SEP1FC1402-DT2A

- External Shape Type : 3.5×2.8 Flat View LED
- Color : Clear Blue
- Application : Automotive, Consumer Electronics, Office Automation, Indicator
- Feature : MSL-3, RoHS compliant,
  Compatible with heat-resistance of lead-free solder.

●Absolute maximum ratings

項 目	記 号	定 格	単 位	備 考
Power dissipation	PD	120	mW	
Forward current	IF	30	mA	
Forward current reduction	⊿IF	-0.83	mA/℃	Above67℃
Pulse forward current	IFP	70	mA	f=1kHz tw≦100μ s
Reverse current	IR	10	mA	
Operating temperature	Topr	−40～ 85	℃	
Storage temperature	Tstg	−40～100	℃	

●Photoelectric characteristic (Ta=25℃)

Description	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	VF	IF = 20mA		3.0	3.5	V
Reverse current	VR	IR=1mA		0.8		V
Luminous intensity	IV	IF = 20mA	194	280	403	mcd
Chromaticity	x y	IF = 20mA		x=0.179 y=0.154		

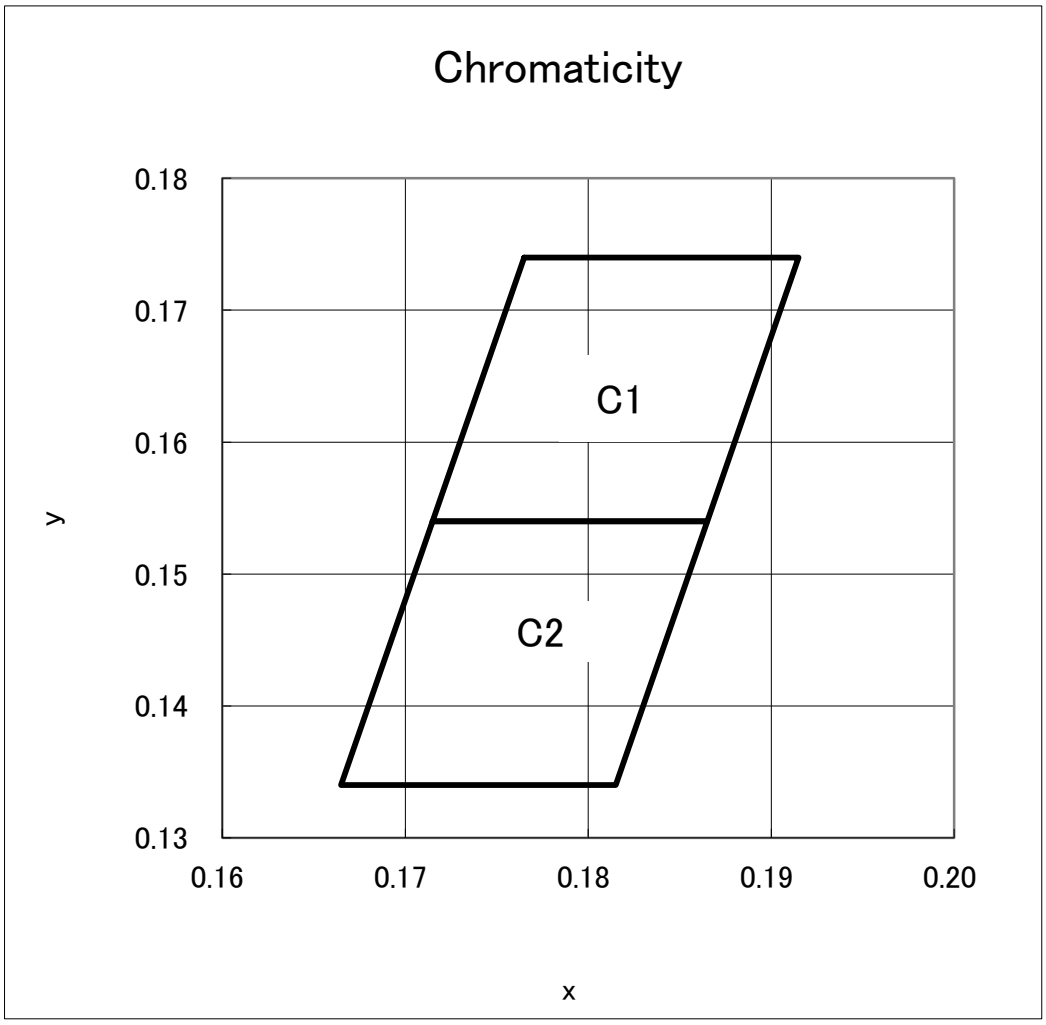
●Luminous intensity rank (Ta=25℃)
(tolerances:±10%)

rank	Luminous intensity range(mcd)		
D	194	～	280
E	280	～	403

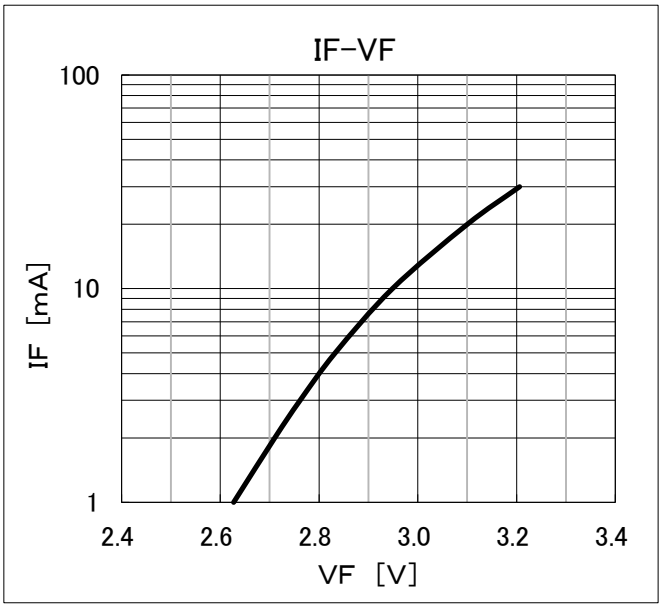
●Chromaticity rank (Ta=25℃) (Tolerance±0.01)

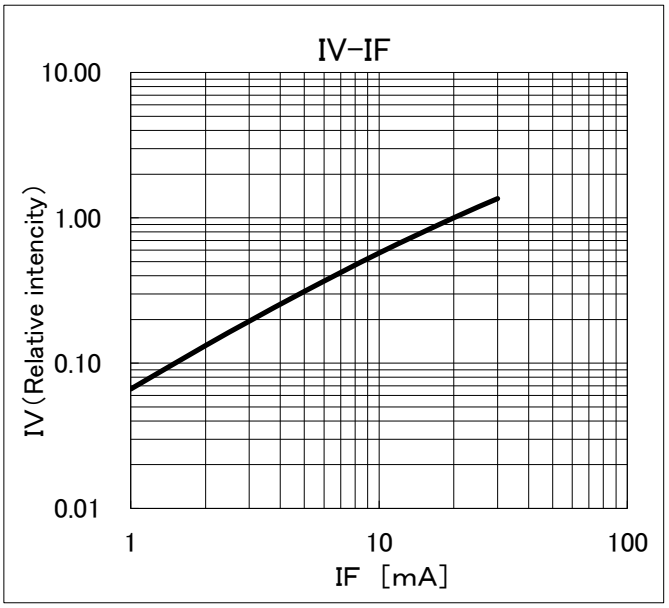
Rank	Chromaticity limit	
	x	y
C1	0.1765	0.1740
	0.1715	0.1540
	0.1865	0.1540
	0.1915	0.1740

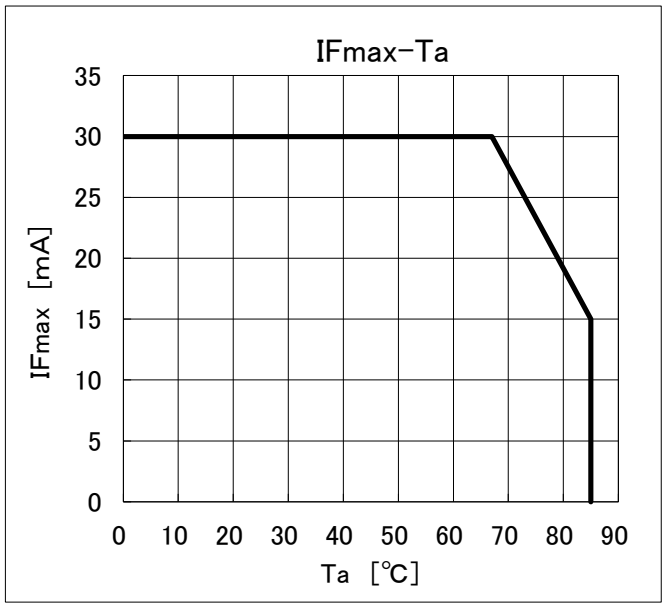
Rank	Chromaticity limit	
	x	y
C2	0.1715	0.1540
	0.1665	0.1340
	0.1815	0.1340
	0.1865	0.1540

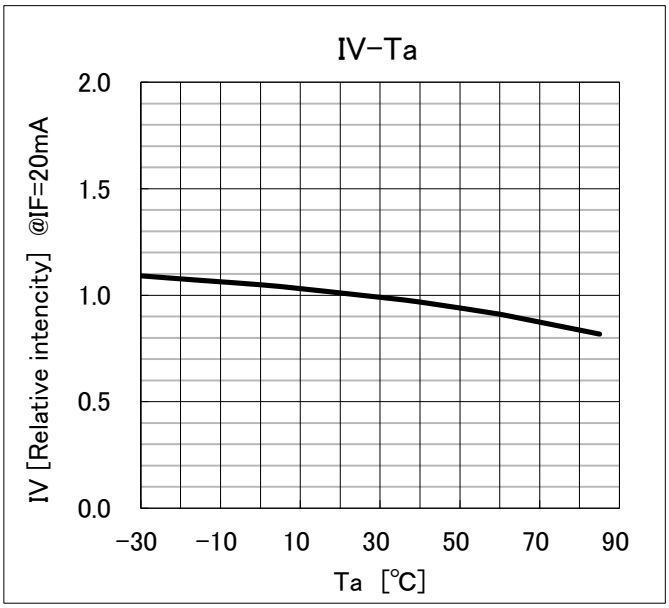


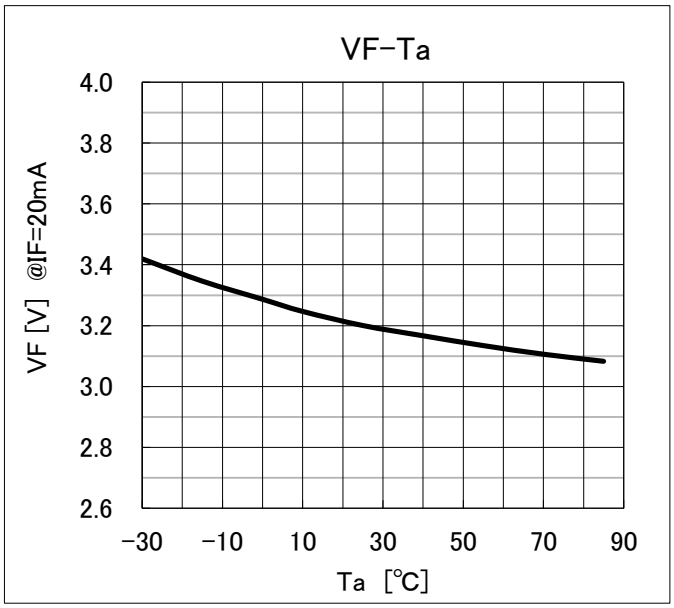
●Characteristic data

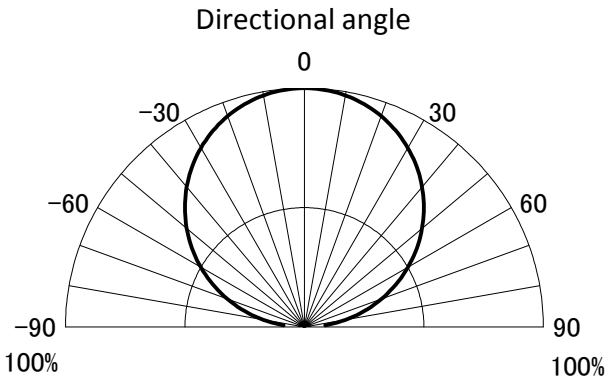




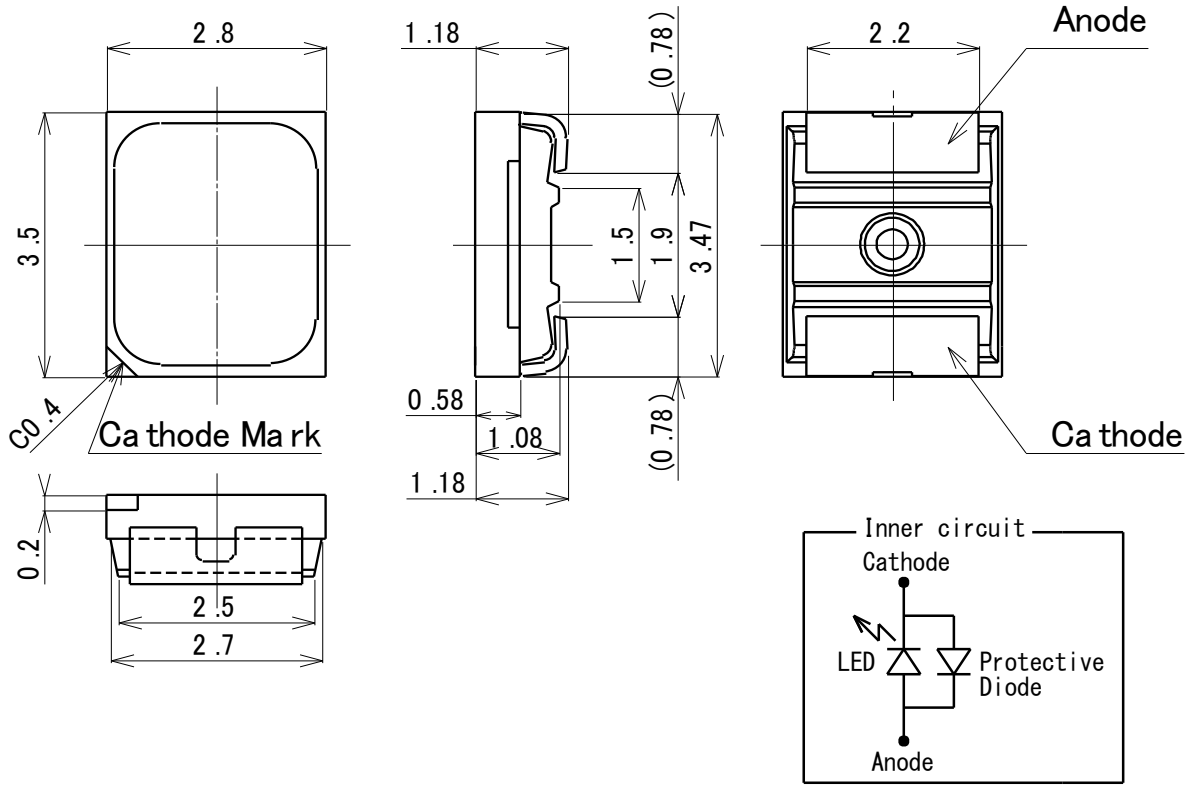



IV-Ta
IV [Relative intencity] @IF=20mA
2.0
1.5
1.0
0.5
0.0
-30
-10
10
30
50
70
90
Ta [℃]

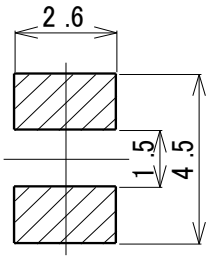

VF-Ta
VF [V] @IF=20mA
4.0
3.8
3.6
3.4
3.2
3.0
2.8
2.6
-30
-10
10
30
50
70
90
Ta [℃]


Directional angle
0
-30
30
-60
60
-90
90
100%
100%

● Outline



Recommendable soldering pattern(For reflow solderibg)



Tolerance ±0.2

Material & Finish of leads

Material	Copper-Iron Alloy
Finish	Ag plating

Material of resin

Material	Silicone

● Soldering conditions

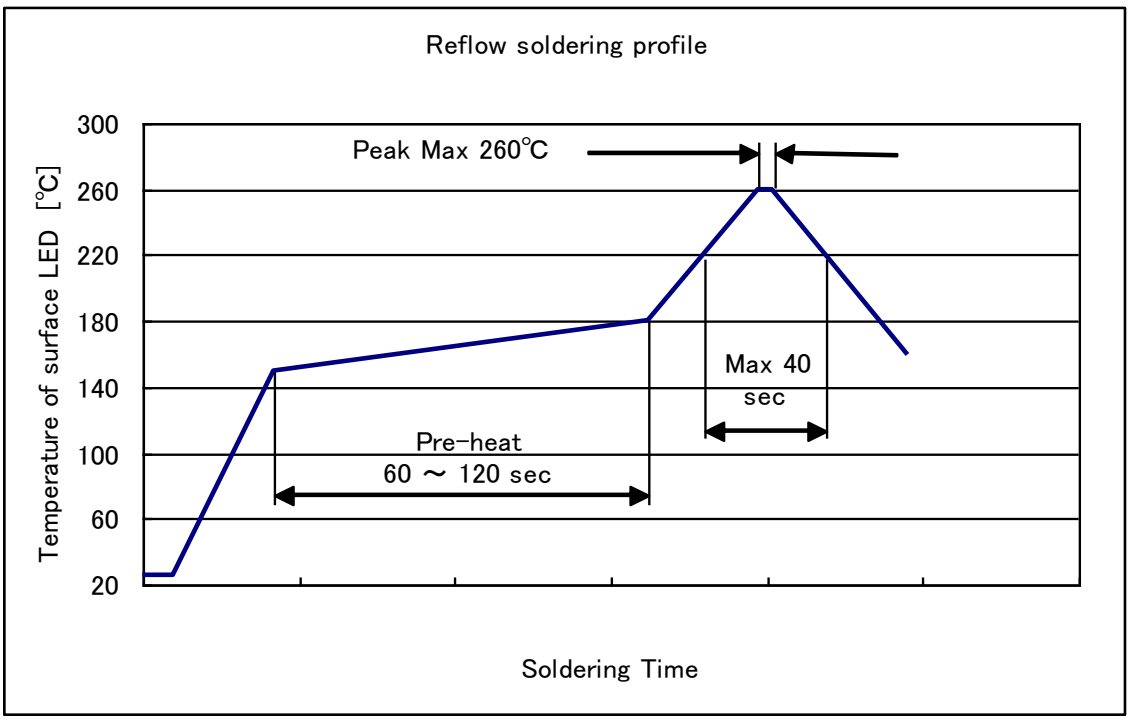
Following soldering conditions are recommended.

① Reflow conditions (at the surface of LED resin)

Pre-heat :150 ～ 180 ℃、60 ～ 120 sec

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

Peak temperature is should be is less than 260℃. It can carry out to 2 times



② Manual soldering

Temperature of soldering iron tip should be 350±10℃ 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℃ Humidity : less than 70%

② Baking
In case 168 hours have passed after package is opened, LEDs must be dried as follows.

60±5 ℃ 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.

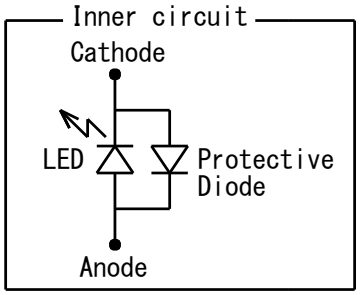
⑤ Extra attention should be paid to the sealing resin of the product, which is silicone resin.
・The emitting area of the LEDs contains fine gold wires. Touching this area witout care may add excess stress on the internal gold wires and may result in
・The silver plating of the leadframe may discolor if 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	EIAJ ED-4701	Test Conditions
Life Tests	Steady state operating life	-	Ta=RT、Ifmax t=1000h
Environ-mental Tests	High temperature storage	201	Ta=Tstgmax t=1000h
	Low temperature storage	202	Ta=Tstgmin t=1000h
	Moisture Resistance	103	Ta=60±5℃、RH=90±5% t=1000h
	Temperature cycle	105	Tstgmin(30min)～Tstgmax(30min) 100cycles
	Soldering heat	301	T=260±5℃、t=10s、1time
	Solderaibirity	402	T=245±5℃、t=5±1s、1time、Using flux for Pb free solder
	Drop	-	H=1m、Drop on maple board、10times

Mesurement Item and Criterion Judge Failure

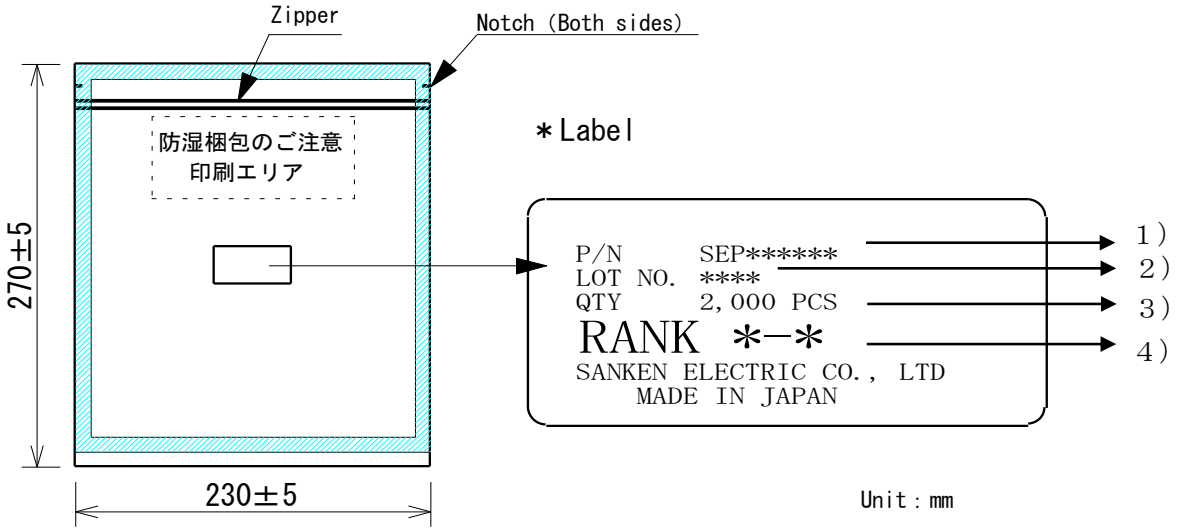
No	Measurement Item	Mark	Criterion Judge Failure
1	Forward Voltage	VF	OK≦V.F.S.×±20%
2	Luminous Intensity	Iv	OK≧I.V.S.×0.5

*Solderability … The Lead shall be covered by solder at least 95%.

Mesurement conditions is based on specifications.
Tstgmax and Tstgmin is absolute maximum ratings.
IFmax and IFPmax is absolute maximum ratings.
U.S.L. is upper limit of standard.
V.F.S. is Initial data of VF.
I.V.S. is Initial data of Luminous Intensity.

● Packing

Packing Material : Aluminum laminated moisture-proof packing
Quantity : 2000 pcs (Minimum order quantity)
Label : See below.



1) Part Number : SEP＊＊＊＊＊＊

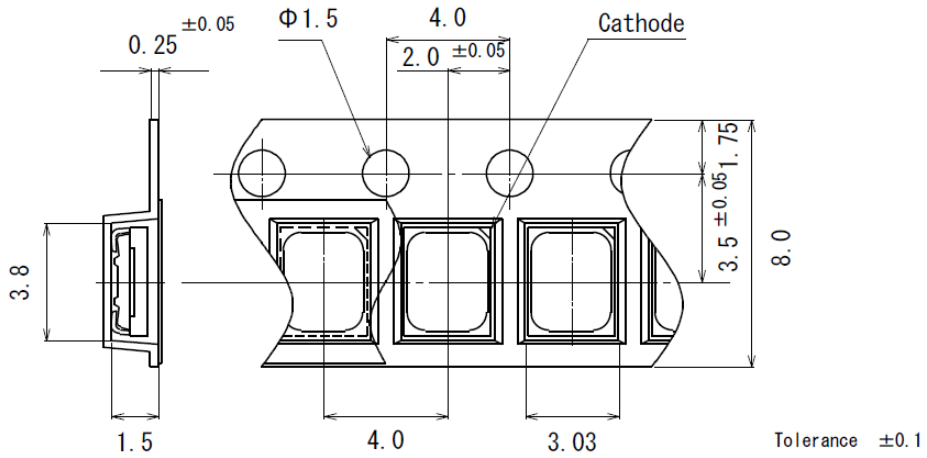
2) Lot No. : ＊ ＊ ＊＊
↑ ↑ ↑
① ② ③

①Last digit of year、
②Month
(January～September→Arabic Numeral
October →O、November→N、December→D)
③Day

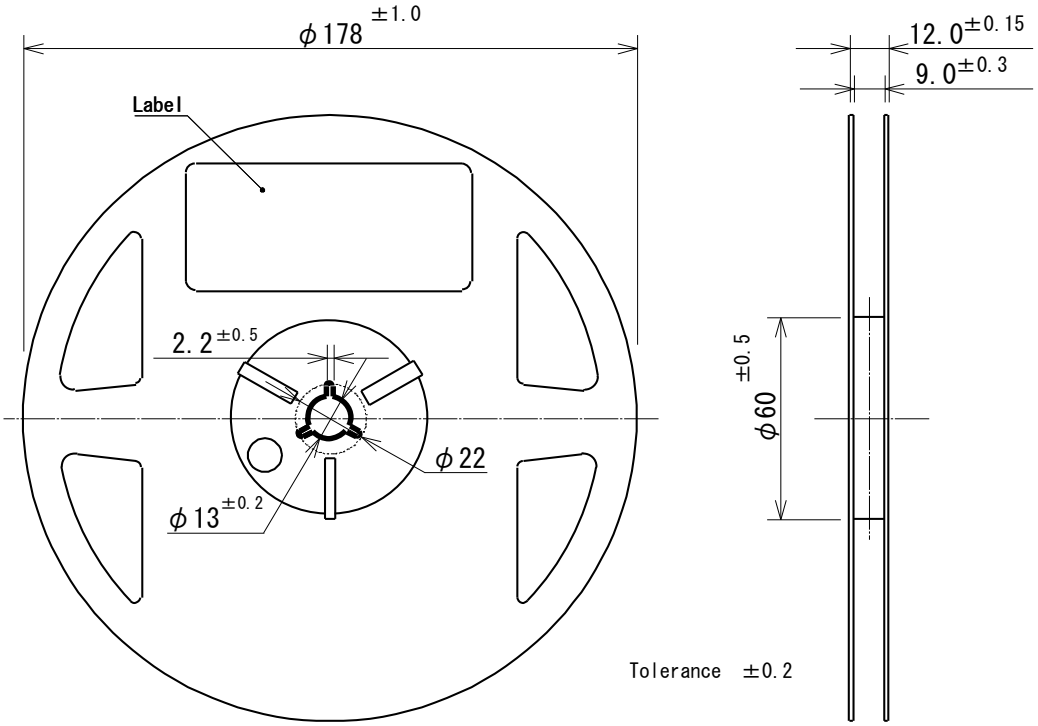
3) quantity : 2000pcs

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

● Taping reel dimensions Unit:mm



Taping reel dimensions



①Quantity

The quantity per reel shall be 2000 pcs.

②Comulative tolerance

Comulative tolerance per 10 pitches shall be ±0.2mm.

③Adhesion strength of cover tape

Adhesion strength to be 0.1-0.7N when the cover tape is turn off from the carrier tape at 10 angle to be carrier tape.

④Packaging

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

● Tips

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