



## SURFACE MOUNT LED

### 1.ELEMENT APPEARANCE

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DATE : 2023.12.11

Model No.	Material	Lighting Color	Resin Color
RT-0404RGB-1-03	R	AlGaInP	Red
	G	InGaN	Green
	B	InGaN	Blue
			Black Diffused

### 2.ABSOLUTE MAXIMUM RATINGS AT Ta=25°C

Characteristic	Symbol	Rating	Unit
Forward direct current	IFM	R 10/ G 10/ B 10	mA
Reverse voltage	V <sub>RM</sub>	5	V
Operating temperature	T <sub>opr</sub>	-35 to +85	°C
Storage temperature	T <sub>stg</sub>	-40 to +100	°C
Power dissipation	Pd	R	24
		G	34
		B	34
Electrostatic Discharge	ESD	2K	V

### 3.ELECTRO-OPTICAL CHARACTERISTICS AT Ta=25°C

Characteristic	Symbol	Condition	Min.	Typ.	Max.	Unit
Luminous intensity	I <sub>v</sub>	IF=5mA	R		42	mcd
		IF=2mA	G		46	
		IF=2mA	B		7	
Forward voltage	V <sub>F</sub>	IF=5mA	R		2.3	V
		IF=2mA	G		2.5	
		IF=2mA	B		2.7	
Reverse current	I <sub>R</sub>	V <sub>R</sub> =5V			1	μA
Dominant wavelength	λ <sub>d</sub>	IF=5mA	R		621	nm
		IF=2mA	G		530	
		IF=2mA	B		470	
Spectral line half width	Δλ	IF=5mA	R		24	nm
		IF=2mA	G		38	
		IF=2mA	B		28	
Viewing angle(X,Y)	2θ 1/2			120		deg.

※Measurement Uncertainty of Luminous Intensity : ±15%

※Measurement Uncertainty of Forward Voltage : ±0.05V

※Peak emission wavelength Measurement allowance is ±1.0nm



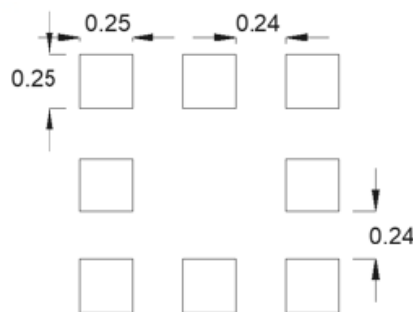
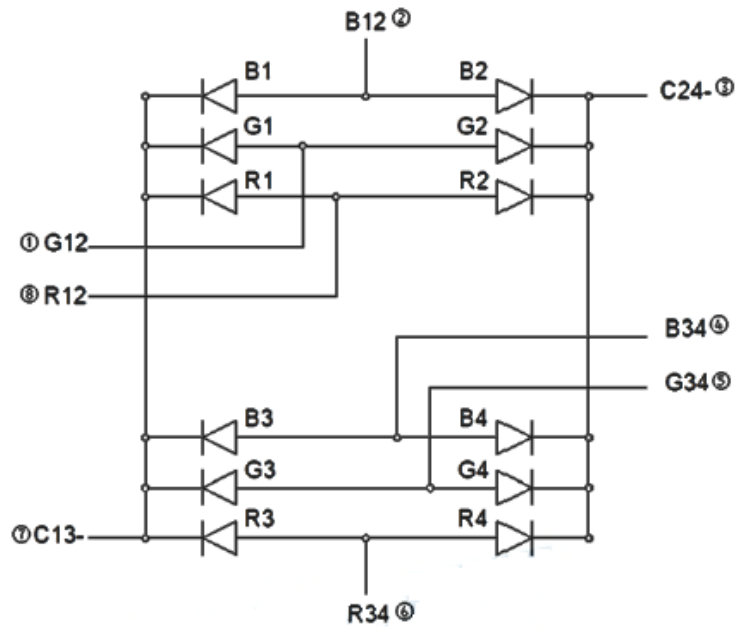
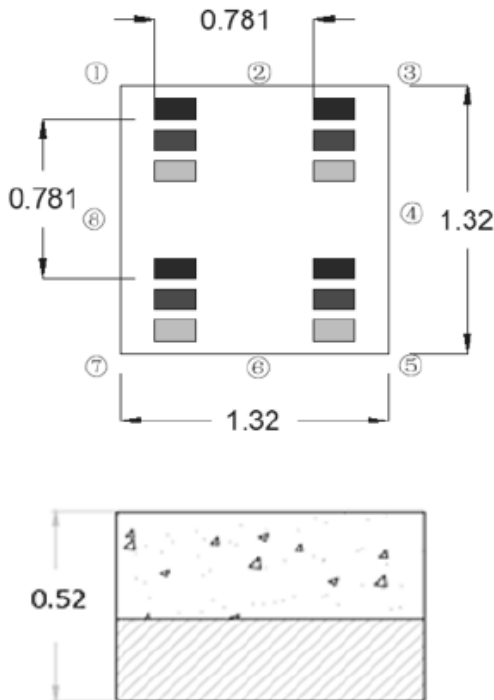
**Model : RT-0404RGB-1-03**

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4.DIMENSIONS UNIT : m/m TOLERANCE :  $\pm 0.25$ m/m

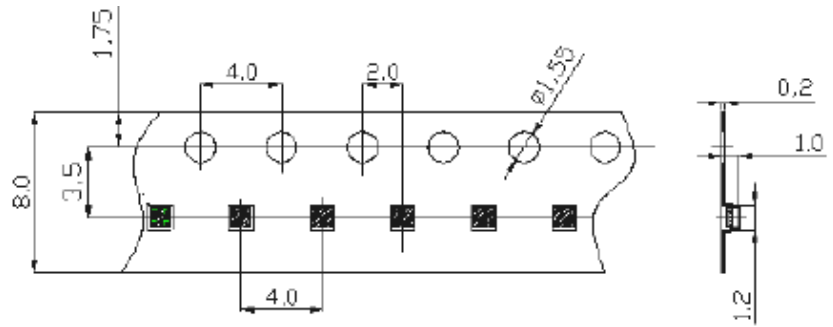
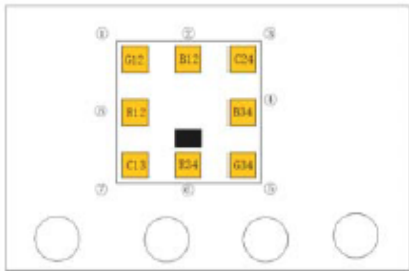


### Package Dimension



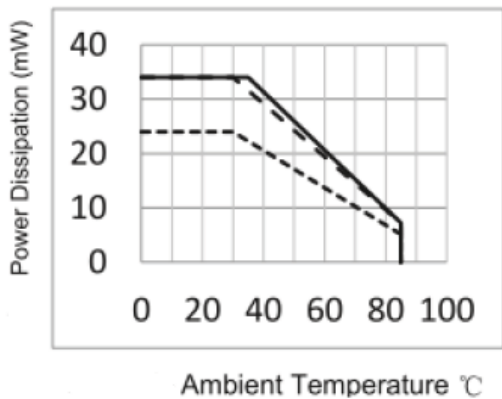
Recommend Solder pad

**5. Carrier Tape (Units:mm)**

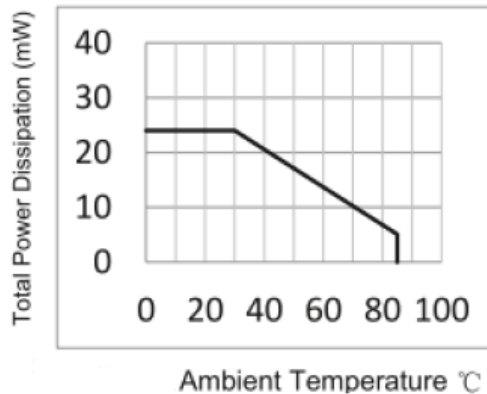


**Details Of Carrier Tape (Units:mm)**

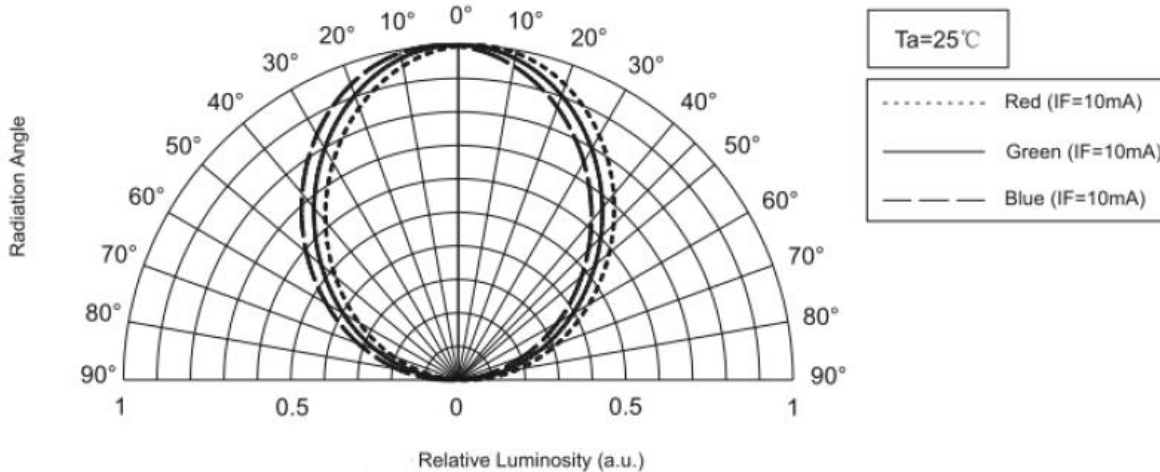
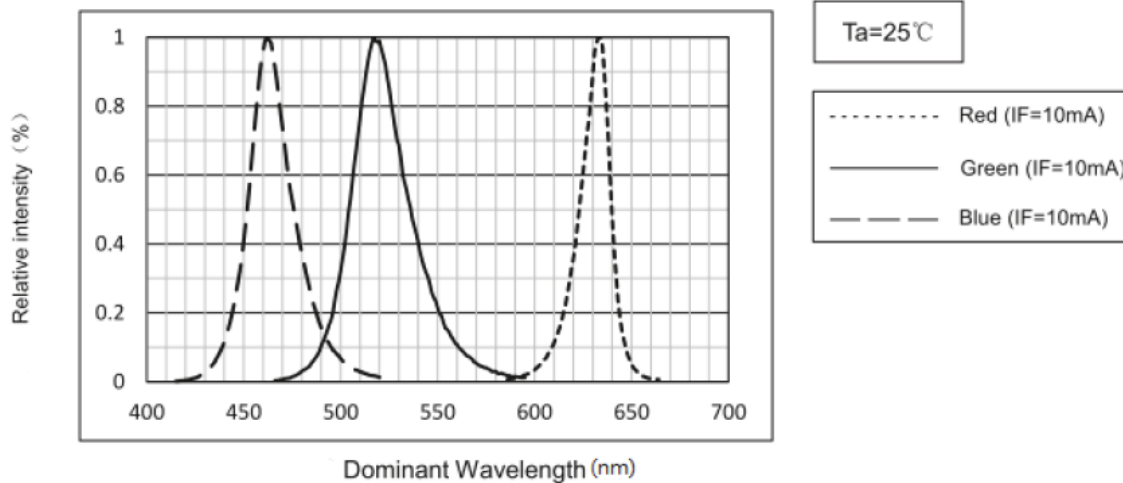
Ambient Temperature VS. Power Dissipation



Ambient Temperature VS. Total Power Dissipation



Relative intensity VS. Dominant Wavelength



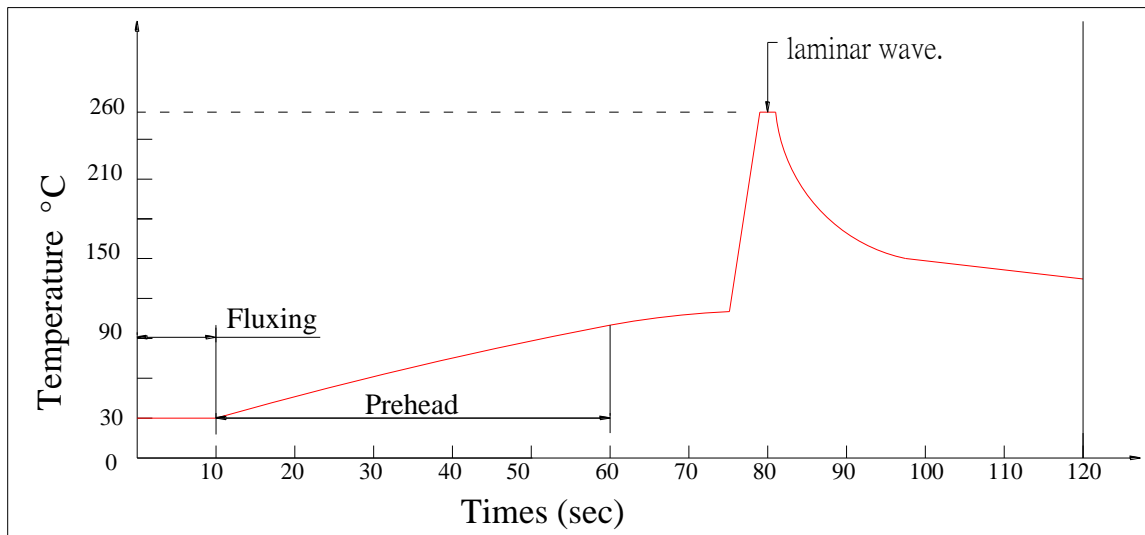


## Soldering Profile

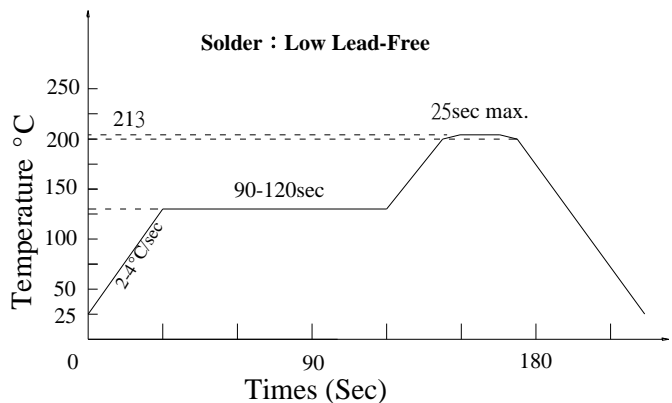
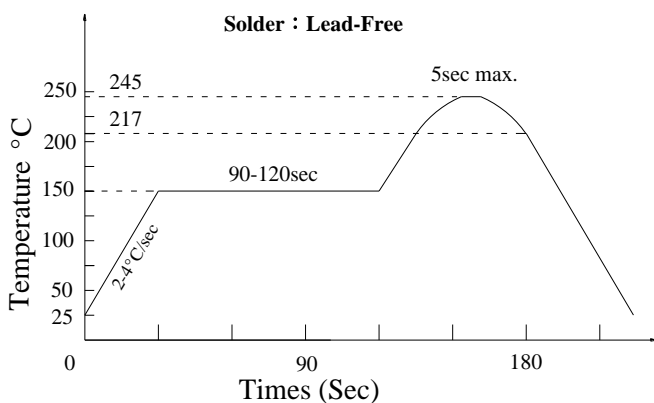
Compliant with the following condition :

- (1) Leaded quantity of product below 100 ppm
- (2) Lead-free process

Shape	Lead Frame Type
Hand soldering	1.Temp.at tip of iron : 300 °C max.(30W max.) 2.Soldering time : 3 sec max. 3.Distance : 3 mm MIN (from solder joint to case)
DIP soldering	1.Preheat temp : 100 °C max , 60 sec max. 2.Bath temp : 260 °C max. 3.Bath time : 3 sec max. 4.Distance : 3 mm MIN (From solder joint to case)
Recommended soldering profile	1.Preheat temp. : 100 °C , 50 sec max. 2.Peak temp. : 260 °C max. 3.Peak time : 3 sec max. 4.Duration above: 200°C , 3 sec max.



SMD Type		
Profile Feature	Solder : Lead-Free	Solder : Low Lead-Free
Preheat temp	150-180 °C , 4°C/sec max. 120 sec max.	130-170 °C , 4°C/sec max. 120 sec max.
Peak temp	245 °C max. , 5 sec max.	213 °C max. , 25 sec max.
Duration above	217 °C , 60 sec max.	200 °C , 40 sec max.





## Reliability Test Items

### CONDITIONS :

The reliability of products shall be satisfied with items listed below.

NO.	<u>Item</u>	Condition	Time / Cycle	Criteria	Ac / Re	Sample Quantity
1	Soldering Heat Test	260°C	5 sec	Open / Short	0 / 1	60 pcs
2	Thermal Shock	0°C (5min) ~100°C (5min)	20 Cycles	Open / Short	0 / 1	60 pcs
3	High Temp. Storage	100°C	1000 Hrs	Open / Short	0 / 1	60 pcs
4	Low Temp. Storage	-40°C	1000 Hrs	Open / Short	0 / 1	60 pcs
5	Temperature Cycle Test	-40°C ~85°C	100 Cycles , 200Hrs	Open / Short	0 / 1	60 pcs
6	High Temp. High Humidity Test	60°C , 90% RH	1000Hrs	Open / Short	0 / 1	60 pcs
7	DC Operation Life Test	IF=5mA IF=2mA	1000Hrs	Power decay	≤ 30%	60 pcs