Power Light Source **HCC P2O LED**

Introduction:

P2O LED is an excellent high power LED for solid state light applications. This emitter with silicone lens technology provides the good life and can be reflow at 260℃. The light output decay is less than 10% at crucial test condition (700mA, ambient 85℃ and 85%RH).

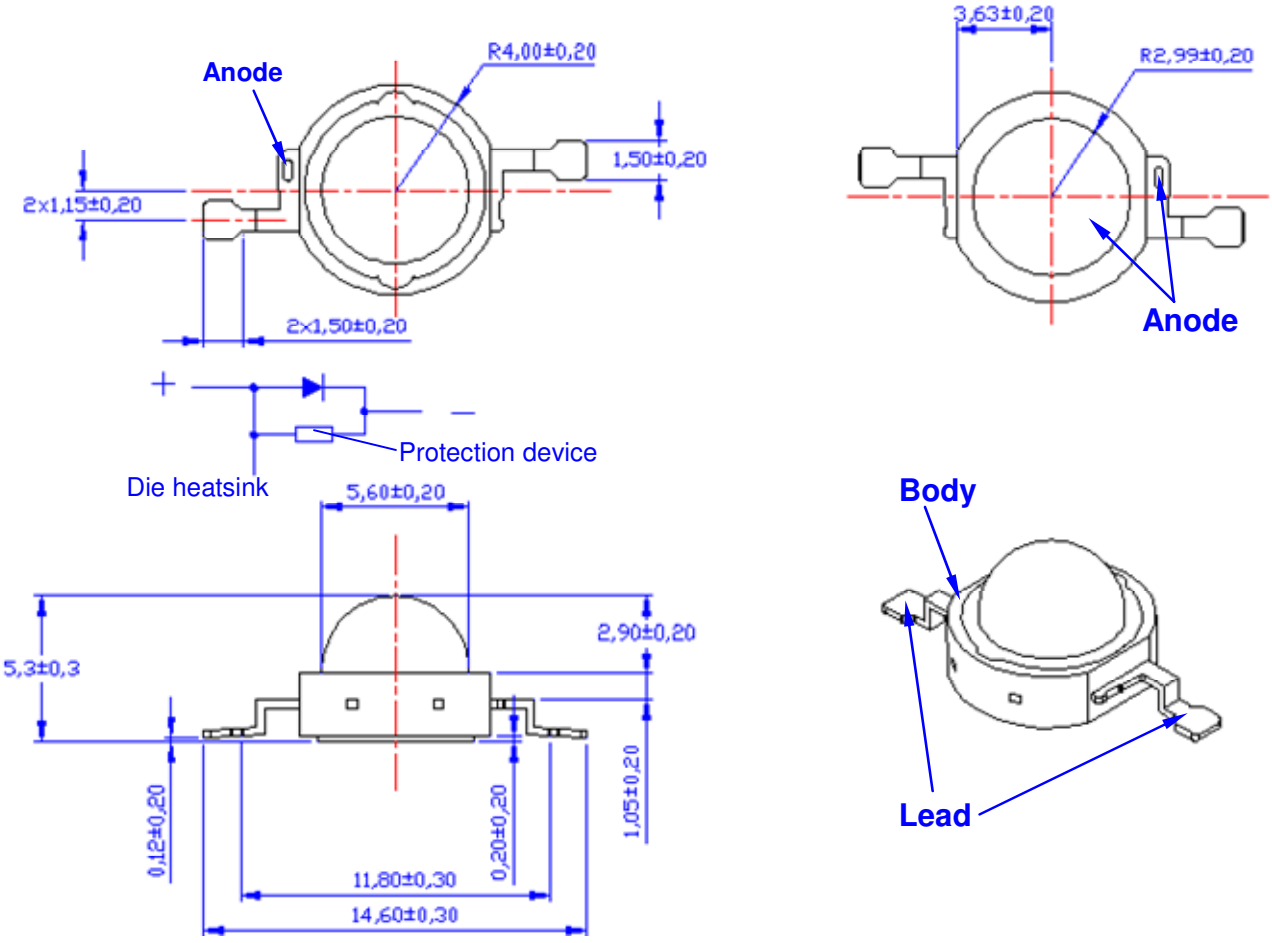
With special phosphor technology, warm white P2O has very good color stability in high temperature. The typical CCT change is less than 50K when junction temperature achieves 100℃.

P2O has special design to fit second optics. The user can easily get the uniform light with any second optics.

Feature :

- Excellent Operating Life
- High Efficacy
- Low Thermal Resistance
- SMD Device
- Instant Light
- Fully Dimmable
- No UV
- Superior ESD Protection
- RoHS Compatibility

1. Mechanical Dimensions



Notes:

1. Drawings are not to scale.
2. All dimensions are in millimeter.
3. General tolerance is ±0.2mm.
4. The polarity of slug at bottom is anode.
5. It is important that the slug to be isolated on MCPCB or heat-sink. For isolation it is strongly recommended that there should a coating of uniform electrically isolated heat dissipation film on the aluminum/metallic surface.

2. Absolute Ratings

Parameter	Rating
	White Series / Royal Blue / Blue / Green / Amber / Red
Typical DC Forward Current (mA)	350~700 mA
LED Junction Temperature	125℃
LED Operating Temperature	-40℃~110℃
Storage Temperature	-40℃~110℃
Soldering Temperature	Max. 260℃ / Max. 10sec. (JEDEC 020c)
ESD Sensitivity	2,000 V HBM (JESD-22A-114-B)
Reverse Voltage	Not design to be driven in reverse bias (VR≦5V)
Preconditioning	Acc. to JEDEC Level 2

3. General Characteristics

3.1 Luminous Flux and Forward Voltage at 350mA and 700mA

Part number	Color	Luminous Flux(lm) or Radiometric Power*(mW) @ 350mA		Luminous Flux(lm) or Radiometric Power*(mW) @ 700mA		Forward Voltage V_F (V) @350mA		Forward Voltage V_F (V) @700mA	
		Min	Typ.	Min	Typ.	Min	Max	Min	Max
P2O-W	Daylight	75	90	128	153	2.8	3.8	3.0	4.1
	Neutral White	70	80	119	136	2.8	3.8	3.0	4.1
	Warm White	50	60	85	102	2.8	3.8	3.0	4.1
P2O-R	Red	35	45	65	83	2.0	3.4	2.2	3.7
P2O-A	Amber	35	45	61	79	2.0	3.4	2.2	3.7
P2O-G	Green	45	60	74	99	2.8	3.8	3.0	4.1
P2O-B	Blue	10	18	17	31	2.8	3.8	3.0	4.1
P2O-D	Royal Blue	250*	300*	425*	510*	2.8	3.8	3.0	4.1

3.2 General Characteristics at 350mA

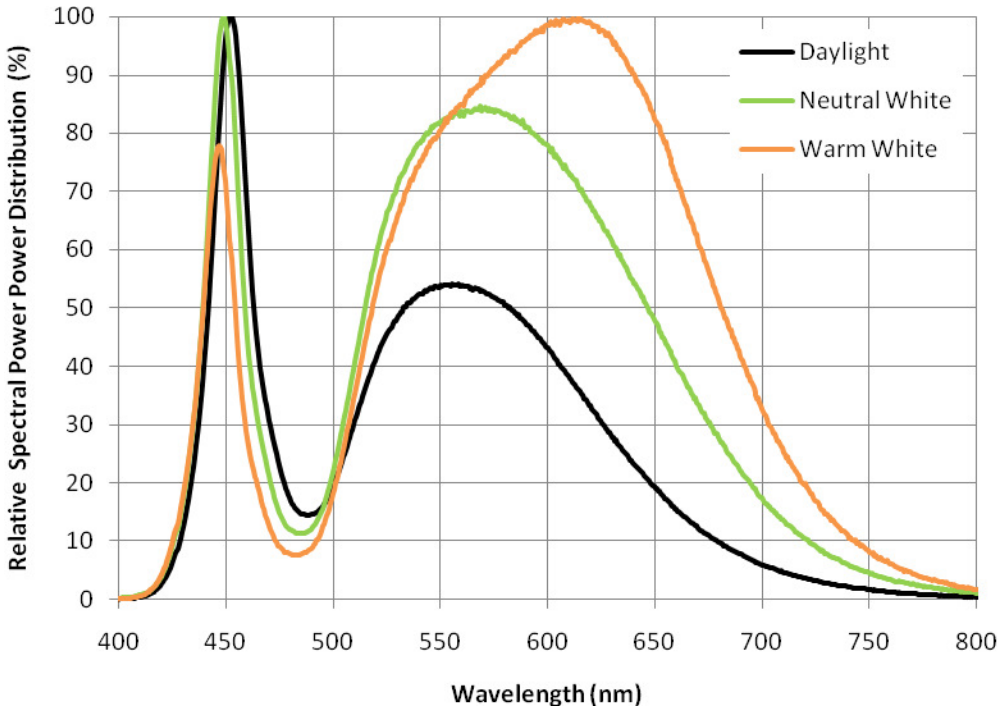
Part number	Color	Typ. CRI	Luminous Flux(lm) or Radiometric Power*(mW)		Dominant Wavelength λ_d or Peak Wavelength λp *or Correlated Color Temperature CCT		$2\theta_{1/2}$	Forward Voltage V_F (V)		Temperature Coefficient of Vf (mV/℃)	Thermal Resistance Junction to Lead
			Min	Typ.	Min	Max		Min	Max	$\Delta V_F / \Delta T_J$	(℃/W) $R\Theta_{J-L}$
P2O-W	Daylight	70	75	90	4750K	7000K	135	2.8	3.8	-3	10
	Neutral White	75	70	80	3700K	4750K		2.8	3.8	-3	10
	Warm White	80	50	60	2600K	3700K	125	2.8	3.8	-3	10
P2O-R	Red	-	35	45	620	635	145	2.0	3.4	-2	10
P2O-A	Amber	-	35	45	580	600	145	2.0	3.4	-2	10
P2O-G	Green	-	45	60	520	535	150	2.8	3.8	-3	10
P2O-B	Blue	-	10	18	460	470	140	2.8	3.8	-3	10
P2O-D	Royal Blue	-	250*	300*	440*	460*	140	2.8	3.8	-3	10

Notes :

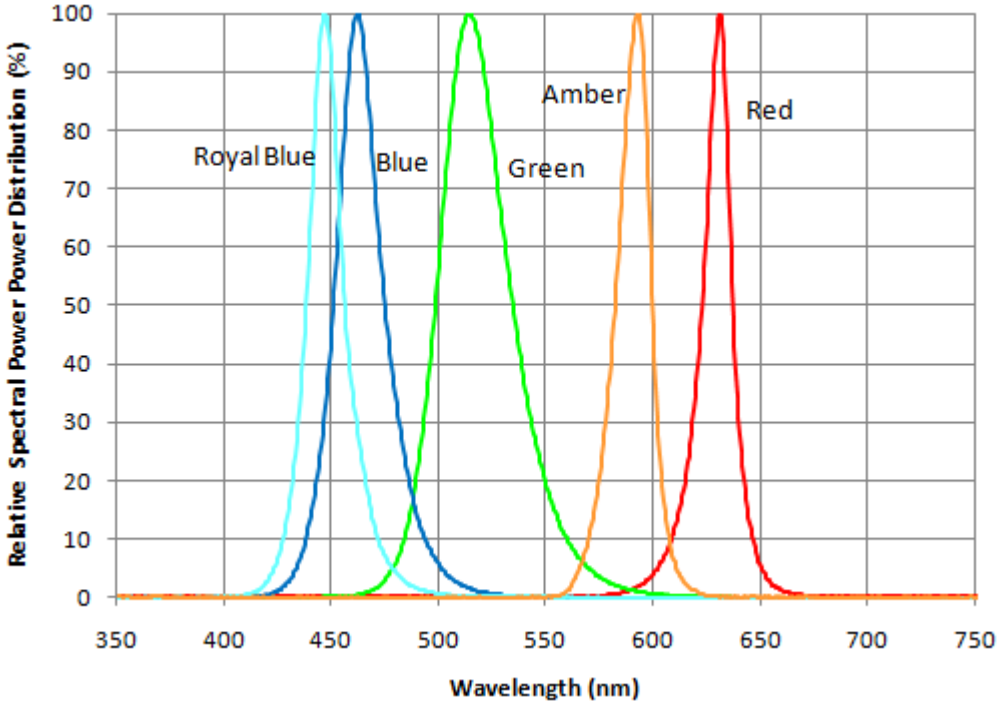
1. Luminous flux is measured with an accuracy of ±10%
2. The CCT is measured with an accuracy of ±200K
3. The peak/dominant wavelength is measured with an accuracy of ±1nm
4. The forward voltage is measured with an accuracy of ±0.1V

4. Relative Spectral Power Distribution, T_a=25 °C

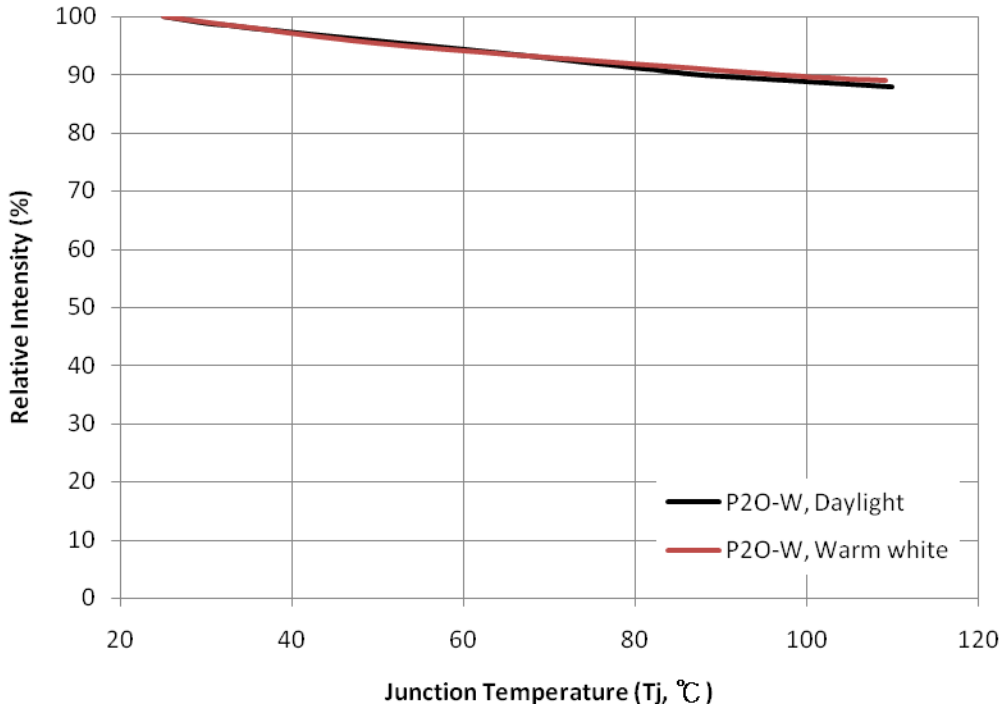
4.1 White Light

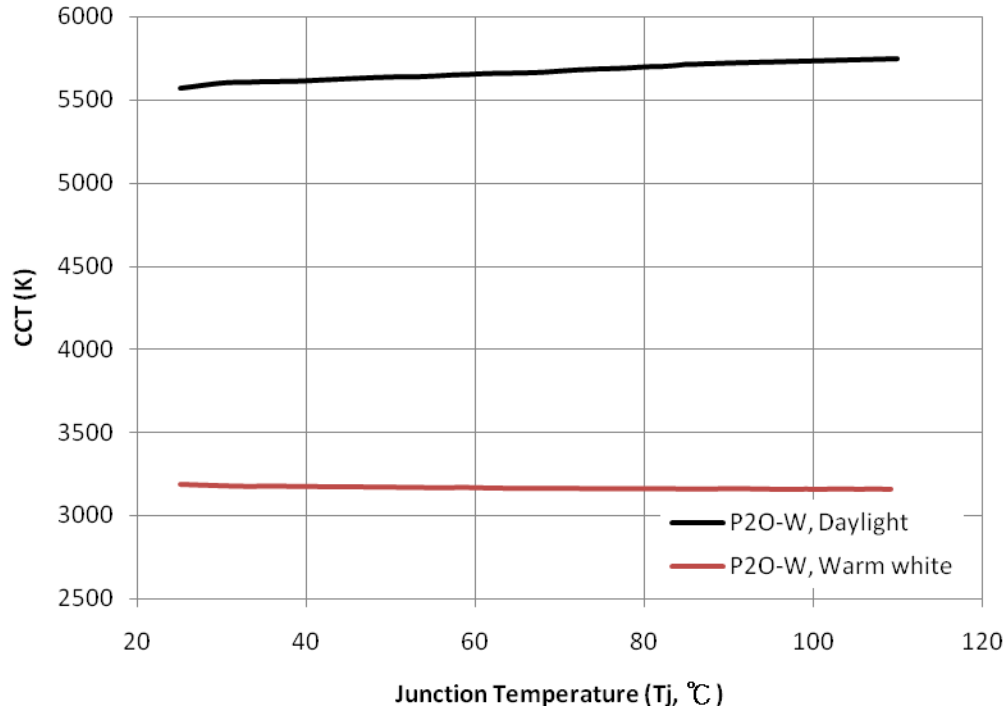


4.2 Royal Blue / Blue / Green / Amber / Red



5. Typical Light Output Characteristics over Temperature

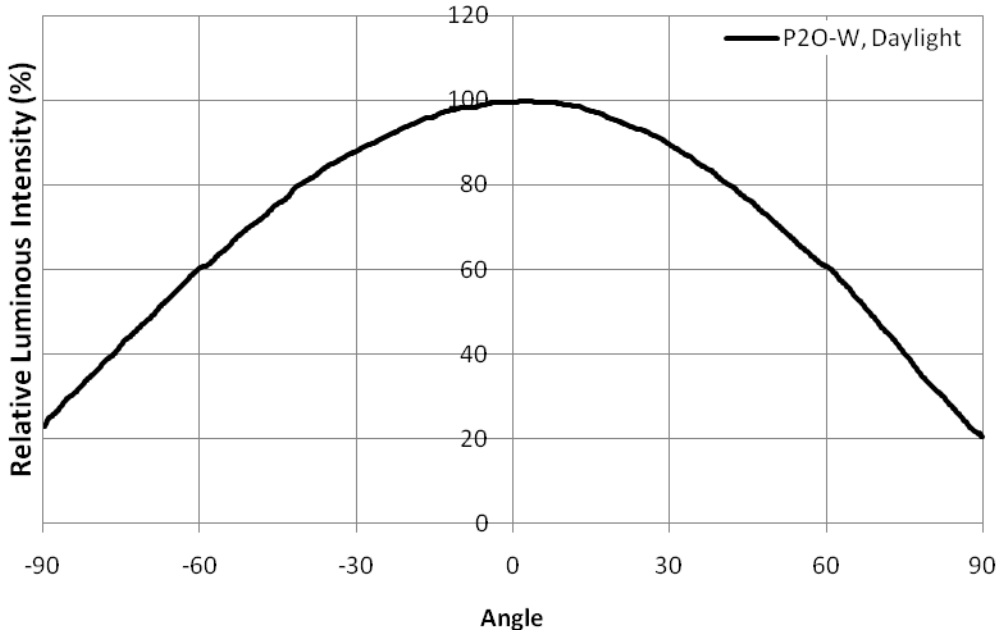




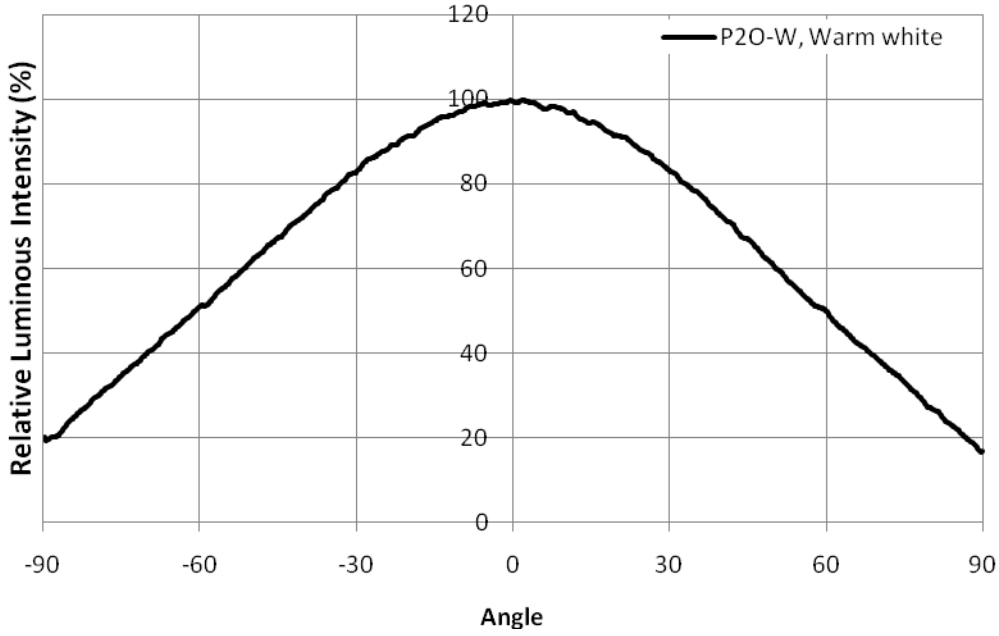
Subject to change without notice

6. Typical Spatial Radiation Pattern

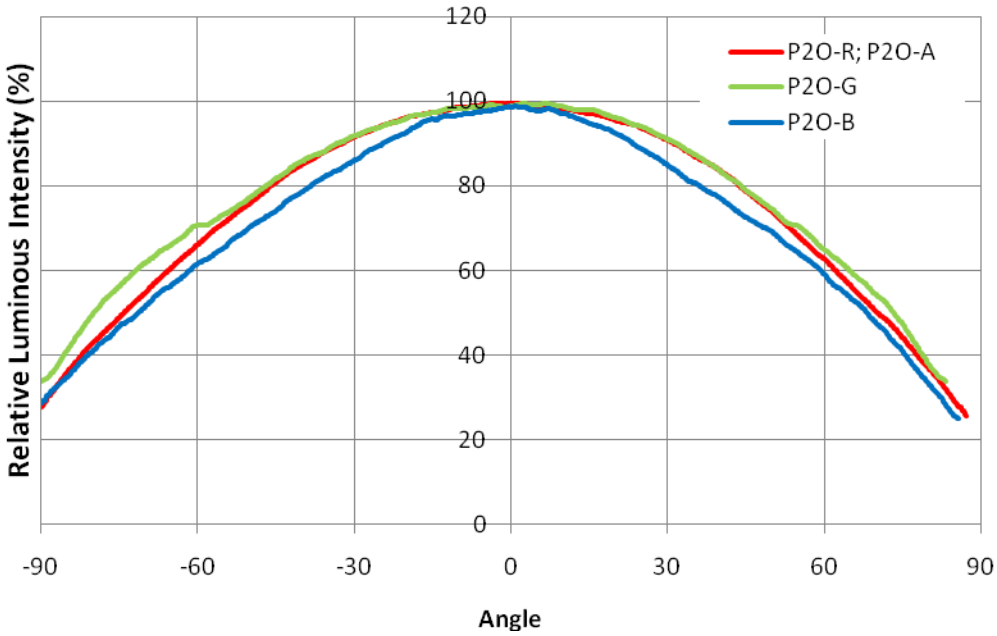
6.1 P2O-W, Daylight



6.2 P2O-W, Warm White

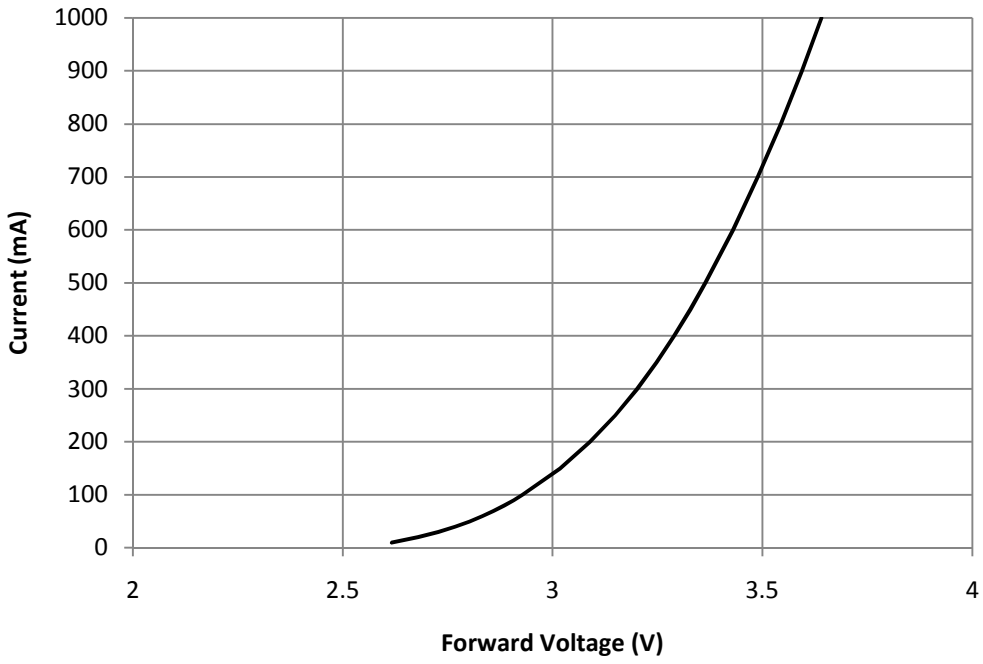


6.3 P2O-R, P2O-A, P2O-G, P2O-B

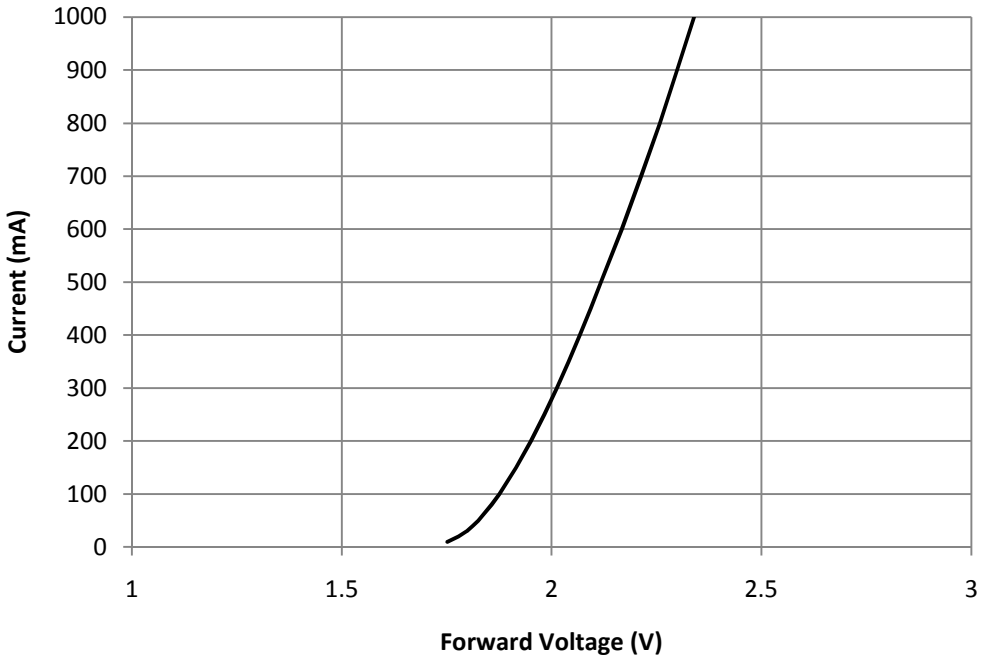


7. Typical Forward I-V Characteristics

7.1 White Series / Green / Blue / Royal Blue

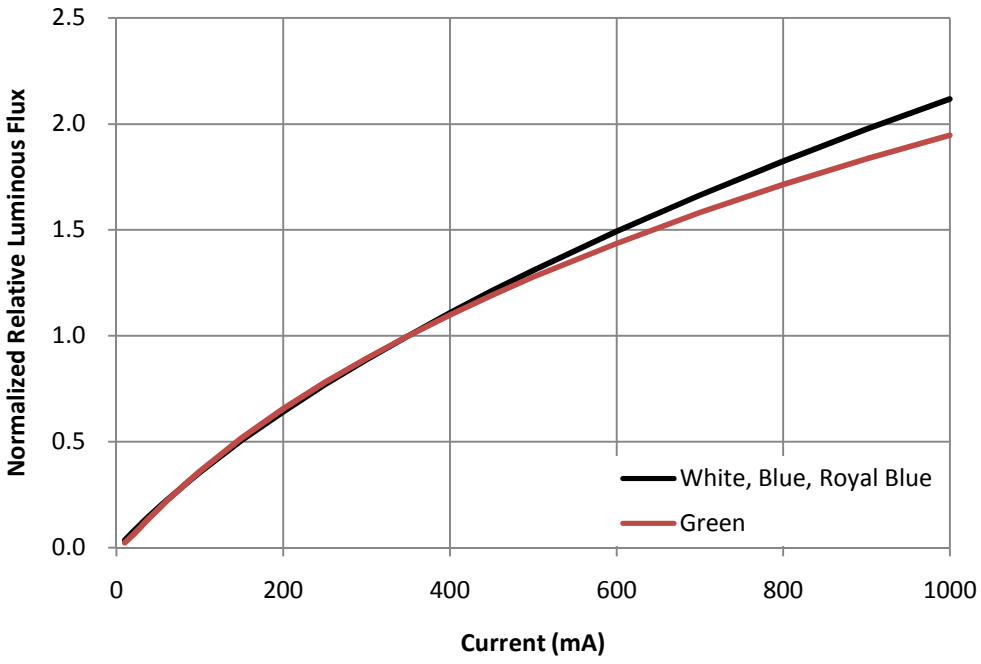


7.2 Amber / Red

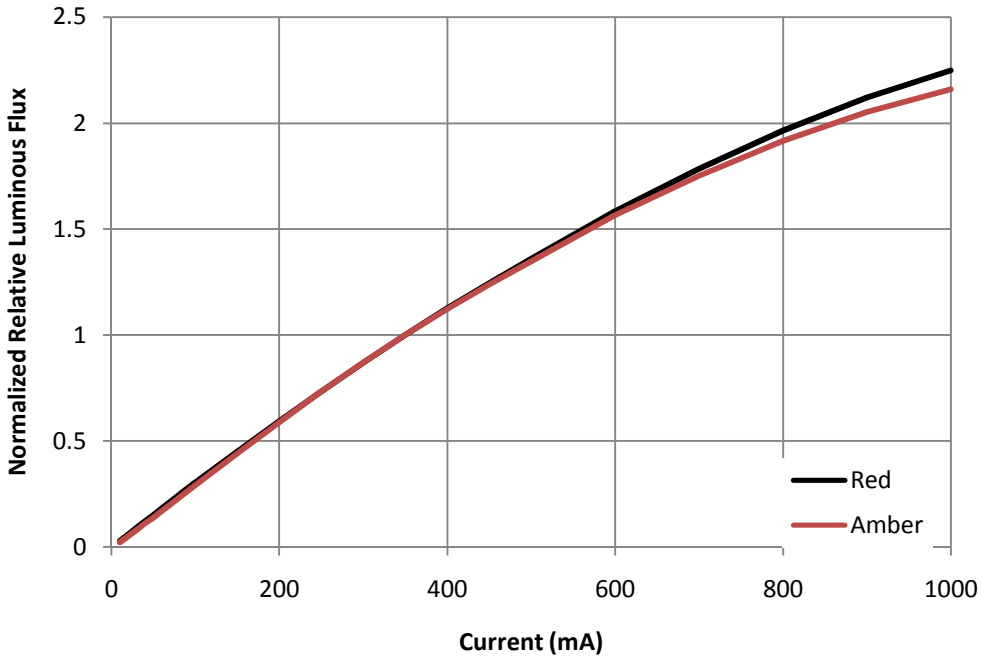


8. Typical Forward L-I Characteristics

8.1 White Series / Green / Blue / Royal Blue



8.2 Amber / Red



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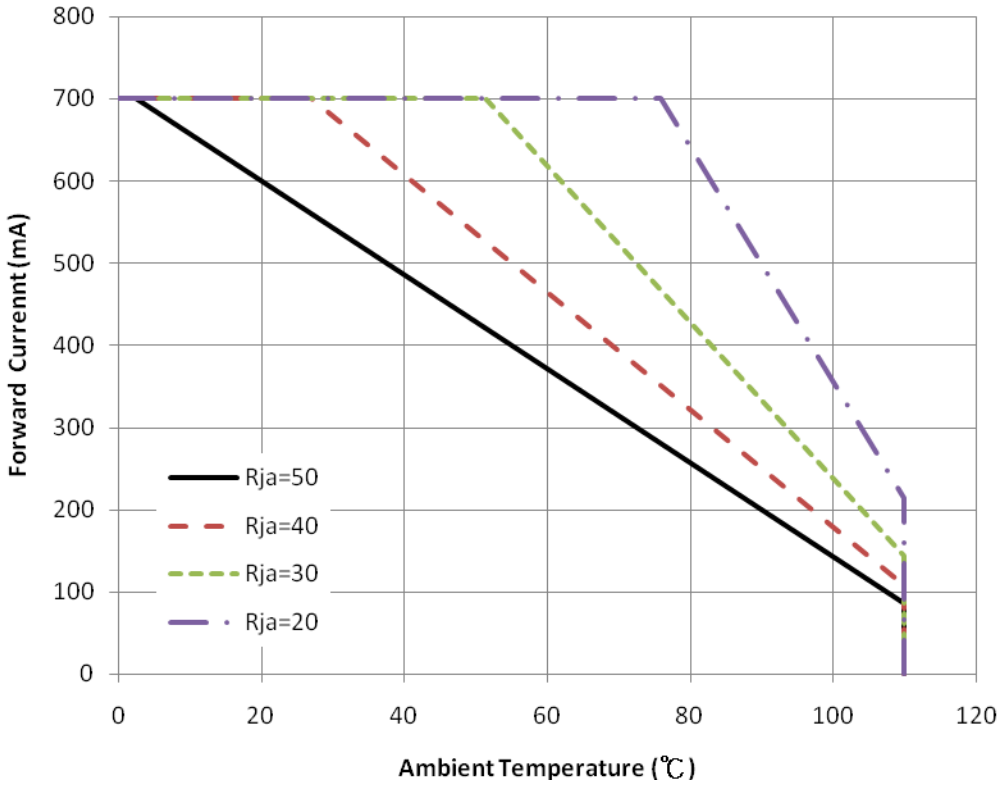
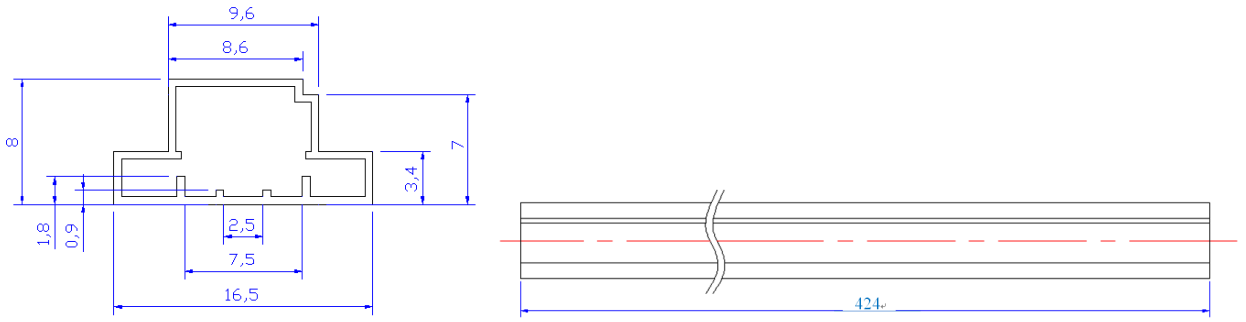
9. Current Derating Curves



Note : R_{ja} is thermal resistance from LED junction to ambient

10. Shipping Package Information

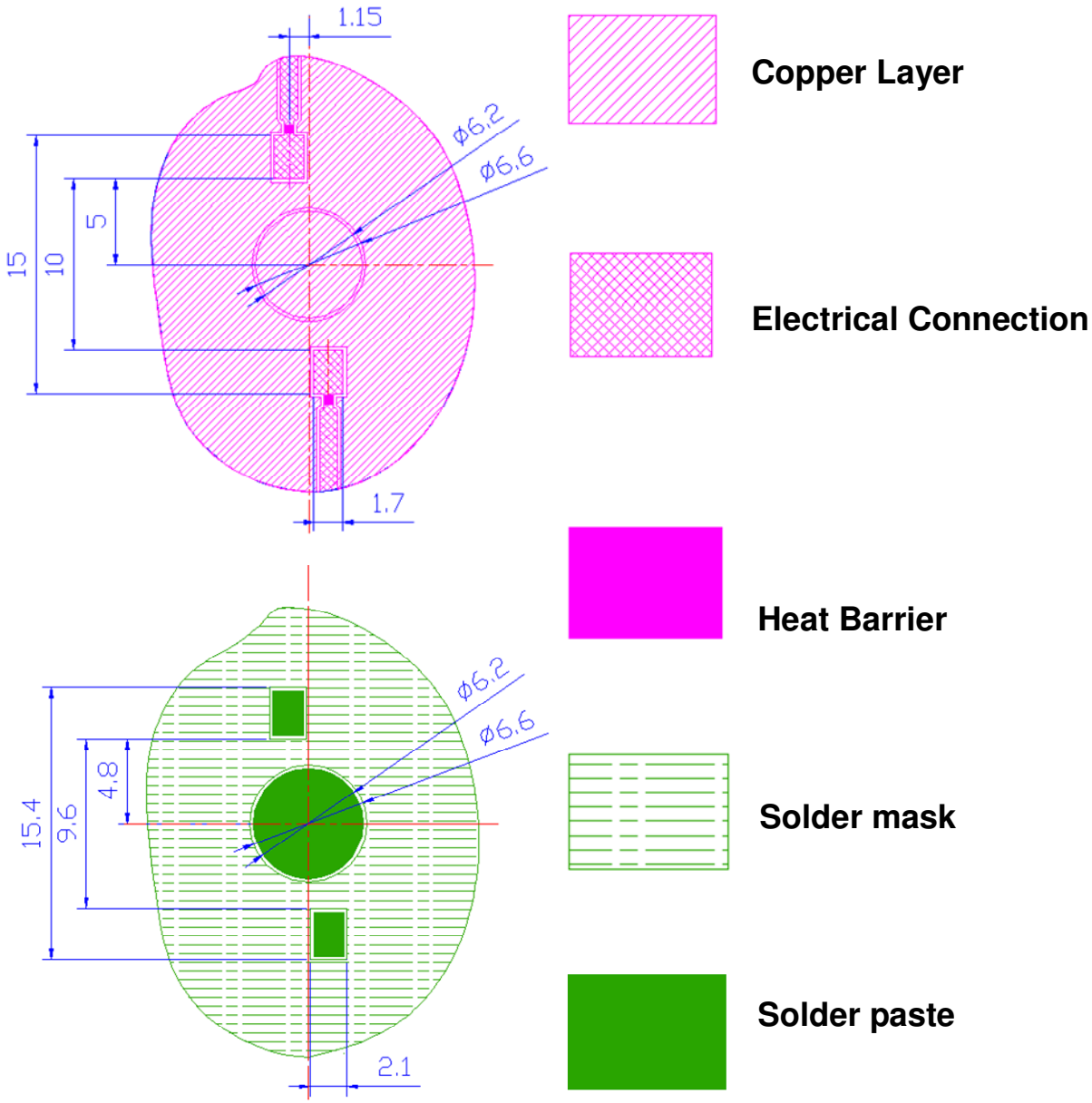
Tube



1. All dimensions are in millimeter

Level	Dimensions (L*W*H)	Emitter Quantity
Tube	424*16.7*10.0 mm	50 EA

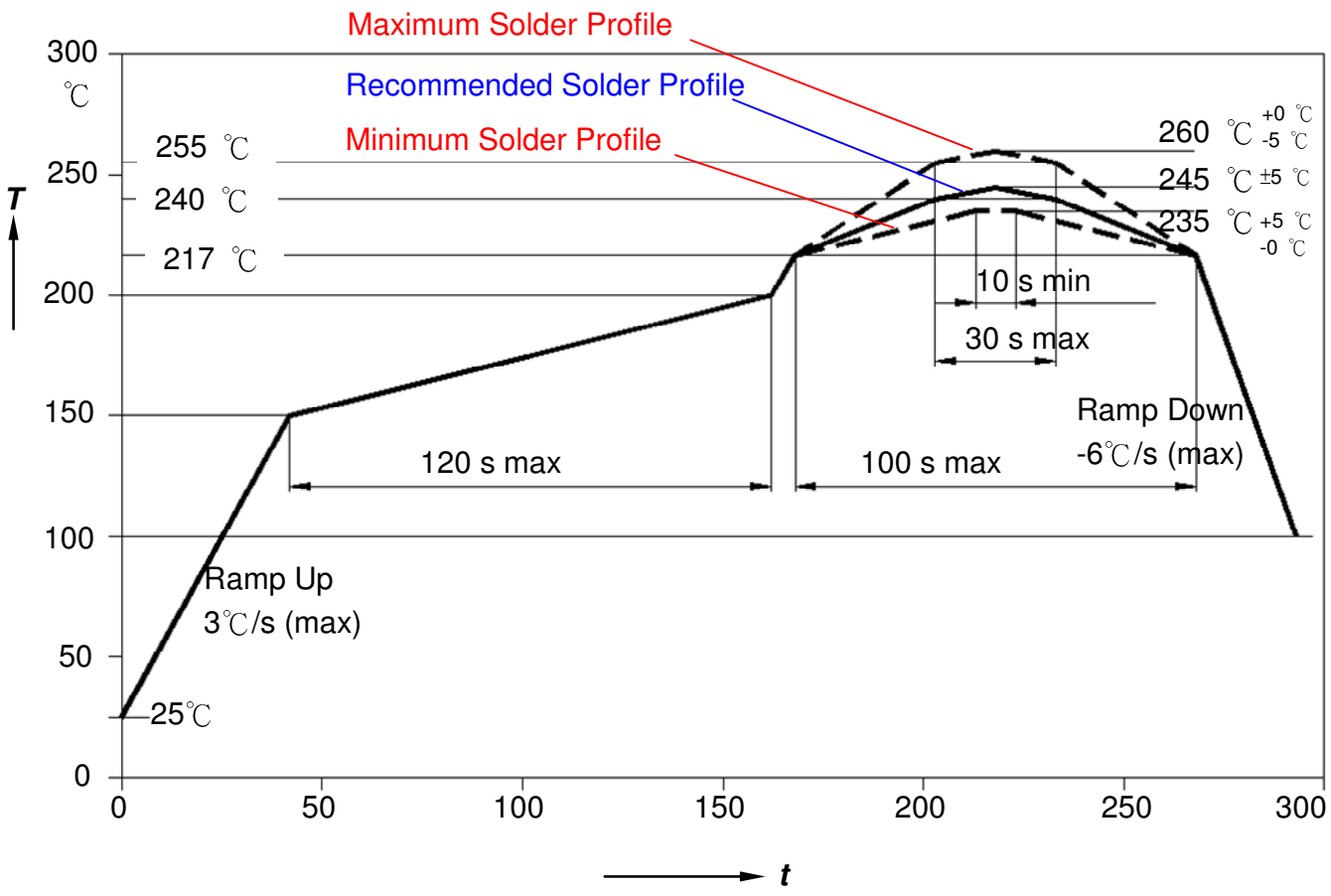
11. Recommended Solder Pad Design



Notes :

1. Drawing is not to scale
2. All dimensions are in millimeter

12. Recommended Soldering Profile



13. Reliability Information

Stress Test	Stress Condition	Stress Duration
High Temperature/High Humidity Operation Life, WHTOL	Ta=85℃, RH=85%, If=700mA	1000 hour
Temperature Cycles	-40℃/125, 15min dwell, 5min transfer	200 cycles

Failure Criteria:

1. Brightness attenuate difference <10%
2. Forward voltage difference: ±20%