



BRIGHTTEK
BRIGHTTEK (EUROPE) LIMITED

Brighten up The World With LED!



ISO 9001:2008

BSI EM ISO 14001:2004

QC 90000 IECQ HSP98

PRODUCT DATASHEET



- ▶ PLCC6 SMD
- ▶ 3535 2.8t Series
- ▶ Red / Green / Blue

NOM48S06



Release Date: 10 January 2019 Version: A1.1



3535 2.8t Series



FEATURES (Red/Green/Blue*):

- **Package:** PLCC6 RGB Black Body Top View SMD Package
- **Forward Current:** 20/20/20mA
- **Forward Voltage (typ.):** 2.2/3.2/3.2V
- **Luminous Flux (typ.):** 718/1720/390mcd@20mA
- **Colour:** Red/Green/Blue
- **CCT/Wavelength:** 623/525/470nm
- **Viewing angle:** 120/120/120°
- **Materials:**
 - Die: AlGaInP/InGaN/InGaN
 - Resin: Silicon (White Diffused)
- **Operating Temperature:** -40~+85°C
- **Storage Temperature:** -40~+100°C
- **ESD:** 1000V (HBM)
- **Grouping parameters:**
 - Forward voltage
 - Luminous intensity
 - Dominant Wavelength
- **Soldering methods:** IR Reflow soldering
- **Preconditioning:** MSL 3 according to JEDEC
- **Packing:** 12mm tape with Max.2500pcs/reel, ø180mm (7")

APPLICATIONS:

- LED Display
- Switch Light
- 3C Application
- Decoration Lighting

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Forward Current	I _F	30*	mA
Pulse Forward Current (duty 1/10; width 0.1ms)	I _{MAX}	100	mA
Reverse Voltage	V _R	5	V
Reverse Current @5V	I _R	10	μA
Electrostatic Discharge (HBM)	ESD	1000	V
Junction Temperature	T _j	110	°C
Soldering Temperature	T _{SOL}	260	°C
Operating Temperature	T _{OPR}	-40~+85	°C
Storage Temperature	T _{STG}	-40~+100	°C

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

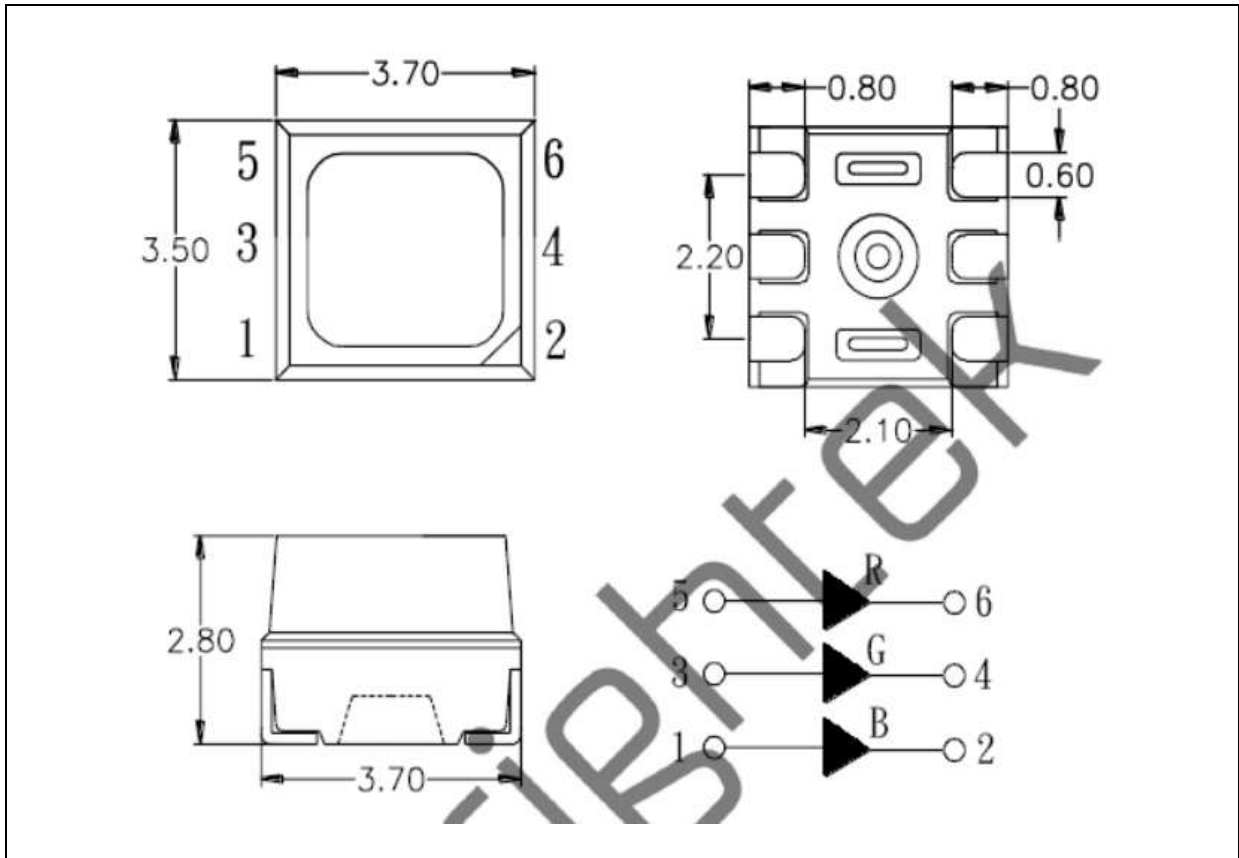
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Red - Forward Voltage	V _F	1.8	---	2.6	V	I _F =20mA
Red - Luminous Intensity	I _v	480	718	1065	mcd	I _F =20mA
Red - Wavelength	W _P	618	---	628	nm	I _F =20mA
Green - Forward Voltage	V _F	2.8	---	3.6	V	I _F =20mA
Green - Luminous Intensity	I _v	1230	1720	2704	mcd	I _F =20mA
Green - Wavelength	W _P	520	---	530	nm	I _F =20mA
Blue - Forward Voltage	V _F	2.8	---	3.6	V	I _F =20mA
Blue - Luminous Intensity	I _v	260	390	572	mcd	I _F =20mA
Blue - Wavelength	W _P	465	---	475	nm	I _F =20mA
Viewing Angle	2θ _{1/2}	---	120	---	deg	I _F =20mA

1. Luminous intensity (I_v) ±10%, Forward Voltage (V_F) ±0.1V, Viewing angle(2θ_{1/2}) ±5%, Wavelength (λ) ±1nm.

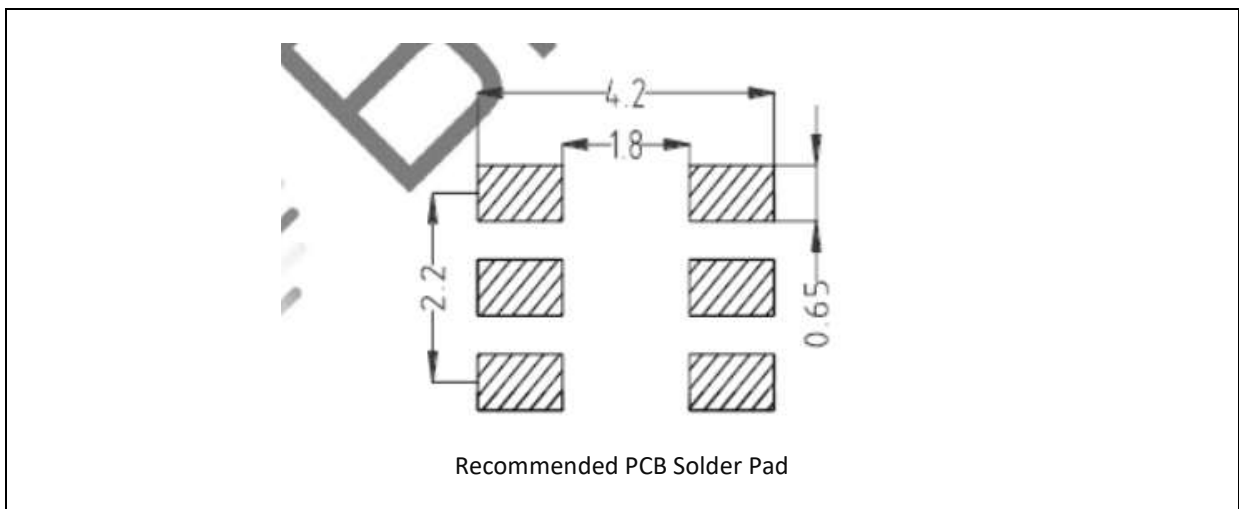
OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance $\pm 0.1\text{mm}$, unless otherwise noted.

Recommended Soldering Pad Dimension:



1. Dimensions are in millimetre (mm).
2. Tolerance $\pm 0.1\text{mm}$ with angle tolerance $\pm 0.5^\circ$.

BINNING GROUPS:

Depend on the production outcome; the factory will amend the bin code to maintain the bins' centralization and even distribution. The standard intensity bin gap is 1.3 times accumulated per bin. For dominant wavelength the bin gap is Red: 5nm / Green: 3nm / Blue: 3nm.

Forward Voltage Classifications ($I_F = 20\text{mA}$):

	Code	Min.	Max.	Unit
V	Red	1.8	2.6	V
	Green	2.8	3.6	
	Blue	2.8	3.6	

Luminous Intensity Classifications ($I_F = 20\text{mA}$):

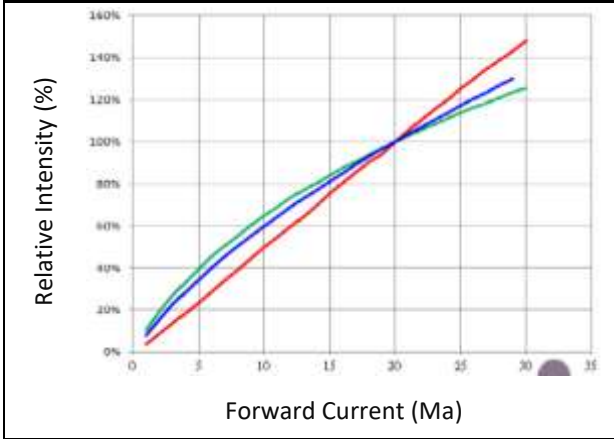
	Code	Min.	Max.	Unit
IV	Red	480	1065	mcd
	Green	1230	2704	mcd
	Blue	260	572	mcd

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

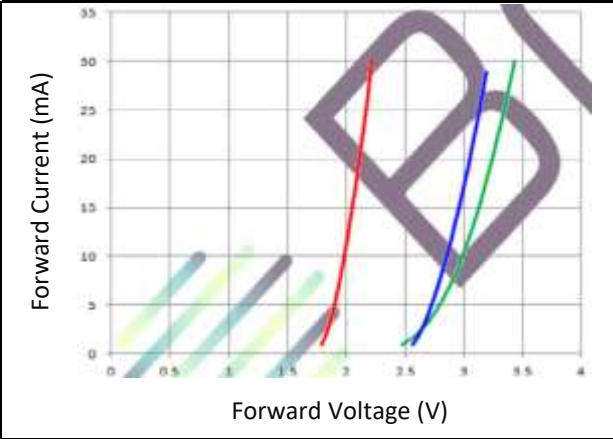
	Code	Min.	Max.	Unit
WL	Red	618	628	nm
	Green	520	530	
	Blue	465	475	

ELECTRO-OPTICAL CHARACTERISTICS:

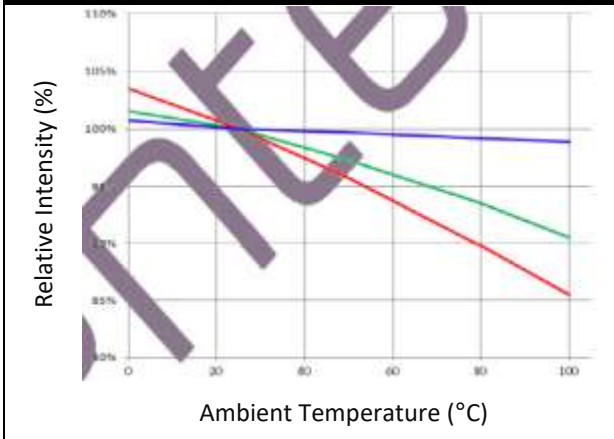
Relative Intensity v.s. Forward Current



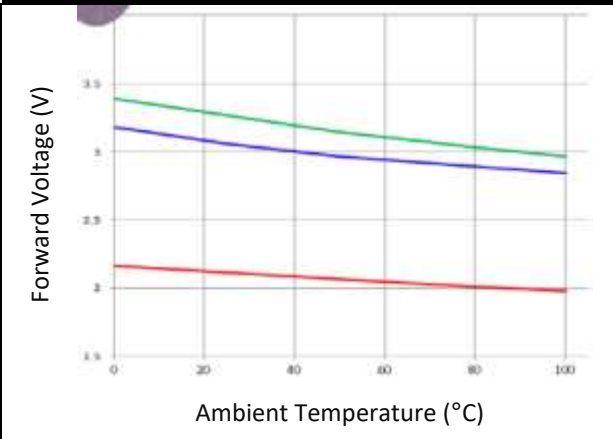
Forward Current v.s. Forward Voltage



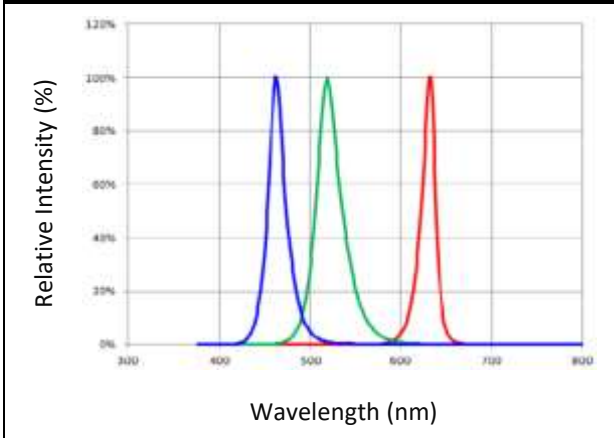
Relative Intensity v.s. Ambient Temperature



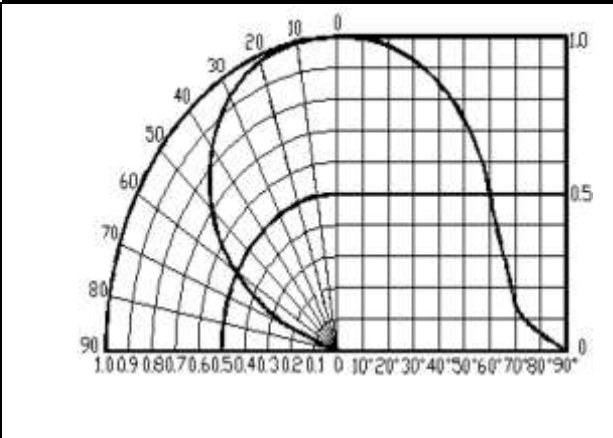
Forward Voltage v.s. Ambient Temperature

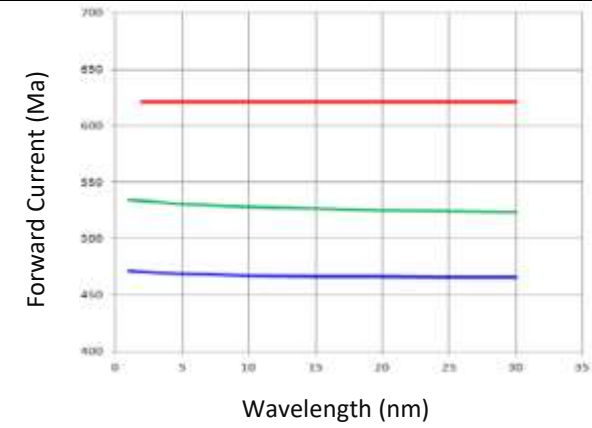
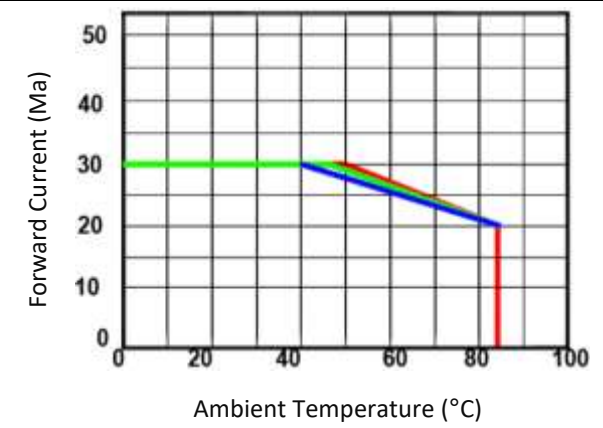


Relative Spectral Distribution



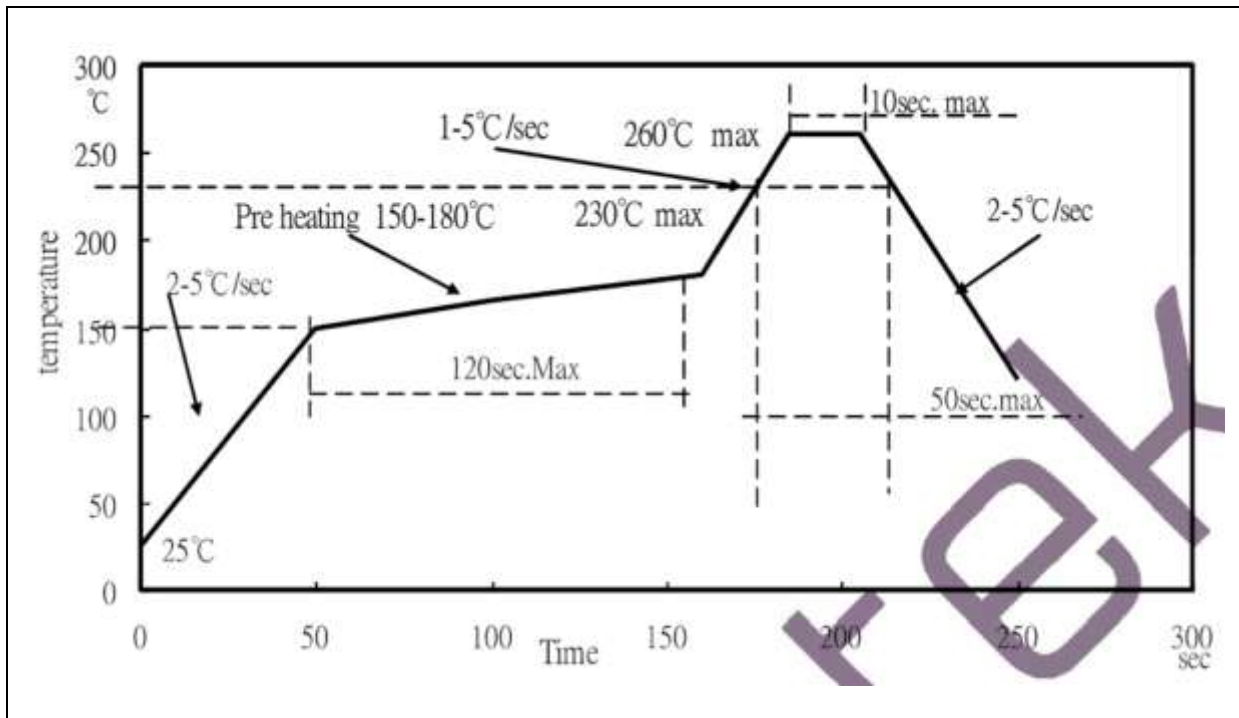
Directive Radiation



ELECTRO-OPTICAL CHARACTERISTICS:
Wavelength Shift v.s. Forward Current

Maximum Current v.s. Ambient Temperature


RECOMMENDED SOLDERING PROFILE:

Lead-free Solder:

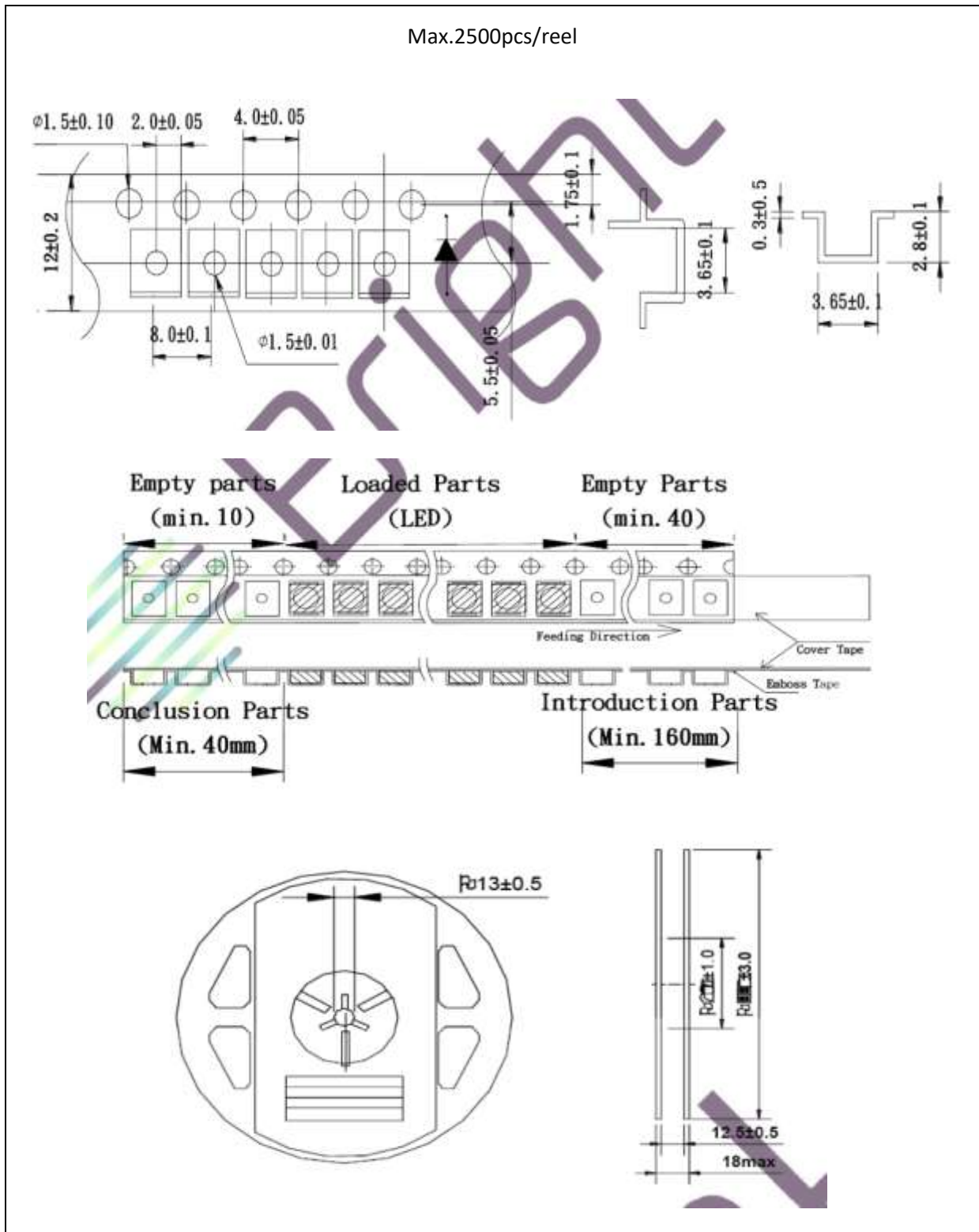


Note:

1. Maximum reflow soldering: 1 time.
2. 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 months 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 and apply baking before use.

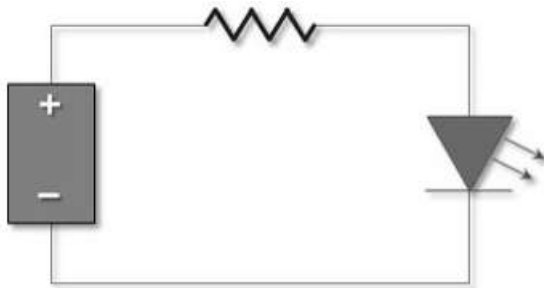
Baking:

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±3°C x 6hrs 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-electrostatic 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	10/01/2019	Datasheet set-up.