



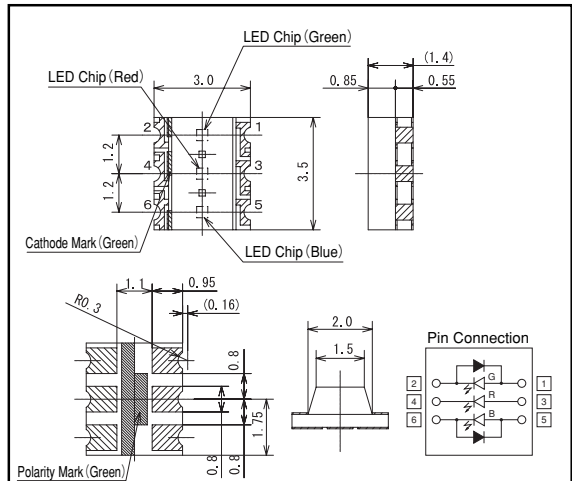
Characters

- Chip LED (3.5×3.0×1.4)
- Standard type (flat type)
- ESD Protected [$\pm 1kV$, 1time, (200pF 0 Ω)]

Directive Characteristics (Ta=25°C)

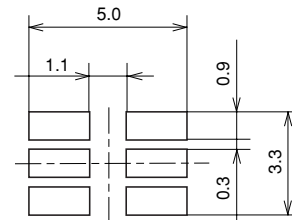
* Please refer to next pages.

Package Outlines (Unit:mm)



General Tolerance: ± 0.1

Recommended soldering Pattern (Unit:mm)



Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Value			Unit	
		BLUE	GREEN	RED		
1Chip on lighting	Power Dissipation	P _D	98	98	68	mW
	DC Forward Current	I _F	25	25	25	mA
2 or 3 Chips on lighting	Power Dissipation	P _D	33	33	22	mW
	DC Forward Current	I _F	10	10	10	mA
Pulsed Forward Current		I _{FP}	100	100	100	mA
1Chip on lighting 3Chip on lighting	DC Forward Current reduction	ΔI_P	-0.425			mA/°C
			-0.1			
Operating Temperature		T _{opr}	-30~ +80			°C
Storage Temperature		T _{stg}	-40~ +100			°C

★¹ Duty 1/20 Pulse Width 1 msec.

Electrical and Optical Characteristics (Ta=25°C)

Part No.★ ²	Luminous Intensity (mcd)★ ³			Forward Voltage1 (V)			Forward Voltage2 (V)		Wavelength Characteristics (nm)				
	Typ.	Min.	I _F (mA)	Typ.	Max.	I _F (mA)	Min.	I _F (μ A)	λ_D Min.	λ_D Max.	$\Delta\lambda$ Typ.	I _F (mA)	
E1S11-5W0A5-02	B	-	25	20	3.4	3.9	20	2.0	5	460	480	25	20
	G	-	82	20	3.3	3.9	20	2.0	5	520	540	35	20
	R	-	22	20	1.9	2.4	20	-	-	621	631	15	20

★² See table for Luminous Intensity Ranks.

★³ Axial Direction (Luminous Intensity)

Luminous Intensity Ranks (Ta=25°C)

Luminous Intensity (mcd)			
Rank	BLUE	GREEN	RED
J	25~ 46	82~165	22~ 53
K	46~101		
L	25~ 46	165~372	
M	46~101		
N	25~ 46	82~165	53~127
P	46~101		
Q	25~ 46	165~372	
R	46~101		

(I_F=20mA)

★Please contact sales person, if you request to designate Luminous Intensity Ranks.

Package

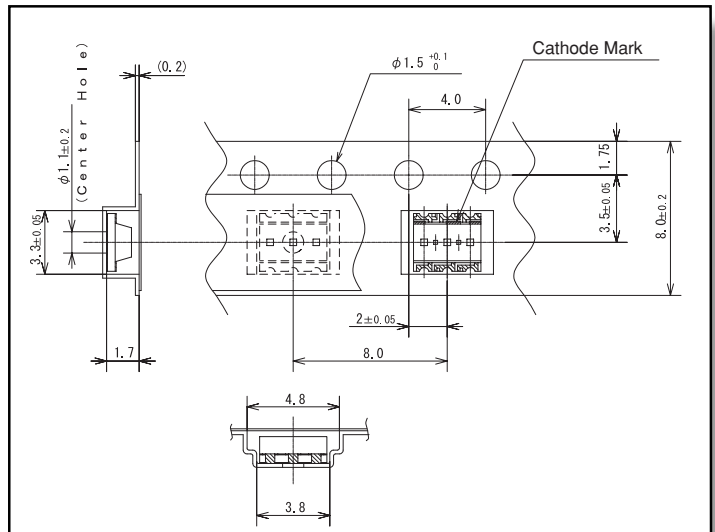
Taping ----- 1000pieces/reel

★Please use the Part Number above for your order.

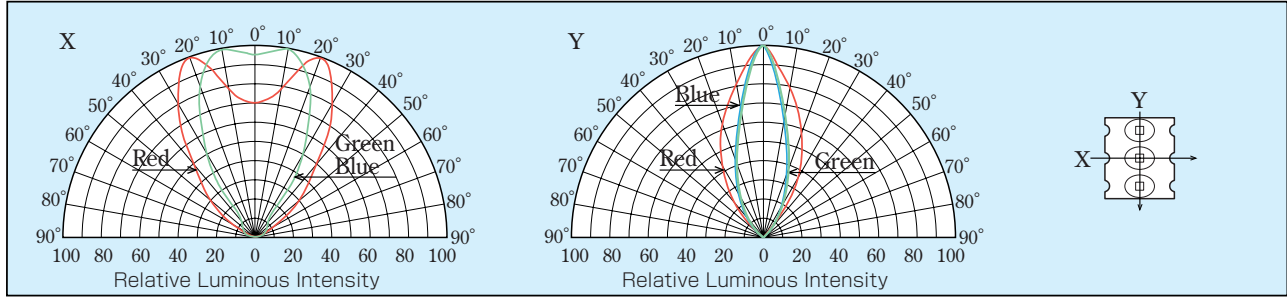
PRECAUTIONS IN USE

★ESD PROTECTION: Chip LED containing light emitting diode is possible to light up due to reverse current.

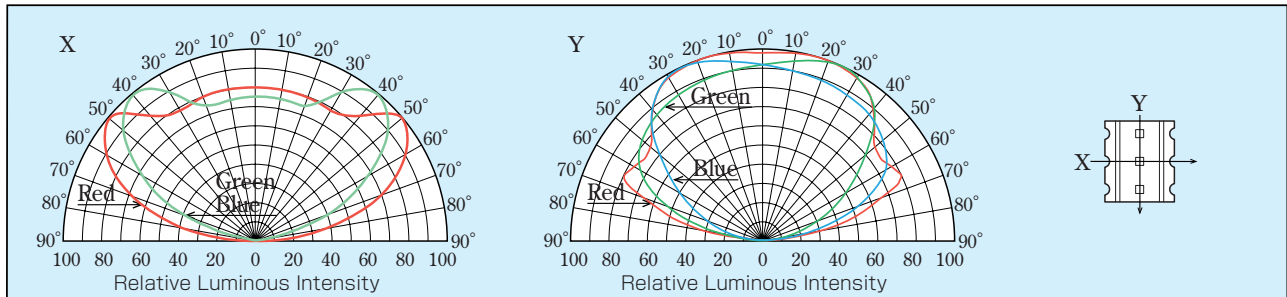
Taping Outline Dimensions (Unit:mm)



E1S10-5WOA5-02



E1S11-5WOA5-02



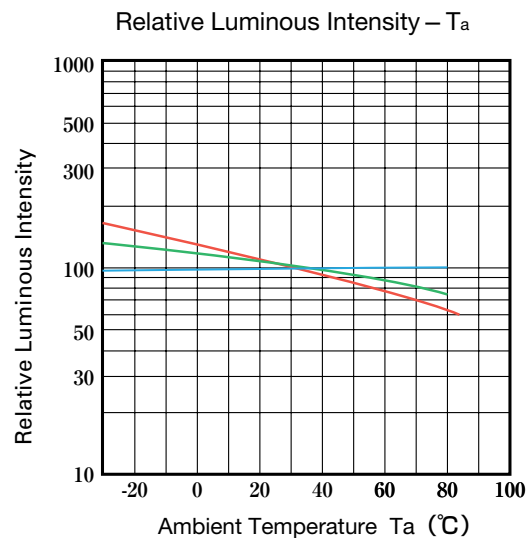
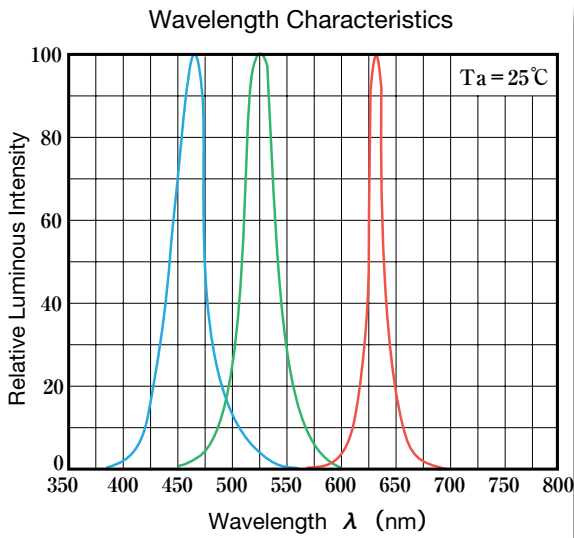
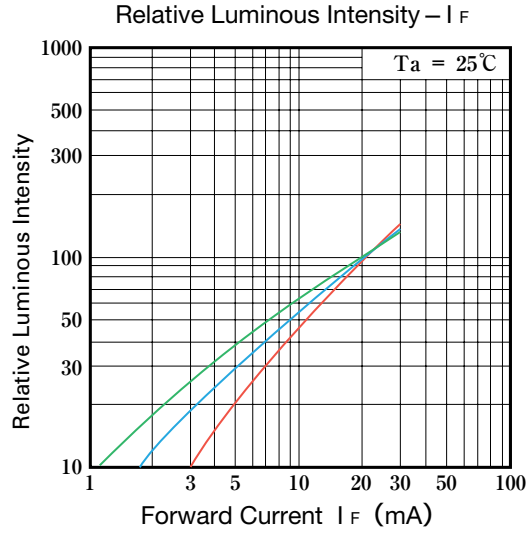
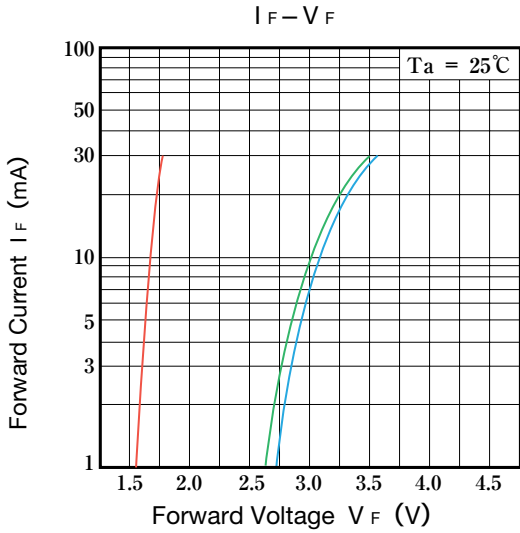
memo

Typical Characteristics

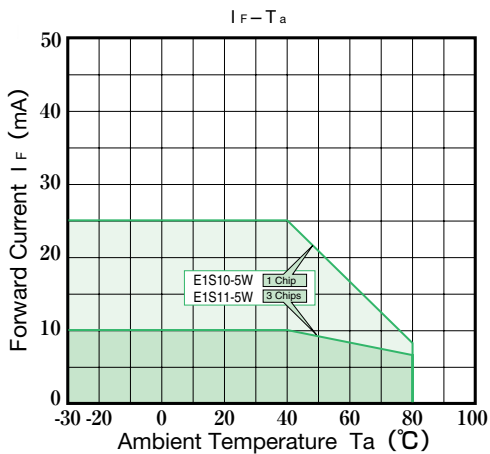
E1S10-5WOA5-02 / E1S11-5WOA5-02

* The data shows typical value, and the value is not guaranteed.

—  **BLUE** —  **GREEN** —  **RED**



Allowable Value



PRECAUTIONS IN USE

① Soldering Conditions

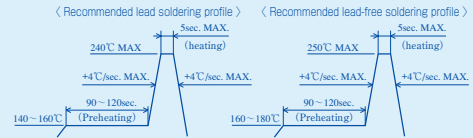
- When soldering chip LEDs, the humidity encapsulated in the resin may expand with heat and disturb the junction bond. This may also affect the optical characteristics of the LED.

[E1S10, E1S11]

- Maximum allowable soldering conditions are:
Solder dipping : 260 degrees C max., 5 seconds max., twice.
Reflow solder : 240 degrees C max., 5 seconds max., no more than twice. Pre-heat is 150 degrees C max., 2 minute max.
Soldering iron : 280 degrees C max., 3 seconds max., once.

[E1S27]

- The product doesn't adapt to dip solder and flow solder.
- Do not stress its resin while soldering.
- Handle product after it returns room temperature.
- When reflow soldering, use recommended profile.
- Do not repair after soldering. In necessitous case, refer to following conditions to repair and check that the product is not damaged and depleted.
- Maximum allowable soldering conditions are:
280 degrees C max., 3 seconds max., 25W max. one time Take 2 seconds interval between soldering each terminal.



② Storage

- After opening keep the bag flap closed and store in a dry environment.

[E1S10, E1S11]

- Second soldering process should be finished within 72hours since LEDs was taken out from the bags (the state of leaving : 5 to 30 degrees C, 70%RH max)

[E1S27]

- Use within 7 days after opening the sealed bag.

③ Cleaning

- Do not use organic solvents such as acetone.
Organic solvents will damage the surface of the chip.
When ultrasonic cleaning, inspect before immersion.

④ Static Electricity

- These products are so sensitive to static electricity charge that users are required to handle with care. Particularly if an over-current and over-voltage which exceeds the Absolute Maximum Rating of Products is applied, the overflow in energy may cause damage to, or possibly result in electrical destruction of, the Products. Customer is requested to adequate countermeasures against static electricity charge and surge when handling Products.
- A protection device should be installed in the LED driving circuit, which does not exceed the max. rating for surge current during on/off switching.
- Proper grounding of Products (via 1MΩ), use of conductive mat, semiconductive working uniform and shoes, and semiconductive containers are considered to be effective as countermeasures against static electricity and surge.
- When the electrified product touches the low resistance part such as the metal face, there is a high possibility that it may be charged due to radical electric discharge.
When grinding, use of resisting element such as conductive mat is effective for parts where the product directly touches.
- A tip of soldering iron is requested to be grounded. An ionizer should also be installed where risk of static generation is high.
- If the countermeasures mentioned above are implemented, LED can work well.
Users are required to check those countermeasures when problems occur by static electricity charge.

⑤ Safety Precautions

- Users are requested to comply with the laws and public regulations concerning safety.
- The light output of the Products may cause injuries to human eyes in circumstances where the Products are viewed directly for more than a few seconds.



PRECAUTIONS IN USE

1

The products described in this brochure are intended only for standard applications or general electronic equipment such as office equipment, communications, and electronic instrumentation and household electrical appliances.

When they are used for transport equipment, disaster prevention and crime prevention equipment as well as other safety devices calling for high reliability and safety, users are required to pay particular heed to the safety design of the equipment as a whole in terms of fail-safe design and redundant design to maintain the reliability and safety of the equipment.

Consult Toyoda Gosei's staff in advance for special applications such as aviation, spacecraft, heating equipment and life-sustaining equipment which require exceptionally high reliability and safety and if their failure or malfunction may threaten human lives or may be detrimental to human bodies.

It is to be understood that the seller shall not be held responsible for any damage incurred as a result of using the product for the purpose which is not the standard the seller has intended to be used for, unless the seller agrees to the non-standard use in writing.

2

Users are requested to comply with the laws and public regulations concerning safety.

3

In the event the products which are to be used are in mass production, the execution of written specifications or purchase agreement between the seller and the customer is required.

The seller shall bear no responsibility for any damages or injury that are caused by customers' usage of the products without the execution of such specification or purchase agreement.

4

The detail of tolerance for Electrical/Optical characteristics can be found on the execution of written specifications.