

SPECIFICATION

Device Type	Top View LED
Model	ITP-04352-SG0
Customer	

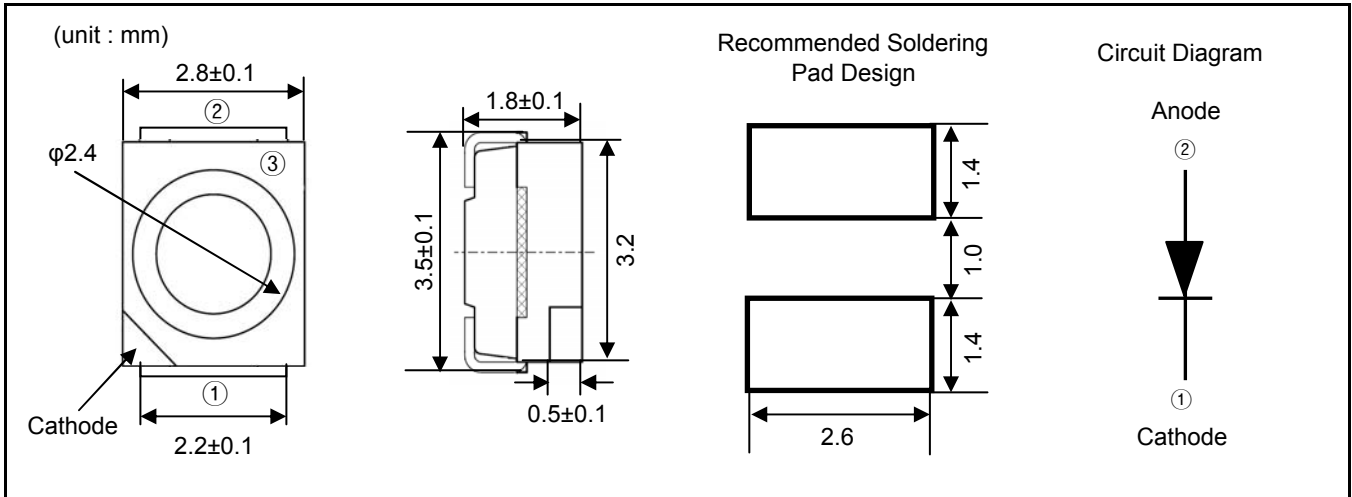
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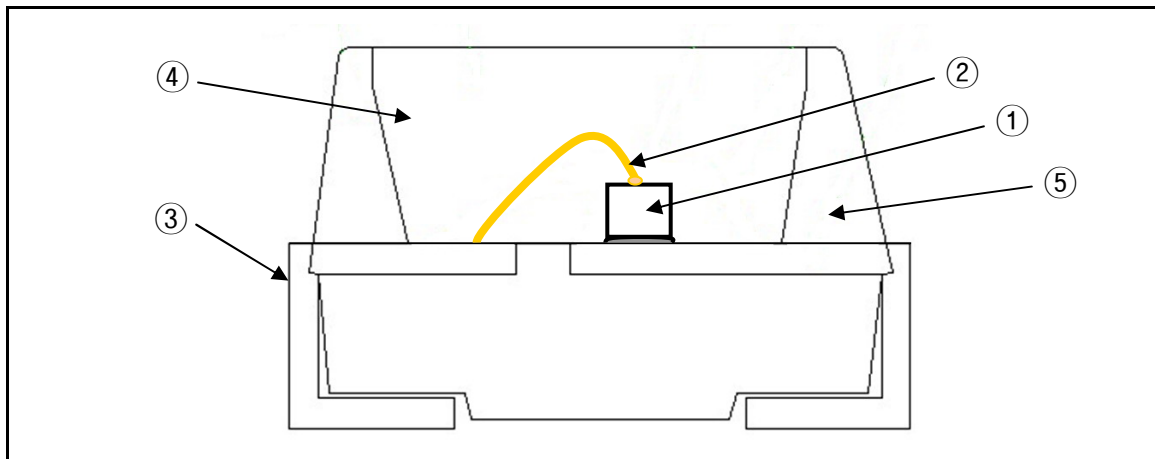
Supplier Approval			Customer Approval		
Written by	Checked by	Approved by	Issued by	Checked by	Approved by

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1. Outline Drawing And Dimension



2. Material Informations



Number	Item	Material
①	Chip	AlInGaP / GaAs
②	Wire	Gold Wire (Au 99.99%)
③	LeadFrame	Copper Frame (Silver Plated)
④	Encapsulating Resin	Silicone
⑤	PPA Cup	Heat -Resistant Polymer

3. Feature & Applications

◆ Feature

- Package : SMD Top View Type
- 3.5 × 2.8 × 1.8 (L × W × H) Small Size Device
- Viewing Angle : $2\theta_{1/2} = 120^\circ$
- Colorless And Transparent Product
- AllnGaP / GaAs Chip
- Long Time Reliability

◆ Applications

- Automobile Dash Board Back Light
- Household Appliance Indicator
- Advertising/Corporate Identity/Sinage Back Light
- Architectural Lighting Source
- Outdoor Linghting Source

4. Absolute Maximum Ratings

(Ta = 25°C)

Items	Symbol	Absolute Maximum Ratings	Unit
Power Dissipation	P _D	72	mW
Forward Current	I _F	30	mA
Pulse Forward Current	I _{FP}	100	mA
Reverse Voltage	V _R	5	V
Operating Temperature	T _{opr}	-30 ~ +85	°C
Storage Temperature	T _{stg}	-40 ~ +100	°C
Soldering Temperature	T _{sld}	Reflow Soldering : 260°C for 10sec.	
		Hand Soldering : 350°C for 3sec.	

※ I_{FP} Conditions : Pulse Width ≤ 10msec. And Duty ≤ 1/10

5. Initial Electrical/Optical Characteristics

(Ta = 25°C)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V _F	I _F = 20mA	-	2.0	2.4	V
Luminous Intensity	I _v	I _F = 20mA	100	-	350	mcd
Reverse Current	I _R	V _R = 5V	-	-	10	μA
Viewing Angle	θ _{1/2}	I _F = 20mA		120		deg.

※ Luminous intensity measurement allowance is ± 10%.

※ θ_{1/2} : The off-axis where the luminous intensity is 1/2 of the peak intensity

Note : All measurements were made under standardized environment of IST

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6. Ranks

1) Chromaticity Coordinates Rank

(Ta = 25°C)

Rank	Test Condition	Min.	Typ.	Max.	Unit
A	I _F = 20mA	584	-	589	nm
B	I _F = 20mA	589	-	594	

※ The measurement tolerance of the dominant wavelength is ±1nm.

2) Forward Voltage Rank

(Ta = 25°C)

Rank	Test Condition	Min.	Typ.	Max.	Unit
0	I _F = 20mA	1.8	-	2.0	V
1	I _F = 20mA	2.0	-	2.2	
2	I _F = 20mA	2.2	-	2.4	

※ 0.05V tolerance for the forward voltage may be caused by measurement inaccuracy.

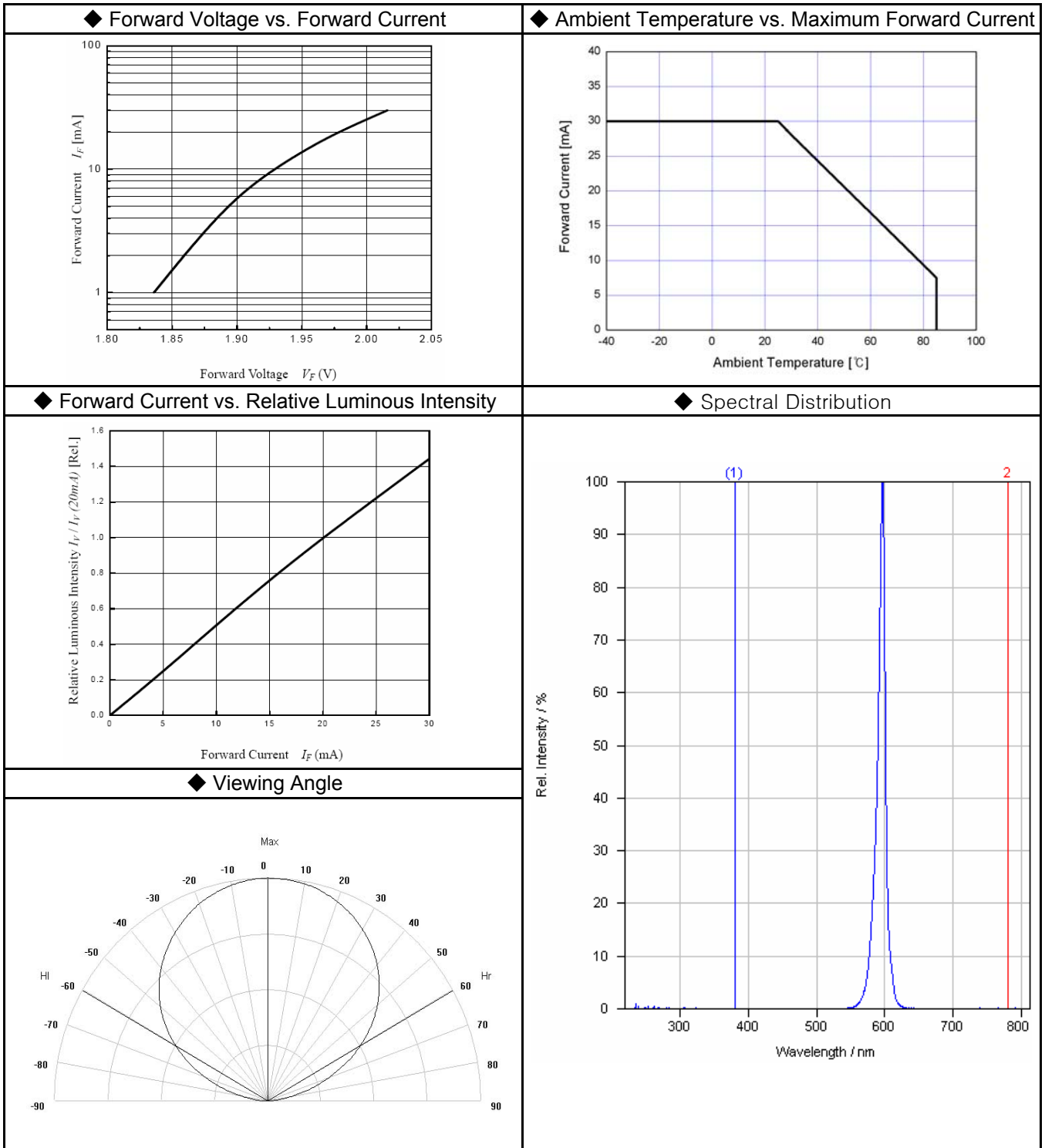
3) Luminous Intensity Rank

(Ta = 25°C)

Rank	Test Condition	Min.	Typ.	Max.	Unit
A	I _F = 20mA	100	-	150	mcd
B	I _F = 20mA	150	-	200	
C	I _F = 20mA	200	-	250	
D	I _F = 20mA	250	-	300	
E	I _F = 20mA	300	-	350	

※ Luminous intensity measurement allowance is ± 10%

7. Characteristic Diagrams



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8. Reliability

Test Item	Reference	Test Conditions	Test Hours/Cycles	Number of Damage
High Temperature Storage	JEITA ED-4701	Ta = 100 °C	1000 Hours	0/22
Low Temperature Storage	JEITA ED-4701	Ta = -40 °C	1000 Hours	0/22
High Temperature High Humidity Storage	JEITA ED-4701	Ta = 60 °C, RH = 90%	300 Hours	0/22
Temperature Cycle	JEITA ED-4701	-40 °C ~ 25 °C ~ 100 °C ~ 25 °C 30min 5min 30min 5min	100 Cycles	0/22
Resistance to Soldering Heat (Reflow Soldering)	JEITA ED-4701	Tsld = 260 °C, 10sec (Pre Treatment 30 °C, 70%, 168Hrs)	2 time	0/22
Solderability (Reflow Soldering)	JEITA ED-4701	Tsld = 215±5 °C, 3sec (Using Flux, Lead Solder)	1 time (over 95%)	0/22
Room Temperature Life Test	Internal Reference	25 °C, I _F = 20mA	500 Hours	0/22
High Temperature Life Test	Internal Reference	Ta = 100 °C, I _F = 5mA	500 Hours	0/22
High Temperature High Humidity Life Test	Internal Reference	Ta = 60 °C, RH = 90%, I _F = 12mA	300 Hours	0/22
Low Temperature Life Test	Internal Reference	Ta = -40 °C, I _F = 20mA	500 Hours	0/22

※ Reliability Criteria

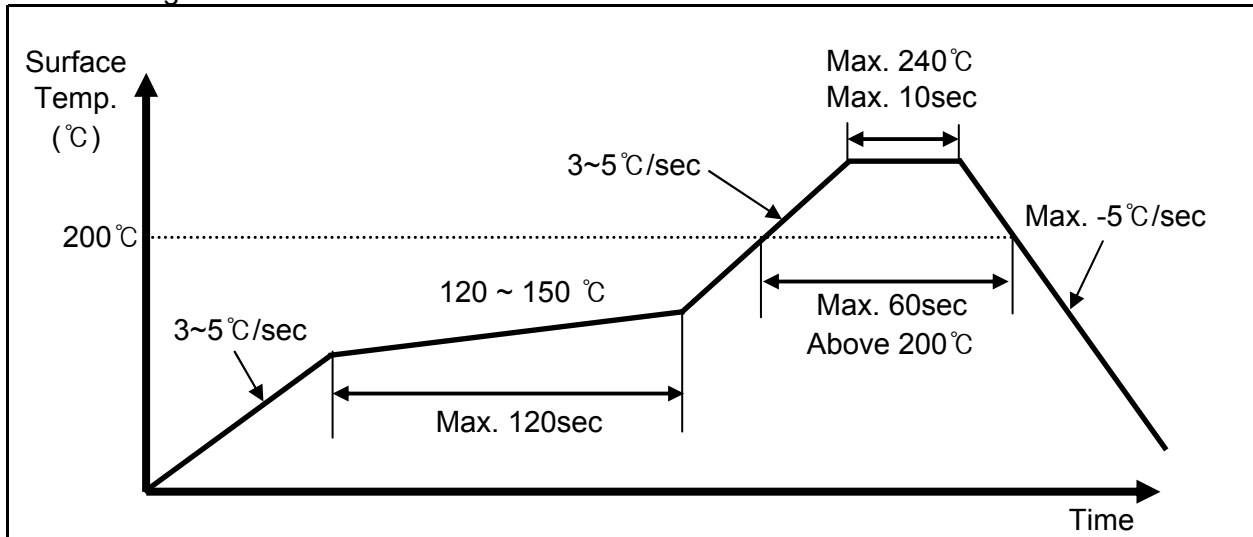
Item	Symbol	Test Condition	Limit	
			Min.	Max.
Forward Voltage	V _F	I _F = 20mA	-	U.S.L × 1.1
Luminous Intensity	I _v	I _F = 20mA	L.S.L × 0.7	-

※ U.S.L = Upper Standard Level, L.S.L = Lower Standard Level

9. Solder Conditions

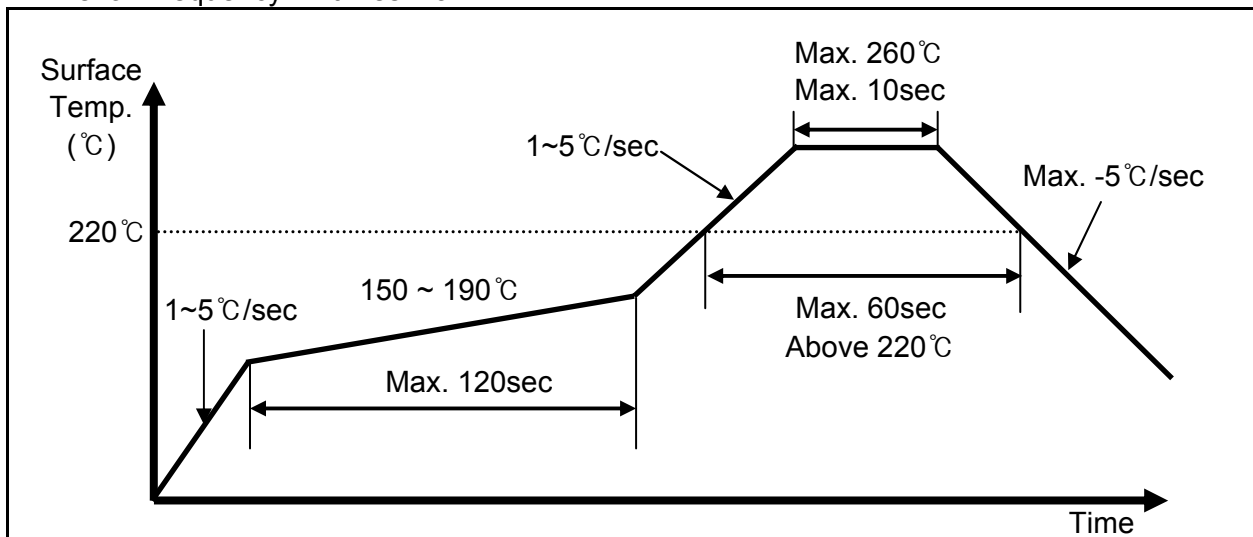
1. Reflow Conditions (Lead Solder)

- Preliminary heat to be at Max. 200°C for Max. 2 mins.
- Soldering heat to be at Max. 240°C for Max. 10 secs.



2. Reflow Conditions (Pb Free)

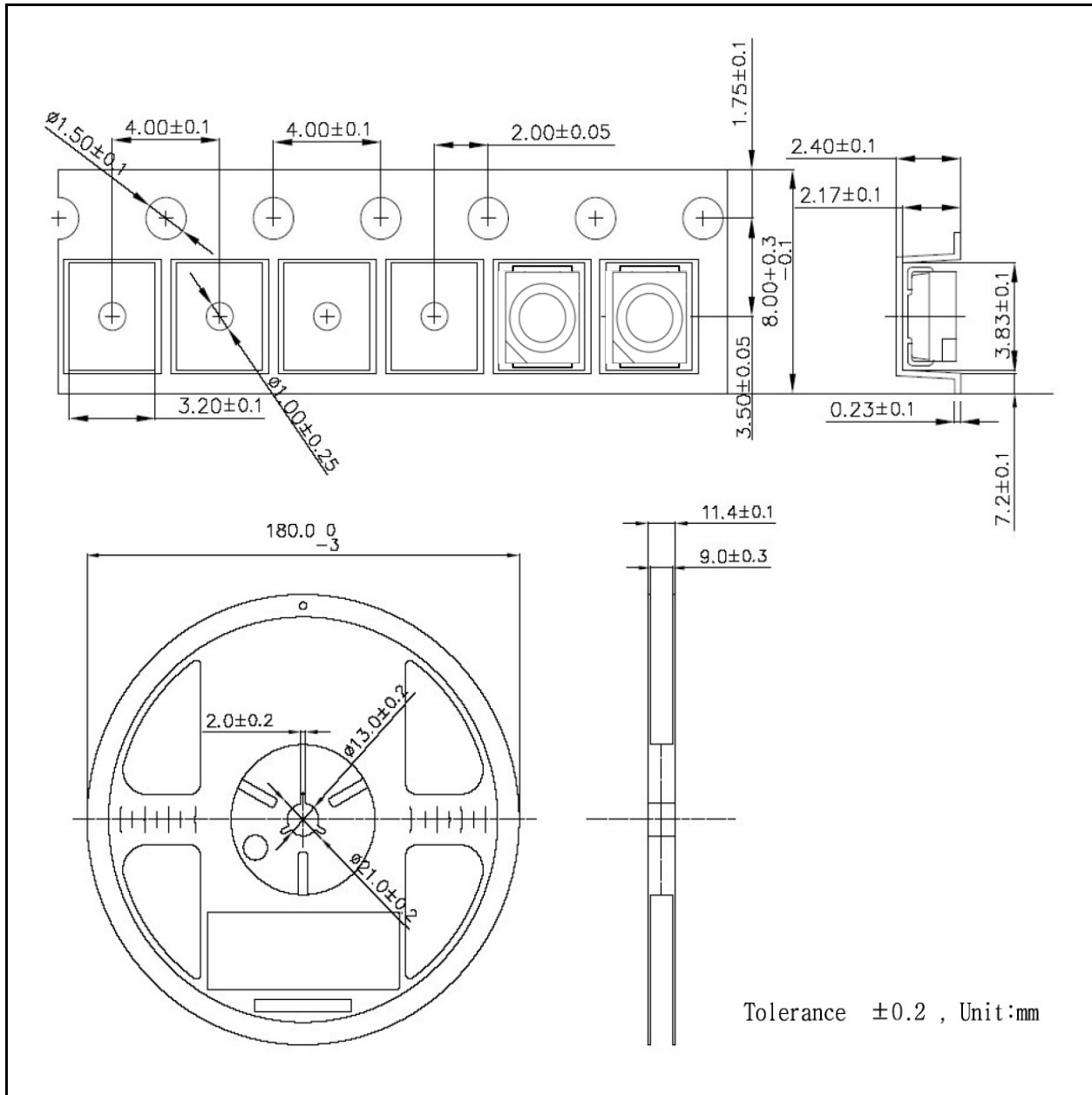
- Preliminary heat to be at Max. 220°C for Max. 2 mins.
- Soldering heat to be at Max. 260°C for Max. 10 secs.
- Reflow frequency : 2 times max.



3. Hand Soldering Conditions

- Not more than 3 seconds at 350°C, under soldering iron. (One time Only)

10. Taping

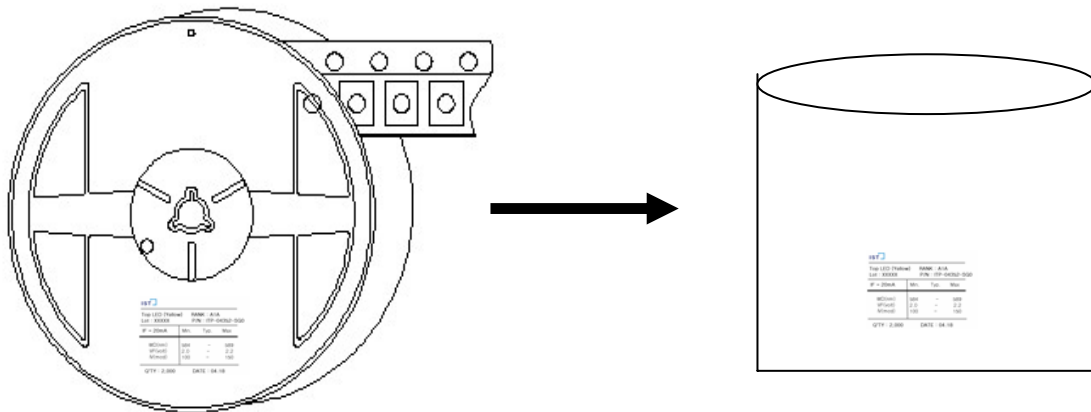


1. Quantity : The quantity/Reel to be 2,000pcs.
2. Cumulative Tolerance : Cumulative Tolerance/10 pitches to be ± 0.2 mm
3. Adhesion Strength of Cover Tape : Adhesion strength to be 0.1~0.7N when the cover tape is turned off from the carrier tape at 10° angle to be the carrier tape.
4. Packing : P/N, Manufacturing data Code No. and quantity to be indicated on a damp proof package.

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11. Packing Structure

Reel & Aluminum Vinyl



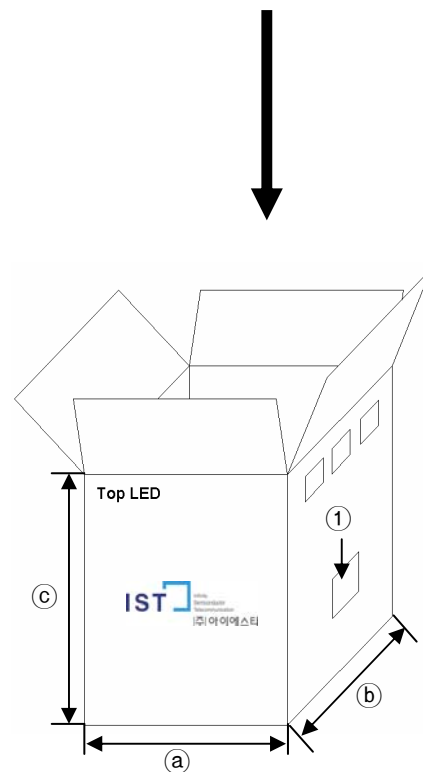
Outer Box Structure

Material : Paper (SW3B(B))

Type	Size(mm)		
	(a)	(b)	(c)
7inch	220	160	260

① Side

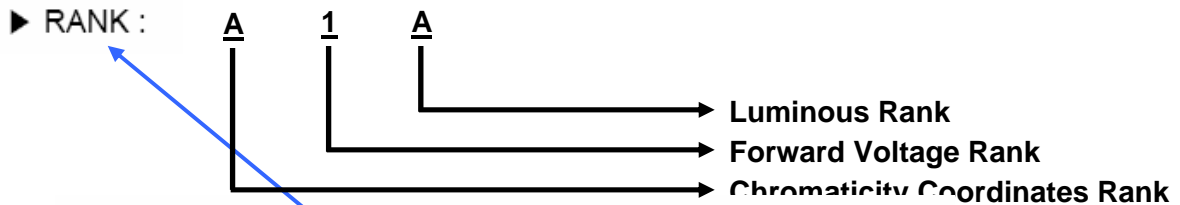
IST		BOX		
Top LED (Yellow)		RANK : A1A		
Lot : XXXXX		P/N : ITP-04352-SG0		
IF = 20mA	Min.	Typ.	Max	
WD(nm)	584	-	589	
VF(volt)	2.0	-	2.2	
IV(mcd)	100	-	150	
Q'TY : 20,000		DATE : 04.18		



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12. Label Structure

Rank & P/N(Product Number) is composed of the following characters:



Top LED (Yellow)

Lot : XXXXX

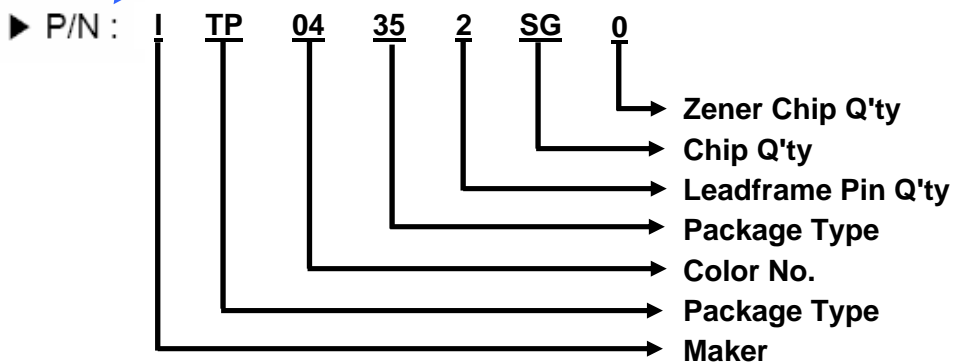
RANK : A1A

P/N : ITP-04352-SG0

IF = 20mA	Min.	Typ.	Max
WD(nm)	584	-	589
VF(volt)	2.0	-	2.2
IV(mcd)	100	-	150

Q'TY : 2,000

DATE : 04.18



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13. Precaution For Use

1. This device should not be used in any type of fluid such as water, oil, organic solvent, etc.
When washing is required, IPA should be used.
2. When the LEDs are illuminating, operating current should be decided after considering the ambient maximum temperature.
3. LEDs must be stored to maintain a clean atmosphere.
If the LEDs are stored for 3months or more after being shipped from IST, a sealed container with a nitrogen atmosphere should be used for storage.
4. The LEDs must be used within seven days after opening the moisture proof packing. Repack unused products with anti-moisture packing, fold to close any opening and then store in a dry place.
5. The appearance and specifications of the product may be modified for improvement without notice.
6. This LEDs is sensitive to the static electricity and surge. It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs.
If over voltage which exceeds the absolute maximum rating is applied to LEDs, it will cause damage LEDs and result in destruction.
Damaged LEDs will show some unusual characteristics such as leak current remarkably increase, turn-on voltage becomes lower and the LEDs get unlighted at low current.