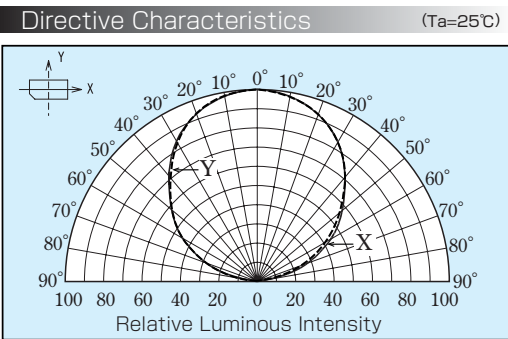
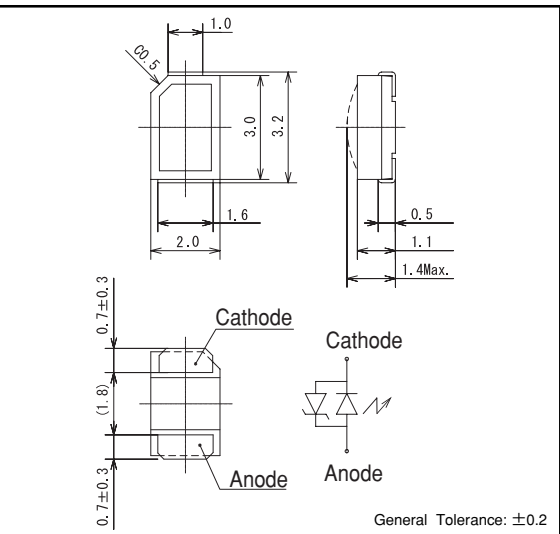




- Characters**
- Blue LED + Yellow Phosphor
 - Chip LED (3.0×2.0×1.1)
 - ESD Protected [$\pm 1kV, 1time, (200pF \ 0\Omega)$]



Package Outlines (Unit:mm)

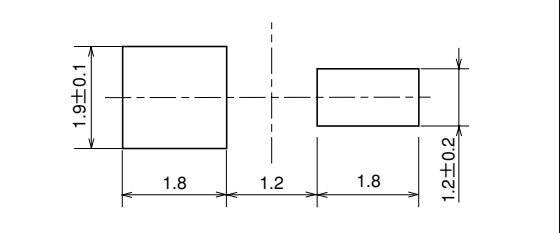


Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Value	Unit
Power Dissipation	P _D	120	mW
DC Forward Current	I _F	30	mA
Pulsed Forward Current	I _{FP}	80 ★ ¹	mA
Reverse Current	I _{RDC}	100 ▲	mA
Operating Temperature	T _{opr}	-30 ~ +85	°C
Storage Temperature	T _{stg}	-40 ~ +100	°C

★¹Duty 1/10 Pulse Width 10 ms. ▲ This Rating is for Zener Diode.

Recommended soldering Pattern (Unit:mm)



CHIP LED/White

Electrical and Optical Characteristics (Ta=25°C)

Part No.★ ²	Luminous Intensity (mcd)★ ³			Forward Voltage1 (V)			Forward Voltage2 (V)	
	Typ.	Min.	I _F (mA)	Typ.	Max.	I _F (mA)	Min.	I _F (μA)
E1S35-AWOC7-01	360	270	20	3.4	3.9	20	2.0	10

★² See table for Luminous Intensity Ranks. ★³ Axial Direction (Luminous Intensity)

Luminous Intensity Ranks (Ta=25°C)

Luminous Intensity (mcd)					
Rank	WHITE HI™				
4	270~350	5	350~455	6	455~590

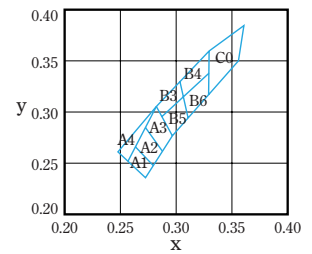
(I_F=20mA)

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

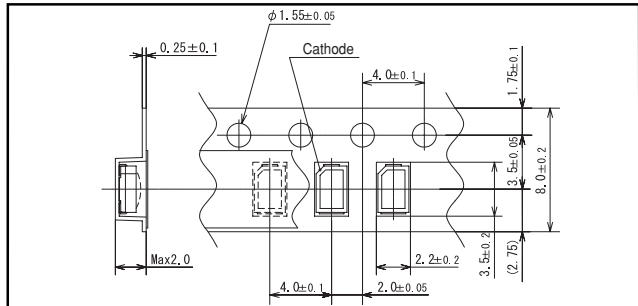
Chromaticity Ranks ★⁴ (Ta=25°C)

Rank	Chromaticity		Rank	Chromaticity	
	x	y		x	y
A1	0.273	0.237	B5	0.296	0.276
	0.280	0.248		0.311	0.294
	0.264	0.267		0.307	0.315
	0.257	0.252		0.287	0.295
A2	0.280	0.248	B6	0.311	0.294
	0.288	0.262		0.330	0.318
	0.274	0.286		0.330	0.339
	0.264	0.267		0.307	0.315
A3	0.288	0.262	C0	0.330	0.318
	0.296	0.276		0.356	0.351
	0.283	0.305		0.361	0.385
	0.274	0.286		0.330	0.360
A4	0.283	0.305	B4	0.287	0.295
	0.248	0.262		0.307	0.315
	0.257	0.252		0.304	0.330
B3	0.287	0.295		0.283	0.305
	0.307	0.315		0.307	0.315
	0.304	0.330		0.330	0.339
B4	0.283	0.305	0.307	0.315	
	0.287	0.295	0.330	0.360	
	0.304	0.330	0.304	0.330	

★⁴ Axial Chromaticity (I_F=20mA)



Taping Outline Dimensions (Unit:mm)



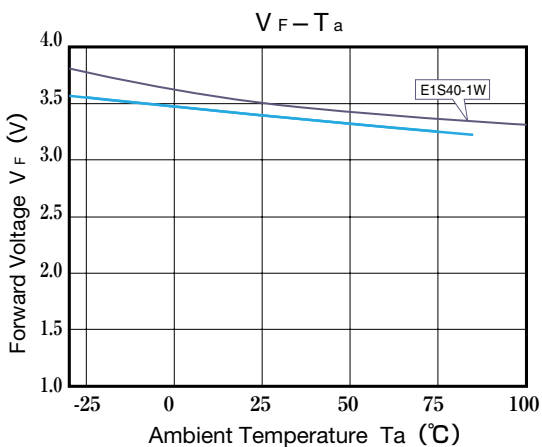
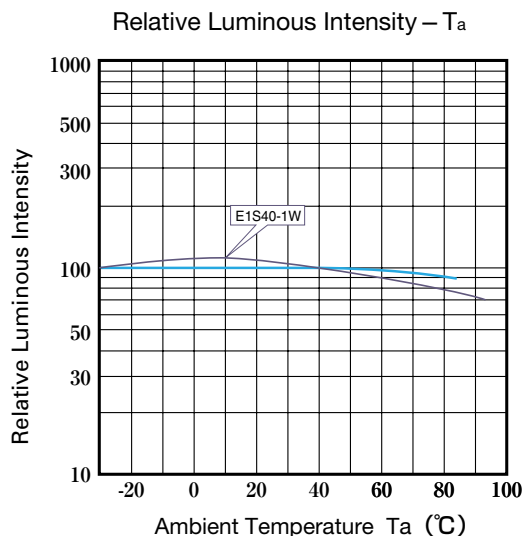
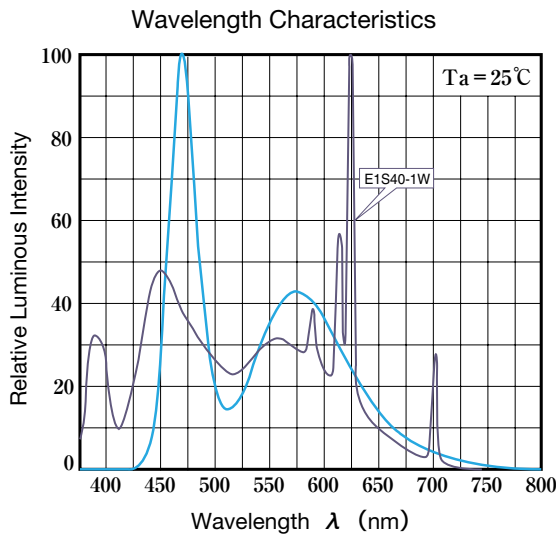
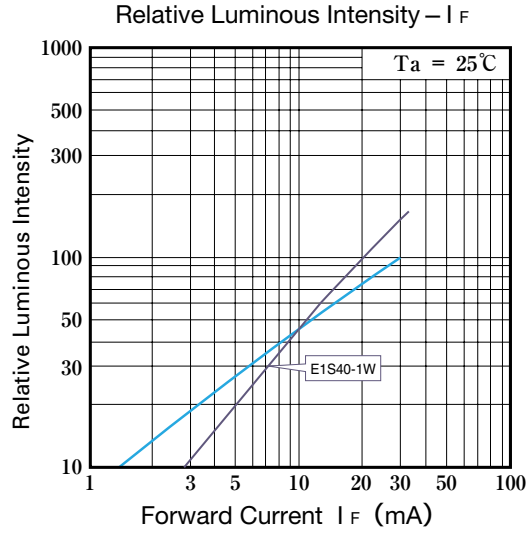
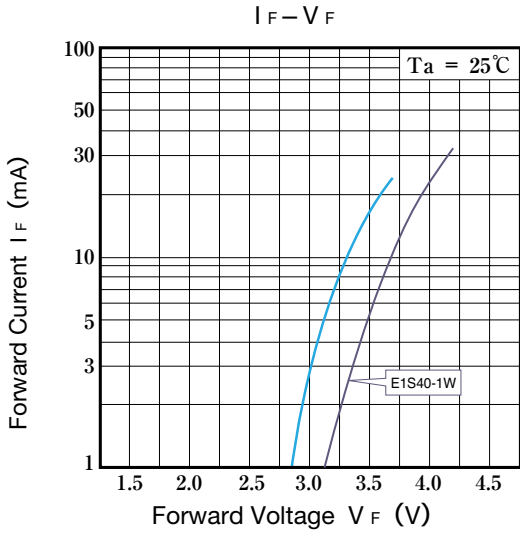
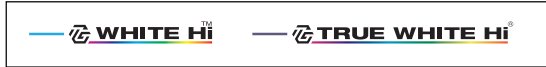
Package

Taping 3000pieces/reel

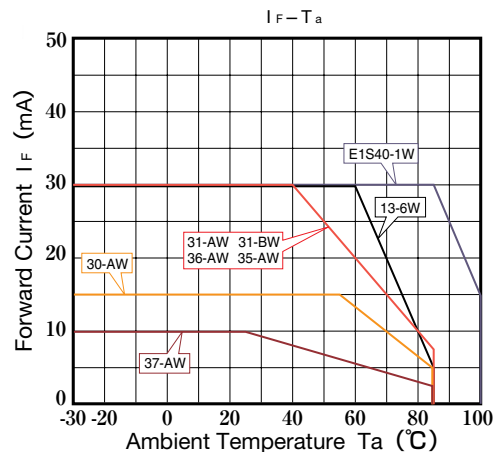
★Please use the Part Number above for your order.

Typical Characteristics

* The data shows typical value.



Allowable Value



CHIP LED/White



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.
- Do not stress resin portion under the high temperature in high heat environment.
- Please place the Products away from other materials when surface mounting and Delivery handling.

[E1S30-AW]

- Maximum allowable soldering conditions are:
Reflow solder : 260 degrees C max., 5 seconds max., once. Pre-heat is 160 degrees C max., 3 minute min.
Soldering iron : 350 degrees C max., 3 seconds max., once.

[E1S31-AW, BW, E1S36-AW, E1S37-AW]

- Maximum allowable soldering conditions are:
Reflow solder : 260 degrees C max., 5 seconds max., twice. Pre-heat is 160 degrees C max., 3 minute min.
Soldering iron : 350 degrees C max., 3 seconds max., once.

[E1S35-AW]

- Maximum allowable soldering conditions are:
Reflow solder : 240 degrees C max., 5 seconds max., once. Pre-heat is 160 degrees C max., 3 minute min.
Soldering iron : 350 degrees C max., 3 seconds max., once.

[E1S13-6W]

- Maximum allowable soldering conditions are:
Reflow solder : 260 degrees C max., 5 seconds max., no more than twice. Pre-heat is 160 degrees C max., 2 minute max.
Soldering iron : 280 degrees C max., 3 seconds max., once.

[E1S40-1W]

- please perform the first reflow soldering with reference to the above temperature profile and within 168h of opening package.
- Second reflow soldering
In case of second reflow soldering should be performed within 168h of the first reflow under the above conditions.
Storage conditions before the second reflow soldering 30 degrees C, 60%RH max.
- Temperature profile:
240 degrees C max., 10 seconds max., once. Pre-heat is 160 degrees C max., 60~120 minute.

② Storage

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

[E1S30-AW, E1S37-AW]

- Use within 7days after opening the sealed bag. After opening, keep the bag flap closed and store in 10 to 30 degrees C and below 70%RH environment.

[E1S31-AW, BW, E1S35-AW, E1S36-AW]

- Use within 3days after opening the sealed bag. After opening, keep the bag flap closed and store in 10 to 30 degrees C and below 70%RH environment.

[E1S40-1W]

- Use within 7days after opening the sealed bag. After opening, keep the bag flap closed and store in 5 to 30 degrees C and below 60%RH environment.

③ Cleaning

- Do not use organic solvents such as acetone.
Organic solvents will damage the surface of the chip.
Please check the acceptable quality when you use ultrasonic cleaning and / or soap cleaning.

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 confirm those countermeasures when problems are caused by static electricity.

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.

[E1S40-1W]

- This product emits ultraviolet rays, which may damage the retina and the other organ.
Please pay attention to the following.
 - ① Keep the LEDs at least 20mm away from your eyes and skin when the lamp is lit for operated more than 60 minutes.
 - ② Do not use a magnifying glass or equivalents, and look directly at the LEDs when it is it.
 - ③ Keep children away from the LEDs.
 - ④ Do not destroy, cut or break LEDs.

CHIP LED/White

CAUTION



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.