



BRIGHTTEK
BRIGHTTEK (EUROPE) LIMITED

Brighten Up The World With LED!



ISO/TS 16949:2009



BS EN ISO 14001:2004



QC 080000 IECQ HSPM

PRODUCT DATASHEET

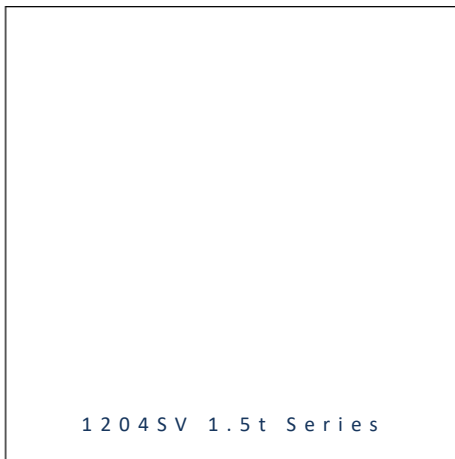


- ▶ Chip Side View RGB
- ▶ 1204SV (3210) 1.5t
- ▶ Sky White/Red/Green / Blue

NOM61S44SV



Release Date: 18 October 2023 Version: A1.1



1204SV 1.5t Series

RoHS Compliant



FEATURES (White/Red/Green/Blue):

- **Package:** CHIP LED Side View WRGB
- **Forward Current:** 20/20/20/20mA*
- **Forward Voltage (typ.):** 3.2/2.1/3.2/3.2V
- **Luminous Intensity (typ.):** 790/500/800/130mcd@20mA
- **Colour:** Sky White/Red/Green/Blue
- **CCT/Dom. Wavelength (typ.):** 10000K/622/522/468nm
- **Viewing angle:** 120°
- **Materials:**
 - Die: InGaN/AlGaInP/InGaN/InGaN
 - Resin: Epoxy (White Diffused)
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+100°C
- **Grouping parameters:**
 - Forward voltage
 - Luminous intensity
 - CCT/Dominant wavelength
- **Soldering methods:** IR Reflow soldering
- **MSL Level:** MSL 3 according to J-STD020
- **Packing:** 8mm tape max.3000pcs/reel, ø180mm (7")

* In the order of White/Red/Green/Blue.

APPLICATIONS:

- Decoration Lighting
- Wall Washer
- Spot Light
- Outdoor Lighting
- Mini Projector

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Forward Current	I _F	20/25/20/20*	mA
Pulse Current Duty 1/10@10KHz	I _{FP}	100/90/100/100	mA
Power Dissipation	P _D	72/65/72/72	mW
Reverse Voltage	V _R	5	V
Reverse Current @5V	I _R	50/10/50/50/	μA
Electrostatic Discharge (HBM)	ESD	500/2000/500/500	V
Soldering Temperature	T _{SOL}	260	°C
Operating Temperature	T _{OPR}	-40~+85	°C
Storage Temperature	T _{STG}	-40~+100	°C

1. * In the order of White/Red/Green/Blue.

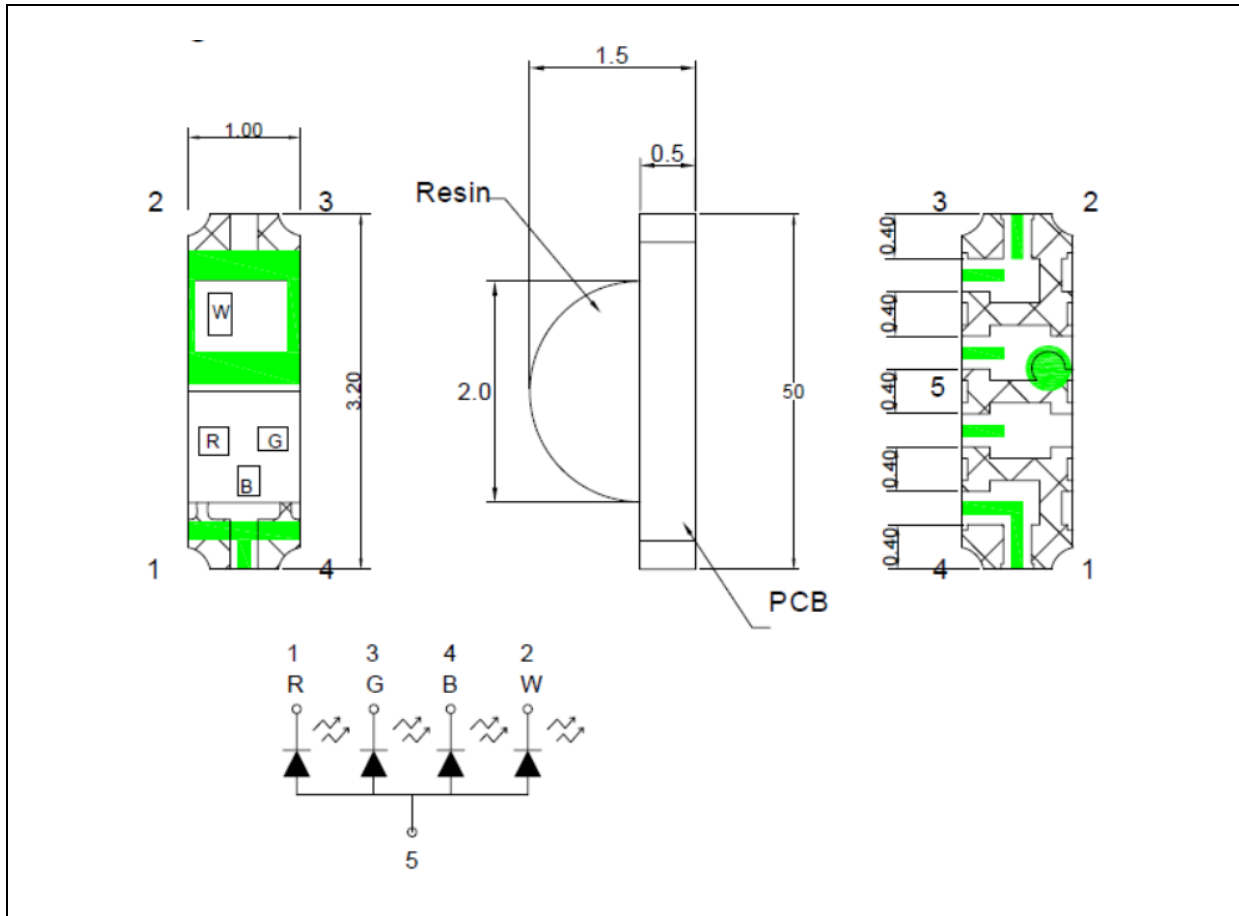
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
White - Forward Voltage	V _F	2.8	---	3.6	V	I _F =20mA
White - Luminous Intensity	I _v	---	790	---	mcd	I _F =20mA
White – Colour Temperature	CCT	---	10000	---	K	I _F =20mA
Red - Forward Voltage	V _F	1.7	---	2.6	V	I _F =20mA
Red - Luminous Intensity	I _v	---	500	---	mcd	I _F =20mA
Red - Wavelength	W _P	---	622	---	nm	I _F =20mA
Red - Spectral Line Half-Width	Δλ	---	20	---	nm	I _F =20mA
Green - Forward Voltage	V _F	2.8	---	3.6	V	I _F =20mA
Green - Luminous Intensity	I _v	---	800	---	mcd	I _F =20mA
Green - Wavelength	W _P	---	522	---	nm	I _F =20mA
Green - Spectral Line Half-Width	Δλ	---	36	---	nm	I _F =20mA
Blue - Forward Voltage	V _F	2.8	---	3.6	V	I _F =20mA
Blue - Luminous Intensity	I _v	---	130	---	mcd	I _F =20mA
Blue - Wavelength	W _P	---	468	---	nm	I _F =20mA
Blue - Spectral Line Half-Width	Δλ	---	30	---	nm	I _F =20mA
Viewing Angle	2θ _{1/2}	---	120	---	deg	I _F =20mA

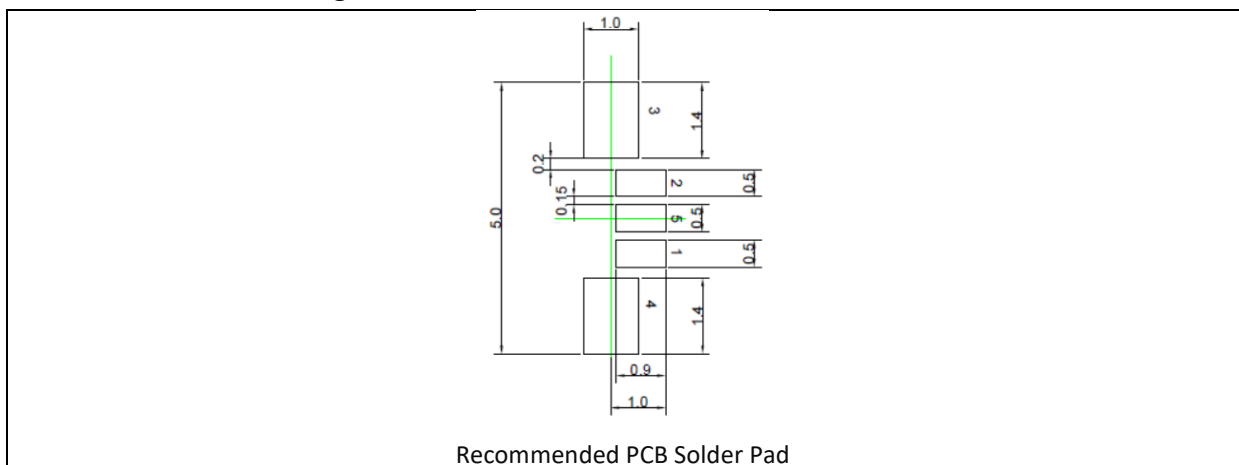
 1. Luminous intensity (I_v) ±5%, Forward Voltage (V_F) ±0.1V

OUTLINE DIMENSION:

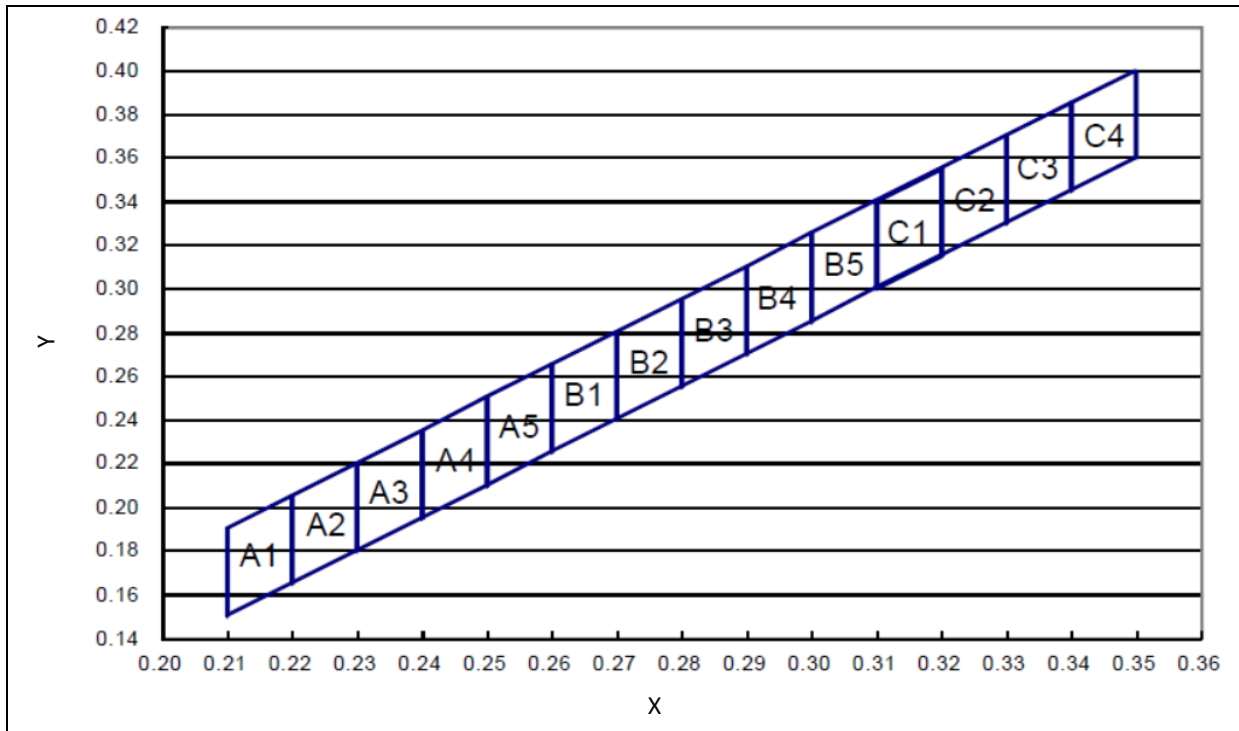
Package Dimension:



Recommended Soldering Pad Dimension:



CIE CHROMATICITY DIAGRAM:

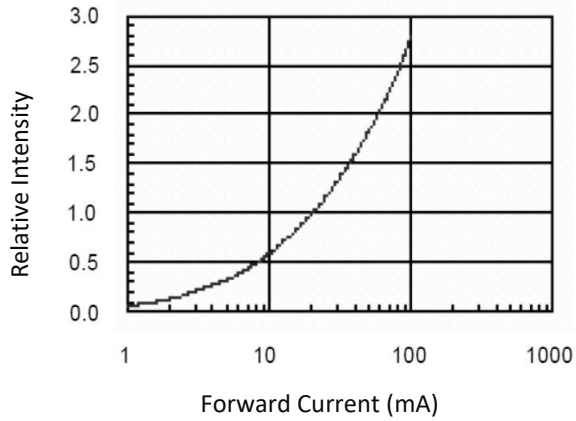


Chromaticity Coordinates Classifications ($I_F = 20\text{mA}$):

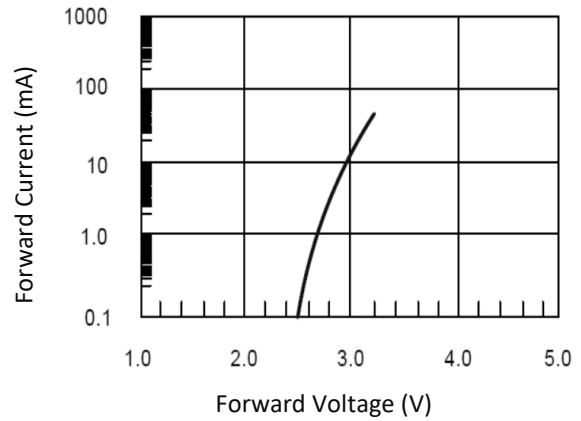
	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
A1	0.2100	0.1900	0.2100	0.1500	0.2200	0.1650	0.2200	0.2050
A2	0.2200	0.2050	0.2200	0.1650	0.2300	0.1800	0.2300	0.2200
A3	0.2300	0.2200	0.2300	0.1800	0.2400	0.1950	0.2400	0.2340
A4	0.2400	0.2350	0.2400	0.1950	0.2500	0.2100	0.2500	0.2500
A5	0.2500	0.2500	0.2500	0.2100	0.2600	0.2250	0.2600	0.2650
B1	0.2600	0.2650	0.2600	0.2250	0.2700	0.2400	0.2700	0.2800
B2	0.2700	0.2800	0.2700	0.2400	0.2800	0.2550	0.2800	0.2950
B3	0.2800	0.2950	0.2800	0.2550	0.2900	0.2700	0.2900	0.3100
B4	0.2900	0.3100	0.2900	0.2700	0.3000	0.2850	0.3000	0.3250
B5	0.3000	0.3250	0.3000	0.2850	0.3100	0.3000	0.3100	0.3400
C1	0.3100	0.3400	0.3100	0.3000	0.3200	0.3150	0.3200	0.3550
C2	0.3200	0.3550	0.3200	0.31500	0.3300	0.3300	0.3300	0.3700
C3	0.3300	0.3700	0.3300	0.3300	0.3400	0.3450	0.3400	0.3850
C4	0.3400	0.3850	0.3400	0.3450	0.3500	0.3600	0.3500	0.4000

ELECTRO-OPTICAL CHARACTERISTICS (WHITE):

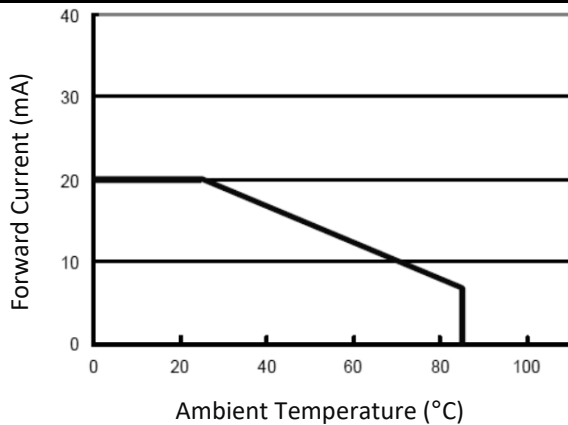
Relative Intensity v.s. Forward Current



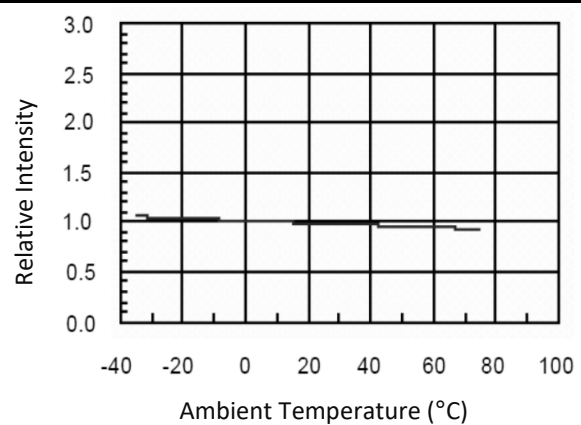
Forward Current v.s. Forward Voltage



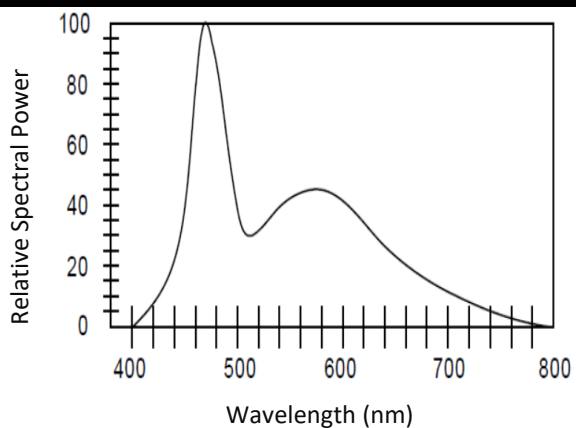
Thermal Design for De-rating



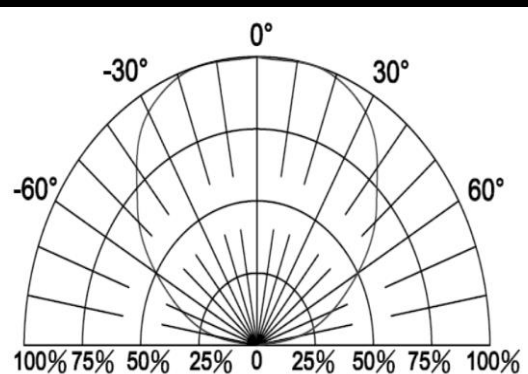
Relative Intensity v.s. Temperature



Luminous Spectrum

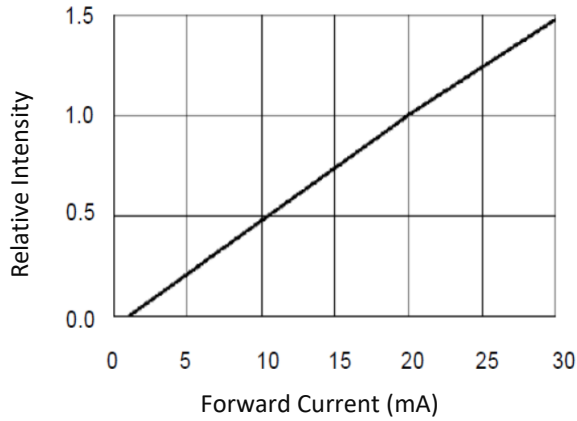


Directive Radiation

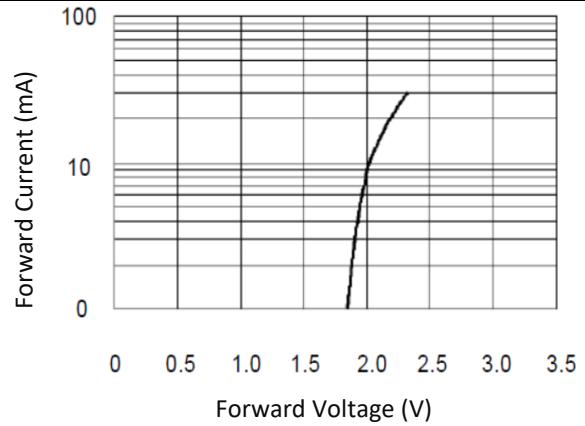


ELECTRO-OPTICAL CHARACTERISTICS (RED):

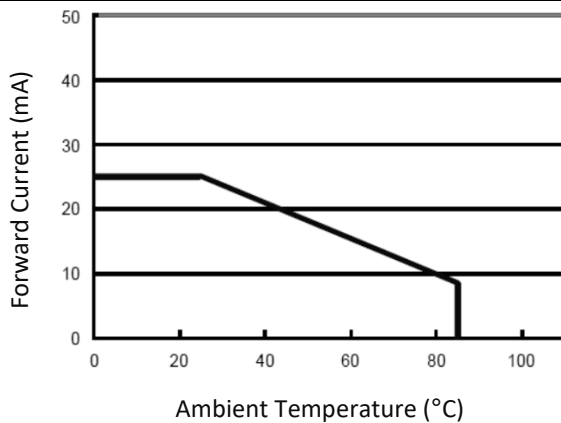
Relative Intensity v.s. Forward Current



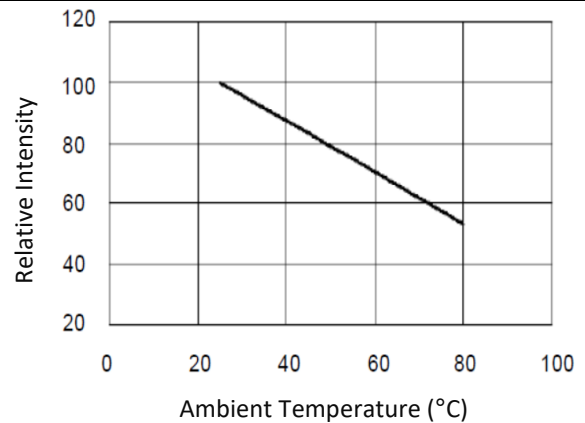
Forward Current v.s. Forward Voltage



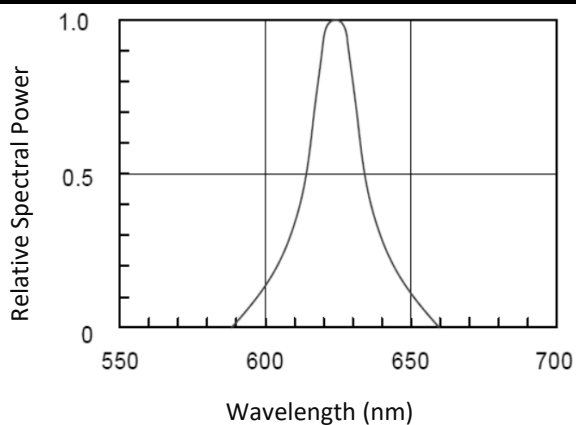
Thermal Design for De-rating



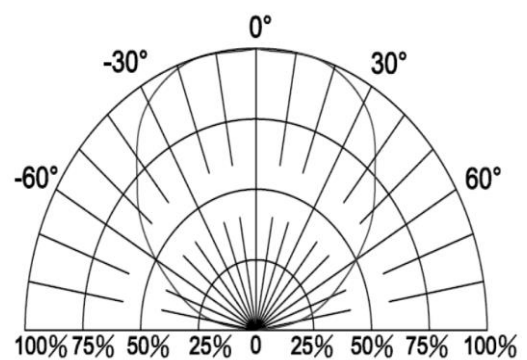
Relative Intensity v.s. Temperature



Luminous Spectrum

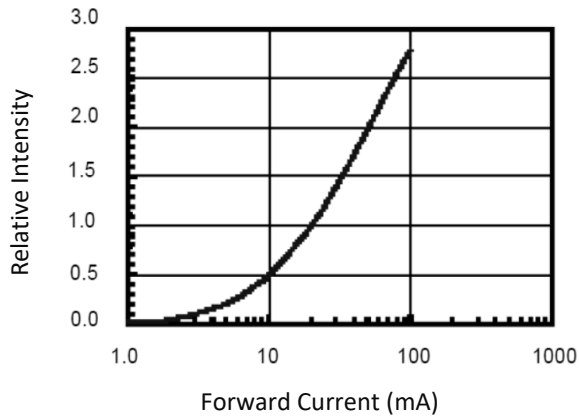


Directive Radiation

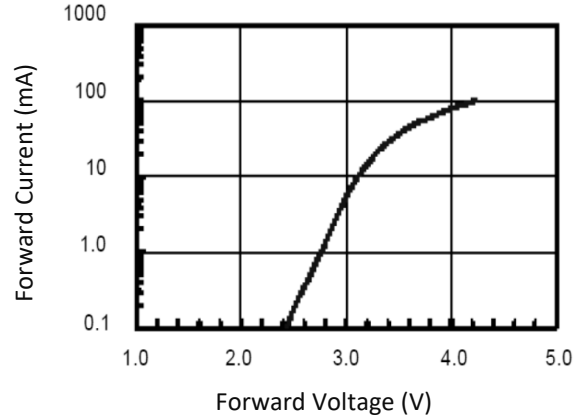


ELECTRO-OPTICAL CHARACTERISTICS (GREEN):

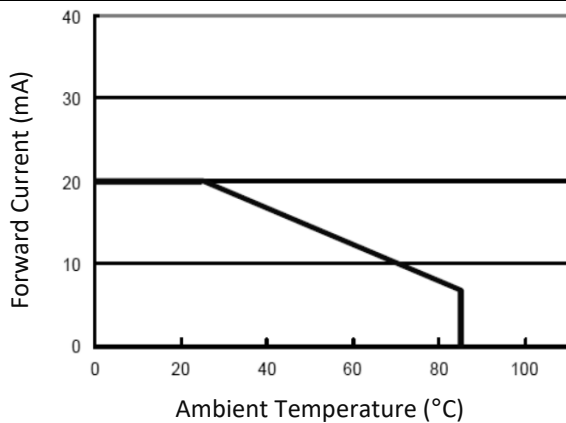
Relative Intensity v.s. Forward Current



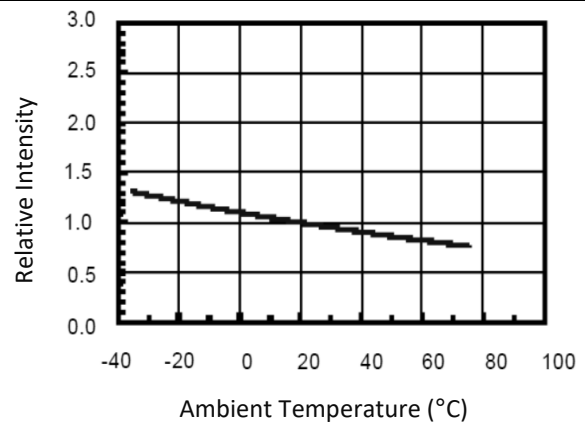
Forward Current v.s. Forward Voltage



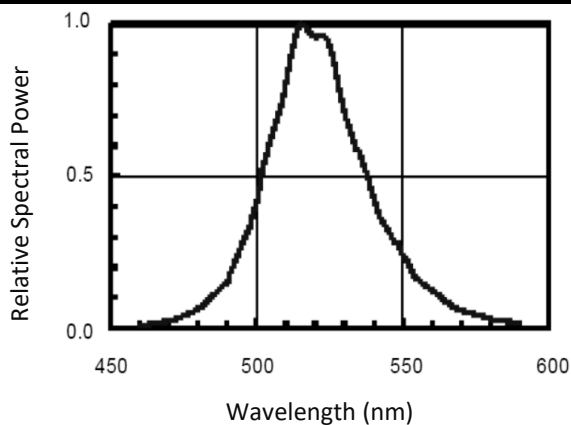
Thermal Design for De-rating



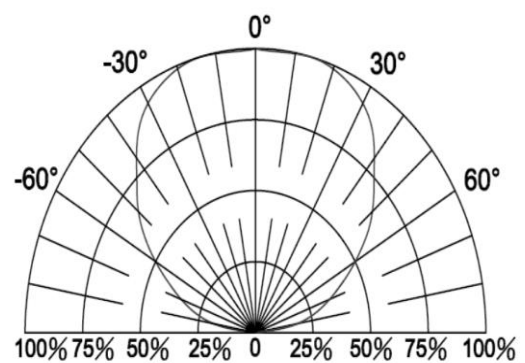
Relative Intensity v.s. Temperature



Luminous Spectrum

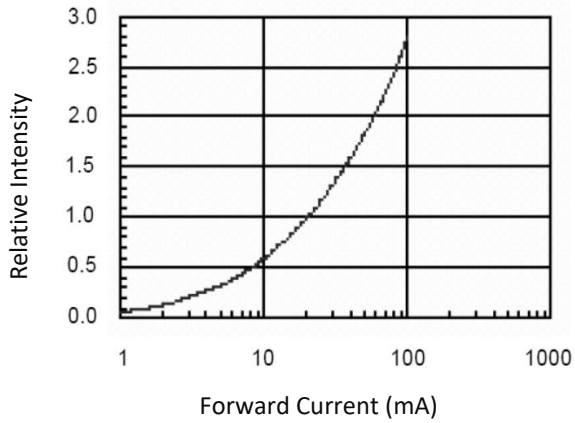


Directive Radiation

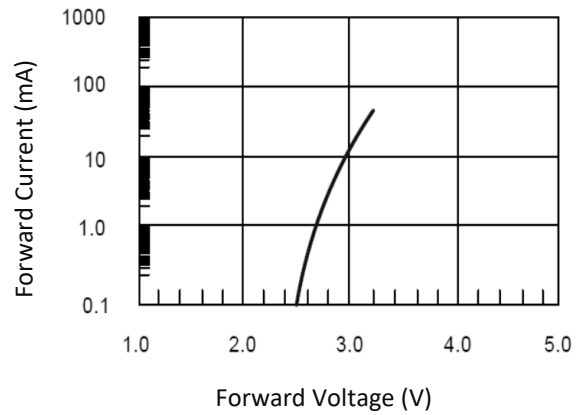


ELECTRO-OPTICAL CHARACTERISTICS (BLUE):

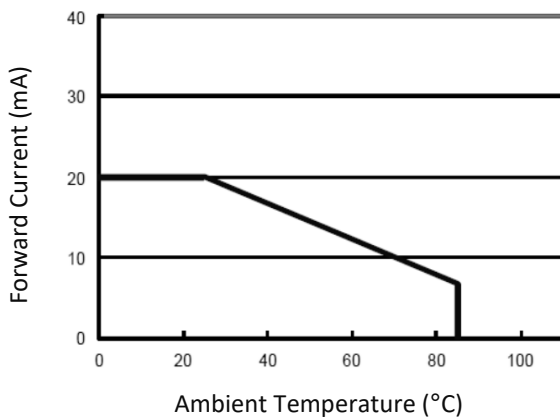
Relative Intensity v.s. Forward Current



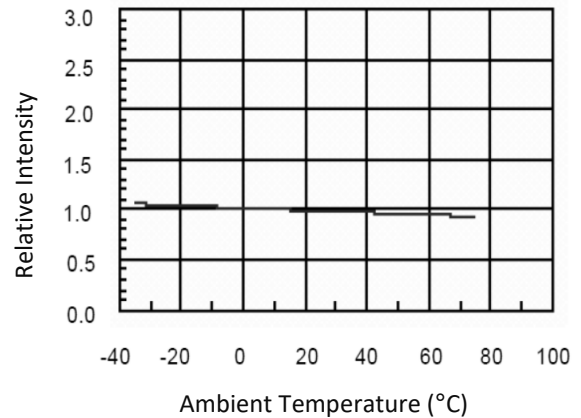
Forward Current v.s. Forward Voltage



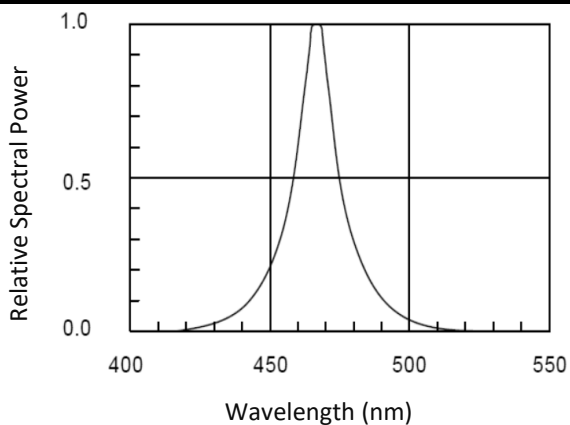
Thermal Design for De-rating



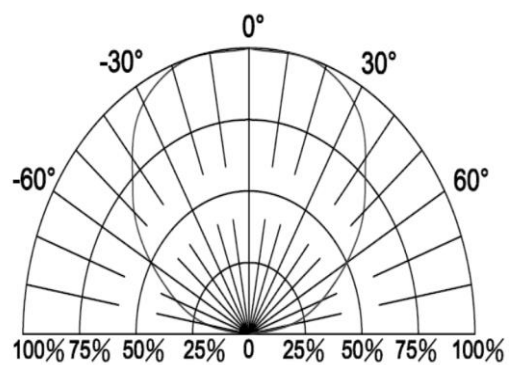
Relative Intensity v.s. Temperature



Luminous Spectrum

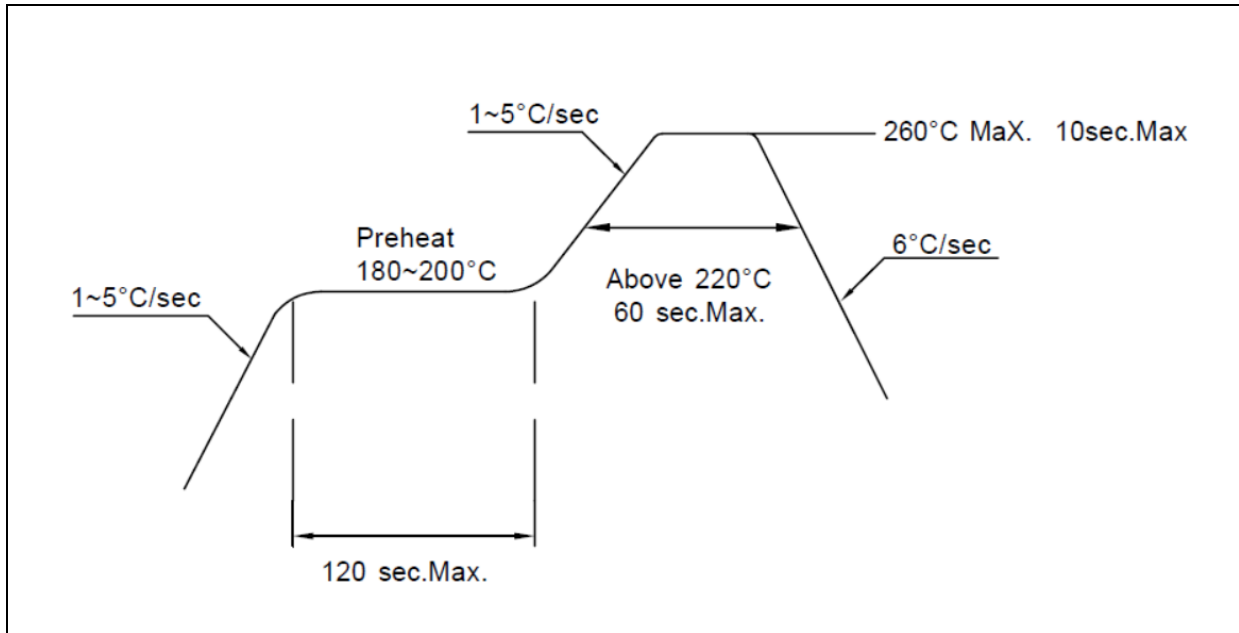


Directive Radiation



RECOMMENDED SOLDERING PROFILE:

Lead-free Solder:

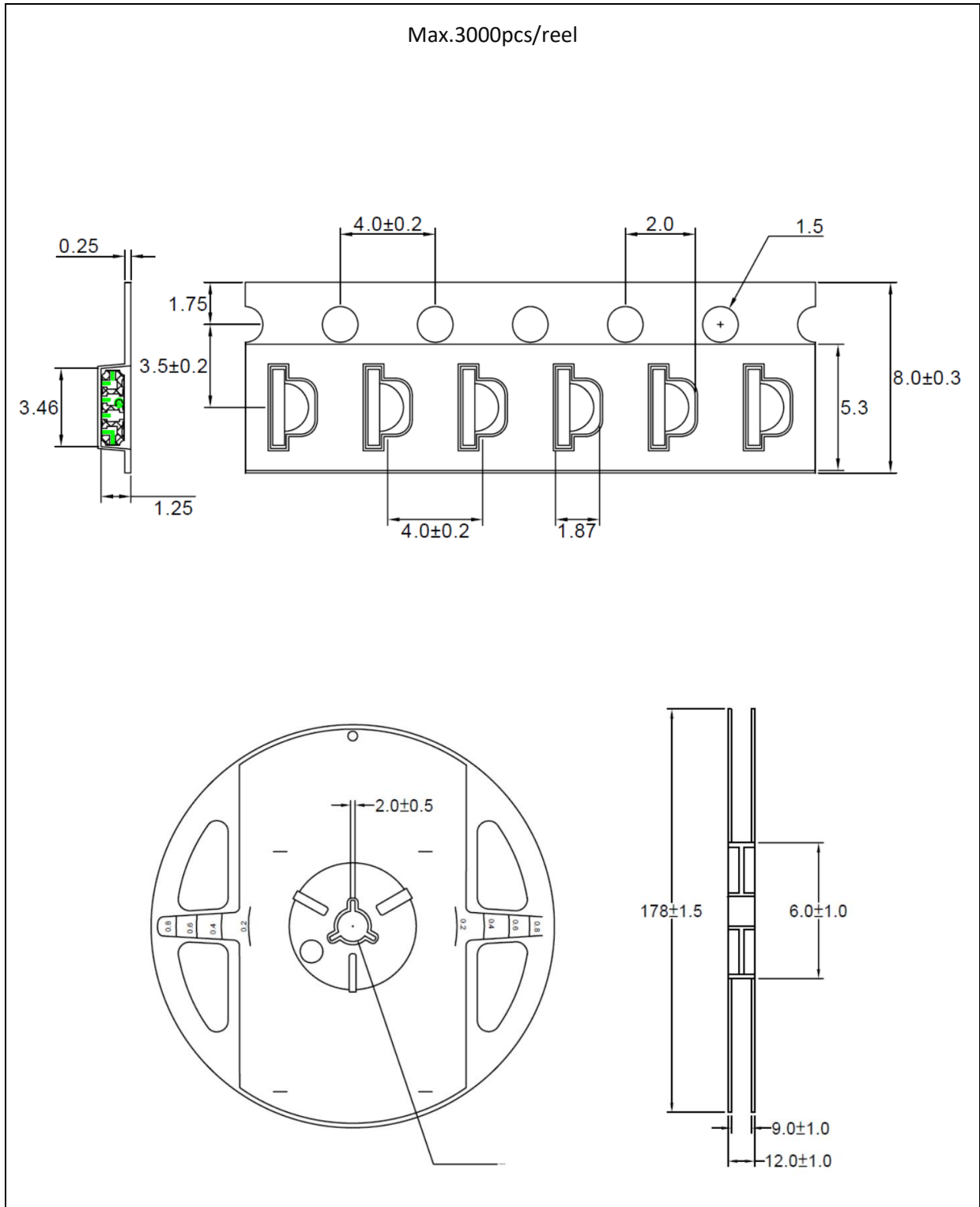


Note:

1. Maximum reflow soldering: 2 times.
2. The recommended reflow temperature is 240°C. The maximum soldering temperature should be limited to 260°C.
3. Before, during, and after soldering, should not apply stress on the components and PCB board.

PACKING SPECIFICATION:

Reel Dimension:



PRECAUTIONS OF USE:

Storage:

It is recommended to store the products in the following conditions:

- Humidity: 60% R.H. Max.
- Temperature: 5°C~30°C (41°F ~86°F).

Shelf life in sealed bag: 12 month at 5°C~30°C and <60% R.H.

Once the package is opened, the products should be used within a week. Otherwise, they should be kept in a damp-proof box with desiccating agent <10% R.H. and apply baking before use.

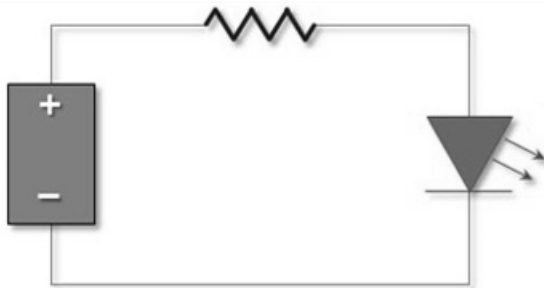
Baking:

It is recommended to bake the LED before soldering if the pack has been unsealed for longer than 24hrs. The suggested baking conditions are as followings:

- 60±5°C x 72hrs and <5%RH, taped / reel package.

It's normal to see slight color fading of carrier (light yellow) after baking in process.

Testing Circuit:



Must apply resistor(s) for protection (over current proof).

Cleaning:

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LED carrier / package. Avoid putting any stress force directly on to the LED lens.

ESD (Electrostatic Discharge):

Static Electricity or power surge will damage the LED. Use of a conductive wrist band or anti-electrosatic glove is recommended when handling the LED all time. All devices, equipment, machinery, work tables, and storage racks must be properly grounded.

In the events of manual working in process, make sure the devices are well protected from ESD at any time.

REVISION RECORD:

Version	Date	Summary of Revision
A1.0	21/02/2022	Datasheet set-up.
A1.1	18/10/2023	New datasheet format.