

- 1. CONSTRUCTION                      AlGaInP on GaAs; Red surface mount LEDs with reflector, packaged with colorless epoxy.
- 2. USAGE                                Source of light for display unit.
- 3. DIMENSIONS                        See Figure.1
- 4. ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Power Dissipation	P D	.....	175mW
Forward Current	I F	.....	70mA
Reverse Voltage	V R	.....	12V
Operating Temperature	Topr	.....	-40°C~+100°C
Storage Temperature	Tstg	.....	-40°C~+100°C

5. ELECTRO-OPTICAL CHARACTERISTICS (Ta=25°C)

DISCRIPTION	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNITS
Forward Voltage	VF	IF=50mA*1	—	2.2	2.7	V
Reverse Current	IR	VR=12V	—	—	100	μ A
Luminous Intensity	IV	IF=50mA*1	140	280	—	mcd
Dominant Wave Length	λ D	IF=50mA*1	—	630	—	nm

\*1 Pulse width :30msec.

6. LUMINOUS CLASSIFICATION (Ta=25°C, IF=50mA)

SYMBOL	LUMINOUS CLASSIFICATION RANGE
"A U"	1 4 0 ~ 1 8 0 m c d
"A V"	1 8 0 ~ 2 2 4 m c d
"A W"	2 2 4 ~ 2 8 0 m c d
"A X"	2 8 0 ~ 3 5 5 m c d
"A Y"	3 5 5 ~ 4 5 0 m c d
"A Z"	4 5 0 ~ ( 5 6 0 ) m c d

\*Luminous classification / range may be changed with prior notification.  
 \*\*Measurement tolerance : ±10%, ( ) : reference value

7. WEIGHT OF PRODUCT : Approx. 0.032g per piece

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Power Dissipation	P D	175mW
Forward Current	I F	70mA
Reverse Voltage	V R	12V
Operating Temperature	Topr	-40°C~+100°C
Storage Temperature	Tstg	-40°C~+100°C

## 8. ELECTRO-OPTICAL CHARACTERISTICS (Ta=25°C)

DISCRIPTION	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNITS
Forward Voltage	VF	IF=50mA*1	—	2.2	2.7	V
Reverse Current	IR	VR=12V	—	—	100	μA
Luminous Intensity	IV	IF=50mA*1	355	710	—	mcd
Dominant Wave Length	λ D	IF=50mA*1	—	620	—	nm

\*1 Pulse width :30msec.

## 9. LUMINOUS CLASSIFICATION (Ta=25°C, IF=50mA)

SYMBOL	LUMINOUS CLASSIFICATION RANGE
"A Y"	355 ~ 450 mcd
"A Z"	450 ~ 560 mcd
"B A"	560 ~ 710 mcd
"B B"	710 ~ 900 mcd
"B C"	900 ~ 1120 mcd
"B D"	1120 ~ (1400) mcd

\*Luminous classification / range may be changed with prior notification.

\*\*Measurement tolerance : ±10%, ( ) : reference value

7. WEIGHT OF PRODUCT : Approx. 0.032g per piece

- 1. CONSTRUCTION                      AlGaInP on GaAs; Orange surface mount LEDs with reflector, packaged with colorless epoxy
- 2. USAGE                                Source of light for display unit.
- 3. DIMENSIONS                        See Figure.1
- 4. ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Power Dissipation	P D	175mW
Forward Current	I F	70mA
Reverse Voltage	V R	12V
Operating Temperature	Topr	-40°C~+100°C
Storage Temperature	Tstg	-40°C~+100°C

5. ELECTRO-OPTICAL CHARACTERISTICS (Ta=25°C)

DISCRIPTION	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNITS
Forward Voltage	VF	IF=50mA*1	—	2.2	2.7	V
Reverse Current	IR	VR=12V	—	—	100	μA
Luminous Intensity	IV	IF=50mA*1	355	710	—	mcd
Dominant Wave Length	λ D	IF=50mA*1	—	605	—	nm

\*1 Pulse width :30msec.

6. LUMINOUS CLASSIFICATION (Ta=25°C, IF=50mA)

SYMBOL	LUMINOUS CLASSIFICATION RANGE
"AY"	355 ~ 450 mcd
"AZ"	450 ~ 560 mcd
"BA"	560 ~ 710 mcd
"BB"	710 ~ 900 mcd
"BC"	900 ~ 1120 mcd
"BD"	1120 ~ (1400) mcd

\*Luminous classification / range may be changed with prior notification.  
 \*\*Measurement tolerance : ±10%, ( ) : reference value

7. WEIGHT OF PRODUCT : Approx. 0.032g per piece

- 1. CONSTRUCTION                      AlGaInP on GaAs; Yellow surface mount LEDs with reflector, packaged with colorless epoxy
- 2. USAGE                                Source of light for display unit.
- 3. DIMENSIONS                        See Figure.1

10. ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Power Dissipation	P D	.....	175mW
Forward Current	I F	.....	70mA
Reverse Voltage	V R	.....	12V
Operating Temperature	Topr	.....	-40°C~+100°C
Storage Temperature	Tstg	.....	-40°C~+100°C

11. ELECTRO-OPTICAL CHARACTERISTICS (Ta=25°C)

DISCRIPTION	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNITS
Forward Voltage	VF	IF=50mA*1	—	2.2	2.7	V
Reverse Current	IR	VR=12V	—	—	100	μA
Luminous Intensity	IV	IF=50mA*1	355	710	—	mcd
Dominant Wave Length	λ D	IF=50mA*1	—	590	—	nm

\*1 Pulse width :30msec.

12. LUMINOUS CLASSIFICATION (Ta=25°C, IF=50mA)

SYMBOL	LUMINOUS CLASSIFICATION RANGE
"A Y"	355 ~ 450 mcd
"A Z"	450 ~ 560 mcd
"B A"	560 ~ 710 mcd
"B B"	710 ~ 900 mcd
"B C"	900 ~ 1120 mcd
"B D"	1120 ~ (1400) mcd

\*Luminous classification / range may be changed with prior notification.

\*\*Measurement tolerance : ±10%, ( ) : reference value

- 7. WEIGHT OF PRODUCT : Approx. 0.032g per piece

- 1. CONSTRUCTION                      AlGaInP on GaAs; Yellowish-Green surface mount LEDs with reflector, packaged with colorless epoxy.
- 2. USAGE                                Source of light for display unit.
- 3. DIMENSIONS                        See Figure.1
- 4. ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Power Dissipation	P D	175mW
Forward Current	I F	70mA
Reverse Voltage	V R	12V
Operating Temperature	Topr	-40°C~+100°C
Storage Temperature	Tstg	-40°C~+100°C

( Note 1: Duty 1/10, 1kHz )

5. ELECTRO-OPTICAL CHARACTERISTICS ( Ta=25°C)

DISCRIPTION	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNITS
Forward Voltage	VF	IF=50mA*1	—	2.2	2.7	V
Reverse Current	IR	VR=12V	—	—	100	μA
Luminous Intensity	IV	IF=50mA*1	112	280	—	mcd
Dominant Wave Length	λ D	IF=50mA*1	—	572	—	nm

\*1 Pulse width :30msec.

6. LUMINOUS CLASSIFICATION (Ta=25°C, IF=50mA)

SYMBOL	LUMINOUS CLASSIFICATION RANGE
"A T"	1 1 2 ~ 1 4 0 m c d
"A U"	1 4 0 ~ 1 8 0 m c d
"A V"	1 8 0 ~ 2 2 4 m c d
"A W"	2 2 4 ~ 2 8 0 m c d
"A X"	2 8 0 ~ 3 5 5 m c d
"A Y"	3 5 5 ~ ( 4 5 0 ) m c d

\*Luminous classification / range may be changed with prior notification.  
 \*\*Measurement tolerance : ± 10%, ( ) : reference value

7. WEIGHT OF PRODUCT : Approx. 0.032g per piece

1. CONSTRUCTION                    AlGaInP on GaAs; Green surface mount LEDs with reflector, packaged with colorless epoxy.
2. USAGE                            Source of light for display unit.
3. DIMENSIONS                    See Figure.1
4. ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Power Dissipation	P D	175mW
Forward Current	I F	70mA
Reverse Voltage	V R	12V
Operating Temperature	Topr	-40°C~+100°C
Storage Temperature	Tstg	-40°C~+100°C

(Note 1: Duty 1/10, 1kHz)

## 5. ELECTRO-OPTICAL CHARACTERISTICS (Ta=25°C)

DISCRIPTION	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNITS
Forward Voltage	VF	IF=50mA*1	—	2.2	2.7	V
Reverse Current	IR	VR=12V	—	—	100	μA
Luminous Intensity	IV	IF=50mA*1	14	28	—	mcd
Dominant Wave Length	λ D	IF=50mA*1	—	560	—	nm

\*1 Pulse width :30msec.

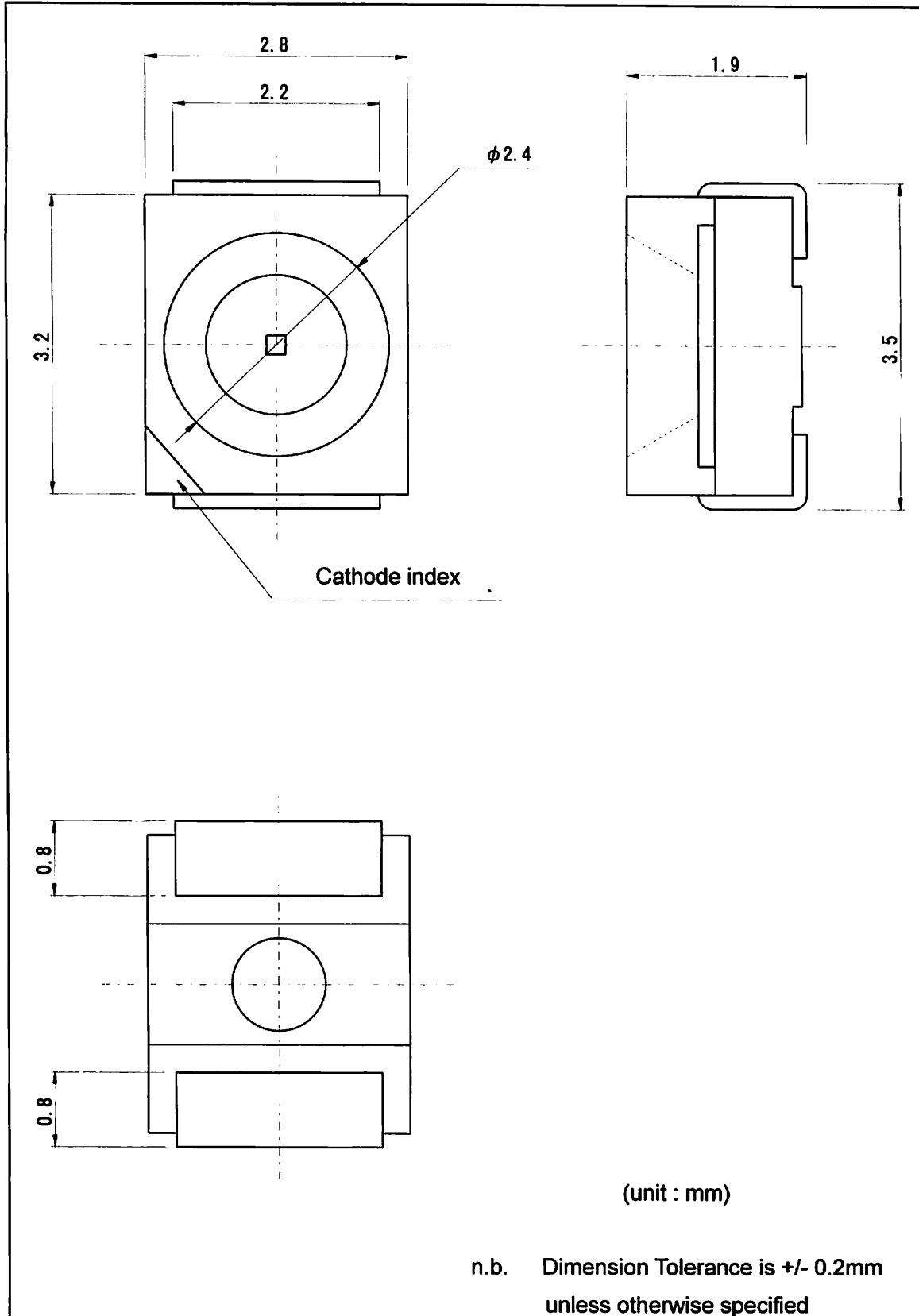
## 6. LUMINOUS CLASSIFICATION (Ta=25°C, IF=50mA)

SYMBOL	LUMINOUS CLASSIFICATION RANGE
"A J"	14.0 ~ 18.0 mcd
"A K"	18.0 ~ 22.4 mcd
"A L"	22.4 ~ 28.0 mcd
"A M"	28.0 ~ 35.5 mcd
"A N"	35.5 ~ 45.0 mcd
"A P"	45.0 ~ (56.0) mcd

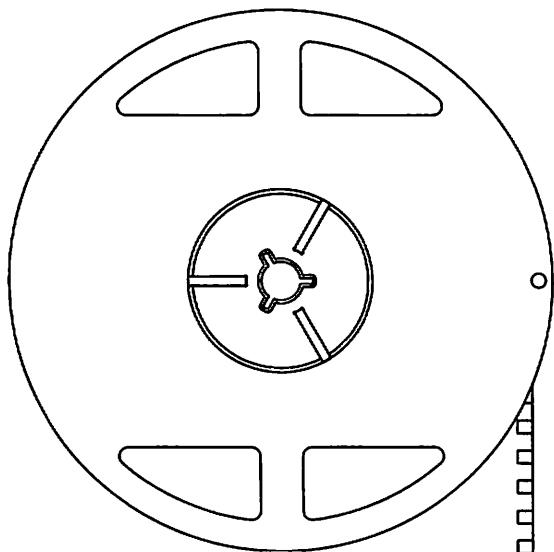
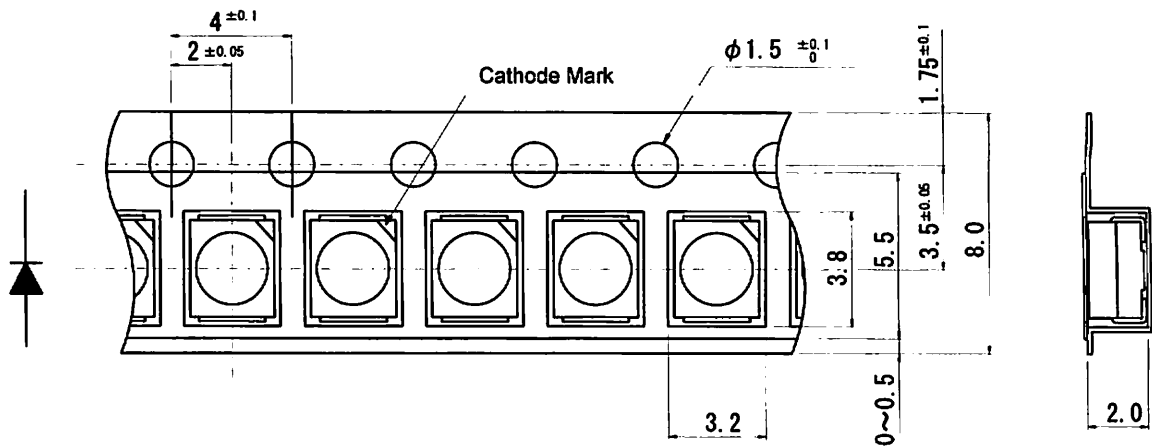
\*Luminous classification / range may be changed with prior notification.

\*\*Measurement tolerance : ±10%, ( ) : reference value

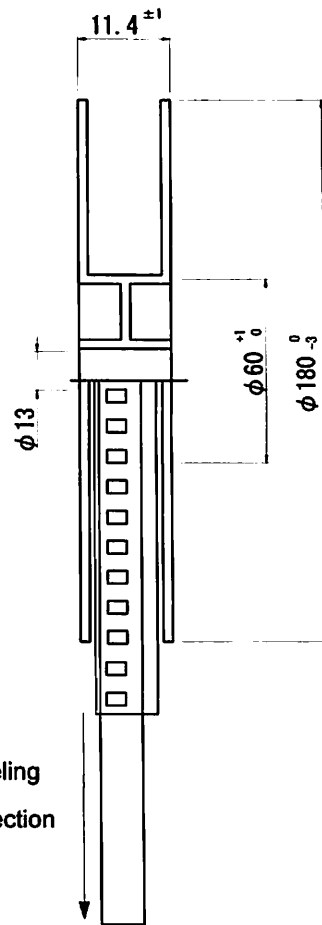
7. WEIGHT OF PRODUCT : Approx. 0.032g per piece

**【Figure-1: OUTER DIMENSIONS】**

**【T86】**



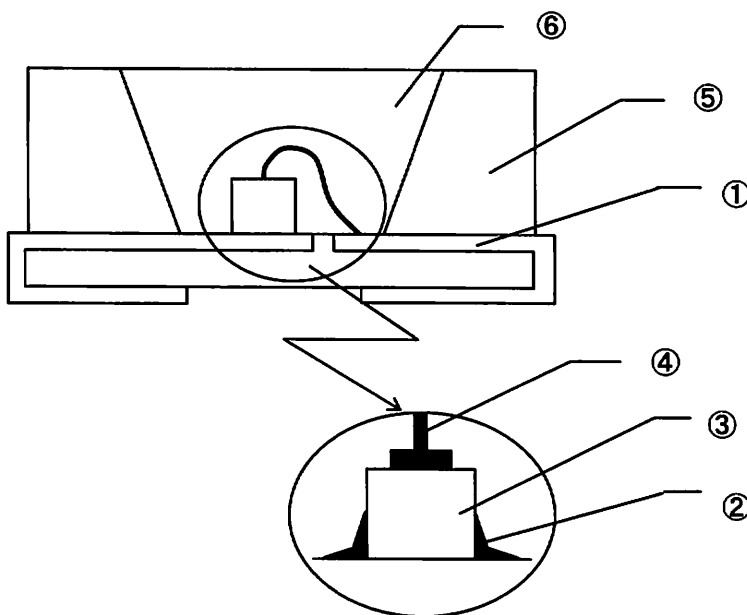
Packaging Q'ty : 2,000pcs./reel



n.b. Dimension tolerance is  $\pm 0.2$ mm unless otherwise specified.



**【STRUCTURE · MATERIAL】**

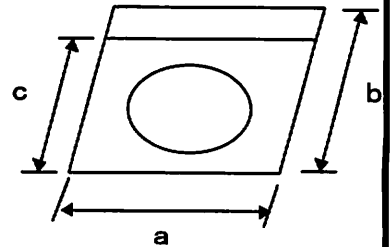


No.	APPELLATION	MATERIAL
1	Lead-frame	Cu, Ag plating
2	Die Bond	Ag Paste
3	LED die	AlGaInP on GaAs
4	Bonding Wire	Gold
5	Reflector	Aromatic polyester
6	Packaging resin	Silicon resin

## 【PACKAGING REQUIREMENTS】

### 1. PACKING

- (1) 2,000pcs are packed in one reel.
- (2) One reel is packed in aluminum bag.  
The size of aluminum bag is 240(a) × 250(b)mm.  
The size up to zipper is 230(c)mm.
- (3) Aluminum bag is sealed by pressured for all directions.



### 2. MARKING

The following information shall be described on a box label:  
ROHM Type number, Packing quantity, Luminous intensity rank,  
Lot number.

#### 【EXAMPLE OF LABEL】

The label contains the following information:

- Type No.:** SML-Z14VTT86
- Luminous Intensity Rank:** Q
- Quantity:** F 5,000 pcs
- Lot No.:** 0703 00012W
- Country of origin:** [Redacted]
- Customers part No. etc.:** [Redacted]
- ROHM Logo:** Excellence in Electronics ROHM
- Pb Free:** Lead-free product logo.
- QR Code:** Located on the right side of the label.

“F” means Pb-free, Quantity, Then Lot No. Displayed.

Note) Indicates bar code expressed by code 39.

indicates Pb-free Products.

#### 【EXAMPLE OF LOT NO. MARKING】

07 03 00012 W

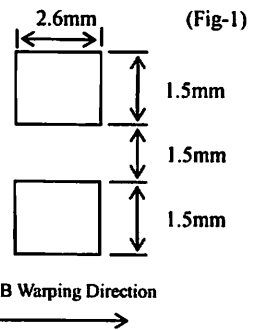
- 07:** Production year
- 03:** Production week
- 00012:** Serial number of lot
- W:** Production facility sign (Reference : Factory list)

## 【CAUTIONS IN HANDLING】

This product was developed as a surface mount LED especially suitable for reflow soldering. Please take care of following points when using this device.

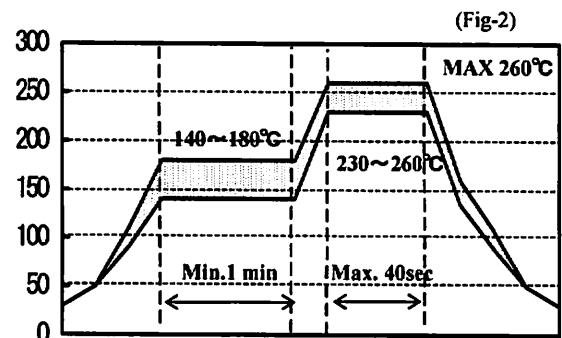
### 1. DESIGNING OF PCB

As for a recommendable solder pattern, Please refer to Fig-1.  
The size and direction of the pad pattern depend on the condition of the PCB, so, please investigate about the adjustment thoroughly before designing.



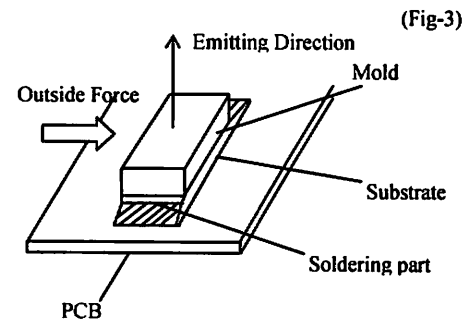
### 2. SOLDERING ( Sn-Cu, Sn-Ag-Cu, Sn-Ag-Bi-Cu )

LED products do not contain reinforcement materials such as glass fillers. Therefore, thermal stress by soldering greatly influences its reliability. The temperature conditions for reflow soldering should therefore be set up according to the characteristic of this product. (See Fig-2)  
Number of reflow process shall be max 2 times and these processes shall be performed in a row. Cooling process to normal temperature shall be required between the first and the second soldering process.



### 3. HANDLING AFTER MOUNTING (Fig.-3)

As shown in the drawing on the right, in case outside force of about 700g is given to the device, stress is concentrated to the jointed part between mold resin and substrate. Therefore there is a possibility to break the device or PCB. Careful handling is needed as ROHM cannot guarantee the falling of the device by outside force after mounting.



### 4. WASHING

Please note the following points when washing is required after soldering.

#### 4-1) WASHING SOLVENT

Isopropyl alcohol or other alcohol solvent is recommendable.

#### 4-2) TEMPERATURE

Below 30°C, immersion time ; within 3 minutes.

#### 4-3) ULTRA SONIC WASHING

Below 15W/1 litter of solvent tub or less.

#### 4-4) COOLING

Below 100°C within 3 minutes.

### 5. STORAGE

At reflow soldering, the reliability of this product is often influenced by moisture absorption; so that we apply the package with moisture proof for better condition for use. Please also note that,

5-1) Package : Not to be opened before using.

5-2) After unpackaging : LEDs to be kept in our moisture proof package with some desiccant (SILICA GEL). LEDs to be baked in case the SILICA GEL indicator loses its blue color.

5-3) Please use LEDs within 168 hours after the package is opened. (Condition at 30°C, max.70%Rh.) In case they are not used within 168 hours, please put them back into the package.

5-4) BAKING (=Moisture Removal)

Please conduct baking under "reel condition" at 60°C, 12~24 hours (max.20%Rh) after unpackaging. Please be careful not to give any stress to the reel & the embossed tape while baking, as they are susceptible to be deformed during the baking.