3143		0.3025	0.3018
	0.2992	0.3143		0.3025	0.3018		0.3058	0.2892
	0.2944	0.3070		0.2983	0.2952		0.3021	0.2833
C42	0.2818	0.3069	**C52**	0.2867	0.2957	**C62**	0.2916	0.2846
	0.2902	0.3203		0.2944	0.3070		0.2983	0.2952
	0.2944	0.3070		0.2983	0.2952		0.3021	0.2833
	0.2867	0.2957		0.2916	0.2846		0.2961	0.2744
C41	0.2761	0.2972	**C51**	0.2815	0.2868	**C61**	0.2869	0.2761
	0.2818	0.3069		0.2867	0.2957		0.2916	0.2846
	0.2867	0.2957		0.2916	0.2846		0.2961	0.2744
	0.2815	0.2868		0.2869	0.2761		0.2918	0.2665
C4	0.2680	0.2833	**C5**	0.2740	0.2742	**C6**	0.2805	0.2645
	0.2761	0.2972		0.2815	0.2868		0.2869	0.2761
	0.2815	0.2868		0.2869	0.2761		0.2918	0.2665
	0.2740	0.2742		0.2805	0.2645		0.2862	0.2559
C8	0.2562	0.2762	**C1**	0.2609	0.2706	**C2**	0.2673	0.2629
	0.2634	0.2902		0.2680	0.2833		0.2740	0.2742
	0.2680	0.2833		0.2740	0.2742		0.2805	0.2645
	0.2609	0.2706		0.2673	0.2629		0.2747	0.2540
B7	0.2502	0.2641	**B8**	0.2549	0.2592	**B9**	0.2618	0.2522
	0.2562	0.2762		0.2609	0.2706		0.2673	0.2629
	0.2609	0.2706		0.2673	0.2629		0.2747	0.2540
	0.2549	0.2592		0.2618	0.2522		0.2696	0.2443

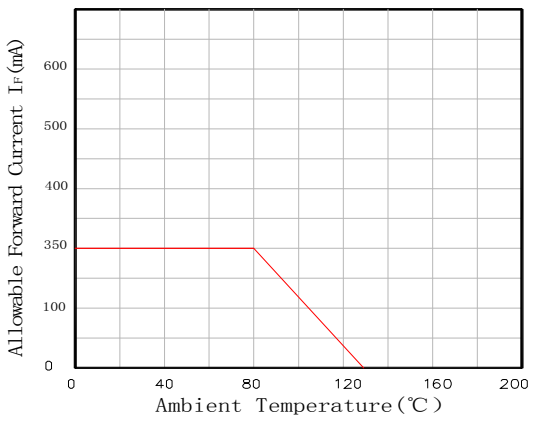
Typical Optical/Electrical Characteristics Curves

(Ta=25℃ Unless Otherwise Noted)

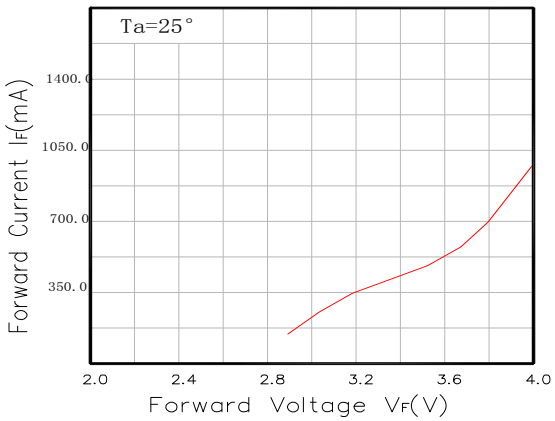
Relative Luminous Intensity – IF



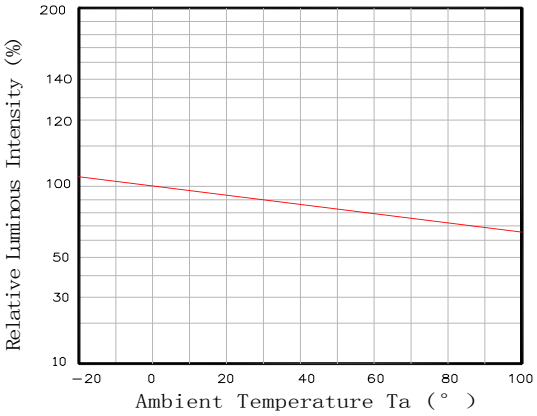
Allowable Forward Current – Ta



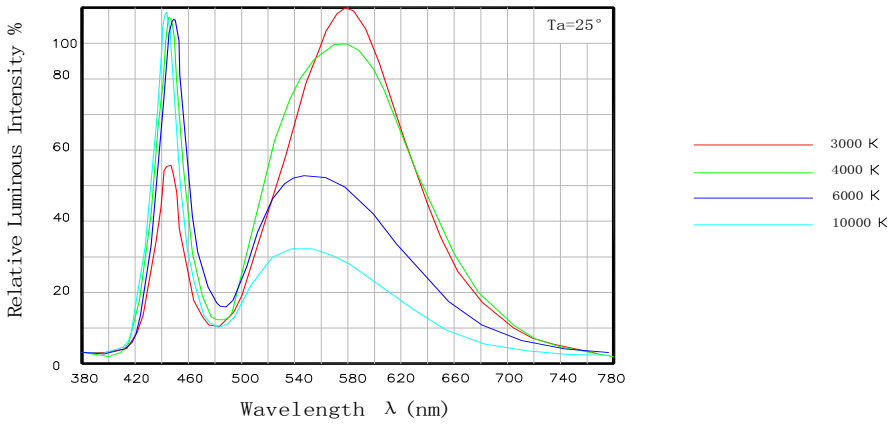
IF – VF



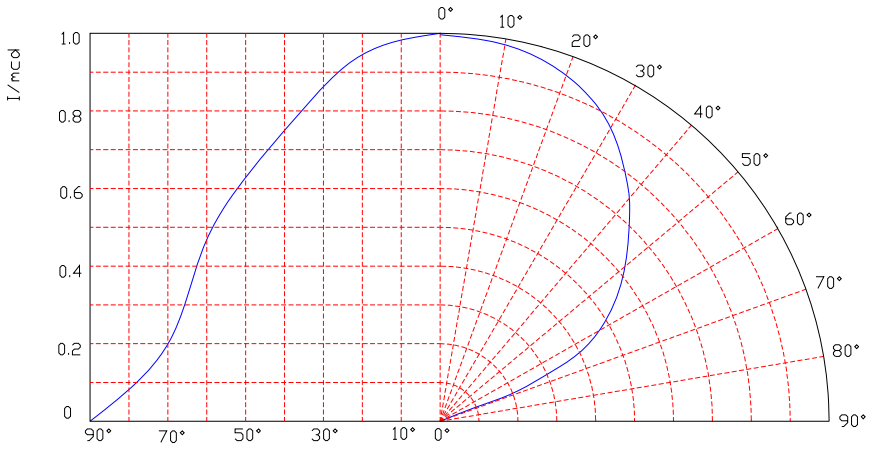
Relative Luminous Intensity – Ta



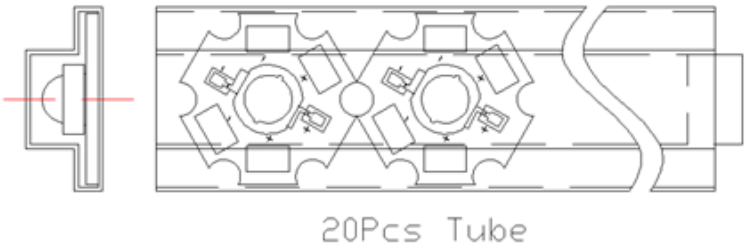
Wavelength Characteristics

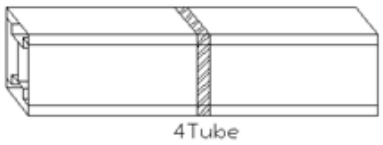


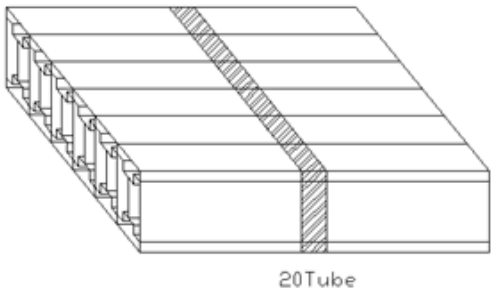
Radiation Diagram



Packing Standard





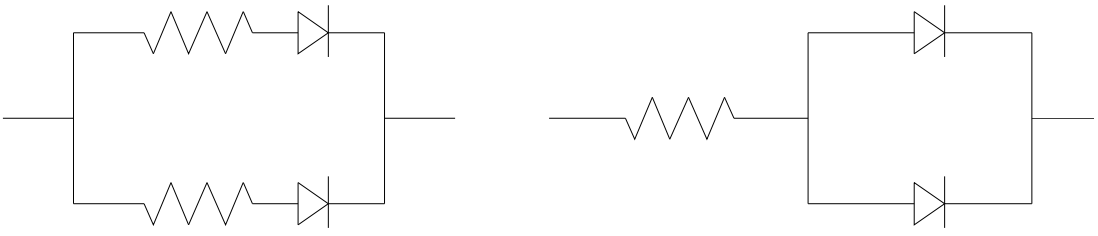


■ Reliability test standards

Test Item	REF. Standard	Test condition	Duration	Sample count	Accept
Temperature Cycle	JESD22-A104-A	-40℃~25℃~100℃~25℃ 30min,5min,30min,5min	100 cycles	22	0/22
Thermal shock	JESD22-A106	-40℃~100℃ 30min, 30min	100 cycles	22	0/22
High Temperature Storage	JEITA ED-4701 200 201	TA=100℃±5℃	1000 Hrs	22	0/22
Low Temperature Storage	JEITA ED-4701 200 202	TA=-40℃±5℃	1000 Hrs	22	0/22
Humidity Heat Storage	JIS C 7021 (1977)B-11	Ta=60℃ RH=85%	1000Hrs	22	0/22
Life test	JESD22-A108-A	Ta=25℃ If=350mA	1000Hrs	22	0/22
High humidity Heat life test	JESD22-A101	Ta=60℃ RH=85% IF=350mA	1000Hrs	22	0/22
Resistance to soldering Heat	JESD22-A113	IR soldering 245℃/10sec	1 time	22	0/22

■ Hing-Power Operating Note

1. High Power 350 series should be operated at 350 mA for ideal performance, but not more than 400mA.
2. High Power 350 series LED must be used in conjunction with heat-sinking devices. Soldering on Al PCB (Recommended PCB: ¢ 19.9mm 1.6t / two layers / 2.0 oz) with mid-connection point is another way to help heat dissipation. Thermal resistance for aluminum board must be less than 0.65 ℃/W.
3. High Power products are sensitive to static, especially in Blue, Cyan, Green，White, Warm White. Operators must wear static wristband (wireless static wristband is prohibited) and be well grounded while working in the environment with an ionizing air blower. Anti-static requirement should be under ESD 8000V.
4. High Power products are fully tested and shipped in anti-static packaging.
5. A non-conductive heat-dissipating paste should be applied between High Power and heat-sinking device.
6. It is recommended to use a resistor to limit current flow. In a parallel connection, each LED string should be protected individually.



Yes No