

SECG1WD07YPD

- External Shape Type : 1.6 × 0.8 × t0.7 SMD type LED
- Color : White
- Application : Automotive, Consumer Electronics, Office Automation, Indicator
- Feature : MSL-3, RoHS compliant,
Compatible with heat-resistance of lead-free solder.

●Maximum absolute ratings

Items	Symbol	Maximum absolute ratings	Unit	Remarks
Power dissipation	PD	90	mW	
Forward current	IF	30	mA	
Forward current reduction	Δ IF	-0.62	mA/°C	Above 80°C
Pulse forward current	IFP	50	mA	f=1kHz tw ≤ 100μs
Reverse voltage	VR	10	mA	
Operating temperature	Topr	-40 ~ 100	°C	
Storage temperature	Tstg	-40 ~ 100	°C	
Junction temperature	Tjmax	115	°C	

●Photoelectric characteristics (Ta=25°C)

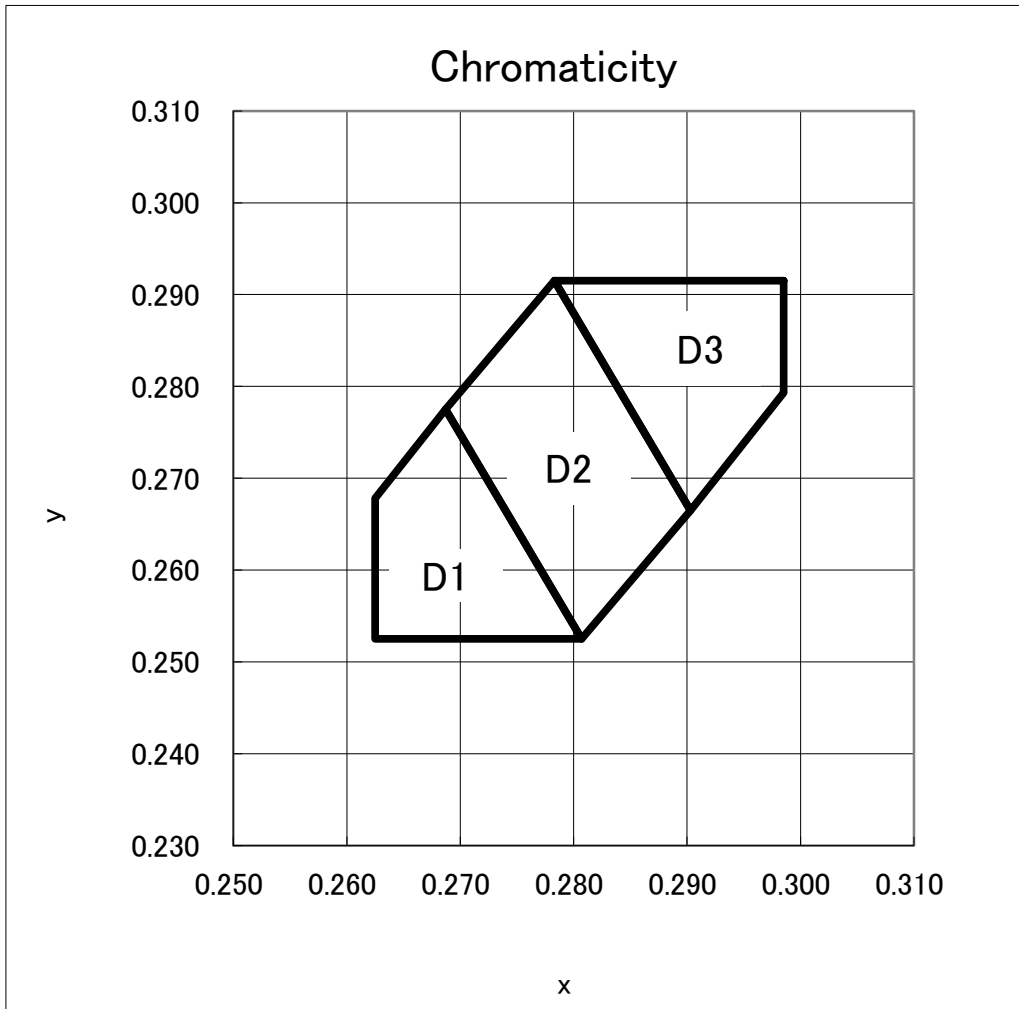
Items	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	VF	IF = 5mA	2.3	2.8	3.6	V
Reverse Voltage	VR	IR=1mA		0.8		V
Luminous intensity	IV	IF = 5mA	80.0	120.0	180.0	mcd
Chromaticity	x y	IF = 5mA		x=0.2800 y=0.2730		
Directional angle	2θ _{1/2}	IF = 5mA		120		deg.
Thermal resistance	θ _{j-a}	-		450		°C/W

●Luminous intensity rank (Ta=25°C)

(tolerances : ±10%)

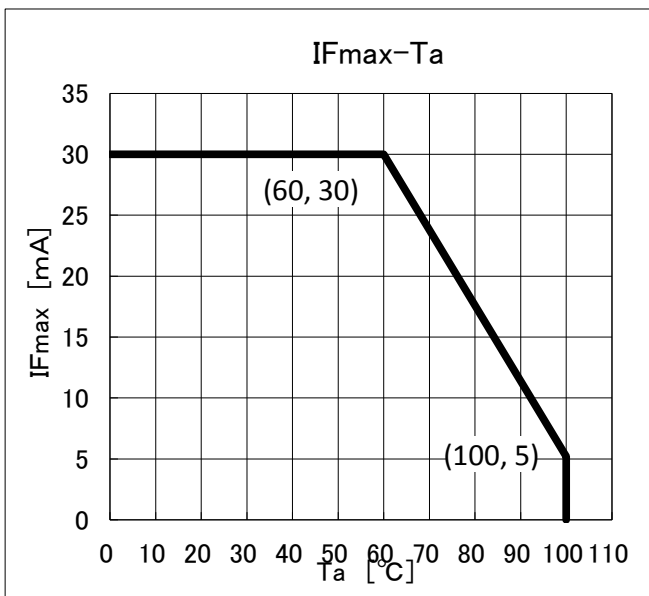
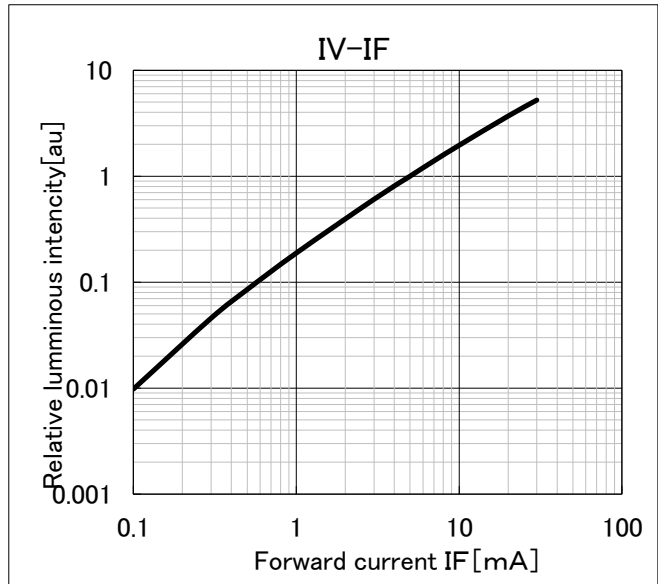
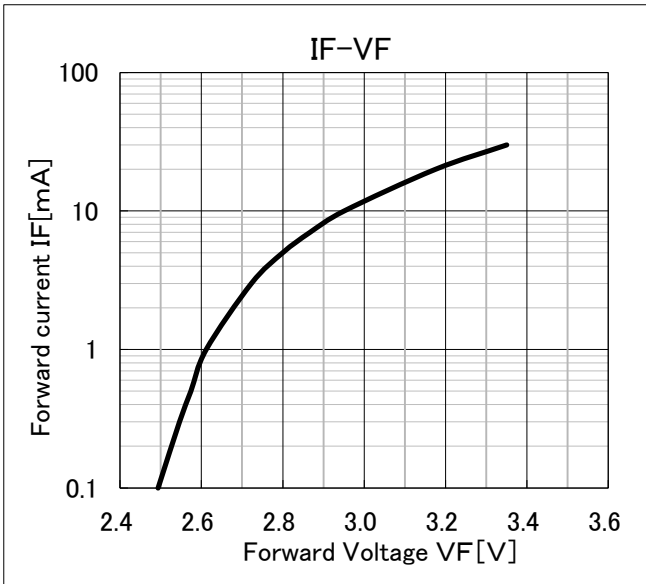
Rank	Luminous intensity range(mcd)		
C	80.0	~	120.0
D	120.0	~	180.0

●Chromaticity rank (Ta=25°C) (Tolerance±0.01)

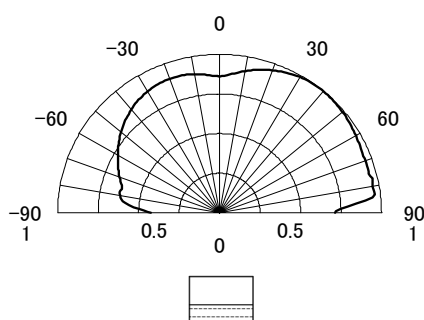
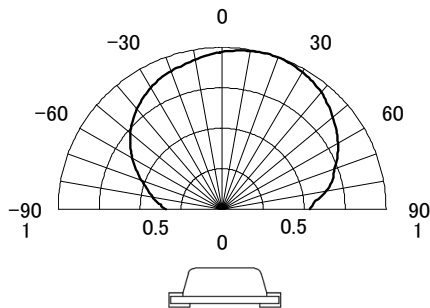


Rank	Chromaticity limit	
	x	y
D1	0.2687	0.2775
	0.2625	0.2678
	0.2625	0.2525
	0.2807	0.2525
D2	0.2783	0.2915
	0.2687	0.2775
	0.2807	0.2525
	0.2903	0.2665
D3	0.2985	0.2915
	0.2783	0.2915
	0.2903	0.2665
	0.2985	0.2793

● Characteristic data

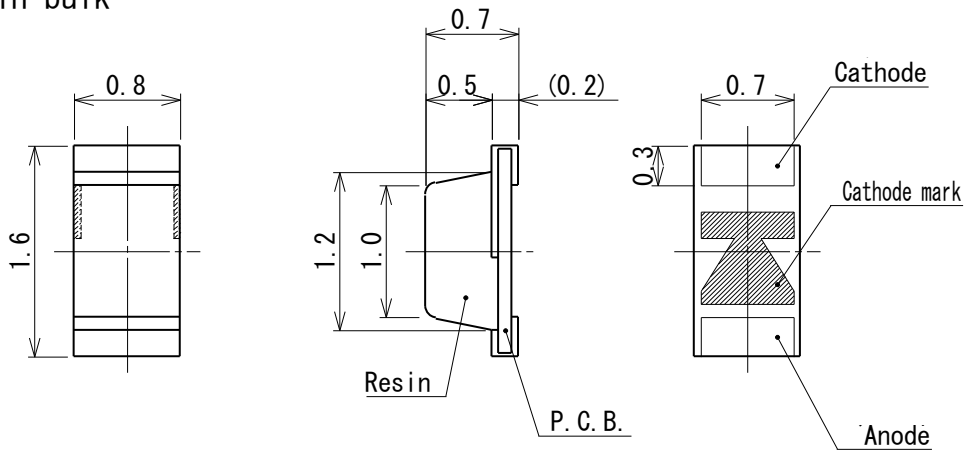


Distribution of luminous

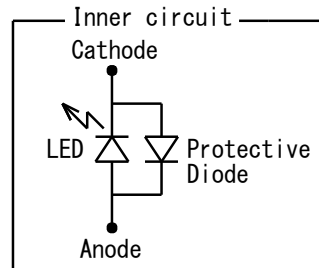
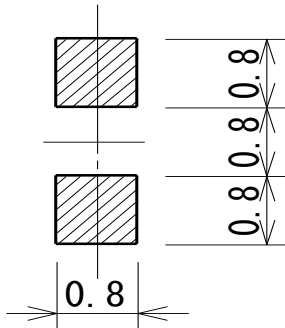


● Outline

Part in bulk



Recommended soldering pattern



Material & Finish of leads

Material	Copper
Finish	Au plating

Material of resin

Material	Silicone+Phosphor
----------	-------------------

Tolerance ± 0.1

● Soldering conditions

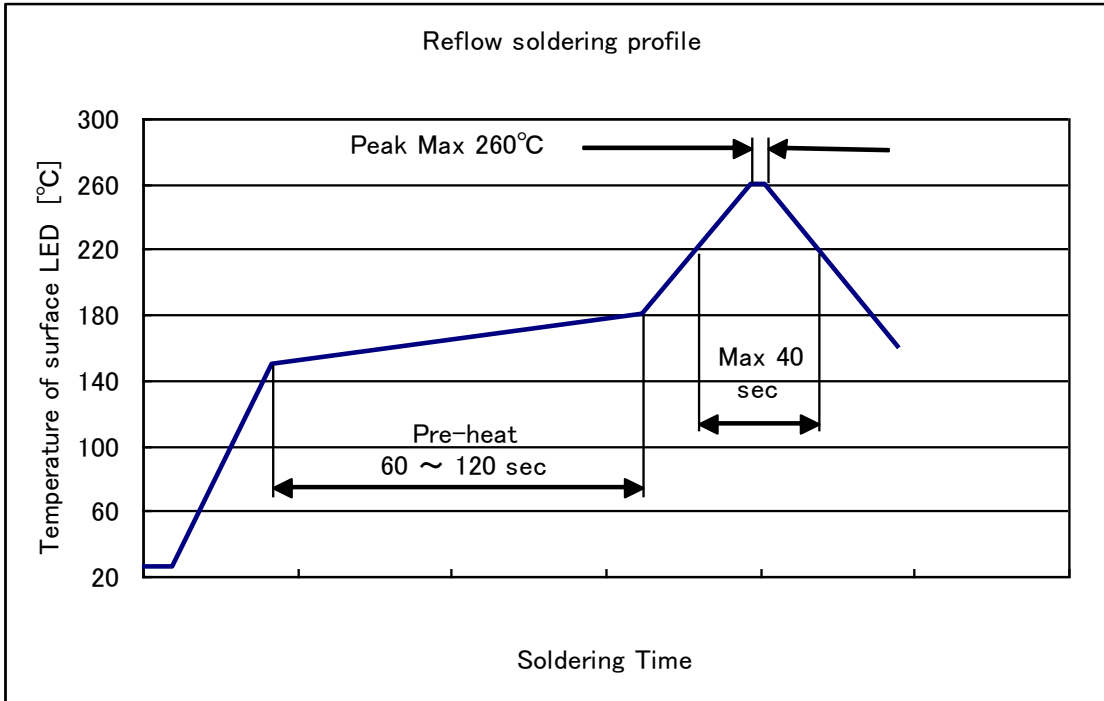
Following soldering conditions are recommended.

① Reflow conditions (at the surface of LED resin)

Pre-heat : 150 ~ 180 °C、60 ~ 120 sec

Soldering temperature: Soldering time more than 220°C is less than 40 sec.

Peak temperature is should be is less than 260°C.



② Manual soldering

Temperature of soldering iron tip should be $350 \pm 10^\circ\text{C}$ for 3 seconds, which shall apply to only one soldered point and once for the each soldered point.

● Attention after opened

The LED is in SMD package. When the LED is mounted by means of soldering and the resin is unusually damp, soldering may cause interfacial defoliation.

This occurs when a drastic temperature change causes moisture in the resin to evaporate and to swell. Therefore, attention to the below must be paid.

① Atmosphere when using the LEDs after package is opened

After opened and mounted, soldering should be carried out quickly.

Following atmosphere is recommended when using (and mounting) the LEDs.

Temperature : 5~30°C Humidity : less than 70%

② Baking

In case 168 hours have passed after package is opened, LEDs must be dried as follows.

60±5 °C for more than 24 hours (taping reel)

③ Storage after package is opened

Following storage conditions are recommended after package is opened.

In case indicator color (blue) of desiccant (ex. silica gel) has disappeared, LEDs must be dried under the same conditions as ② above.

● Other

① After soldering any mechanical force or excessive vibration should not be applied to LEDs during cooling process until the LEDs cool down to normal temperature.

② Quick cooling must be avoided.

③ The LEDs should not be mounted on warped direction of PCB.

④ This product series emits high light power. Do not look directly into the light emitting area. Direct exposure to the light over an extended time period may harm eyes.

⑤ Extra attention should be paid to the sealing resin of the product, which is silicone resin.

▪ The emitting area of the LEDs contains fine gold wires. Touching this area without care may add excess stress on the internal gold wires and may result in

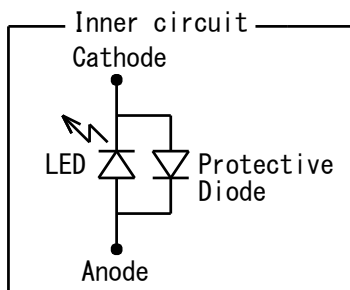
▪ The silver plating of the leadframe may discolor if the product comes into contact with material containing sulfides or if it is exposed to an atmosphere containing sulfide gas.

● Electrostatic discharge.

InGaN based elements, such as blue LED is generally sensitive to electrostatic discharge. Therefore, the surge protection diode is connected by reverse in parallel as shown in an internal circuit.

At this time, in the case of the machine model, the electrostatic discharge of LED is designed to satisfy more than about 200V. Moreover, in the case of the human model, it is designed to satisfy more than about 2000V. (These are not guaranteed values.)

If the voltage is applied in the reverse direction of the LED with the surge protection diode, there is a possibility that excessive current may flow into the protection diode. Therefore, when you use this LED, be careful not to impress voltage to the reverse direction of the LED.



● Reliability test

Test Items 試験項目	Time 試験期間	Test Conditions 試験条件
Steady state operating life Test 連続通電試験	1000(H) 1000時間	Ta=RT, IF=30mA Ta=室温, IF=30mA
Intermittent operating Life Test 断続通電試験	1000(H) 1000時間	Ta=RT,IF=30mA, on/off each 1min Ta=室温, IF=30mA, on/off各1分
High temperature humidity Bias Test 高温高湿通電試験	1000(H) 1000時間	Ta=60°C, RH=90%, IF=30mA Ta=60°C, RH=90%, IF=30mA
High temperature storage Test 高温保存試験	1000(H) 1000時間	Ta=100°C Ta=100°C
Low temperature storage Test 低温保存試験	1000(H) 1000時間	Ta=-40°C Ta=-40°C
Moisture Resistance Test 耐湿性試験	1000(H) 1000時間	Ta=60°C, RH=90% Ta=60°C, RH=90%
Temperature cycle Test 熱衝撃試験(気槽)	100(C) 100サイクル	-40°C(30min.)~+100°C(30min.) -40°C(30分)~+100°C(30分)
Soldering heat Test ① はんだ耐熱性試験 ①	1(T) 1回	Peak 260°C-30sec MAX Infrared Reflow or Convection Reflow Soldering 260°Cピーク-30秒、赤外線又はエアリフロー
Soldering Heat Test② はんだ耐熱性試験 ②	2(T) 2回	390°C(Temperature of soldering iron tip),3sec はんだコテ先温度=390°C, t=3秒
Solder ability Test 静電気耐量試験(HBM)	1(T) 3回	T=245°C, 3sec, Using flux for Pb free C=100pF, R=1.5kΩ, V=±1000V

Measurement Item and Criterion Judge Failure

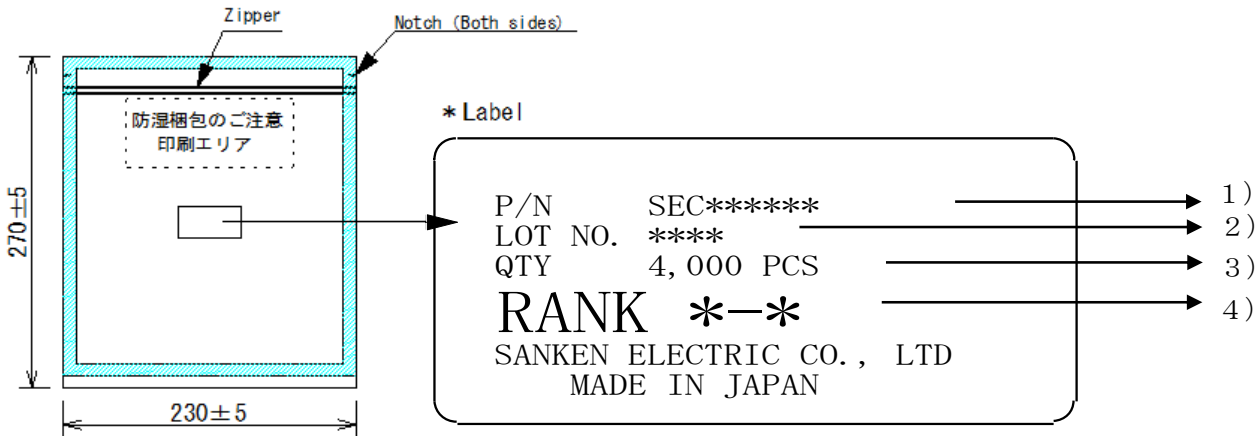
Measurement Item 測定項目	Measurement Condition 測定条件	Initial data (Spec.) 初期値範囲 (仕様値)	Failure Criteria 故障判定基準
V F 順方向電圧	I F = 5 m A	3.4 (V) M a x	MAX VFS×1.2 (+20%) * MIN VFS×0.8 (-20%) * * 初期値の±20%
I V 光度	I F = 5 m A	29.8~53.7 (m c d)	MIN IVS×0.5 (-50%) * * 初期値の50%

● Packing

Packing Material : Aluminum laminated moisture-proof packing

Quantity : 4,000 pcs (Minimum order quantity)

Label : See below.



1) Part Number : SEC*****

2) Lot No. : * * * *
 ↑ ↑ ↑
 ① ② ③

① Last digit of year、

② Month

(January~September→Arabic Numeral

October →O、November→N、December→D)

③ Day

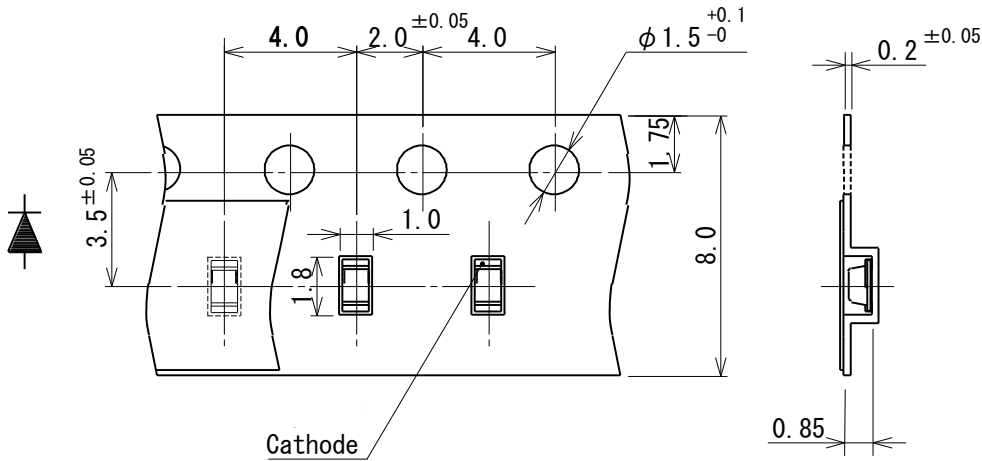
3) quantity : 4000pcs

4) Rank : * - *
 ↑ ↑
 ① ②
 ① Luminous intensity rank
 ② Chromaticity rank

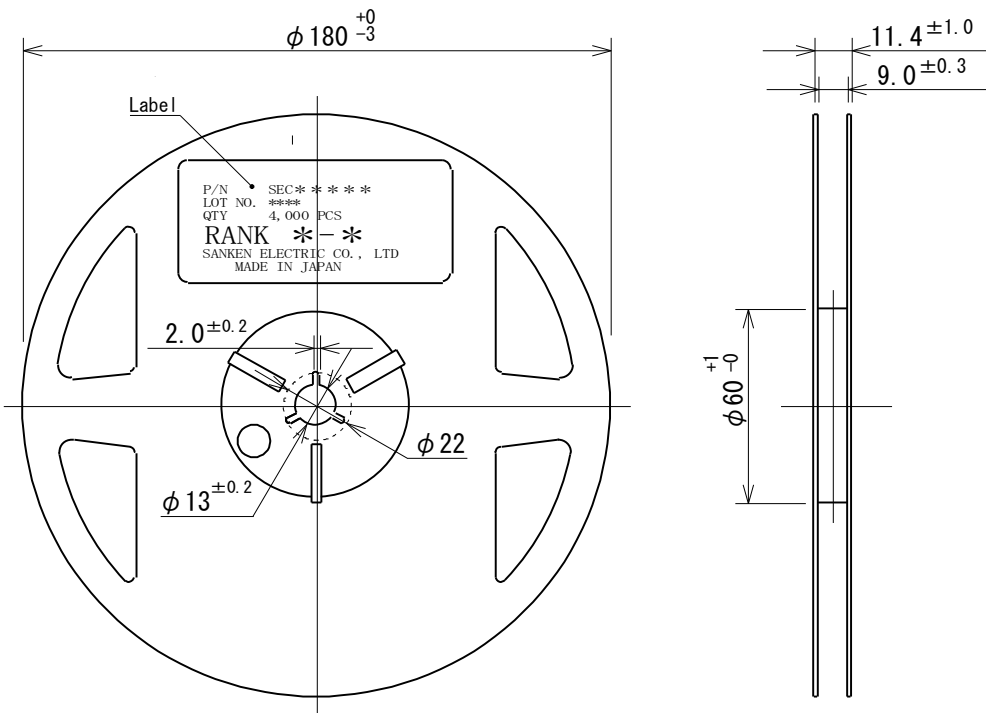
● Taping reel dimensions

Tolerance : ± 0.1

Unit : mm



Taping reel dimensions



Tolerance : ± 0.2

Unit : mm

①Quantity

The quantity per reel shall be 4000 pcs.

②Accumulative pitch tolerance

Accumulative tolerance per 10 pitches shall be ± 0.2 mm.

③Adhesion strength of cover tape

Adhesion strength shall be 0.1-0.7N when the cover tape and the carrier tape are torn off at the angle of 10 degrees.

④Packaging

P/N, manufacturing date code number and quantity shall be indicated on a moist-proof package.

● Tips

- The contents written in this data sheet may be changed without a preliminary announcement by improvement etc. When you use it, please check that information is the newest and conclude specifications.
- Application and operation examples described in this publication are quoted for the sole purpose of reference for the use of the products herein and SanKen can assume no responsibility for any infringement of industrial property rights, intellectual property rights or any other rights of SanKen or any third party which may result from its use.
- When using the products specified herein by either combining other products or materials therewith or physically, chemically or otherwise processing or treating the products, please duly consider all possible risks that may result from all such uses in advance and proceed therewith at your own responsibility.
- Although SanKen undertakes to enhance the quality and reliability of its products, the occurrence of failure and defect of semiconductor products at a certain rate is inevitable.
Users of SanKen products are requested to take, at their own risk, preventative measures including safety design of the equipment or systems against any possible injury, death, fires or damages to the society due to device failure or malfunction.
- SanKen products listed in this catalog are designed and intended for the use as components in general purpose electronic equipment or apparatus (home appliances, office equipment, telecommunication equipment measuring equipment, etc.). Before placing an order, the user's written consent to the specifications is requested.
When considering the use of SanKen products in the applications where higher reliability is required (transportation equipment and its control systems, traffic signal control systems or equipment, fire/crime alarm systems, various safety devices, etc.), please contact your nearest SanKen sales representative to discuss and obtain written confirmation of your specifications.
The use of SanKen products without the written consent of SanKen in the applications where extremely high reliability is required (aerospace equipment, nuclear power control systems, life support systems, etc.) is strictly prohibited.
- Anti radioactive ray design is not considered for the products listed herein.
- SanKen assumes no responsibility for any troubles, such as dropping products caused during transportation out of SanKen's distribution network.