

### PRODUCT:

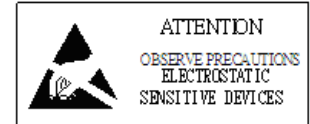
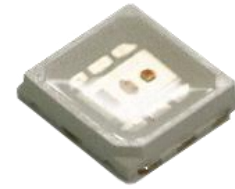
5054 SURFACE MOUNT RGB LED

### FEATURES:

5.0 mm x 5.4 mm x1.0 mm surface-mount LED  
 120° emission angle  
 Mid-power red, green and blue

### DESCRIPTION

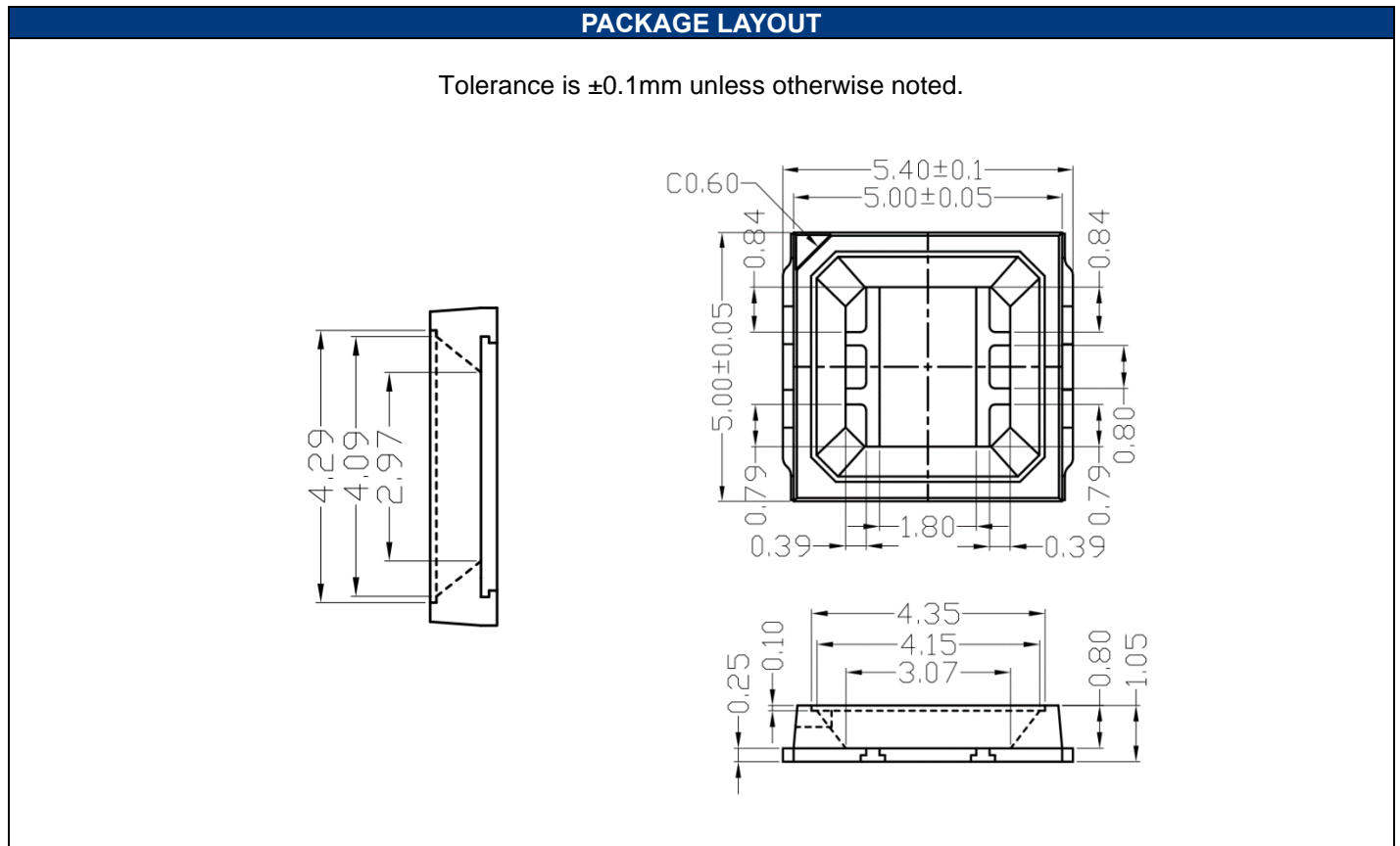
YUJILEDS® mid-power RGB 5054 allows for high brightness with individual red, green and blue emission control in a PLCC-6 package.



ELECTRICAL-OPTICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C)							
PARAMETER	SYMBOL	VALUE			UNIT	TOLERANCE	CONDITION
		MIN.	TYP.	MAX.			
Forward voltage	V <sub>FR</sub>	2.0	--	2.4	--	--	I <sub>f</sub> = 150mA
	V <sub>FG</sub>	2.9	--	3.4			I <sub>f</sub> = 150mA
	V <sub>FB</sub>	3.0	--	3.4			I <sub>f</sub> = 150mA
Dominant wavelength	λ <sub>R</sub>	620	--	630	nm	--	I <sub>f</sub> = 150mA
	λ <sub>G</sub>	518		523			I <sub>f</sub> = 150mA
	λ <sub>B</sub>	460		465			I <sub>f</sub> = 150mA
Luminous flux	Φ <sub>R</sub>	16	17	18	lm	--	I <sub>f</sub> = 150mA
	Φ <sub>G</sub>	30	35	40			I <sub>f</sub> = 150mA
	Φ <sub>B</sub>	8.5	9.5	10.5			I <sub>f</sub> = 150mA
Reverse current	I <sub>r</sub>	--	--	10	μA	±0.1	V <sub>r</sub> = 5V
Viewing angle	2θ <sub>1/2</sub>	--	120	--	Deg	±5	I <sub>f</sub> = 150mA

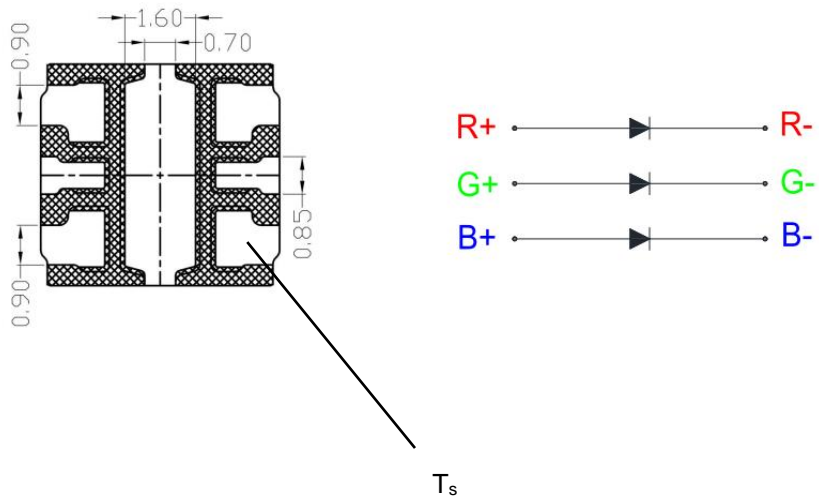
ABSOLUTE MAXIMUM RATING (T <sub>A</sub> = 25 °C)			
PARAMETER	SYMBOL	LIMIT	UNIT
Power Consumption	P <sub>DR</sub>	260	mW
	P <sub>DG</sub>	480	
	P <sub>DB</sub>	480	
DC Forward Current	I <sub>FR</sub>	150	mA
	I <sub>FG</sub>	180	
	I <sub>FB</sub>	180	
DC Forward Current (pulsed)	I <sub>FPR</sub>	180	mA
	I <sub>FPG</sub>	225	
	I <sub>FPB</sub>	225	
Reverse Voltage	V <sub>R</sub>	5	V
Solder Point Temperature*	T <sub>s</sub>	85	°C
Operating Temperature	T <sub>opr</sub>	-25 ~ +85	°C
Storage Temperature	T <sub>stg</sub>	-35 ~ +85	°C
Soldering Temperature	T <sub>sol</sub>	240±5, ≤10s	°C
Reflow Cycles Allowed	-	2	--

\* See page 3 for solder point definition.



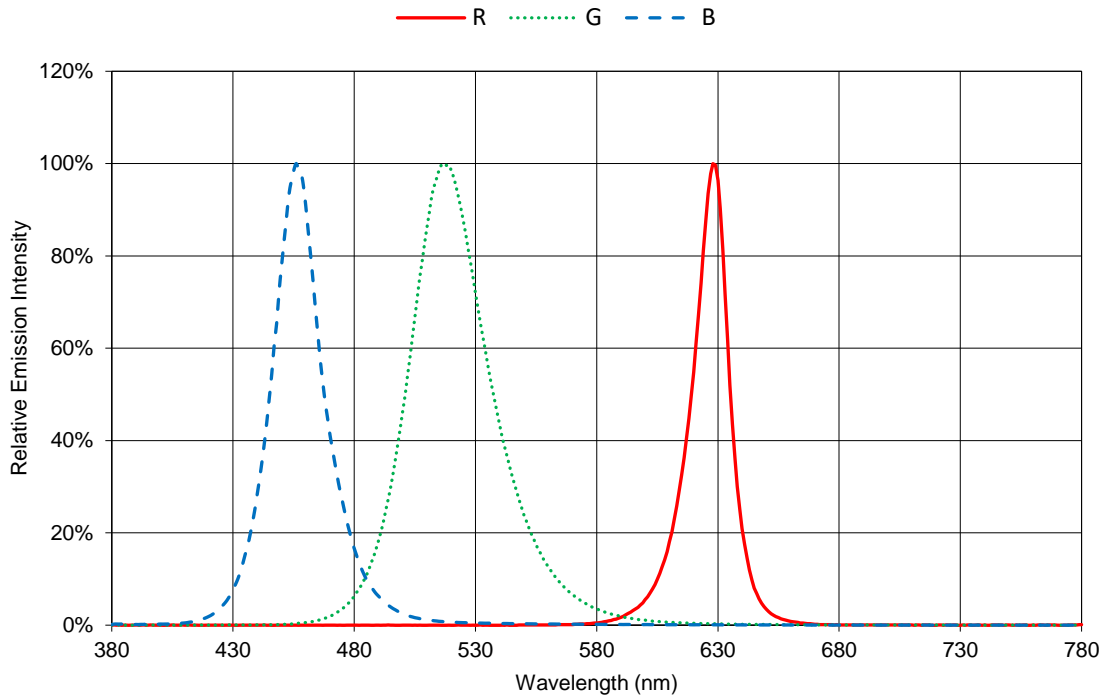
SOLDER PAD LAYOUT

Tolerance is  $\pm 0.1\text{mm}$  unless otherwise noted.



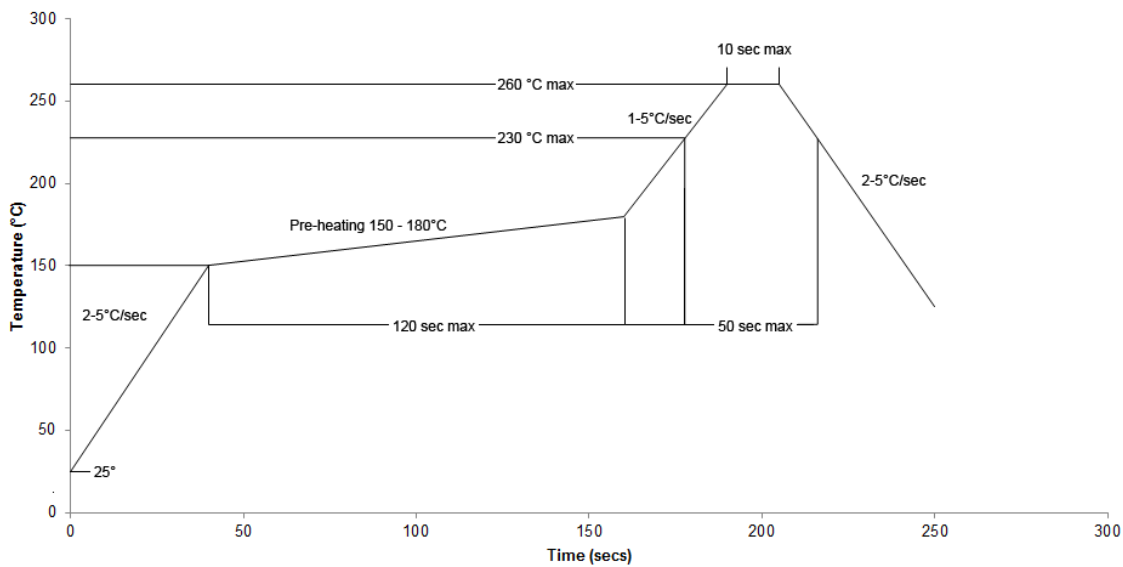
**SPECTRAL POWER DISTRIBUTION**

TYPICAL SPATIAL DISTRIBUTION  
( $T_A = 25^\circ\text{C}$ ,  $I_{FR} = 150\text{ mA}$ ,  $I_{FG} = 150\text{ mA}$ ,  $I_{FB} = 150\text{ mA}$ )



**REFLOW PROFILE**

SOLDERING RAMP-UP TIME (Pb-FREE)



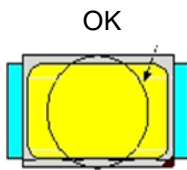
NOTE: Soldering paste with the melting point at 230°C is recommended.

**INSTRUCTIONS FOR SMT****Problems caused by improper selection of collet**

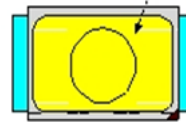
Choosing the right collet is important in ensuring product quality after SMT. LEDs are different from other electronic components, as they are not only concerned with electrical output but also optical output. This characteristic makes LEDs more fragile in the process of SMT. If the collet's lowering height is not well set, it will bring damage to the gold wire at the time of collet's pick-and-place process which can cause the LED to not illuminate, flicker or contribute to other quality problems, some of which may not be immediately detectable.

**Collet selection**

During SMT, please choose the collet that has larger outer diameter than the lighting area of lens, in order to avoid damage the gold wire inside the LED. Different collets fit for different products, please refer to the following figures below.



NOT OK – COLLET TOO SMALL



Setting the height of the collet is crucial in order to avoid damage to the top view SMD. If the collet setting is set to too low of an altitude, the collet will press down on the SMD, causing damage or breakage to the encapsulant and cause distortion or breakage of the gold wire.

**Other notes of caution:**

- No pressure should be exerted to the epoxy shell of the SMD under high temperature.
- Do not scratch or wipe the lens since the lens and gold wire inside are rather fragile and cross out easy to break.
- LED should be used as soon as possible when being taken out of the original package, and should be stored in anti-moisture and anti-ESD package.
- This usage and handling instructions are for reference only.