

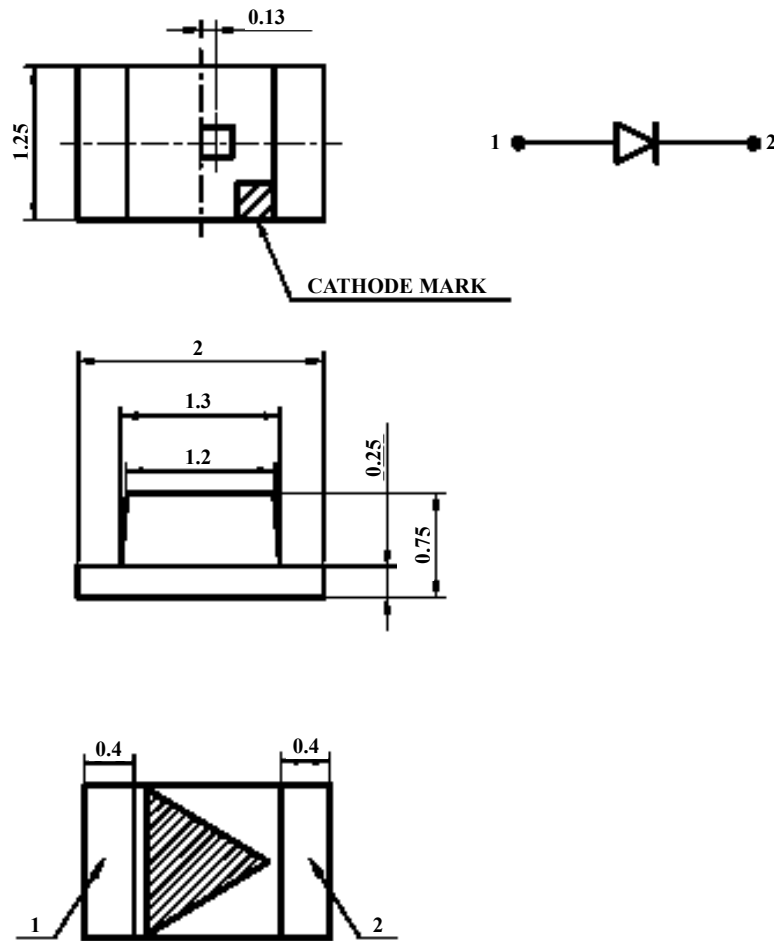
# PRODUCT SPECIFICATION

DATE: 05/20/2004

<b>cosmo</b> ELECTRONICS CORPORATION	SMD LED :  <b>KL-170CBX</b>	NO. 61L20009	REV. 1
		SHEET 1 OF 9	

UNIT:MM

TOLERANCE:  $\pm 0.15$



Part No.	Emitting Color	Material	Lens Type	I <sub>v</sub> (I <sub>F</sub> =20mA)		Viewing Angle 2θ 1/2
				MIN (mcd)	TYP (mcd)	
KL-170CBX	Brightness blue	GaN	Water Clear	25	40	120°

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	<b>KL-170CBX</b>	SHEET 2 OF 9	

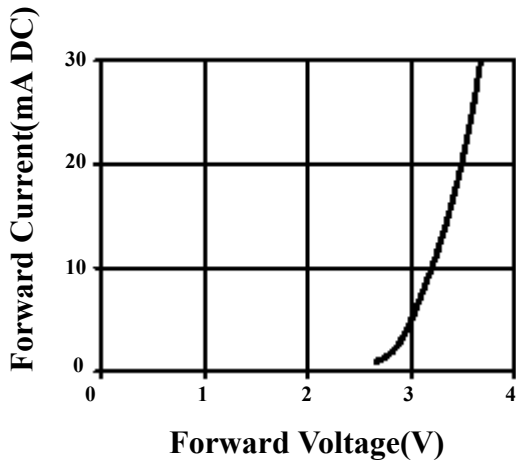
Absolute maximum ratings (TA=25°C)		QB (GaN)	Blue	Unit
Reverse voltage	V <sub>R</sub>	5		V
Forward current	I <sub>F</sub>	30		mA
Forward current(Peak) <small>1/10 Duty Cycle,0.1ms Pulse Width</small>	I <sub>FP</sub>	100		mA
Power dissipation	P <sub>d</sub>	90		mW
<b>LED LAMPS:</b>				
Operating temperature	T <sub>OP</sub>	-40~+85		°C
Storage temperature	T <sub>ST</sub>	-40~+85		°C
<b>LED DISPLAYS:</b>				
Operating temperature	T <sub>A</sub>	-40~+85		°C
Storage temperature	T <sub>STG</sub>	-40~+85		°C

Operating characteristics (TA=25°C)		QB (GaN)	Blue	Unit
Forward voltage(typ.) I <sub>F</sub> =20mA	V <sub>F</sub>	3.7		V
Forward voltage(max.) I <sub>F</sub> =20mA	V <sub>F</sub>	4.0		V
Reverse current(max.) V <sub>R</sub> =5V	I <sub>R</sub>	10		uA
Wavelength at dominant emission(typ.) I <sub>F</sub> =20mA	λ <sub>D</sub>	470		nm
Wavelength at peak emission(typ.) I <sub>F</sub> =20mA	λ <sub>P</sub>	-		nm
Spectral line half-width I <sub>F</sub> =20mA	Δλ	65		nm
Capacitance V <sub>F</sub> =0V,f=1MHz	C	100		pF

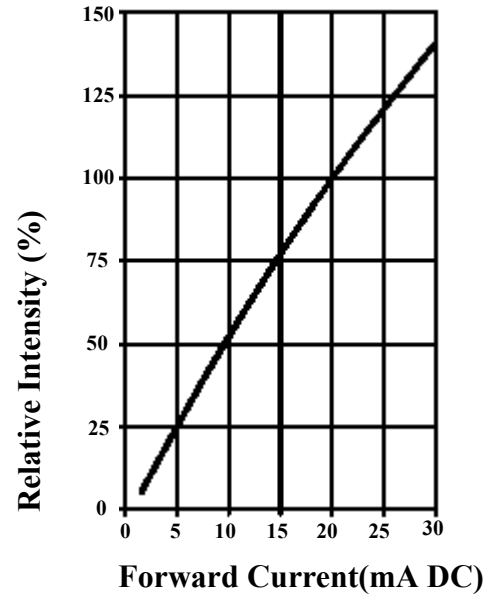
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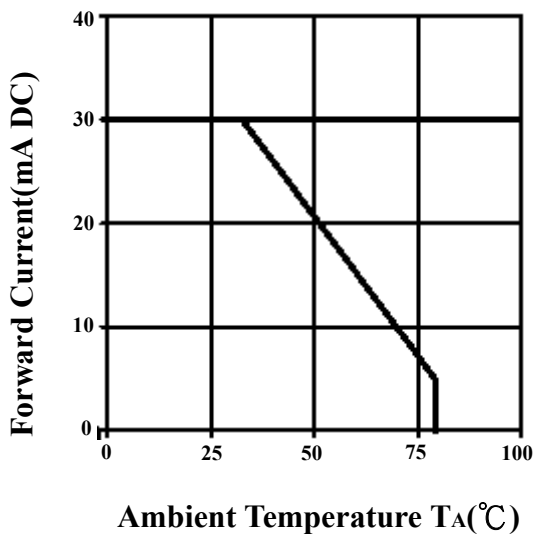
<b>cosmo</b> ELECTRONICS CORPORATION	SMD LED : <b>KL-170CBX</b>	NO.61L20009	REV. 1
		SHEET 3 OF 9	



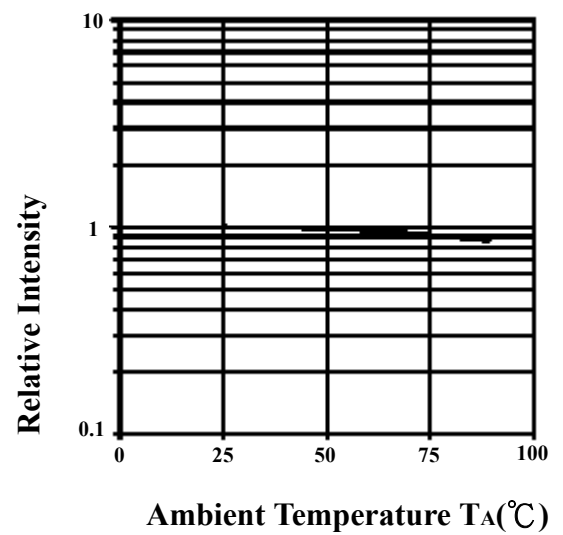
**Forward Current Vs.  
Forward Voltage**



**Relative Intensity Vs.  
Forward Current**



**Forward Current  
Derating Curve**

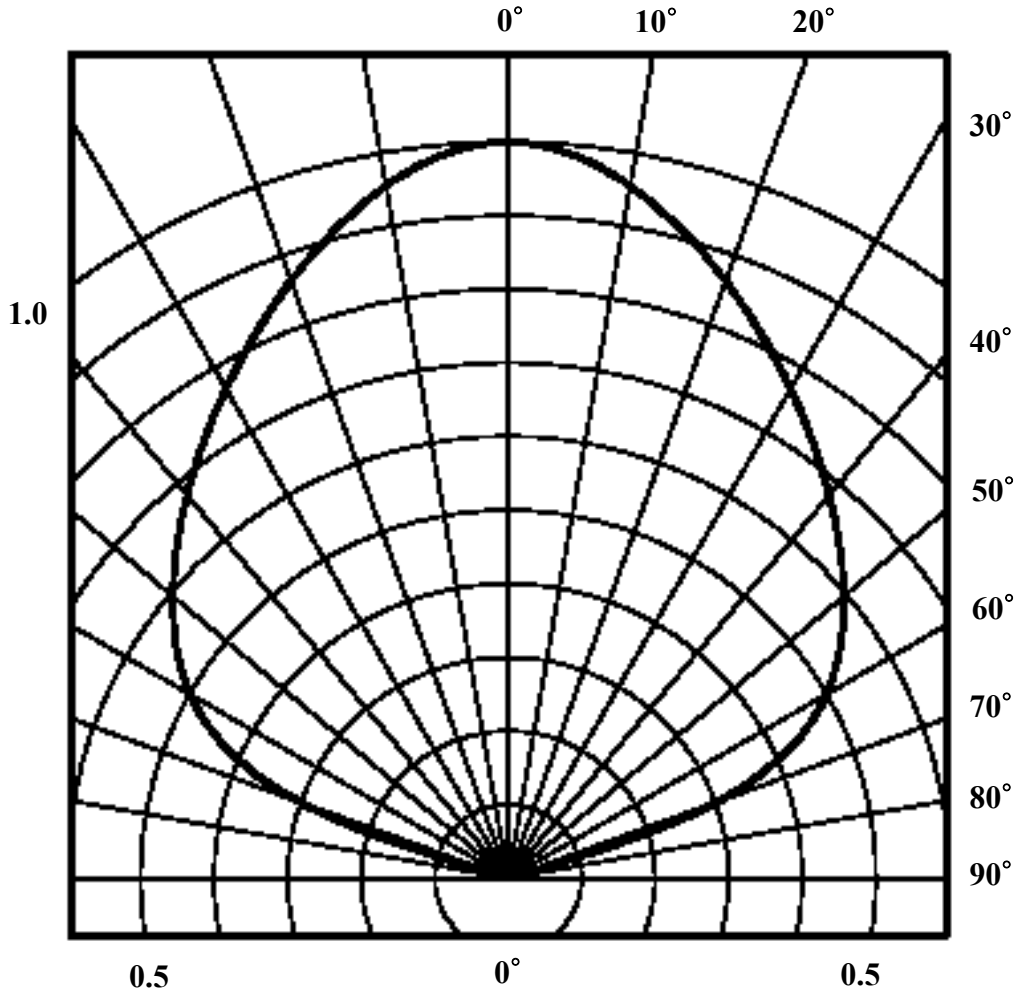


**Luminous Intensity Vs.  
Ambient Temperature**

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	<b>KL-170CBX</b>	SHEET 4 OF 9	1



View Angle  $2\theta_{1/2}=120^\circ$

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		SHEET 5 OF 9	

UNIT:MM

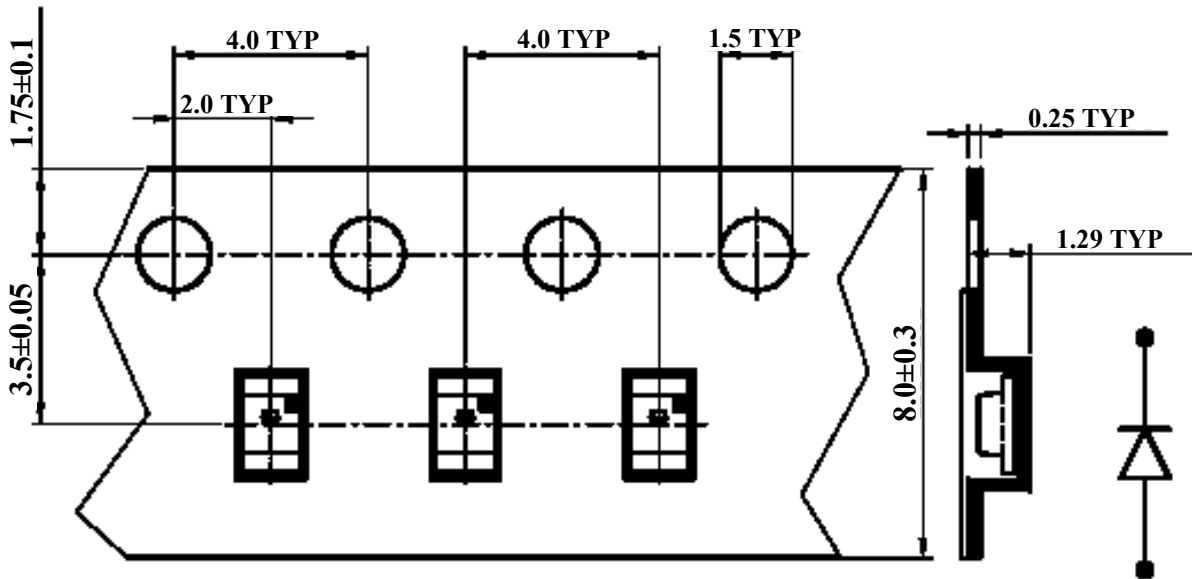
TOLERANCE:  $\pm 0.25$

TYPE



PACKAGE:2000 OR 1000PCS/REEL

REEL" T":14mm TYP



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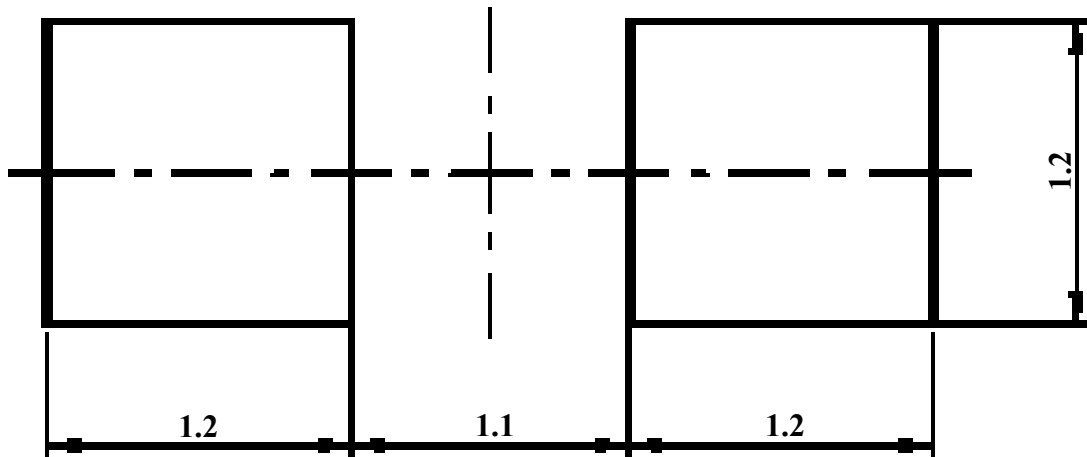
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		SHEET 6 OF 9	

UNIT:MM

The following soldering patterns are recommended for reflow-soldering:

For reflow soldering



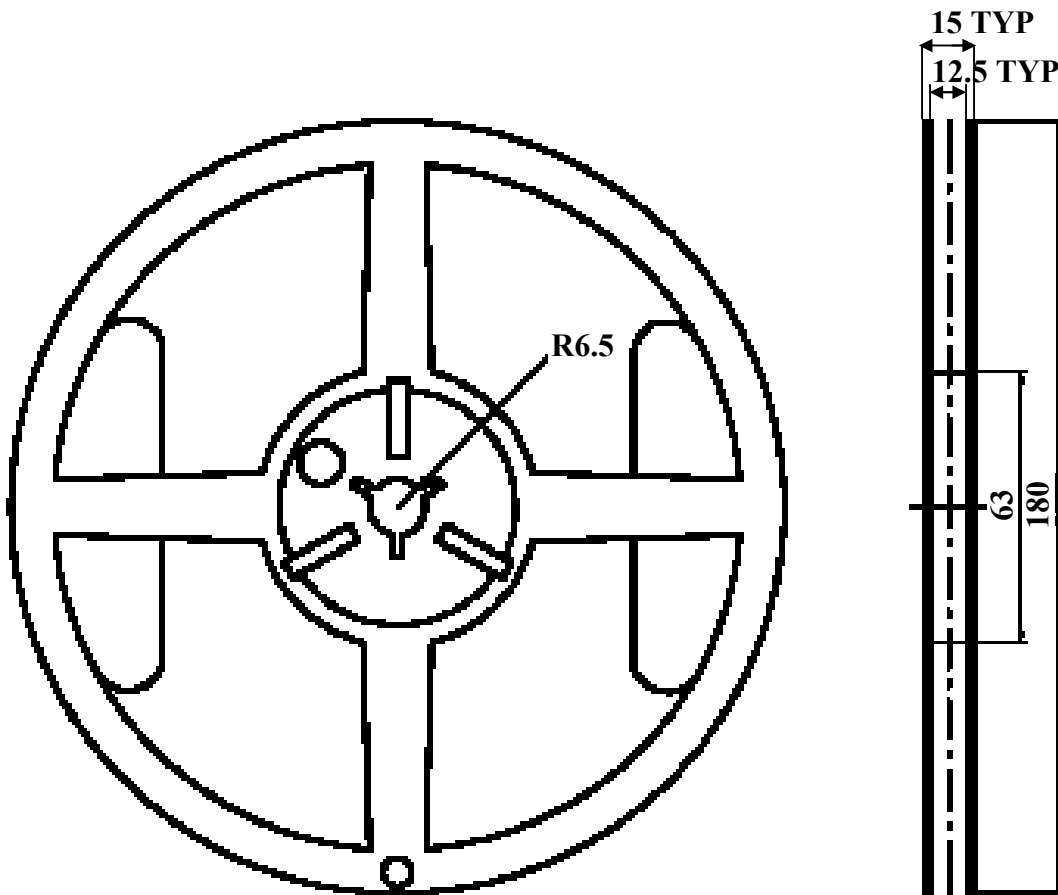
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		SHEET 7 OF 9	

UNIT:MM

TOLERANCE:  $\pm 0.25$



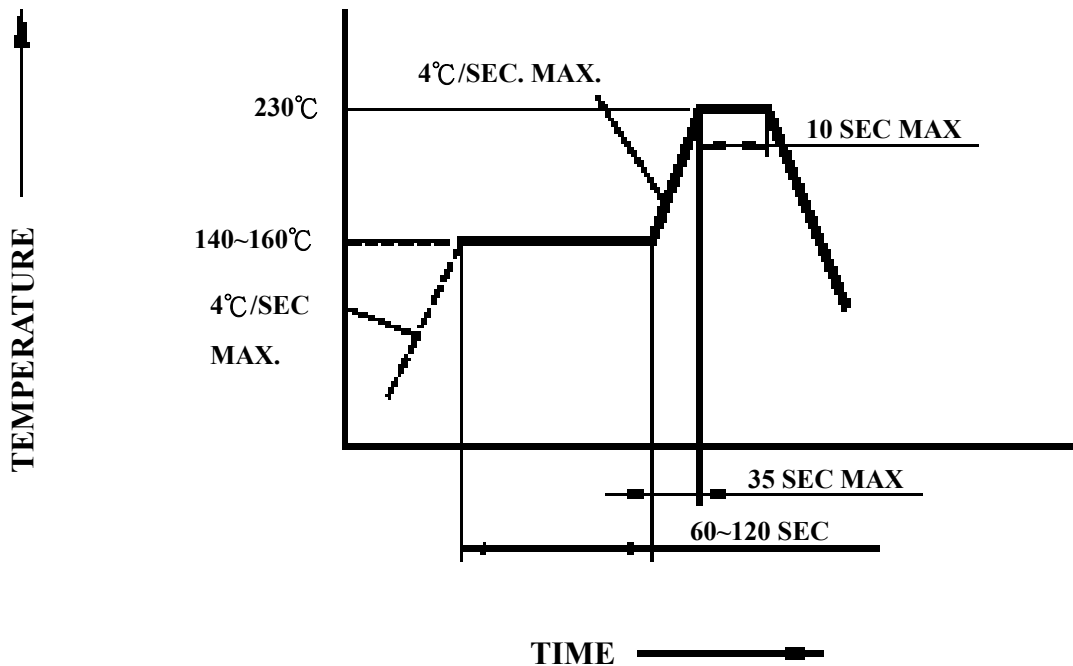
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	<b>KL-170CBX</b>	SHEET 8 OF 9	1

## SOLDERING

### SMT REFLOW SOLDERING INSTRUCTIONS



### SOLDERING INSTRUCTIONS

TYPES	DIP AND WAVE SOLDERING			IRON SOLDERING(WITH 1.5mm IRON TIP)		
	TEMPERATURE OF THE SOLDERING BATH	MAXIMUM SOLDERING TIME	DISTANCE FROM SOLDER JOINT TO CASE	TEMPERATURE OF SOLDERING IRON	MAXIMUM SOLDERING TIME	DISTANCE FROM SOLDER JOINT TO CASE
LEDS	≤260°C	3S	>2mm	≤260°C	3S	>2mm
	≤260°C	5S	>4mm	≤260°C	5S	>4mm
DISPLAYS	≤260°C	3S	>2mm	≤260°C	3S	>2mm



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		SHEET 9 OF 9	1

## SMD HANDLING AND APPLICATION PRECAUTIONS

### STORAGE

(1.1) It is recommended to store the devices in accordance with the following conditions:

Humidity: 60%RH Max.

Temperature: 5°C~30°C (41°F~86°F)

(1.2) Shelf life in sealed bag: 12 month at <5°C~30°C and <30%RH.

After the package is opened, the products should be used within 72hrs.

Or they should be kept at  $\leq 20\%$ RH in zip -locked sealed bags.

### DRY PACK AND BAKING

SMD LEDs are MOISTURE SENSITIVE devices. Avoid absorbing moisture at any time during transportation and/or storage. It is recommended to bake before soldering when the pack is unsealed after 72 hrs, or any suspicious moisture being found. Bake devices in accordance with the following conditions:

(a) 60±3°C x (12~24hrs) and <5%RH, taped reel type

(b) 100±3°C x (45min~1hr), loose packing type, or

(c) 130±3°C x (15~30min), loose packing type

### ELECTRIC STATIC DISCHARGE(ESD) PROTECTION

Materials with GaN, InGaN, AlInGaP are STATIC SENSITIVE devices. They will be packed in anti-static bags. ESD protection must be deliberately observed from the initial design stage. The static -electric discharge may result in severe malfunction of the devices. In the events of manual working in process, make sure the devices are well protected from ESD at any time. Surge before and during handling products.