



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



- ▶ PLCC6 SMD
- ▶ 5050 1.6t Series
- ▶ Red / Green / Blue

NOM03S91BS



Release Date: 01 February 2017 Version: A1.0



5050 1.6t Series

RoHS
Compliant



FEATURES (Red/Green/Blue*):

- **Package:** PLCC6 RGB Black Surface SMD Package
- **Forward Current:** 20/20/20mA
- **Forward Voltage (typ.):** 1.9/3.2/3.2V
- **Luminous Flux (typ.):** 850/1850/330mcd@20mA
- **Colour:** Red/Green/Blue
- **CCT/Wavelength:** 625/525/470nm
- **Viewing angle:** 120/120/120°
- **Materials:**
 - Die: AlGaInP/InGaN/InGaN
 - Resin: Silicone (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 1000pcs/reel, ø180mm (7")

APPLICATIONS:

- RGD Display
- Decoration Lighting
- Light Strip
- Commercial Lighting
- Consumer Goods

CHARACTERISTICS:

Absolute Maximum Characteristics (Ta=25°C)

Parameter	Symbol	Ratings	Unit
Forward Current	I _F	50/30/30*	mA
Pulse Forward Current (duty 1/10; width 0.1ms)	I _{MAX}	100	mA
Power Dissipation	P _D	100/80/80	mW
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

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

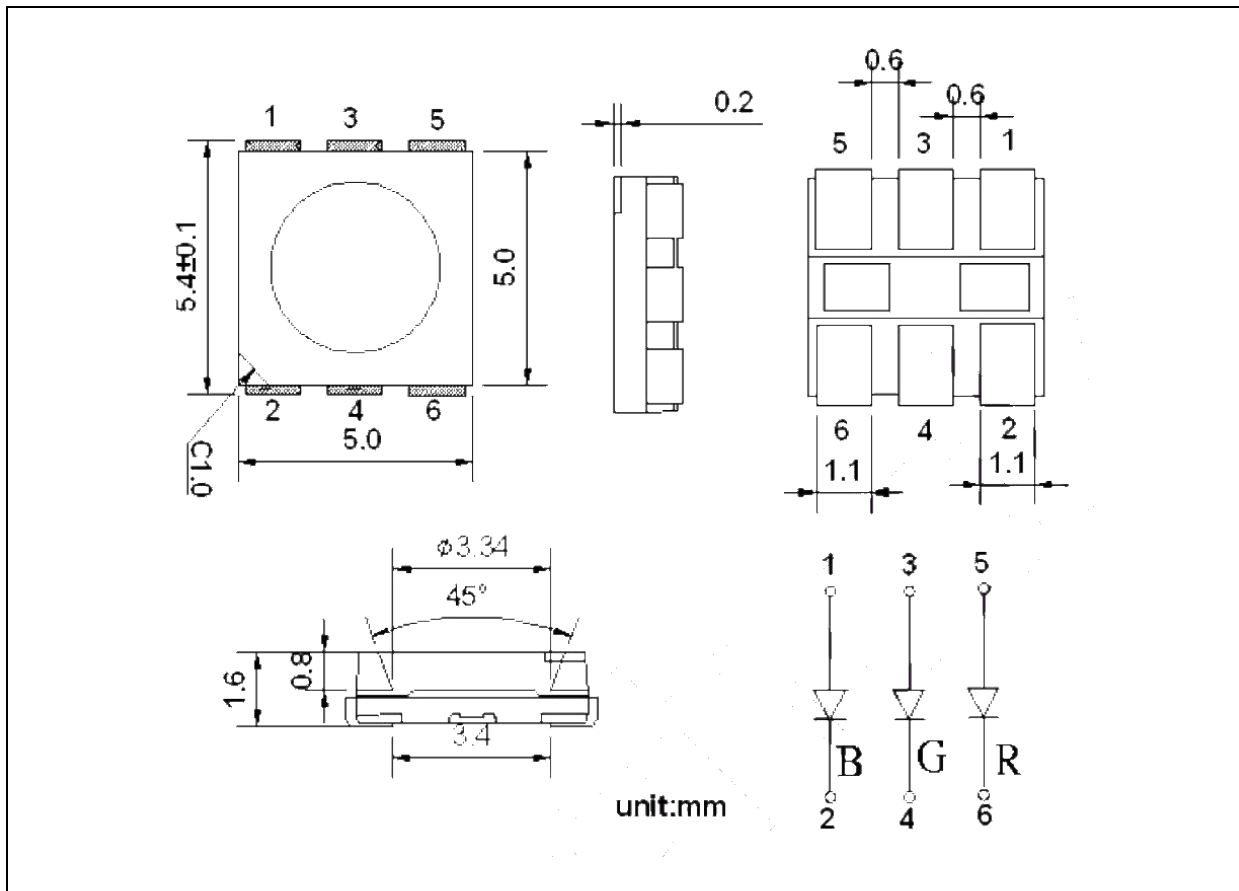
Electrical & Optical Characteristics (Ta=25°C)

Parameter	Symbol	Values			Unit	Test Condition
		Min.	Typ.	Max.		
Red - Forward Voltage	V _F	1.7	1.9	2.8	V	I _F =20mA
Red - Luminous Intensity	I _v	---	850	---	mcd	I _F =20mA
Red - Wavelength	W _P	615	---	630	nm	I _F =20mA
Green - Forward Voltage	V _F	2.8	3.2	3.8	V	I _F =20mA
Green - Luminous Intensity	I _v	---	1850	---	mcd	I _F =20mA
Green - Wavelength	W _P	520	---	535	nm	I _F =20mA
Blue - Forward Voltage	V _F	2.8	3.2	3.8	V	I _F =20mA
Blue - Luminous Intensity	I _v	---	330	---	mcd	I _F =20mA
Blue - Wavelength	W _P	461	---	476	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; Wavelength ±1nm.

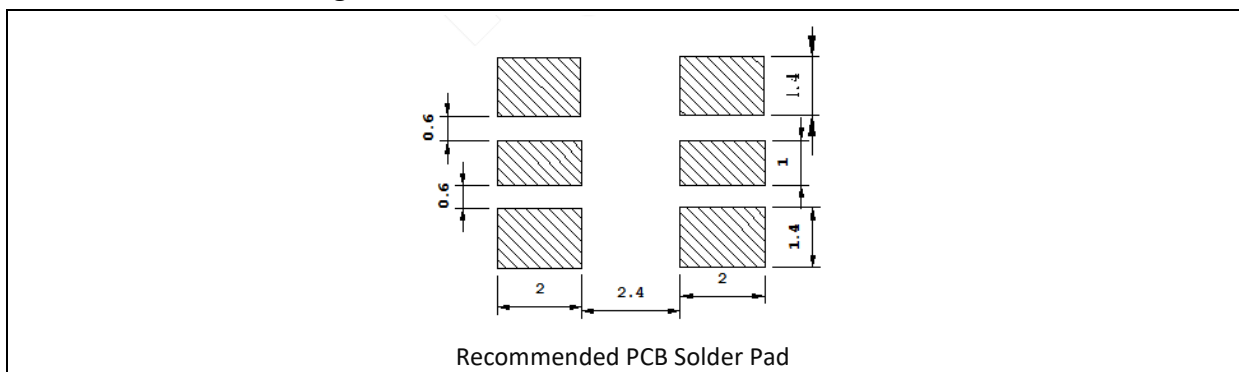
OUTLINE DIMENSION:

Package Dimension:



1. All dimensions are in millimetre (mm).
2. Tolerance ± 0.1 mm, unless otherwise noted.

Recommended Soldering Pad Dimension:



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

BINNING GROUPS:

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

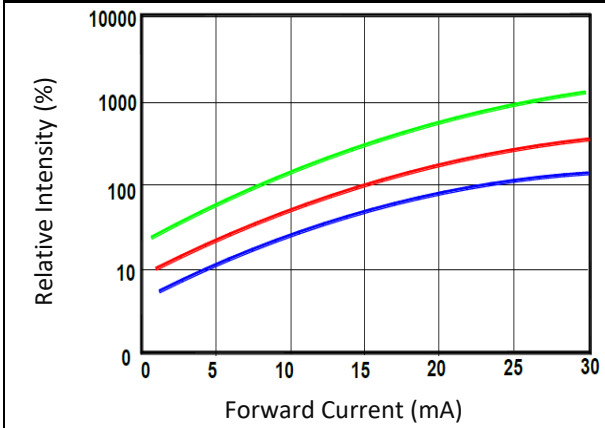
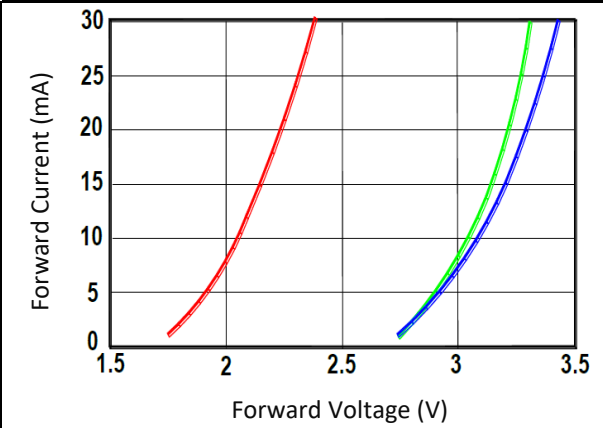
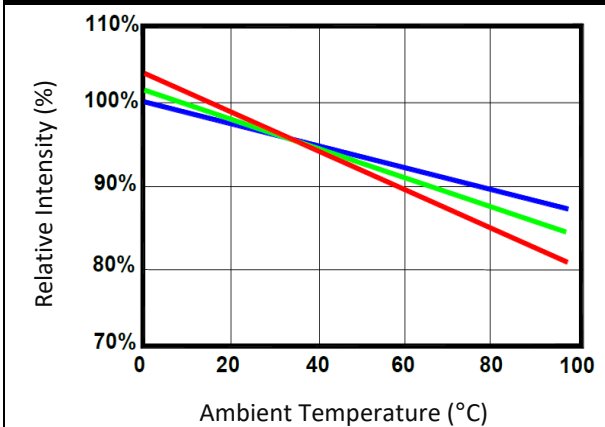
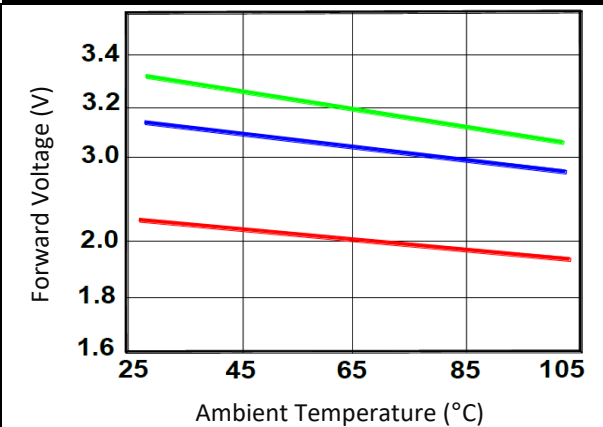
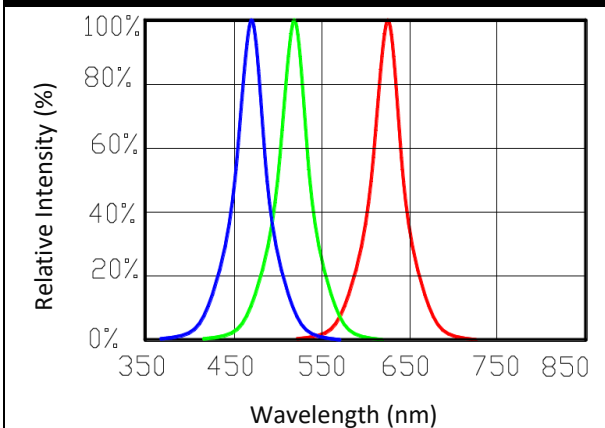
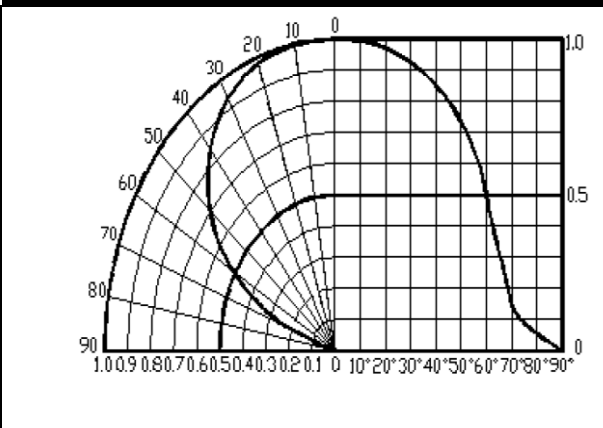
Code	Min.	Max.	Unit
R	1.7	2.8	V
G	2.8	3.8	
B	2.8	3.8	

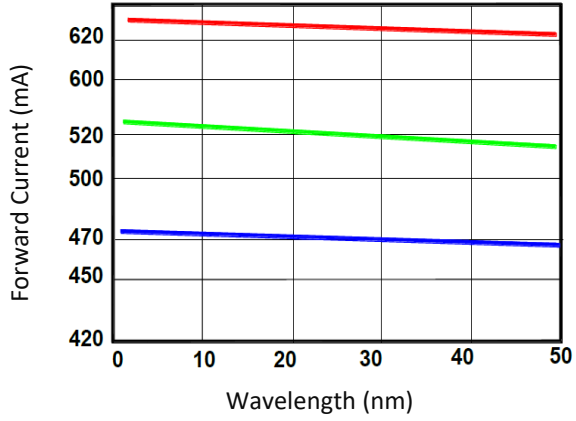
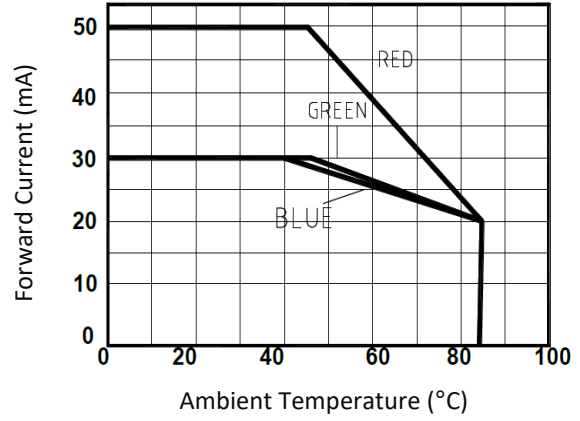
 Luminous Intensity Classifications ($I_F = 20\text{mA}$):

Code	Min.	Max.	Unit
R	R12	600	mcd
	R13	750	
	R14	940	
G	G12	1280	
	G13	1600	
	G14	2000	
B	B11	250	
	B12	310	
	B13	390	

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

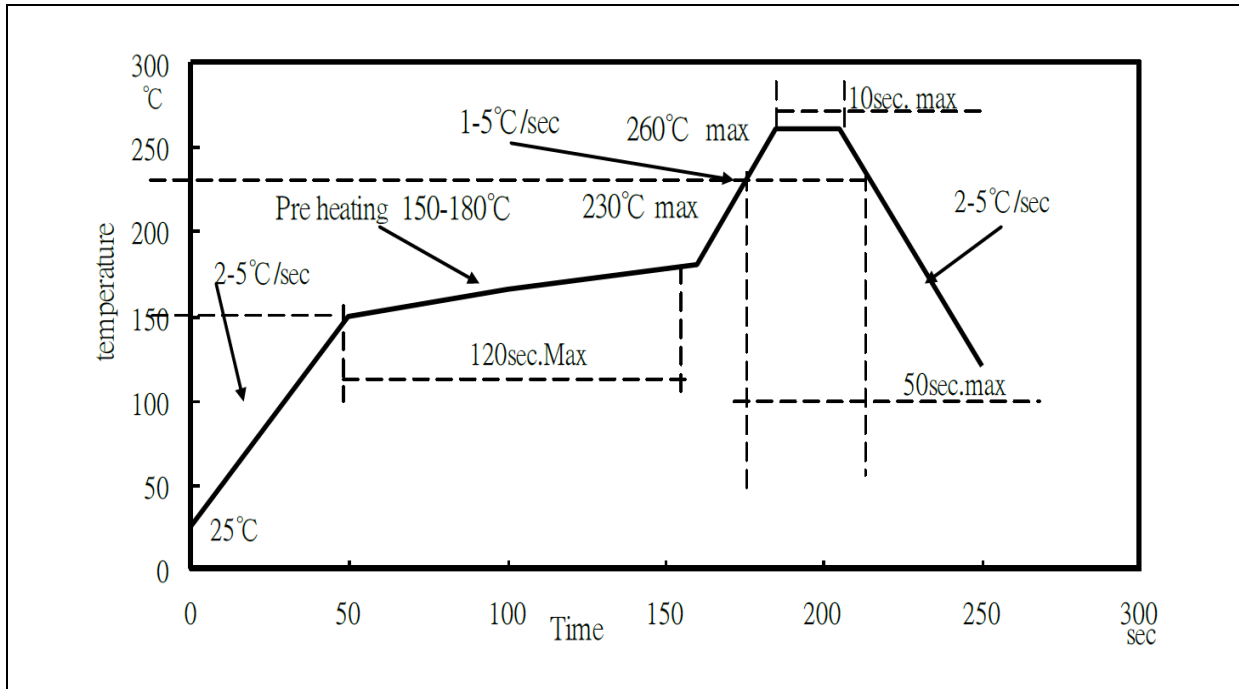
Code	Min.	Max.	Unit
R	RW2	615	nm
	RW3	620	
	RW4	625	
G	GW2	520	
	GW3	525	
	GW4	530	
B	BW2	461	
	BW3	466	
	BW4	471	

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 IR Reflow Solder:

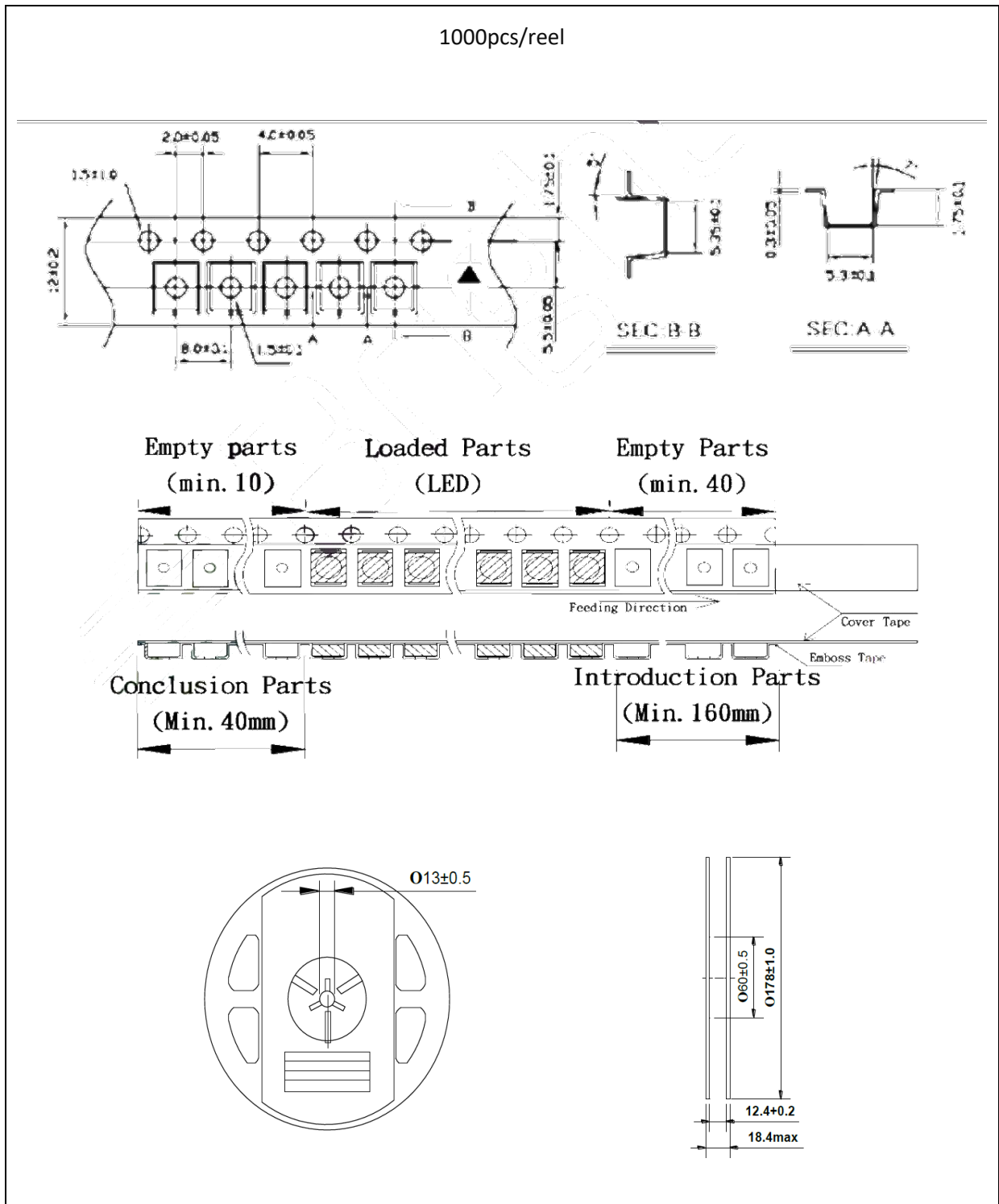


Note:

1. Maximum reflow soldering: 3 times.
2. Recommended soldering temperature 240°C; maximum soldering temperature is 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 and apply baking at 60°C±5°C for 15hrs before use.

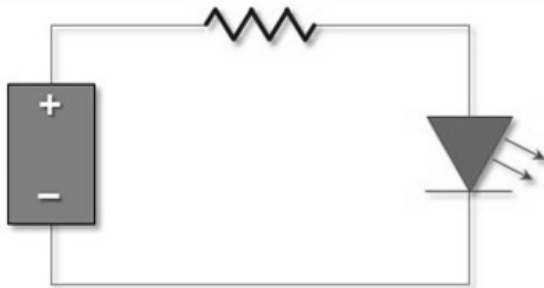
Baking:

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:

- 65±3°C x 24hrs 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	01/02/2017	Datasheet set-up.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Standard LEDs - SMD category](#):

Click to view products by [MGT Brightek manufacturer](#):

Other Similar products are found below :

[LTST-C190KYKT](#) [LTST-C19GD2WT](#) [LTST-N683GBEW](#) [LTW-170ZDC](#) [LTW-M140SZS40](#) [598-8110-100F](#) [598-8610-202F](#)
[AAAF5060QBFSEEZGS](#) [APT1608QGW](#) [EAST2012YA0](#) [SML-512VWT86A](#) [SML-LX0606SISUGC/A](#) [SML-LXR851SIUPGUBC](#)
[LT1ED53A](#) [AM27ZGC03](#) [APFA3010SURKCGKQBDC](#) [APHK1608VGCA](#) [APT2012QGW](#) [CLX6D-FKB-CN1R1H1BB7D3D3](#) [LTST-](#)
[008BGEW](#) [LTW-010DCG](#) [LTW-020ZDCG](#) [LTW-21TS5](#) [LTW-220DS5](#) [598-8330-117F](#) [SML-LX0402IC-TR](#) [CMDA20AYAA7D1S](#)
[CMDA16AYDR7A1X](#) [598-8040-100F](#) [598-8070-100F](#) [598-8140-100F](#) [598-8610-200F](#) [EAST2012GA0](#) [EAPL3527GA5](#) [EAST2012RA0](#)
[CMD91-21VRC/TR7](#) [SML-512PWT86A](#) [SMF-2432GYC-TR](#) [EASV3015RGYA0](#) [LTST-C190KFKT-5A](#) [LTST-C194TBKT-5A](#) [CLX6E-](#)
[FKC-CH1M1D1BB7C3D3](#) [SML-LXL0805USBC-TR](#) [SML-LX2835SYSUGCTR](#) [LTW-M670ZVS-M5](#) [APA2106ZGC/G](#) [CLMXB-FKA-](#)
[CbcfghjnpACBB79463](#) [VFA1101W-5AY3B2-TR](#) [LCB P473-P2R2-3J7L-1-Z](#) [HSMR-C197](#)