

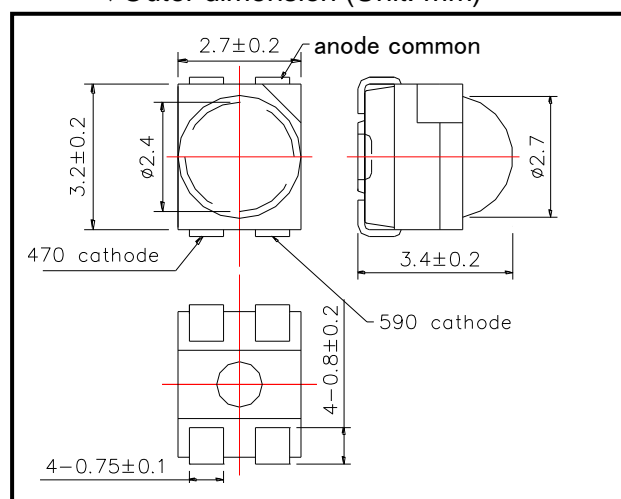
# SMT470/590-23 High Performance Bi-color TOP LED

Bi-color LED of SMT470/590-23 consists of InGaN and AlGaInP LEDs mounted on the lead frame as TOP LED package with plastic ball lens and with  $\pm 15^\circ$  of viewing half angle. It emits a spectral band of radiation at 465nm and 595nm at anode common.

◆ Specifications

- 1) Product Name      Bi-color TOP LED
- 2) Type No.          SMT470/590-23
- 3) Chip
- (1) Chip Material    InGaN/AlGaInP
- (2) Peak Wavelength 465nm/595nm
- 4) Package
- (1) Lead Frame Die   Silver Plated
- (2) Package Resin    PPA Resin
- (3) Lens                Epoxy Resin
- (4) Diameter           $\Phi 2.6\text{mm}$

◆ Outer dimension (Unit: mm)



◆ Absolute Maximum Ratings

Item	Symbol	Maximum Rated Value		Unit	Ambient Temperature
		470nm	590nm		
Power Dissipation	P <sub>D</sub>	200	120	mW	T <sub>a</sub> =25°C
Forward Current	I <sub>F</sub>	50		mA	T <sub>a</sub> =25°C
Reverse Voltage	V <sub>R</sub>	5		V	T <sub>a</sub> =25°C
Junction Temperature	T <sub>J</sub>	100		°C	
Thermal Resistance	R <sub>thjp</sub>	200		K/W	
Operating Temperature	T <sub>OPR</sub>	-20 ~ +80		°C	
Storage Temperature	T <sub>STG</sub>	-30 ~ +80		°C	
Soldering Temperature	T <sub>SOL</sub>	255		°C	

‡Soldering condition: Soldering condition must be completed within 10 seconds at 255C

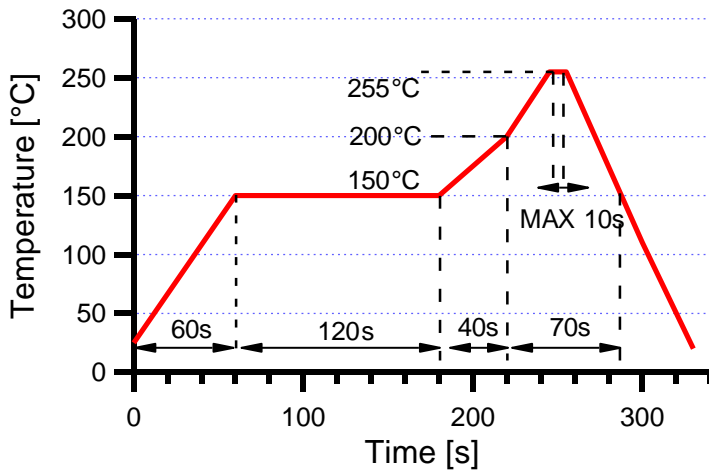
◆ Electro-Optical Characteristics [T<sub>a</sub>=25°C]

Item	Symbol	Condition	Minimum		Typical		Maximum		Unit
			470nm	590nm	470nm	590nm	470nm	590nm	
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> =20mA			3.4	2.2	4.0	2.4	V
Reverse Current	I <sub>R</sub>	V <sub>R</sub> =5V					10		uA
Total Radiated Power	P <sub>O</sub>	I <sub>F</sub> =20mA			10	4			mW
Brightness	I <sub>v</sub>	I <sub>F</sub> =20mA			2.0	2.5			cd
Radiant Intensity	I <sub>E</sub>	I <sub>F</sub> =20mA			3.0	5.0			mW/sr
Peak Wavelength	λ <sub>P</sub>	I <sub>F</sub> =20mA	455	585	465	595	475	605	nm
Half Width	Δλ	I <sub>F</sub> =20mA			25	18			nm
Viewing Half Angle	θ <sub>1/2</sub>	I <sub>F</sub> =20mA			±15				deg.

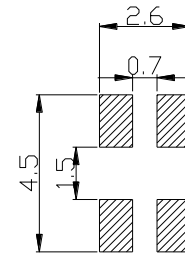
‡Total Radiated Power is measured by Photodyne #500

‡Brightness is measured by Tektronix J-16.

Recommended reflow soldering profile



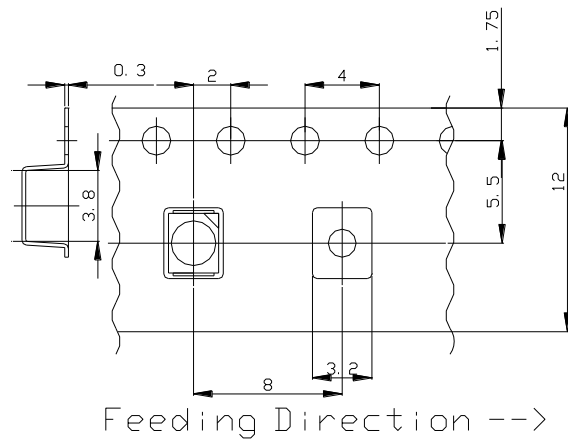
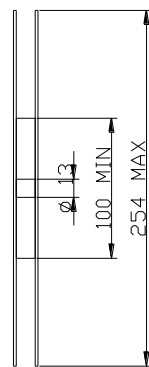
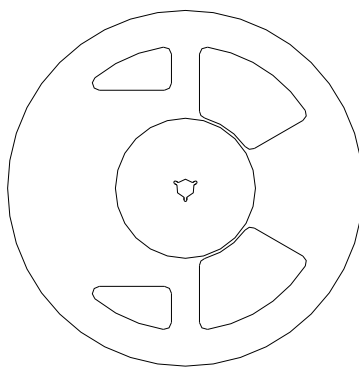
Recommended Land Layout (Unit: mm)



Don't put stress on SMD and a circuit board after soldering.

◆ SMD Packing

Tape and Reel Dimensions (Unit: mm)



◆ Wrapping

Moisture barrier bag aluminum laminated film with a desiccant to keep out the moisture absorption during the transportation and storage.

## SMD LED STORAGE AND HANDLING PRECAUTIONS

### < Storage Conditions before Opening a Moisture-Barrier Aluminum Bag >

- Before opening a moisture-barrier aluminum bag, please store it at <30°C, <60%RH. Please note that the maximum shelf life is 12 months under these conditions.

### < Storage Conditions after Opening a Moisture-Barrier Aluminum Bag >

- After opening a moisture-barrier aluminum bag, store the aluminum bag and silica gel in a desiccator.
- After opening the bag, please solder the LEDs within 48 hours in a room with 5 - 30°C, <50%RH.
- Please put any unused, remaining LEDs and silica gel back in the same aluminum bag and then vacuum-seal the bag.
- It is recommended to keep the re-sealed bag in a desiccator at <30%RH.

### < Notes about Re-sealing a Moisture-Barrier Aluminum Bag >

- When vacuum-sealing an opened aluminum bag, if you find the moisture-indicator of the silica gel has changed to pink from blue (indicating a relative humidity of 30 % or more), please do not use the unused LEDs, the aluminum bag, or the silica gel.

### < Notes about Opening a Re-sealed Moisture-Barrier Aluminum Bag >

- When opening a vacuumed and re-sealed aluminum bag in order to use the remaining LEDs stored in the bag, if you find that the moisture-indicator of the silica has changed to pink, please do not use the LEDs.

※The 48-hour-long floor life does not include the time while LEDs are stored in the moisture-barrier aluminum bag.  
However, we strongly recommend to solder the LEDs as soon as possible after opening the aluminum bag.

---

### Marubeni America Corporation

3945 Freedom Circle, Suite 1000, Santa Clara, CA 95054  
408-330-0650 (Ext. 330), 408-330-0655 (FAX), sales@tech-led.com