

< Specifications (Precautions and Prohibitions) >

● **Precaution for circuit design**

- 1) The products are designed and produced for application in ordinary electronic equipment (AV equipment, OA equipment, telecommunication equipment, home appliances, amusement equipment, etc.).
 If the products are to be used in devices requiring extremely high reliability (medical equipment, transport equipment, aircraft/spacecraft, nuclear power controllers, fuel controllers, car equipment including car accessories, safety devices, etc.) and whose malfunction or operational error may endanger human life and sufficient fail-safe measures, please consult with the ROHM sales staff in advance. If product malfunctions may result in serious damage, including that to human life, sufficient fail-safe measures must be taken, including the following:
 - [a] Installation of protection circuits or other protective devices to improve system safety
 - [b] Installation of redundant circuits in the case of single-circuit failure
- 2) The products are designed for use in a standard environment and not in any special environments. Application of the products in a special environment can deteriorate product performance. Accordingly, verification and confirmation of product performance, prior to use, is recommended if used under the following conditions:
 - [a] Use in various types of liquid, including water, oils, chemicals, and organic solvents
 - [b] Use outdoors where the products are exposed to direct sunlight, or in dusty places
 - [c] Use in places where the products are exposed to sea winds or corrosive gases, including Cl₂, H₂S, NH₃, SO₂, and NO₂
 - [d] Use in places where the products are exposed to static electricity or electromagnetic waves
 - [e] Use in proximity to heat-producing components, plastic cords, or other flammable items
 - [f] Use involving sealing or coating the products with resin or other coating materials
 - [g] Use involving unclean solder or use of water or water-soluble cleaning agents for cleaning after soldering
 - [h] Use of the products in places subject to dew condensation
- 3) The products are not radiation resistant.
- 4) The Company is not responsible for any problems resulting from use of the products under conditions not recommended herein.
- 5) The Company should be notified of any product safety issues. Moreover, product safety issues should be periodically monitored by the customer.
- 6) De-rate Power Dissipation (Pd) depending on Ambient temperature (Ta).
 When used in sealed area, confirm the actual ambient temperature.
- 7) Confirm that operation temperature is within the specified range described in product specification.
- 8) Failure induced under deviant condition from what defined in the product specification can not be guaranteed.
- 9) When product safety related problems arises, please immediately inform to ROHM, and consider technical counter measure.

DESIGN	CHECK	APPROVAL	DATE:Nov./07/2011	SPECIFICATION No. : Target (20111107)
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< Specifications (Precautions and Prohibitions) >

● Precaution for Mounting / Circuit board design

When a highly active halogenous (chlorine, bromine, etc.) flux is used, the remainder of flux may negatively affect product performance and reliability.

● Precautions Regarding Application Examples and External Circuits

- 1) If change is made to the constant of an external circuit, allow a sufficient margin due to variations of the characteristics of the products and external components, including transient characteristics, as well as static characteristics.
- 2) The application examples, their constants, and other types of information contained herein are applicable only when the products are used in accordance with standard methods. Therefore, if mass production is intended, sufficient consideration to external conditions must be made.

● Precautions for Electrostatic

This product is Electrostatic sensitive product, which may be damaged due to Electrostatic discharge. Please take proper caution during manufacturing and storing so that voltage exceeding product maximum rating won't be applied to products. Please take special care under dry condition (e.g. Grounding of human body / equipment / solder iron, isolation from charged objects, setting of Ionizer, friction prevention and temperature / humidity control).

● Precautions for product label

QR code printed on ROHM product label is only for internal use, and please do not use at customer site. It might contain an internal part number that is inconsistent with a product part number.

● Precautions for disposition

When disposing products please dispose them properly with an industry waste company.

● Precautions for Foreign exchange and Foreign trade act

Since conceded goods have not been determined to be fallen under controlled goods prescribed by Foreign Exchange and Foreign Trade act or not, please consult with ROHM in case of export.

● Prohibitions Regarding Industrial Property

- 1) These Specifications contain information related to the ROHM industrial property. Any use of them other than pertaining to the usage of appropriate products is not permitted. Duplication of these specifications and its disclosure to a third party without the Company's permission are prohibited.
- 2) Information and data on products, including application examples, contained in these specifications are simply for reference; the company does not guarantee any industrial property rights, intellectual property rights, or any other rights of a third party regarding this information or data. Accordingly, the Company does not bear any responsibility for:
 - [a] infringement of the intellectual property rights of a third party
 - [b] any problems incurred by the use of the products listed herein
- 3) The Company prohibits the purchaser of its products to exercise or use the intellectual property rights, industrial property rights, or any other rights that either belong to or are controlled by the Company, other than the right to use, sell, or dispose of the products.

< Specifications (Precautions and Prohibitions) >

● Precautions for Storage / Transportation

- 1) Product performance and soldered connections may deteriorate if the products are stored in the following places:
 - [a] Where the products are exposed to sea winds or corrosive gases, including Cl₂, H₂S, NH₃, SO₂, and NO₂
 - [b] Where the temperature or humidity exceeds those recommended by the Company
 - [c] Storage in direct sunshine or condensation
 - [d] Storage in high Electrostatic
- 2) Storage temperature and humidity
 - [a] Package : Not to be opened before using
 - [b] After unpackaging : LEDs to be kept in our moisture proof package with some desiccant (SILICA GEL) LEDs to be baked in case the SILICAGEL indicator changed its color from either blue to clear or green to pink.
 - [c] Early use is recommended after unsealed.
Return the unused items into the moisture proof package and seal tightly.
Please refer to the individual specifications for the expiration terms of use.
 - [d] The baking condition may not be the same for every item.
Please refer the individual specifications for the detail.
- 3) Even under ROHM recommended storage condition, solderability of products over 1 year old may be degraded.
- 4) Store / transport cartons in the correct direction, which is indicated on a carton as a symbol.
Otherwise bent leads may occur due to excessive stress applied when dropping of a carton.

● Other Matters

- 1) Please sign these Specifications and return one copy to the Company.
If a copy is not returned within three months after the issued date specified on the front page of these Specifications, the Company will consider the Specifications accepted.
- 2) If any matter related to these Specifications needs to be clarified, discussions shall be held promptly between the two parties concerned to determine the issue.

1. CONSTRUCTION Orange surface mount LEDs with lends featuring AlGaInP packed with transparent colorless resin.

2. USAGE Source of light for display unit.

3. DIMENSIONS See Figure.1

4. ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Power Dissipation	P D	75mW
Forward Current	I F	30mA
Peak Forward Current	I F P	100mA (Notes 1)
Reverse Voltage	V R	5V
Operating Temperature	Topr	−40°C ~ + 85°C
Storage Temperature	Tstg	−40°C ~ +100°C
(Notes1 Duty 1/10 1kHz)		

5. ELECTRO—OPTICAL CHARACTERISTICS (Ta=25°C)

DISCRIPTION	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNITS
Forward Voltage	VF	IF=20mA* ¹	(1.6)	1.9	2.5	V
Reverse Current	IR	VR=5V	—	—	10	μA
Luminous Intensity	IV	IF=20mA* ²	630	1400	2500	mcd
Dominant Wave Length * ³	λD	IF=20mA* ²	602	605	608	nm

*¹ Pulse duration : 1msec *² Pulse duration : 10msec *³ Tolerance : ±1nm () : Reference

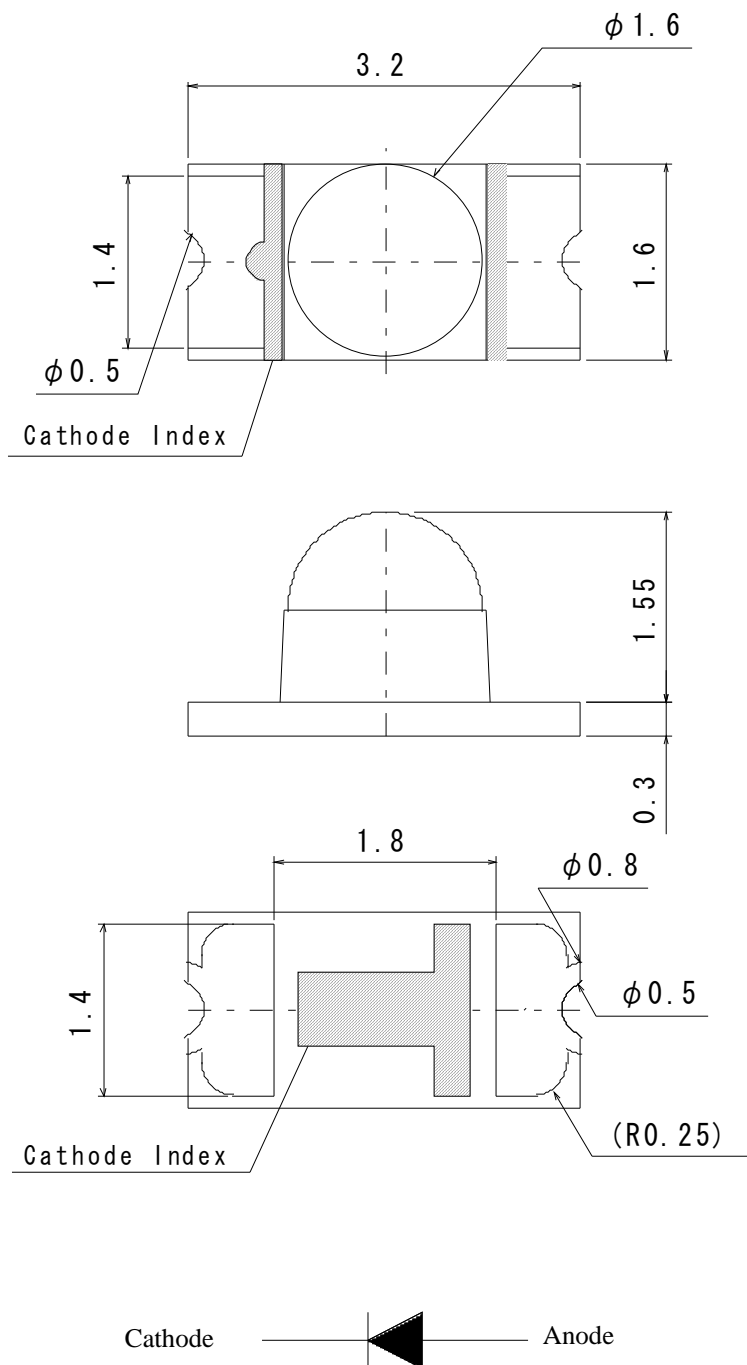
6. LUMINOUS CLASSIFICATION (Ta=25°C, IF=20mA)

SYMBOL	LUMINOUS CLASSIFICATION RANGE
“W”	630 ~ 1000 mcd
“X”	1000 ~ 1600 mcd
“Y”	1600 ~ 2500 mcd

Measurement tolerance : ±10%

These ranks are set tentatively for it is still before mass production.
 If rank shift occur, we may ask for re-approval of new rank when necessary.

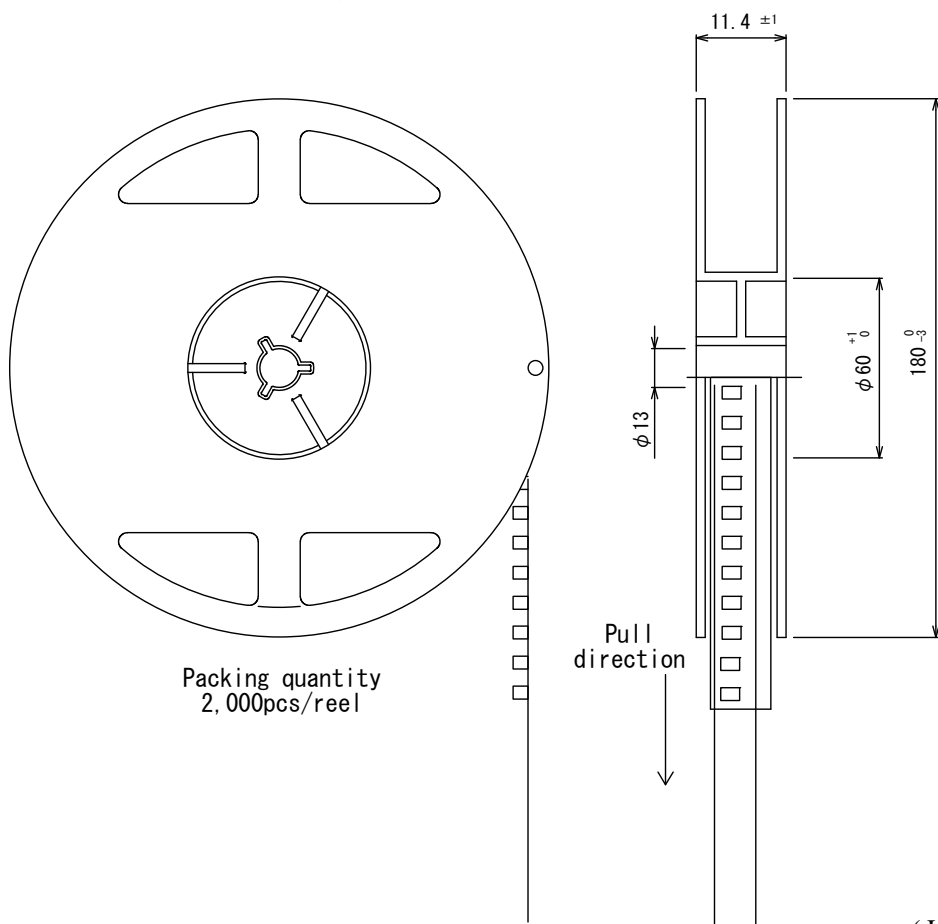
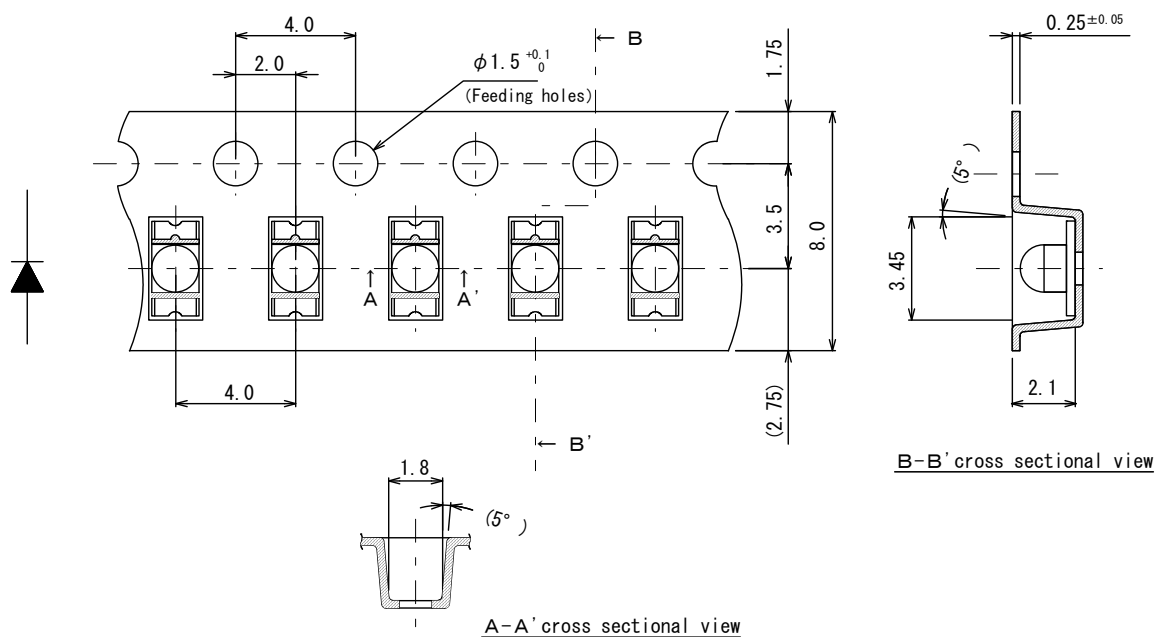
7. PRODUCT WEIGHT Product weight per piece, approx 0.008gm.

【Figure.1】


(Unit : mm)

() : Reference

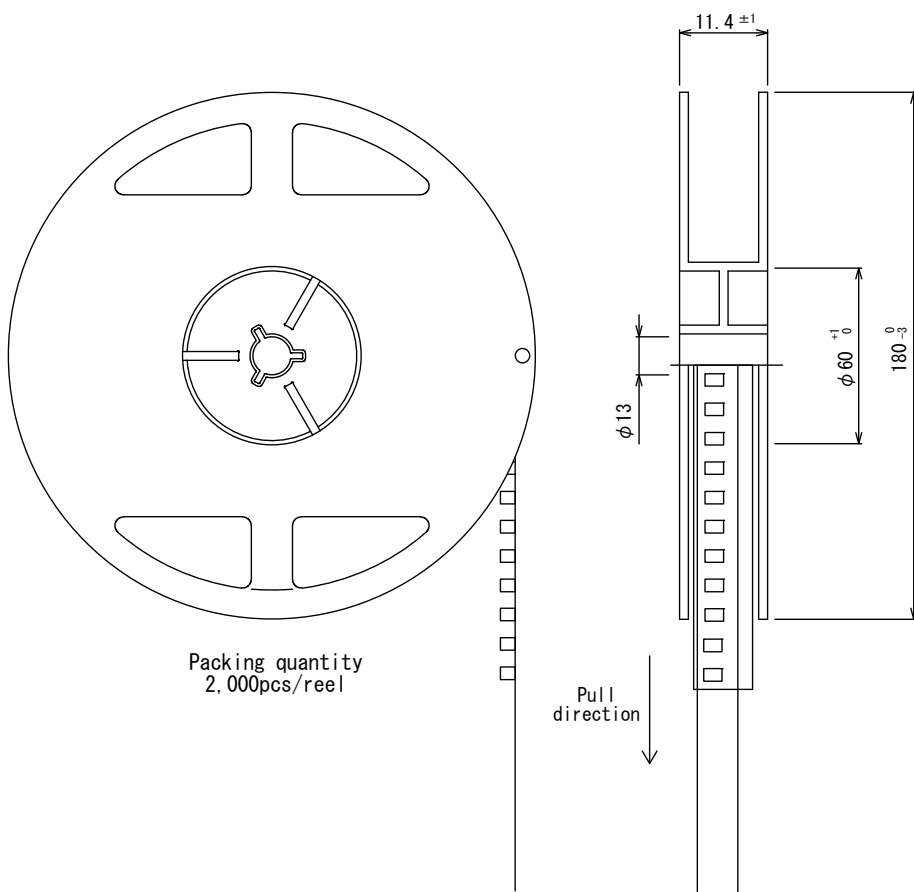
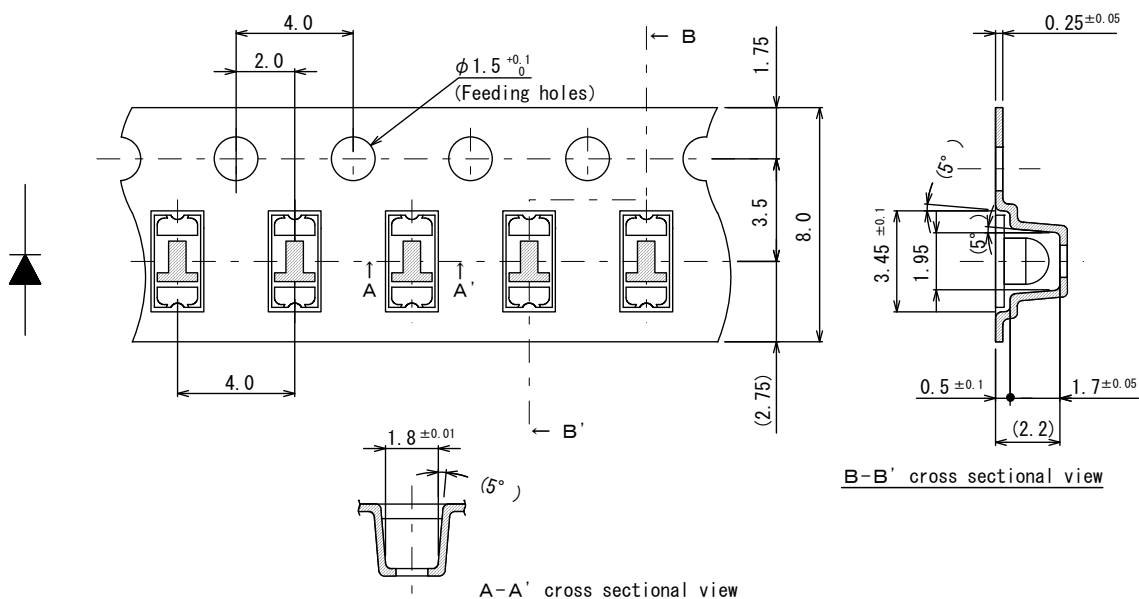
(note) Tolerance is within $\pm 0.1\text{mm}$ unless otherwise specified.

【Taping : T68】


(Unit : mm)

() : Reference

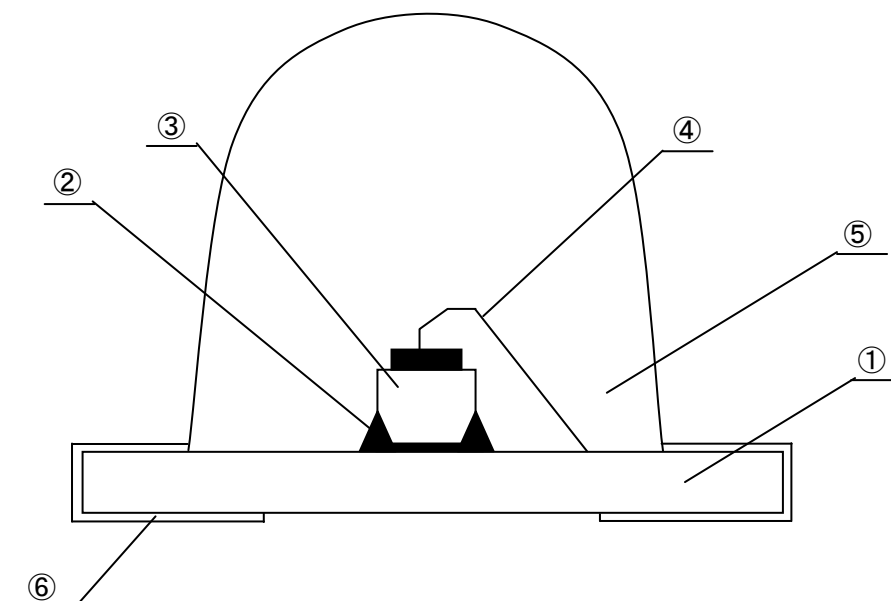
 (note) Tolerance is within ± 0.1 mm unless otherwise specified.

【Taping : T86】

 Packing quantity
 2,000pcs/reel

(Unit : mm)

() : Reference

 (note) Tolerance is within $\pm 0.1\text{mm}$ unless otherwise specified.

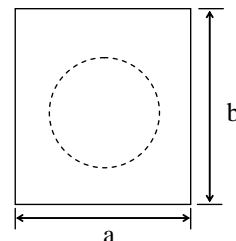
【STRUCTURE · MATERIAL】


No.	APPELLATION	MATERIAL
①	Printed Wiring Board	BT Resin, Glass Fabric
②	Die Bond	Ag Paste
③	Chip	S1 * : AlGaInP S13R : AlGaAs
④	Bonding Wire	Gold
⑤	Resin	Epoxy Resin
⑥	Electrode	Base plating : Cu , Ni Top plating : Au

【PACKAGING REQUIREMENTS】

1. PACKING

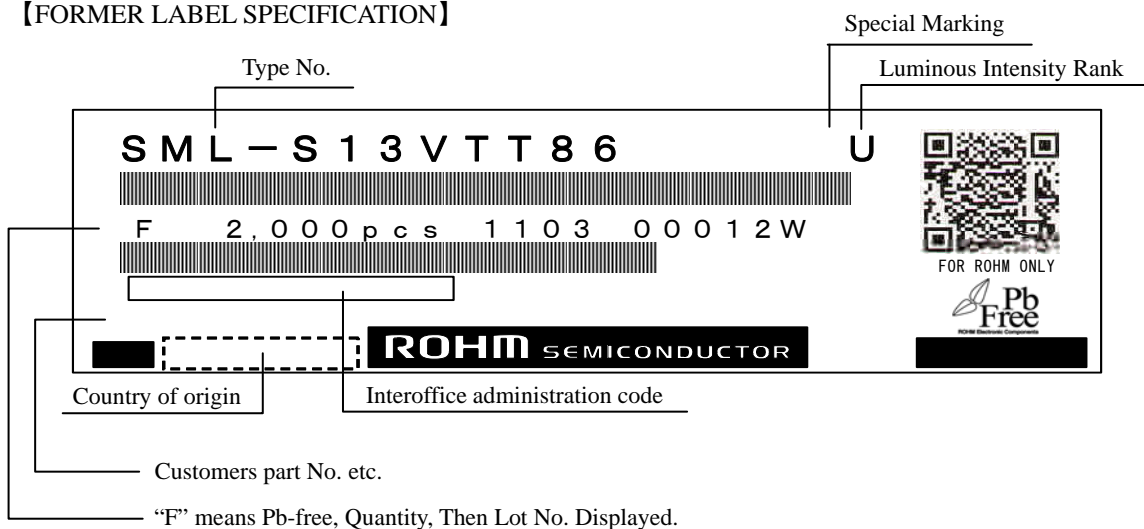
- (1) 2,000pcs are packed in one reel.
- (2) One reel is packed in aluminum bag.
The size of aluminum bag is 240(a)×250(b)mm.
- (3) Aluminum bag is sealed by pressured for all directions.



2. MARKING

The following information shall be described on a box label:
 ROHM Type number, Packing quantity, Luminous intensity rank, Lot number etc.

【FORMER LABEL SPECIFICATION】

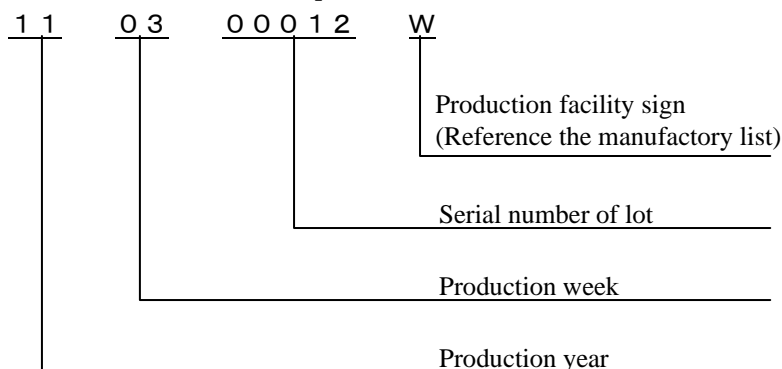


Note)  Indicates bar code expressed by code 39.



indicates Pb-free Products.

【EXAMPLE OF LOT NO. MARKING】



【ATTENTION POINT IN HANDLING】

This product was developed as a surface mount LED especially suitable for soldering.
 Please take care of following points when using this device.

1.DESIGNING OF PCB

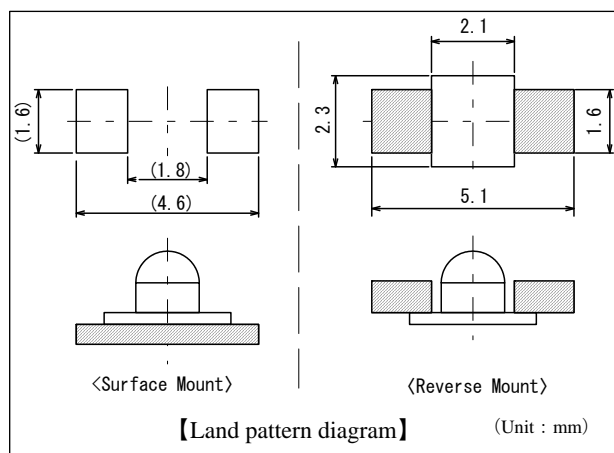
As for a recommendable solder pattern, Please refer to Fig-1.

The size and direction of the pad pattern depend on the condition of the PCB.

Thorough design review is recommended before the final designing.

This product is structured that the either the bottom or the top electrode can be soldered.

The formation of solder fillet is not guaranteed due to its electrode shape.



(Fig-1)

2.SOLDERING (Sn-Cu, Sn-Ag-Cu, Sn-Ag-Bi-Cu)

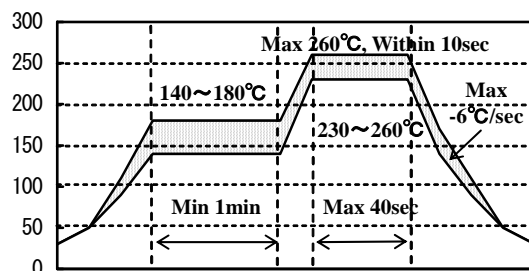
LED products do not contain reinforcement materials such as glass fillers.

Therefore, thermal stress by soldering greatly influence its reliability.

The temperature conditions for reflow soldering should therefore be set up according to the characteristic of this product. (See Fig-2)

Number of reflow process shall be max 2 times and these processes shall be performed in a row.

Cooling process to normal temperature shall be required between first and second soldering process.



(Fig-2)

3.WASHING

Please note the following points when washing is required after soldering.

3-1) WASHING SOLVENT

Isopropyl alcohol or other alcohol solvent is recommendable.

3-2) TEMPERATURE

Below 30°C, immersion time ; within 3 minutes.

3-3) ULTRA SONIC WASHING

Below 15 / 1 litter of solvent tub.

3-4) COOLING

Below 100°C within 3 minutes.

4. EROSION GAS

Utilization in erosion gas atmosphere may degenerate the plating surface which might cause deterioration of solder strength, optical characteristics, or functions.

Please take precautions against occurrence of gas from the surrounding parts on the occasion of custody, and also after mounted on circuit board.

5.STORAGE

At reflow soldering, the reliability of this product is often influenced by moisture absorption so we apply the packaging with moisture proof for better condition is use, please also note that

5-1) Not to be opened before using.

5-2) To be kept in our moisture proof packaging with some desiccant (SILICA GEL) after opening it.

To be baked in case the SILICAGEL indicator changed its color from either blue to clear or green to pink.

5-3) Please use within 168 hours after the package was opened. (Condition at 30°C, max.70%Rh.)

In case it is not used within 168 hours, please put it back into our packaging.

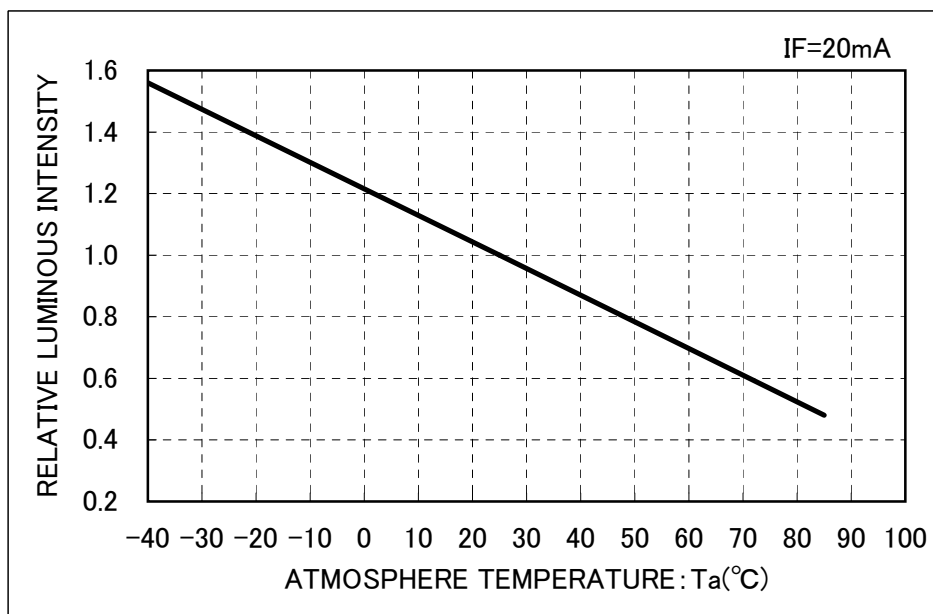
5-4) BAKING

Please bake under reel condition at 60°C, 12~24 hours (max.20%Rh) after un-sealing.

While baking is done, the reel and emboss tape may be easily deformed.

Please be careful not to give any stress.

RELATIVE LUMINOUS INTENSITY – ATMOSPHERE TEMPERATURE
光度 – 周囲温度特性

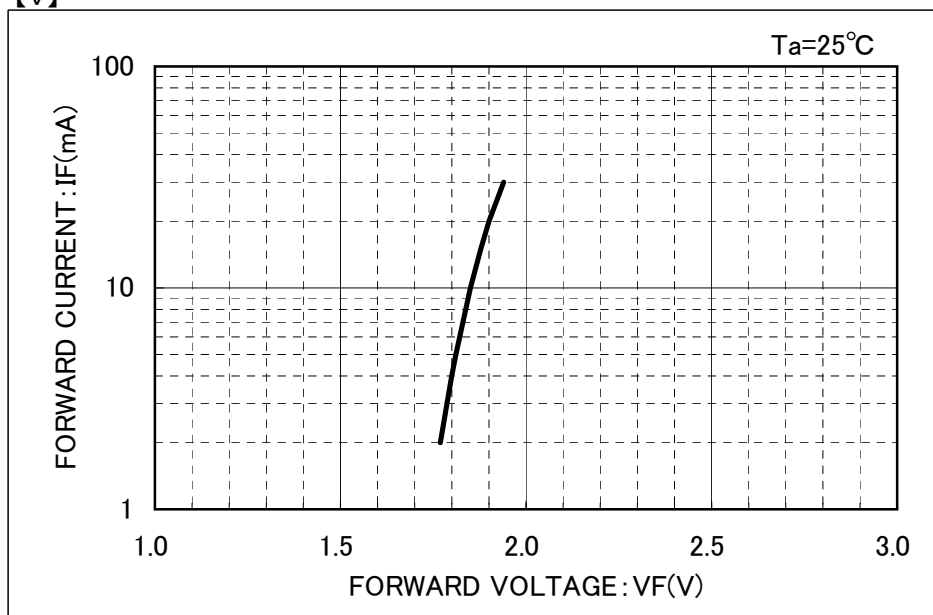


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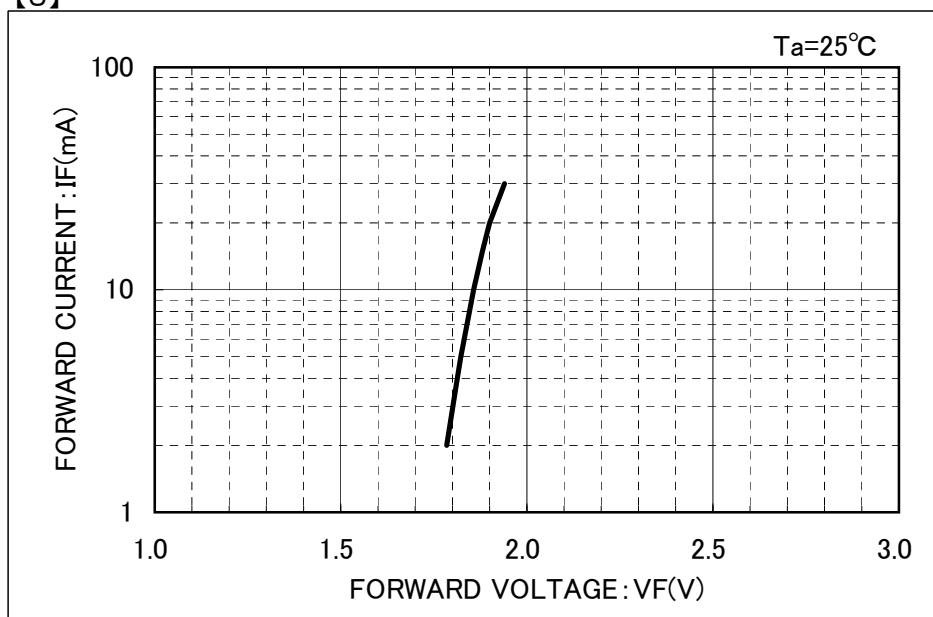
FORWARD CURRENT – FORWARD VOLTAGE

順方向電流 – 順方向電圧特性

【V】



【U】

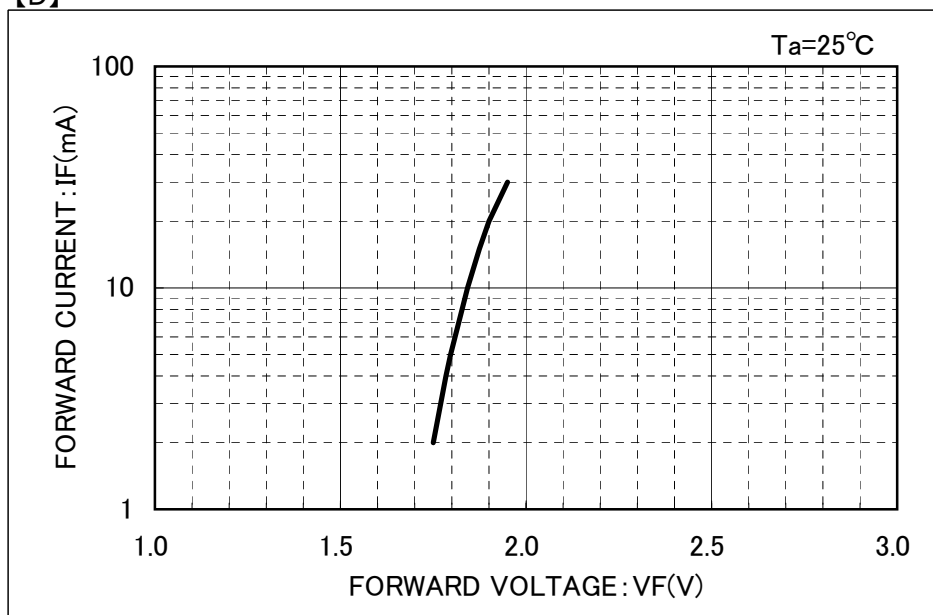


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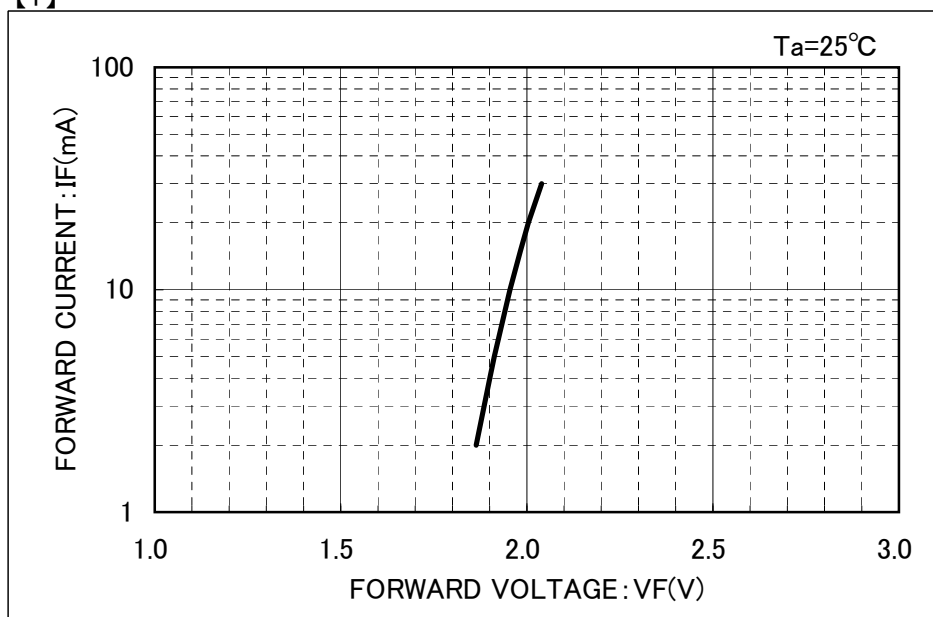
FORWARD CURRENT – FORWARD VOLTAGE

順方向電流 – 順方向電圧特性

【D】



【Y】

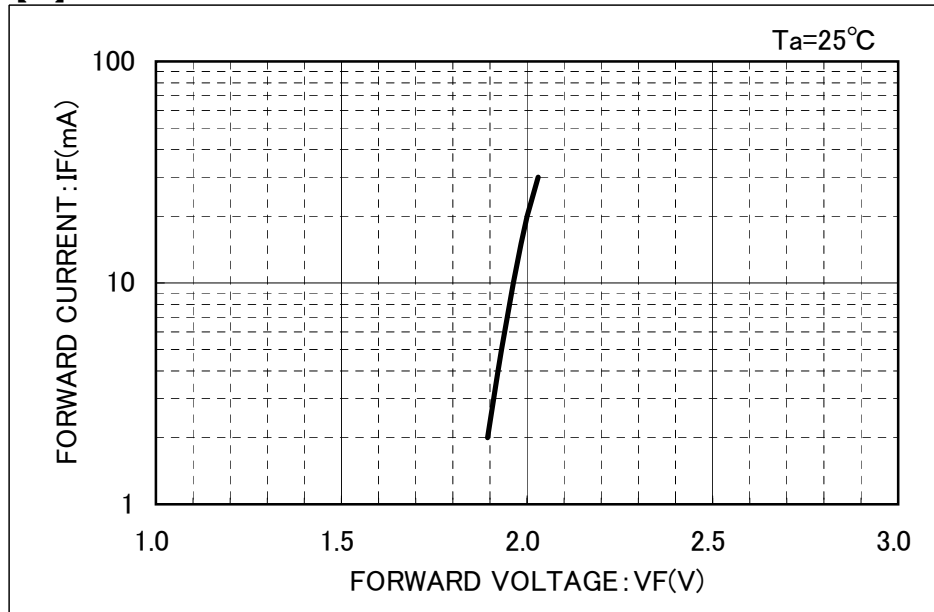


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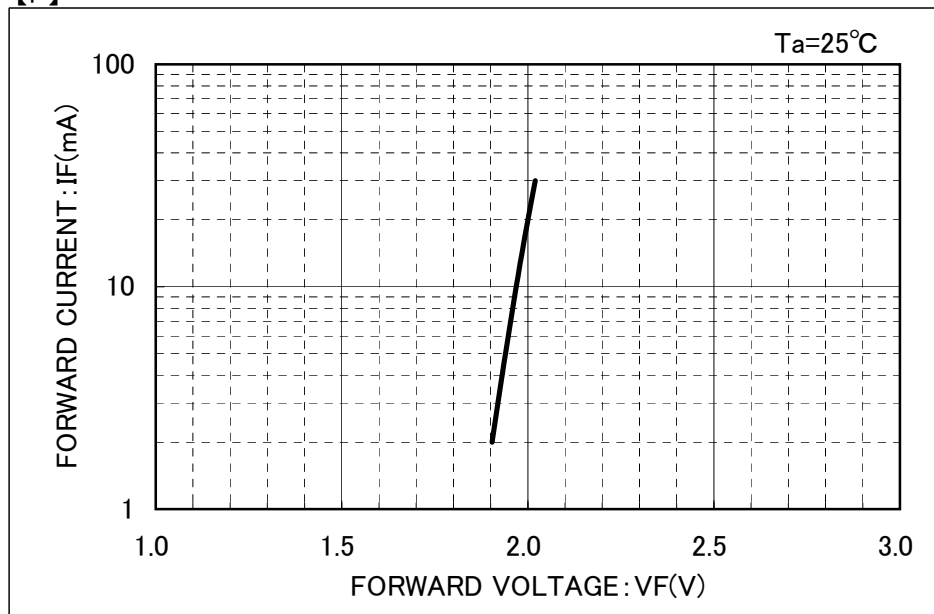
FORWARD CURRENT – FORWARD VOLTAGE

順方向電流 – 順方向電圧特性

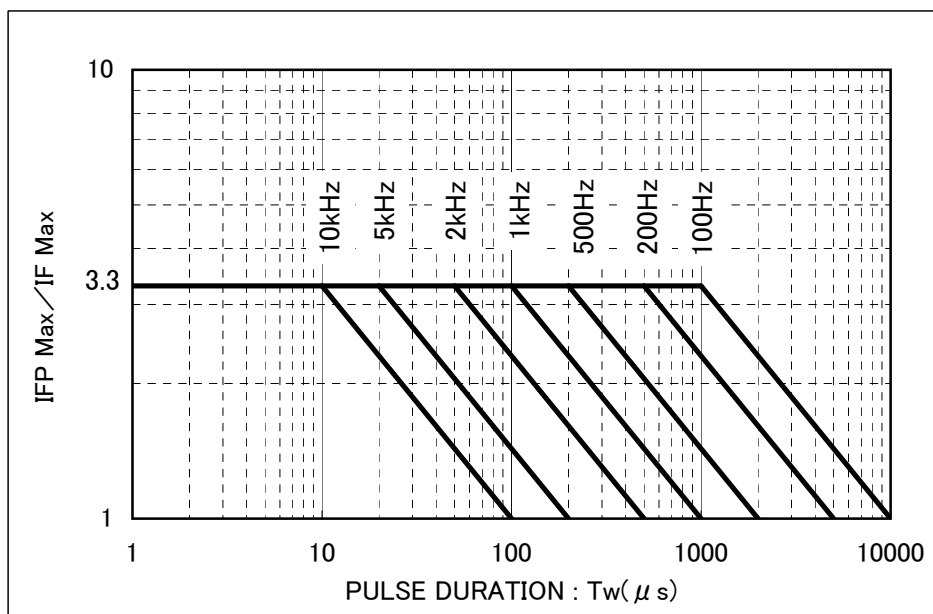
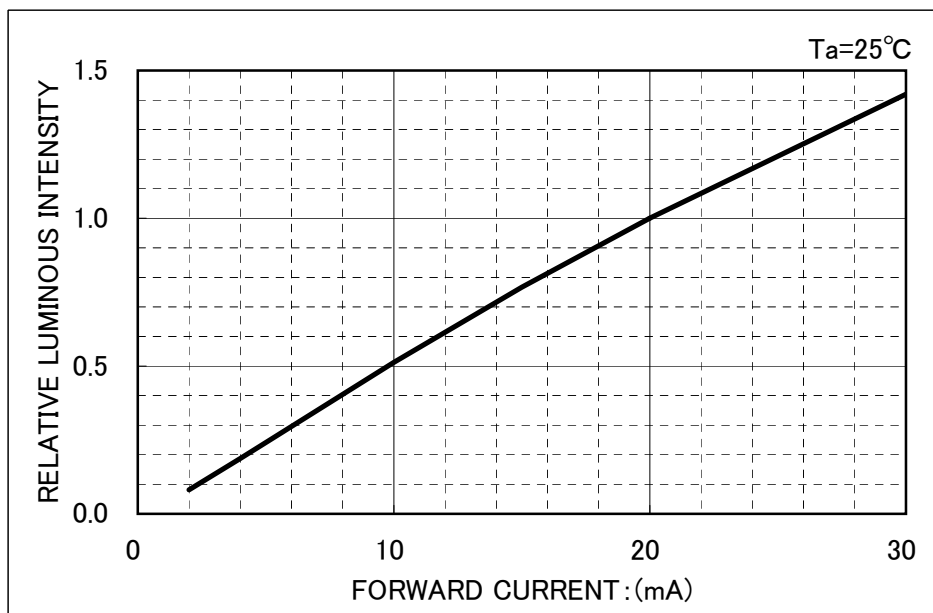
【M】



【P】



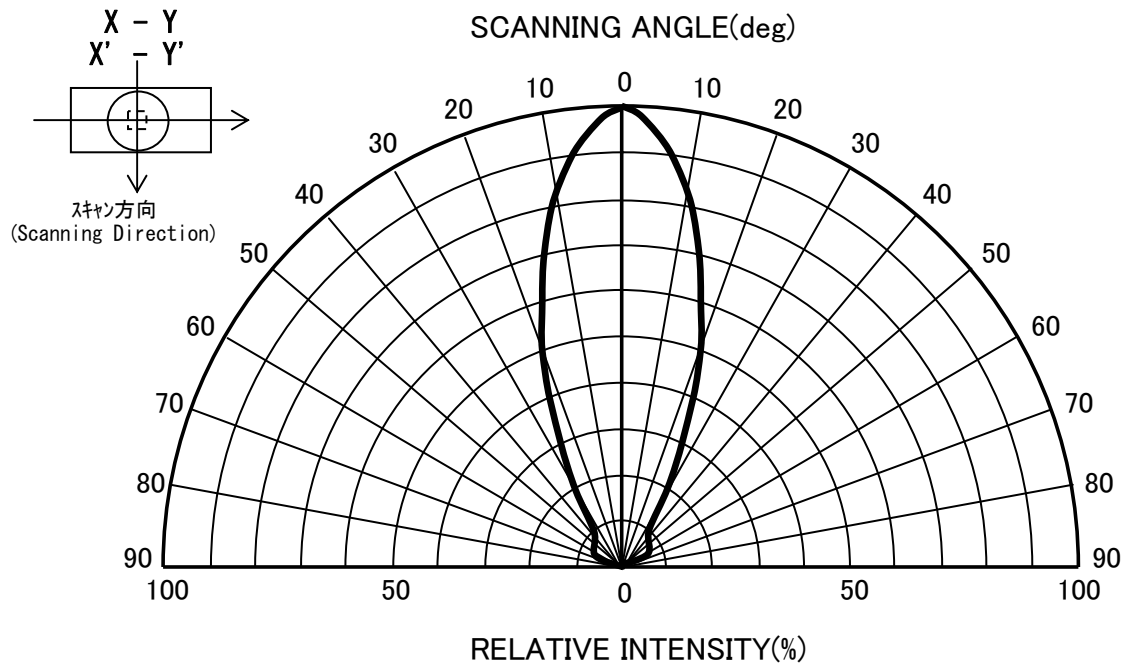
Reference

RATIO OF MAXIMUM TOLERABLE PEAK CURRENT – PULSE DURATION
最大許容ピーク電流 – パルス幅特性

RELATIVE LUMINOUS INTENSITY – FORWARD CURRENT
光度 – 順方向電流特性


Reference

RELATIVE LUMINOUS INTENSITY - VIEWING ANGLE

指向特性



Reference