SPECIFICATION FOR APPRVAL

PRODUCT: 3W POWER VISIBLE LED LAMP

MODEL NO: Red, Yellow, Green, Blue

Approved date , Signature

1. POWER LED Series Feature

High power LED is a revolutionary, energy efficient and compact new light source, combining the Lifetime and reliability advantages of Light Emitting Diodes with brightness of conventional lighting.

2. Feature

- ▷ Super high Flux output and Luminance
- ▷ High current operation
- ▷ Low forward voltage operation
- ▷ Superior Thermal Stability.
- ▷ ESD Class(Mil Std-883d Method 3017.7)based on Human Body Model(HBM):**Class1**
- ▷ ROHS Compliant

3. Application.

- ▷ Automotive Lighting System
- ▷ Outdoor / Indoor Lighting System
- ▷ Sign Board
- ▷ Architectural Lighting
- ▷ Projector Light source
- ▷ Traffic Signals
- ▷ LCD TV Backlight
- ▷ Monitor Backlight

Power LED Products Designation method

Full Part Code : P P ◇◇◇ - ◇ ◇ ◇ ◇ - ◇◇ ◇ ◇ ◇

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

(1) P - Photron initial

(2) P - Photron Power LED LAMP

(3) ◇◇◇ - Wavelength (Dominant / peak)

*White = White initial color temperature

2580~2870	2870~3320	3320~3710	3710~4260	4260~4746	4746~5311	5311~6020	6020~7040
W27	W30	W35	W40	W45	W50	W55	W65

(4) ◇ - Size of lens

3.6 ~4.5	4.6 ~ 5.5	5.6 ~ 6.5	6.6 ~ 7.5	7.6 ~ 8.5	8.6 ~ 10.0
4	5	6	7	8	A

(5) ◇ - Shape of lens

Lambertian	Batwing	Sid Emitting	Flat type
L	B	S	F

(6) ◇ - Viewing angle(¢ 1/2)

21 ~ 30	31 ~ 40	41 ~ 50	51 ~ 60
3	4	5	6

(7) ◇ - Power Dissipation

1W	3W	5W	10W
1	3	5	A

* Internal Number

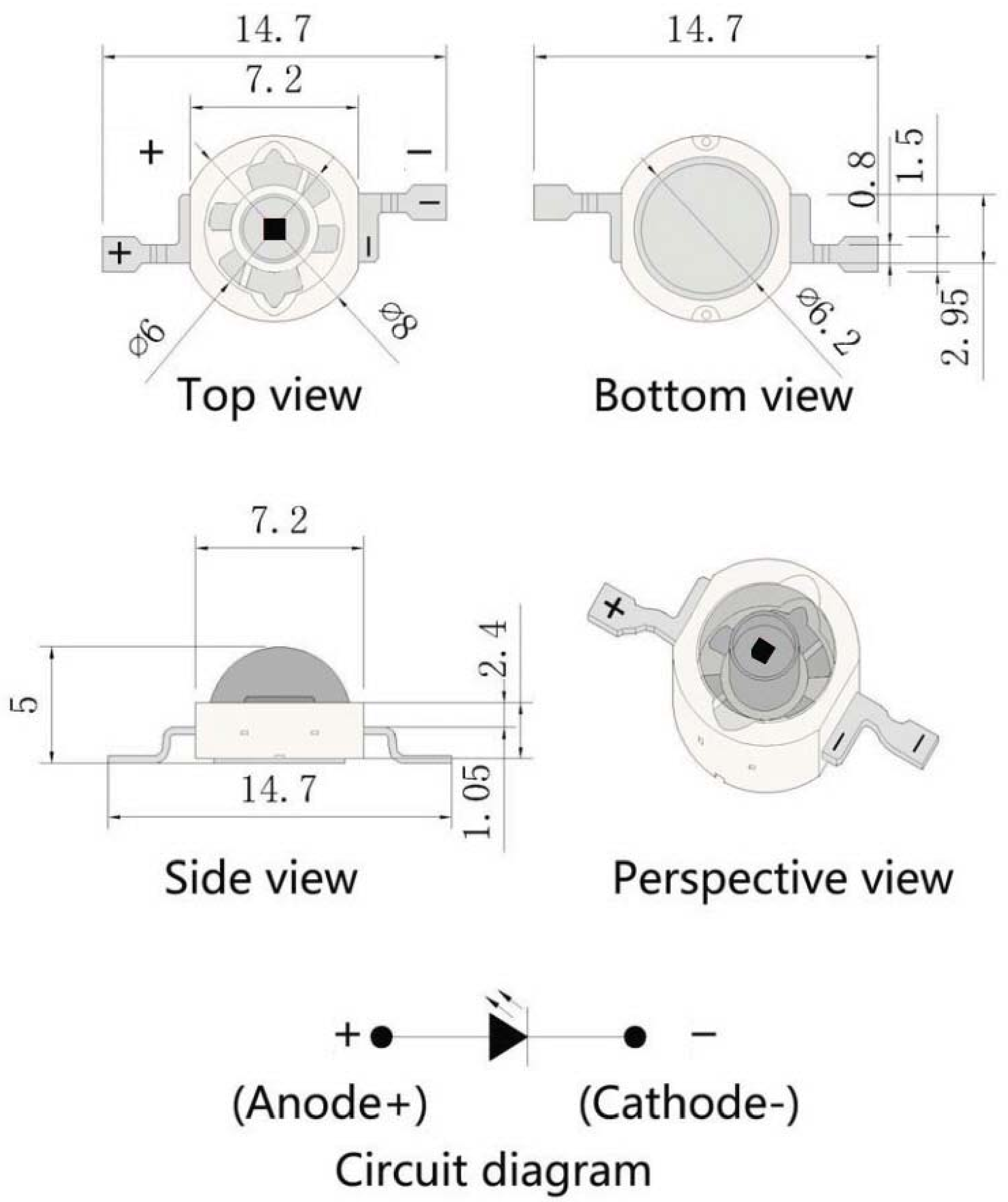
(8) ◇◇

(9) ◇

(10) ◇

(11) ◇

Silicon Lens	Star Pcb
I	T



1. All dimensions are in millimeters
2. Tolerance is ±0.25mm

5. Absolute maximum ratings.

(Ta = 25℃)

Parameter		Symbol	Ratings	Unit
Forward current		I_F	700	mA
Pulse Forward Current *1		I_{FP}	1000	mA
Reverse voltage		V_R	5	V
Power dissipation	Red	P_D	1.68	W
	Yellow		1.68	
	Blue		2.38	
	Green		2.38	
LED junction Temperature		T_j	120	℃
Operation temperature		Topr.	-30 ~ + 85	℃
Storage temperature		Tstg.	-40 ~ + 100	℃
Manual Soldering Time at 260℃(MAX.)		Tsol.	260℃±20℃ For 3~5	seconds
ESD Sensitivity		ESD	2000V	HBM

(Ta = 25℃)

6. Electrical/optical characteristics.

Parameter	Symbol	Test condition	Min.	Typ.	Max.	Unit
Reverse current	I_R	V_R = 5 V	–	–	10	μA
Viewing angle	2Θ½	I_F = 700 mA	130	140	150	Deg
Temperature Resistance Junction to Board	Rth_{J-B}	I_F = 700 mA		13		℃/W
Temperature Coefficient of Forward Voltage	ΔVf/ΔT	I_F = 700 mA		2		mV/℃

*Notes

*1 IFP Conditions : Pulse Width ≤10msec. And Duty Ration ≤1/10

* ESD Class based on Human Body Model(HBM):**Class1.**

* Photron maintains a tolerance of ±10% on power measurements.

7. Forward Voltage Characteristics at 700mA, Ta = 25℃

Color	Part No	Item	Symbol	Forward Voltage			Unit
				MIN	TYP	MAX	
Red	PP625-8L63-ELBTI	Forward Voltage	Vf	2.00		2.40	V
Yellow	PP592-8L63-ELBTI	Forward Voltage	Vf	2.00		2.40	V
Green	PP525-8L63-ELBTI	Forward Voltage	Vf	3.00		3.40	V
Blue	PP465-8L63-ELBTI	Forward Voltage	Vf	3.00		3.40	V

8. Luminous Flux Characteristics at 700mA, Ta = 25℃

Color	Part No	Item	Symbol	Luminous Flux			Unit
				MIN	TYP	MAX	
Red	PP625-8L63-ELBTI	Luminous Flux	LX	40		120	lm
Yellow	PP592-8L63-ELBTI	Luminous Flux	LX	57		70	lm
Green	PP525-8L63-ELBTI	Luminous Flux	LX	70		200	lm
Blue	PP465-8L63-ELBTI	Luminous Flux	LX	20		70	lm

9. Dominate Wavelength Characteristics at 700mA, Ta = 25℃

Color	Part No	Item	Symbol	Wavelength			Unit
				MIN	TYP	MAX	
Red	PP625-8L63-ELBTI	Wavelength	λd	615		625	nm
Yellow	PP592-8L63-ELBTI	Wavelength	λd	580		595	nm
Green	PP525-8L63-ELBTI	Wavelength	λd	520		530	nm
Blue	PP465-8L63-ELBTI	Wavelength	λd	460		470	nm

Bin code Specification

P	J	S	A	A	Y	1	C	0
Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9

Y1 - Item	
Code(Y1)	Type
P	Standard

Y - 2 Condition		
Code(Y2)	IF(mA)	Unit
H	150	mW
F	350	mW
J	700	mW

***Y3/Y4 Dominate Wavelength**

Y3/Y4 Dominate Wavelength Group							
RED		YELLOE		GREEN		BLUE	
Code(Y3/Y4)	WLD(nm)	Code(Y3/Y4)	WLD(nm)	Code(Y3/Y4)	WLD(nm)	Code(Y3/Y4)	WLD(nm)
RA	600-605	YI	570-572.5	GA	500-502.5	PQ	440-442.5
RC	605-610	YJ	572.5-575	GB	502.5-505	PR	442.5-445
RE	610-615	YK	575-577.5	GC	505-507.5	PS	445-447.5
RG	615-620	YL	577.5-580	GD	507.5-510	PT	447.5-450
RI	620-625	YM	580-582.5	GE	510-512.5	BA	450-452.5
RK	625-630	YN	582.5-585	GF	512.5-515	BB	452.5-455
RM	630-635	YO	585-587.5	GG	515-517.5	BC	455-457.5
RO	635-640	YP	587.5-590	GH	517.5-520	BD	457.5-460
RQ	640-645	YQ	590-592.5	GI	520-522.5	BE	460-462.5
RS	645-650	YR	592.5-595	GJ	522.5-525	BF	462.5-465
		YS	595-597.5	GK	525-527.5	BG	465-467.5
		YT	597.5-600	GL	527.5-530	BH	467.5-470
				GM	530-532.5	BI	470-472.5
				GN	532.5-535	BJ	472.5-475
				GO	535-537.5	BK	475-477.5
				GP	537.5-540	BL	477.5-480

*Y5/Y6 Luminous Flux Ranks

Part no	Flux Rank	Min(lm)	Max(lm)
Red, Yellow, Green, Blue,	A	5.6	5.7
	B	5.7	8.1
	C	8.1	10
	D	10	12
	E	12	14
	F	14	17
	G	17	20
	H	20	24
	I	24	28
	J	28	34
	K	34	40
	L	40	48
	M	48	57
	N	57	70
	O	70	80
	P	80	90
	Q	90	100
	R	100	110
	S	110	120
	T	120	140
	U	140	170
	V	170	200
	W	200	240
	X	240	290
	Y	290	350
	Z	350	420

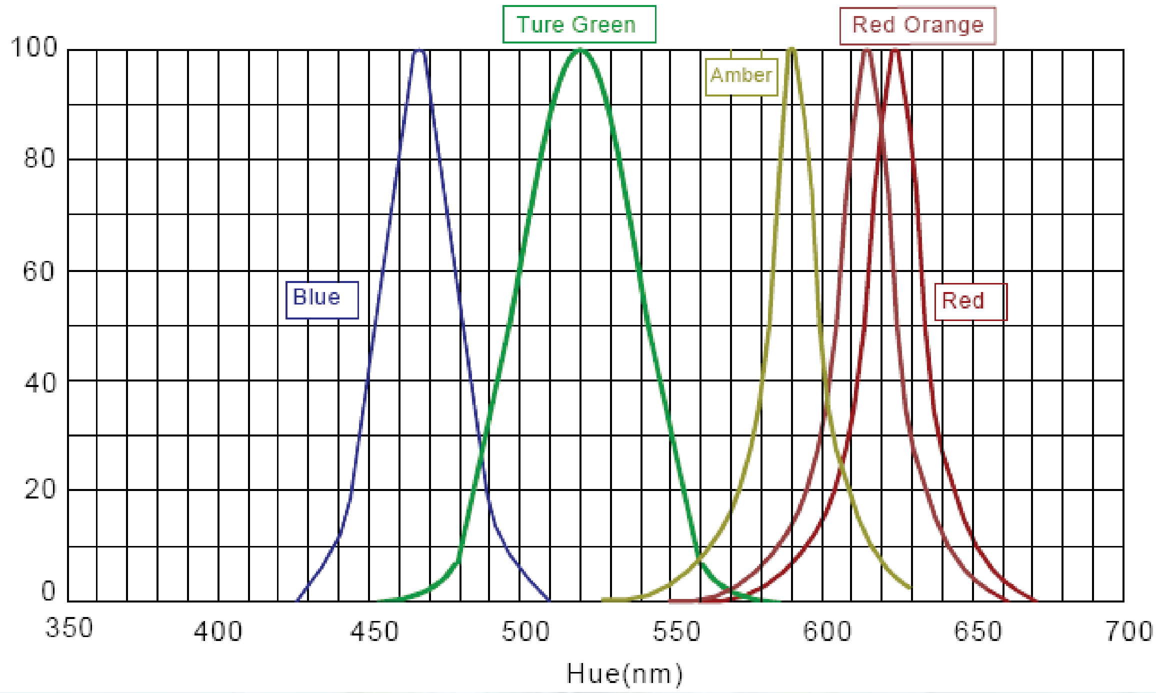
*Y7 Forward Voltage Rank

Part no	Rank(Y7)	Min	Typ	Max	Unit
Red, Yellow, Green, Blue,	0	1.80		2.00	V
	1	2.00		2.20	V
	2	2.20		2.40	V
	3	2.40		2.60	V
	4	2.60		2.80	V
	5	2.80		3.00	V
	6	3.00		3.20	V
	7	3.20		3.40	V
	8	3.40		3.60	V
	9	3.60		3.80	V
	A	3.80		4.00	V
	B	4.00		4.20	V
	C	4.20		4.40	V
	D	4.40		4.60	V
	E	4.60		4.80	V
	F	4.80		5.00	V
	G	5.00		5.20	V

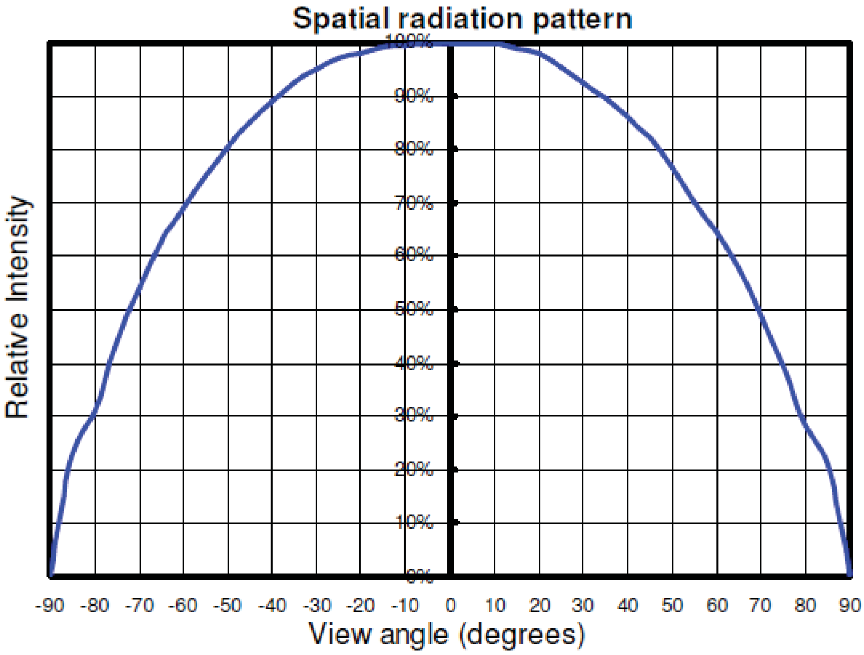
Y8 Others		
Code(Y8)	Ir(uA)	WLP step
B	0-10	2.5nm
C	0-10	5nm

Y9 TBD	
Code(Y9)	Type
0	Default

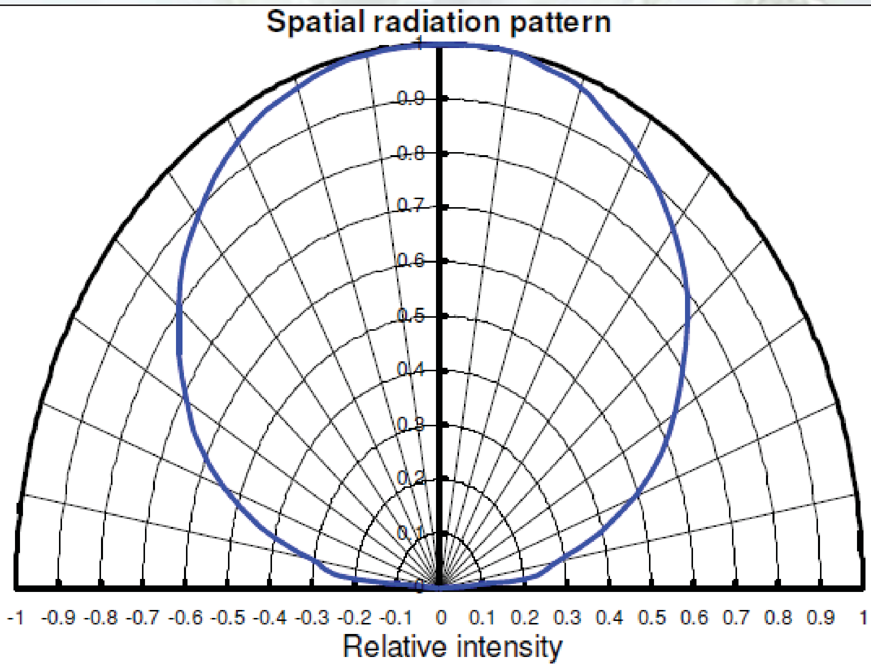
Wavelength spectrum.



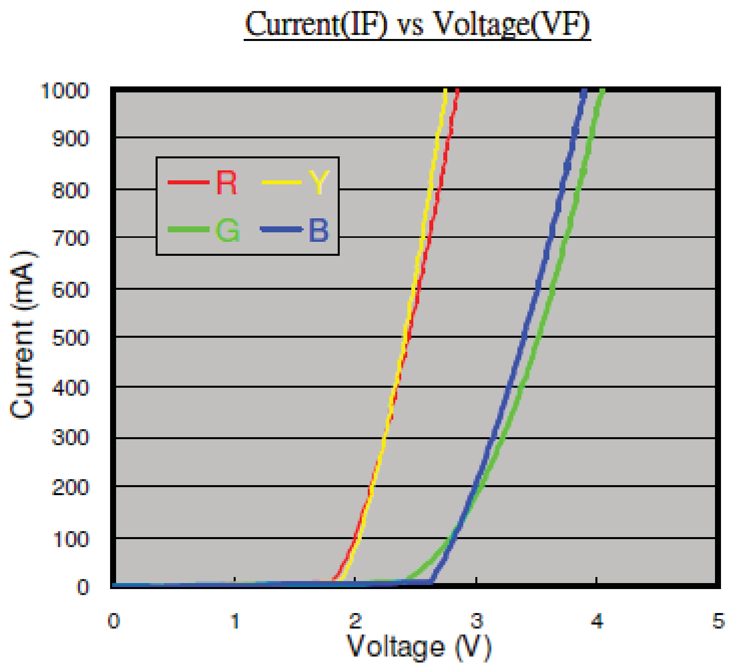
Typical Radiation Pattern.



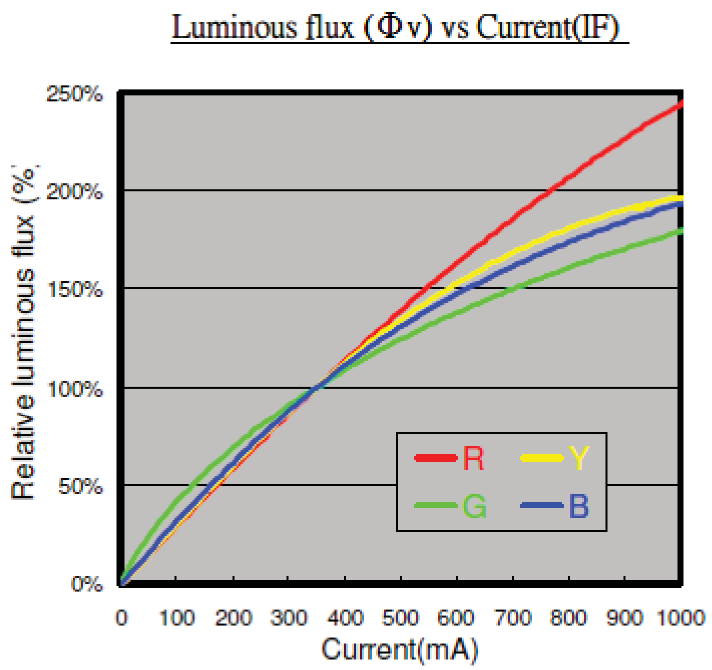
Typical Radiation Pattern



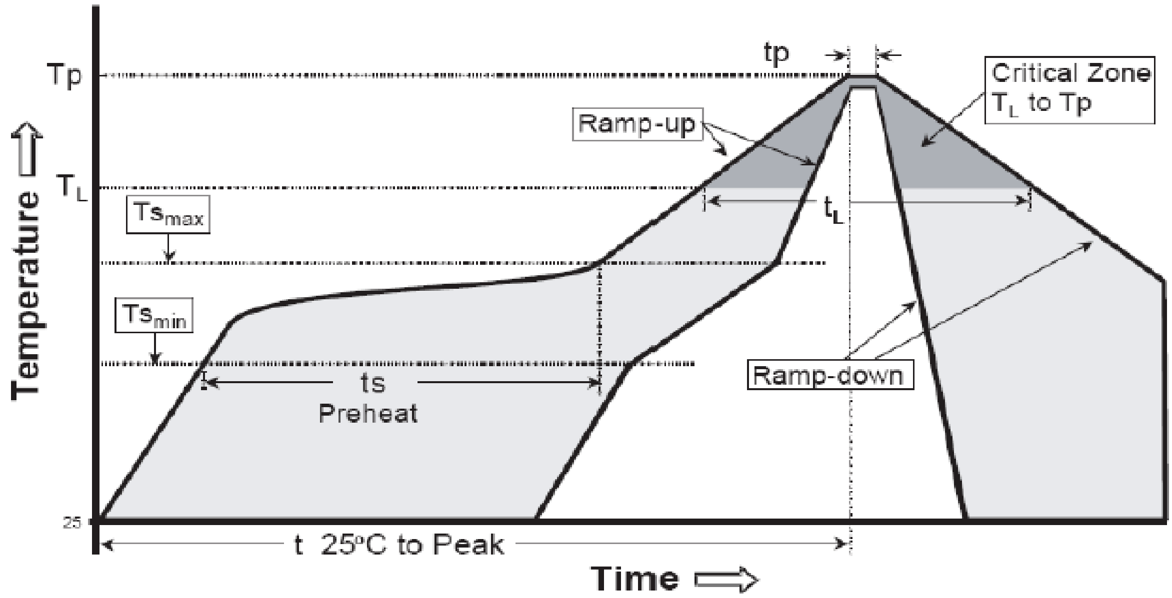
Forward Current & Forward Current.



Relative Luminous Flux & Forward Current.



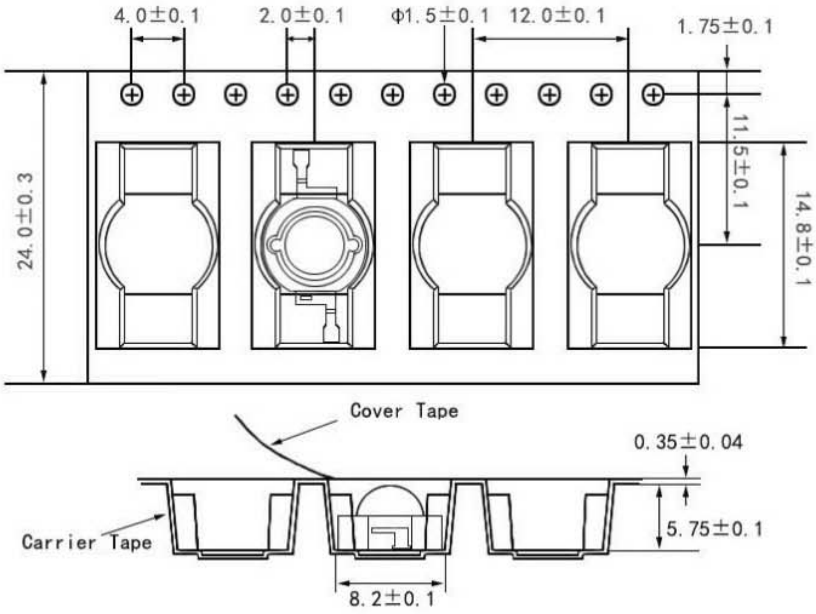
Reflow soldering temperature profile

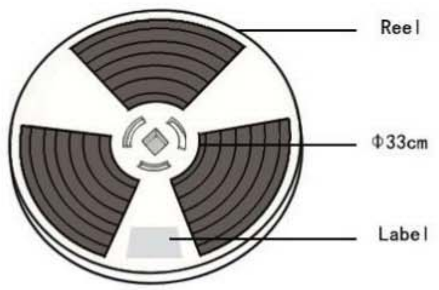


Profile Feature	Typical parameters
Average Ramp-Up Rate (Ts_{max} to Tp)	3 ℃/second max.
Preheat Temperature Min (Ts_{min})	150 ℃
Preheat Temperature Max (Ts_{max})	200 ℃
Time (ts_{min} to ts_{max})	60-180 seconds
Time maintained above Temperature (TL)	217 ℃
Time maintained above Time (tL)	60-150 seconds
Peak/Classification Temperature (Tp)	260 ℃
Time within 5 ℃ of Actual Peak Temperature (tp)	5 seconds
Ramp-Down Rate	6 ℃/second max.
Time 25 ℃ to Peak Temperature	8 minutes max.

Tape&Reel Packing

1. Recommend unpacked LED beads be welded within one day,if not,please vacuumize again and store in an environment of 20-35℃ and 30-60% humidity. If can't vacuumize,please store LED beads in moisture proof box,control at 25℃±3℃, humidity 50-60%.If unpacked above 1week,bake at 60±5℃ for 10-12 hours before weld.





Notes:

1. QTY: 1,000pcs/Reel
2. Tolerance ±0.2mm.
3. Package: P/N

◆ Soldering conditions

- When soldering leave minimum clearance between the resin and soldering point
- Maximum allowable soldering conditions

  Soldering dipping: 260 degrees C max., 5 seconds max.,

  Soldering iron: 340 degrees C max., 3 seconds max., 1 time 40w max.
- Contact between molten solder and the resin must be avoided.
- In soldering, do not apply any stress to the lead frame, particularly heated.

◆ storage

- Storage Conditions

  Before opening the package

  The LEDs should be kept below 30℃ and 70%RH. When storing the LEDs, try to unpack the moisture proof package and store them in a dry place. If the LEDs are stored for 3months or more after being from PHOTRON, a sealed container with a nitrogen atmosphere is recommended for storing.

  After opening the package

  The LEDs should be kept below 30℃ and 70%RH. The LEDs should be soldered within 24hours after opening the package. If there is leftover, they should be stored in moisture proof package with moisture absorbent material(e.g. silica gel) inside.
- It is strongly recommended that the user use the LEDs as soon as possible since there Exist a possibility that unfavorable environmental factors could deteriorate the properties of the LEDs.

◆ Static Electricity

- Static electricity or surge voltage damages the LEDs.

  It is recommended that a wrist bond or an anti-electrostatic glove be used when handling the LEDs.
- All devices, equipment and machinery must be properly grounded.

  It is recommended that measures be taken against surge voltage to the equipment that mounts the LEDs.
- When inspecyimg the final products in which LEDs were assembled, it is recommended to check whether the assembled LEDs are damaged by static electricity or not. It is easy to find static-damaged LEDs by a light-on test or a VF test at a lower current (below 1mA is recommended).
- Damaged LEDs will show some unusual characteristics such as the forward voltage becomes lower. Or the LEDs do not light at the low current.