



Technical Data Sheet

1.3 mm Height Subminiature , Axial Flat Top LEDs

28-21 / 03 / XXX

Features

- EIA Std. package.
- Compatible with the automatic placement.
- Compatible in the stable of voltage.



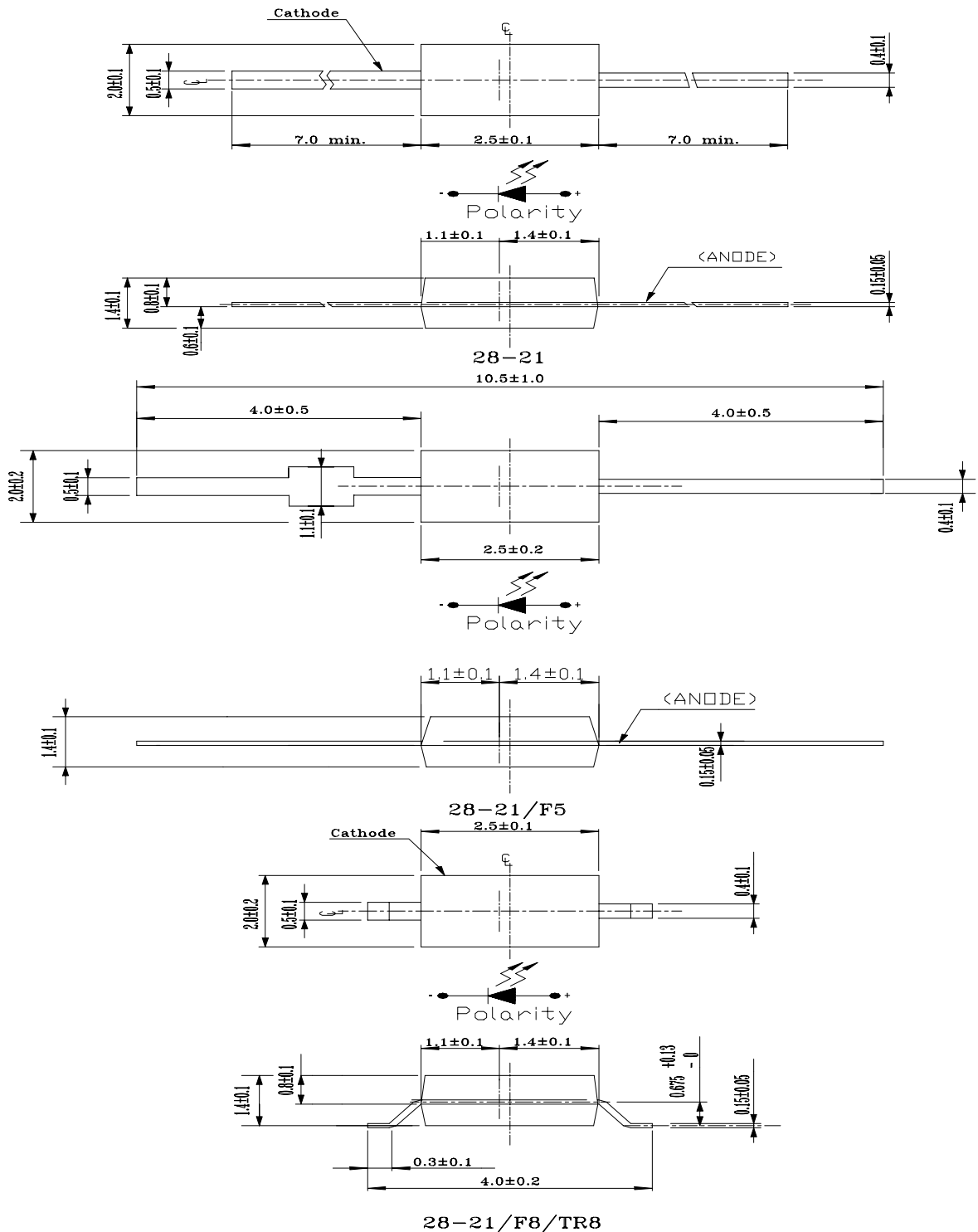
Descriptions

- The 28-21 SMD taping is much smaller than lead fame . type components. Thus enable smaller board size.
- Higher packing density. Reduced storage space and finally smaller equipment to be obtained.
- Furthermore by automation assembly machines the accuracy is anticipated.
- Light weight makes them ideals for miniature application.

Application

- Audio and video equipment , circuit board stable of the voltage.
- Automotive : circuit board stable of voltage.
- Note book computer and desk computer stable of voltage in the main board.

Package Dimensions



Unit:mm

Absolute Maximum Ratings (Ta=25°C)

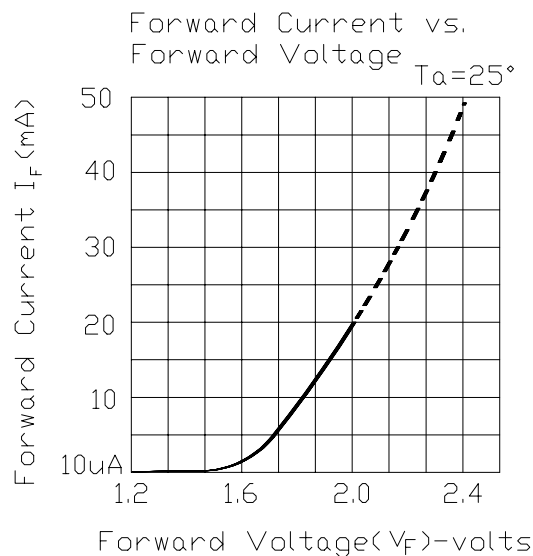
Parameter	Symbol	Rating	Unit
Reverse Voltage	V _R	5	V
Forward Current	I _F	10	uA
Operating Temperature	Topr	-40 ~ +85	°C
Storage Temperature	Tstg	-40 ~ +100	°C
Soldering Temperature	Tsol	260(for 5 seconds)	°C

Electro-Optical Characteristics (Ta=25°C)

Parameter	Part No.	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Voltage	28-21/03	V _F	1.48	----	1.62	V	I _F =10μA
Reverse Current	----	I _R	----	----	10	μA	V _R =5V

* V_F Tolerances ± 0.05 V.

Typical Electro-Optical Characteristics Curves



28-21 / 03 / XXX

Material Descriptions

28-21 03 / XXX

1 2 3

1.production part no.:28-21

2.chip part no.& epoxy color

chip part no. =03.

Eopxy Color = Black

3.packing method:

(1) NONE,F5,F8 : Bulk

(2) TR8 : Taping

Label explanation

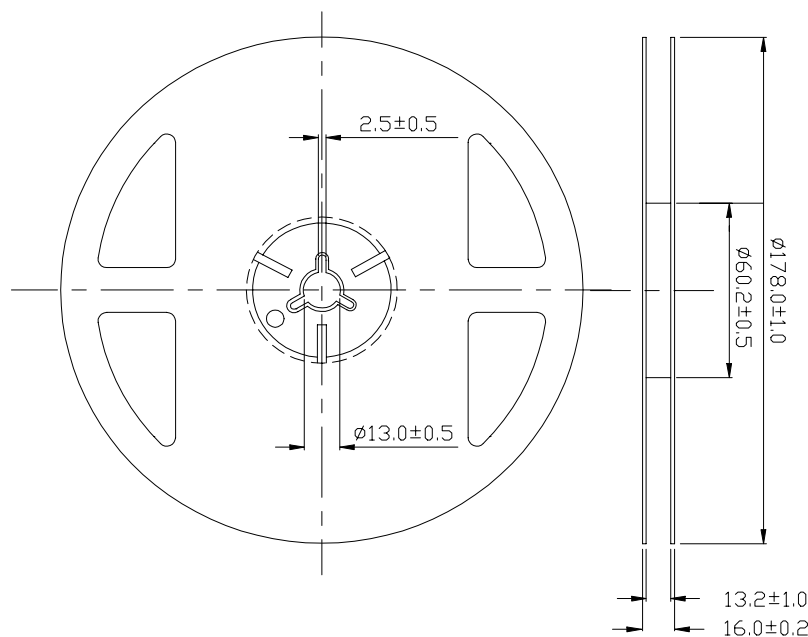
CAT: Luminous Intensity (mcd)

HUE: Dom. Wavelength (nm)

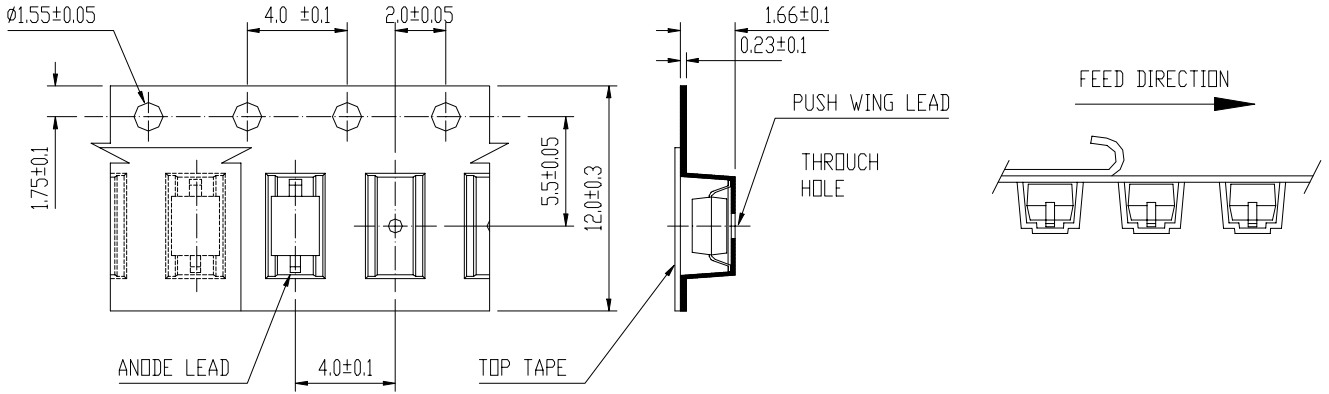
REF: Forward Voltage (V)



Reel & Carrier Tape Dimensions



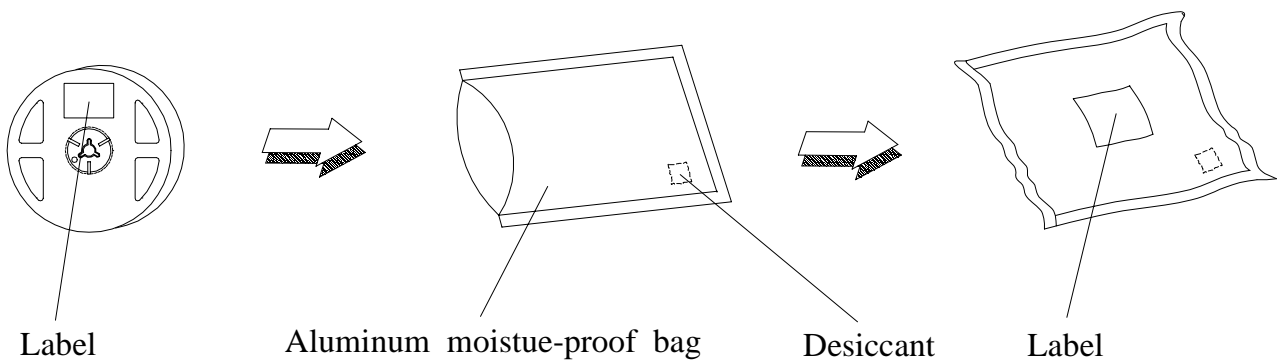
Loaded quantity per reel 2000 PCS/reel



TR8

Unit :mm

Moisture Resistant Packaging



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	IF = 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

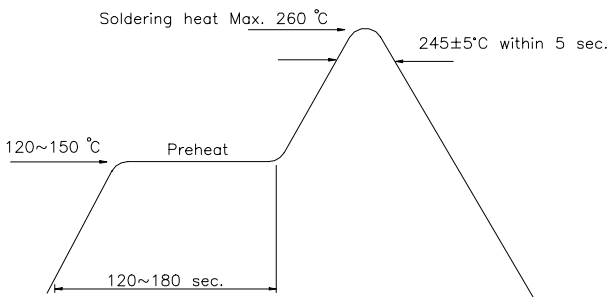
2.1 The operation of Temperature and RH are : 5°C~35°C , RH60%.

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

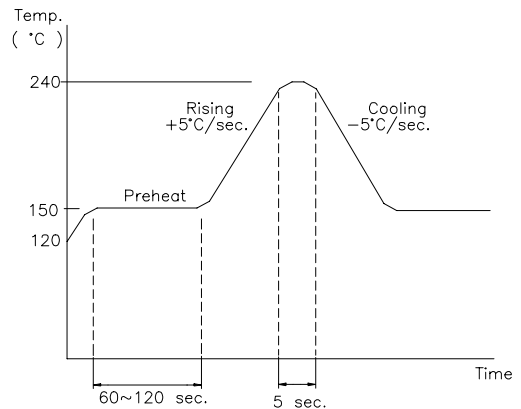
2.3 If opened more than one week in an atmosphere 5°C~35°C , RH 60%, they should be treated at 60°C± 5°C for 15hrs.

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 reliability (DIP)



Reflow Temp / Time

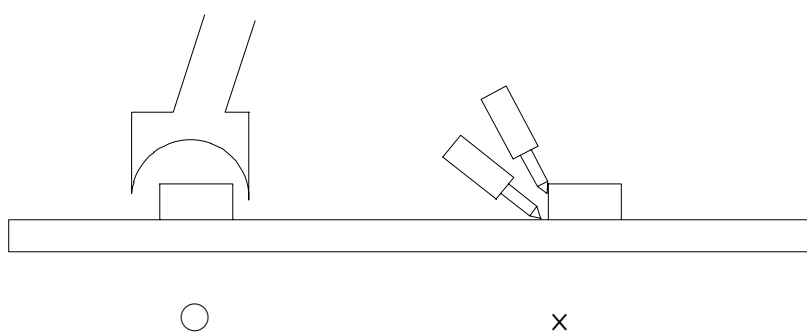


Soldering Iron

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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