

Technical Data Sheet

1.9mm Round Subminiature Lead LEDs

95-21 SUBC/S400-XX/XXX

Features

- Package in 12mm tape on 7" diameter reels.
- Compatible with automatic placement equipment.
- EIA Std. package.
- Mono-color type.

Descriptions

- The 95-21 SMD taping is much smaller than leaded components .Thus enable smaller board size. Higher packing density. Reduced storage space and finally smaller equipment to be obtained.
- Besides , light weight makes them ideal for miniature applications.
- Further more by automation assembly machines the accuracy is anticipated.

Applications

- Small indicator for indoor applications.
- Flat backlight for LCD, switches and symbols.
- Indicator and backlight in office equipment.
- Indicator and backlight for battery driven equipment.
- Indicator and backlight for audio and video equipment.
- Automotive : backlighting in dashboards and switches.
- Telecommunication : indicator and backlighting in telephone and fax.

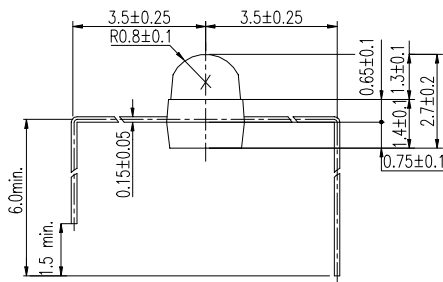
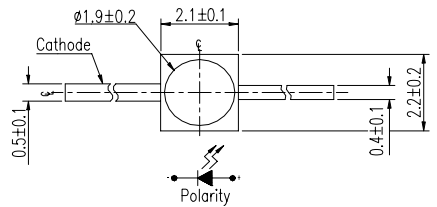


Device Selection Guide

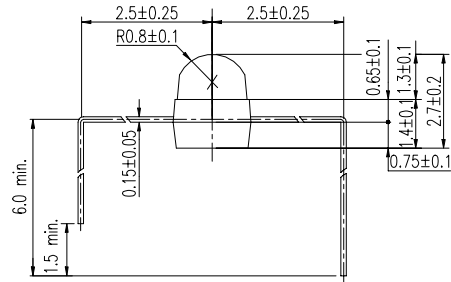
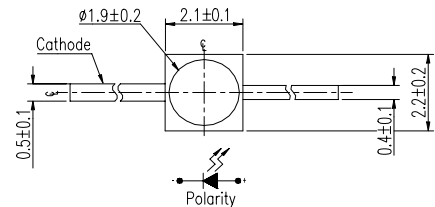
Chip		Lens Color
Material	Emitted Color	
InGaN	Super Blue	Water Clear

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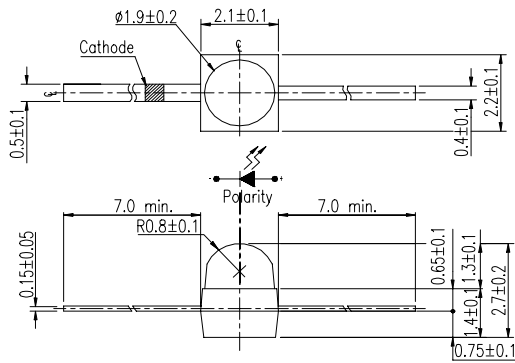
Package Outline Dimensions



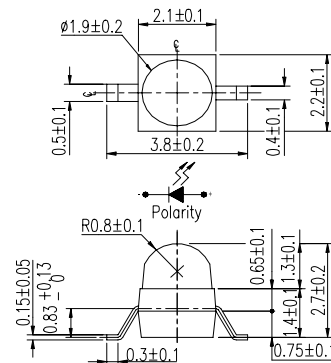
95-21/F1



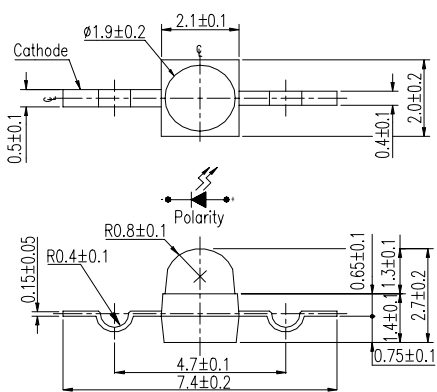
95-21/F2



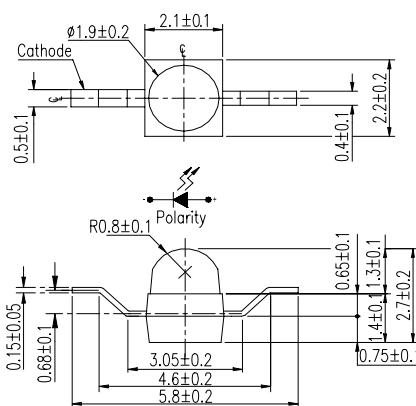
95-21



95-21F7/TR7



95-21F9/TR9



95-21F10/TR10

Note: Unit=mm

Absolute Maximum Ratings (Ta=25°C)

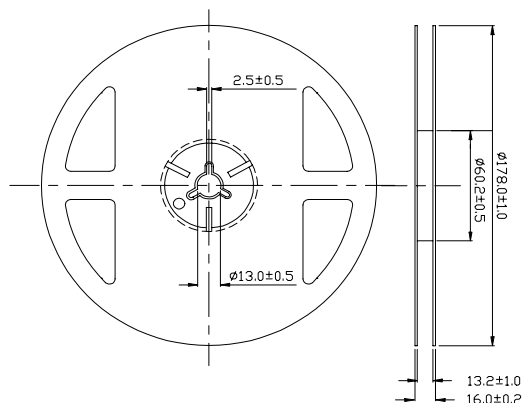
Parameter	Symbol	Rating	Unit
Reverse Voltage	V _R	5	V
Forward Current	I _F	25	mA
Operating Temperature	T _{opr}	-40 ~ +85	°C
Storage Temperature	T _{stg}	-40 ~ +100	°C
Soldering Temperature	T _{sol}	260 for 5 seconds	°C
Electrostatic Discharge	ESD	150	V
Power Dissipation	P _d	110	mW
Peak Forward Current(Duty 1/10 @ 1KHz)	I _F	100	mA

Electro-Optical Characteristics (Ta=25°C)

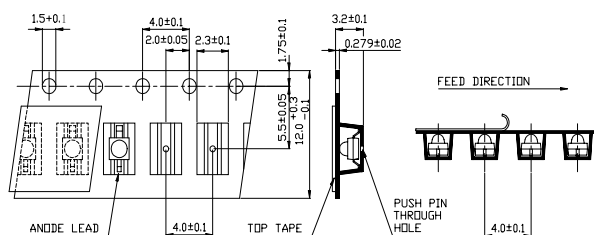
Parameter	Symbol	Chip Rank	MIN.	TYP.	MAX.	Unit	Condition
Luminous Intensity	I _v	A3	----	24	----	mcd	I _F =2mA
			320	400	----		I _F =20mA
		A4	----	30	----		I _F =2mA
			400	500	----		I _F =20mA
		A5	----	38	----		I _F =2mA
			500	630	----		I _F =20mA
Viewing Angle	2θ 1/2	----	----	25	----	deg	I _F =20mA
Peak Wavelength	λ _p	----	----	468	----	nm	
Dominant Wavelength	λ _d	----	----	470	----	nm	
Spectrum Radiation Bandwidth	△λ	----	----	35	----	nm	
Forward Voltage	V _F	----		3.5	4.3	V	
Reverse Current	I _R	----	----	----	50	μA	V _R =5V

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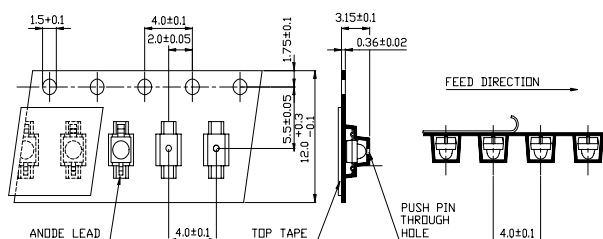
Reel & Carrier Tape Dimensions



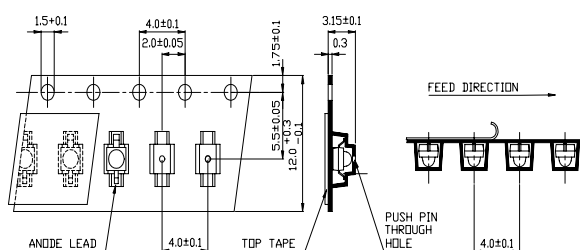
Loaded quantity per reel 1000 PCS/reel



TR7



TR9



TR10

Material Descriptions

95-21 SUBC / XXX / XXX

1 2 3 4

1. production part no.: 95-21

2. chip part no. & epoxy color

InGaN = SUB...

C = water clear

3. chip size & chip rank:

chip size: S400 (12mil)

chip rank: A3~A5

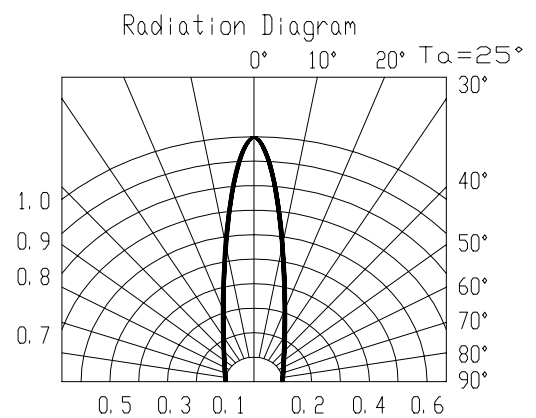
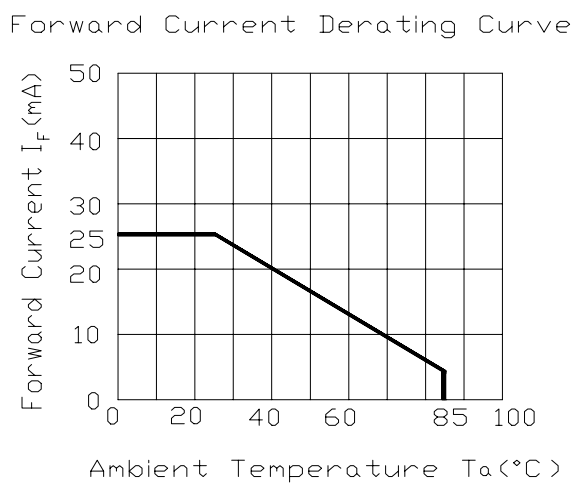
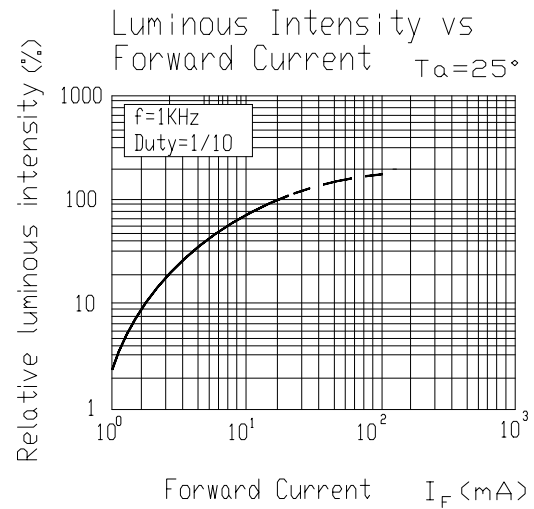
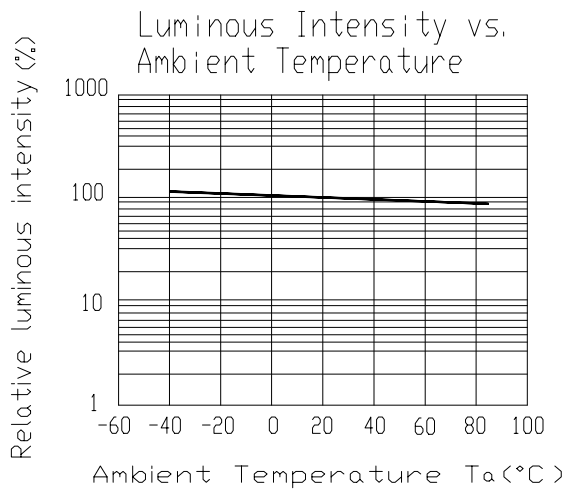
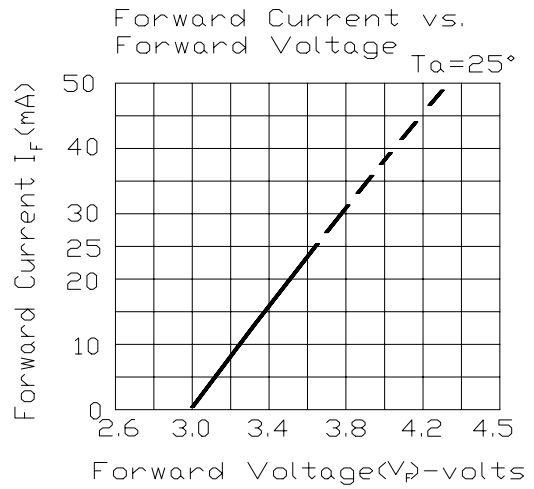
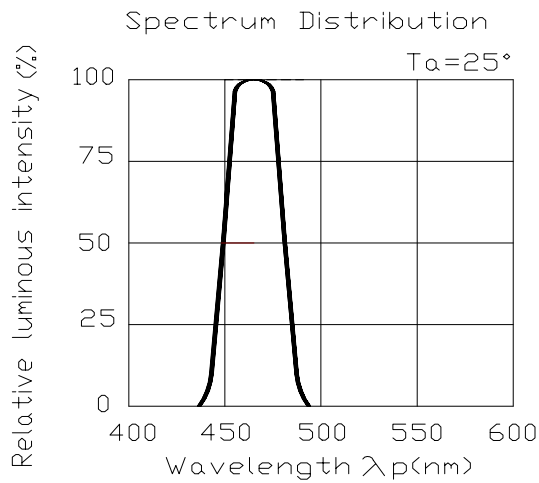
4. packing method:

(1) NONE, F1, F2, F7, F9, F10 : Bulk

(2) TR7, TR9, TR10 : Taping

95-21 SUBC/S400-XX/XXX

Typical Electro-Optical Characteristics Curves



95-21 SUBC/S400-XX/XXX**Reliability Test Items And Conditions**

The reliability of products shall be satisfied with items listed below.

Confidence level : 90 %

LTPD : 10 %

No.	Items	Test Condition	Test Hours/Cycles	Sample Size	Ac/Rc
1	Reflow	Temp. : 240°C ± 5°C Min. 5 sec.	5 Sec.	22 Pcs.	0/1
2	Temperature Cycle	H : +100°C 15 min. ∫ 5 min. L : -40°C 15 min.	300 Cycles	22 Pcs.	0/1
3	Thermal Shock	H : +100°C 5 min. ∫ 10 sec. L : -10°C 5 min.	300 Cycles	22 Pcs.	0/1
4	High Temperature Storage	Temp. : 100°C	1000 Hrs.	22 Pcs.	0/1
5	Low Temperature Storage	Temp. : -55°C	1000 Hrs.	22 Pcs.	0/1
6	DC Operating Life	I _F = 20 mA	1000 Hrs.	22 Pcs.	0/1
7	High Temperature / High Humidity	85°C /RH 85%	1000 Hrs.	22 Pcs.	0/1

Precautions For Use**1. Over-current-proof**

Customer must apply resistors for protection , otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage time

2.1 The operation of Temperature and RH are : $5^{\circ}\text{C}\sim 35^{\circ}\text{C}$, RH60%.

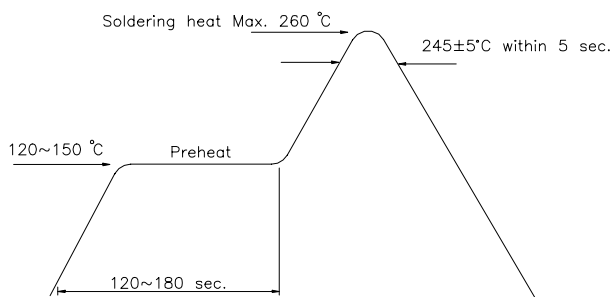
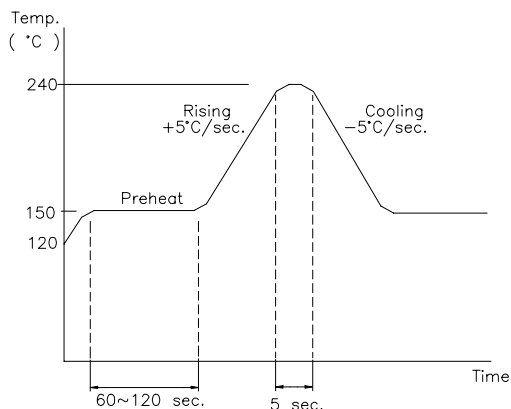
2.2 Once the package is opened, the products should be used within a week.

Otherwise, they should be kept in a damp proof box with descanting agent.

Considering the tape life , we suggest our customers to use our products within a year(from production date).

2.3 If opened more than one week in an atmosphere $5^{\circ}\text{C}\sim 35^{\circ}\text{C}$, RH 60%, they should be treated at $60^{\circ}\text{C}\pm 5^{\circ}\text{C}$ for 15hrs.

2.4 When you discover that the desiccant in the package has a pink color (Normal = blue) , you should treat them in the same conditions as 2.3.

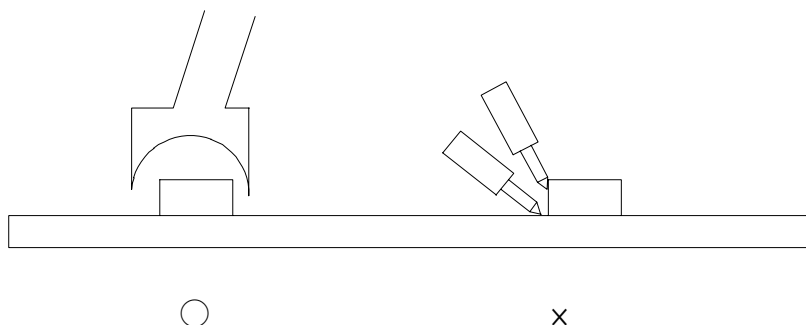
Soldering heat**Reflow Temp / Time**

95-21 SUBC/S400-XX/XXX**Soldering Iron**

Basic spec is ≤ 5 sec when 260°C . If temperature is higher, time should be shorter ($+10^{\circ}\text{C} \rightarrow -1\text{sec}$). Power dissipation of Iron should be smaller than 15 W, and temperature should be controllable. Surface temperature of the device should be under 230°C .

Rework

1. Customer must finish rework within 5 sec under 245°C .
2. The head of iron can not touch copper foil.
3. Twin-head type is preferred.

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