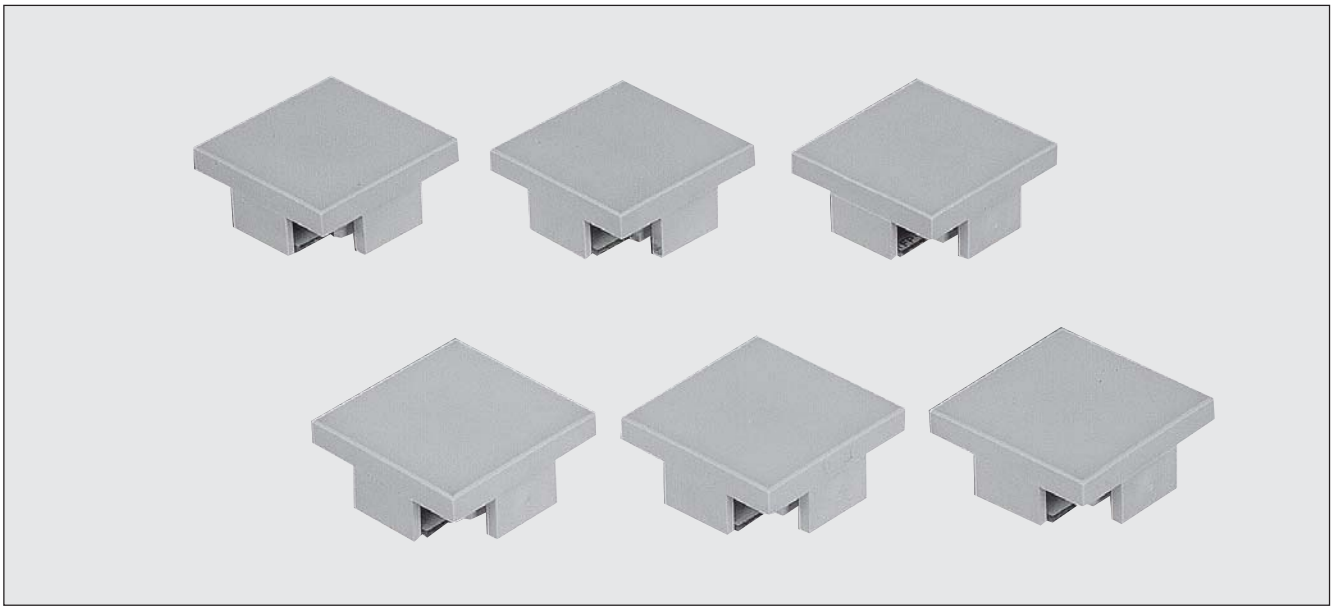
Surface Emission LED Lighting Package

TFP-21



■ Features

- Low prices achieved by automated production.
- Employing AlGaInP GaN realized vivid color and highly bright lighting.
- Six light colors available: Red, green, orange, blue and white in brilliant lighting. (All are white when lighting out.)
- Even emission throughout the lighting surface.
- Durable round pins used for the terminals.

- The LED may be deteriorated or damaged when used in a circuit with switching surges or induced stroke surges. For the countermeasures, a surge protection element such as a varistor or a surge absorber should be connected across the LED terminals.
- The LED works on a few mill amperes. Accordingly, when used in a circuit with induced or leakage current, the LED may be unintentionally lit. To prevent this error, insert a resistor in parallel across the LED terminals.
- Where anticipating that the reverse voltage over the absolute maximum rating may be applied, use a protection diode in the circuit against reverse voltage.
- Unless otherwise mentioned, all dimensions are indicated in “mm” in this book.

NOTICE

Because TFP-21 is a semiconductor device, take cares for the following points when designing the application circuit.

1. Be sure to install a current limiting resistor in series, and adjust so that each circuit maintains approximately 5 ~15mA. Never use the device at a rating above the absolute maximum.
2. Voltage drops approximately 2V (depending on color and current) for each LED element when a forward current of 5 ~ 15mA is input. This means that there is a 4V drop through 2 LED elements in series.
3. When designing the circuit, this voltage drop should be set at less than half of the supplied voltage. Otherwise, the circuit will be vulnerable to voltage fluctuations.
4. When soldering, set the soldering iron to below 260°C, and solder in one time no longer than 5 seconds.
5. Give a care for handling either the green, blue or white lighting package, because they are products sensitive to electrostatics.
   Avoid touching the lead wires directly with bear hands.
   Take all possible measures when handling against static electricity and surges.
   Be sure to ground the soldering iron.

■ Model Designation

TFP-21 ※1

Lighting color

Model name

※1

Code	Lighting Color
R	Red
O	Orange
Y	Yellow
G	Green
B	Blue
PW	White

■ Absolute Maximum Ratings

Ta (ambient temperature): 25°C

Item	Symbol	Lighting in Single Color					
		Red	Orange	Yellow	Green	Blue	White
Forward Current	I_F	30mA					25mA
Forward Current Lowering Rate	ΔI_F	0.43mA/°C			0.4mA/°C		0.42mA/°C
Allowable Loss	P_D	162mW			120mW		100mW
Reverse Voltage	V_R	10V			5V		
Operating Temperature	T_{opt}	-20 ~ +80°C					
Storage Temperature	T_{stg}	-30 ~ +100°C					

*(The reverse voltage rating is in the value per circuit (1 LED or 2 LEDs in series).

■ Electrical and Optical Characteristics

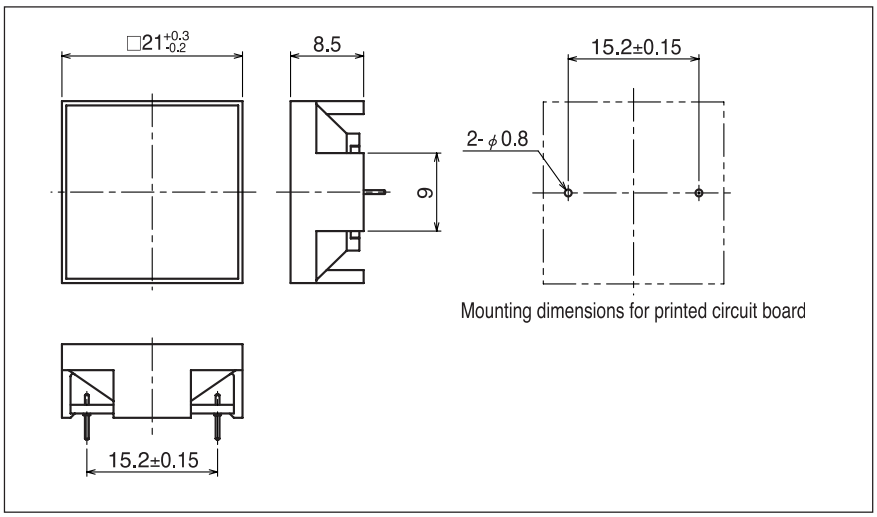
Ta (ambient temperature): 25°C

Item	Symbol	Condition	Standard Value						Unit
			Red	Orange	Yellow	Green	Blue	White	
Forward Voltage / Element	V_F	I_F=20mA	1.9	1.9	1.9	3.3	3.4	3.6	V
Reverse Current / Element	I_R max.	V_R=5V	100	100	100	10	10	50	μA
Dominant Wavelength of Lighting	λρ	I_F=20mA	626	605	590	525	470	–	nm

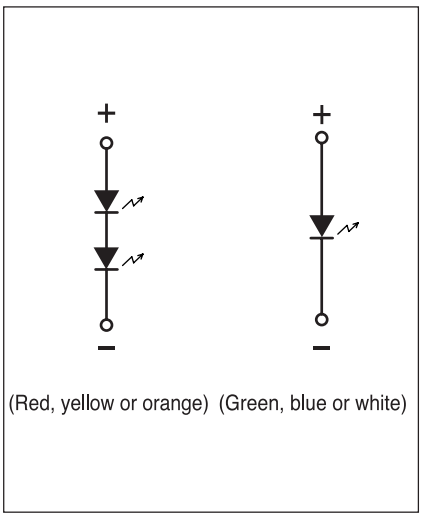
● **Product weight Approximately 2.6g**

■ Dimensions

● Mounting Dimensions



● Circuit diagram



(Red, yellow or orange) (Green, blue or white)

KimDen