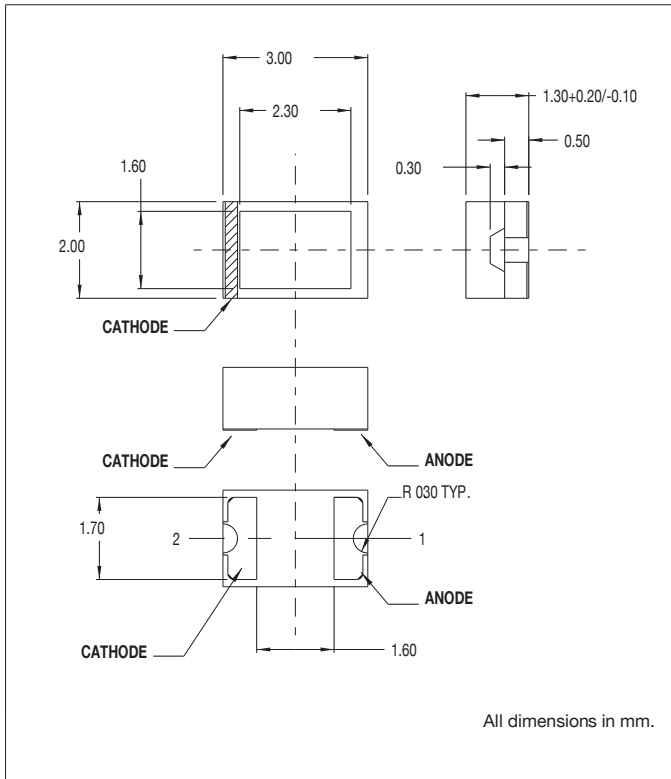


7016X Series SMT LEDs 1208 Package Size



Key features

Surface Mount Technology

- Tape and reel packaged for high-speed autoinsertion.
- Convection and vapor-phase reflow compatible.
- Compact form enables high density placement.
- Packaged 2500 per reel.

Leading Edge LED Optoelectronic Performance

- Consistent high brightness.

Exceptional Reliability

- Stringent process controls assure quality.
- Extensive qualification testing to meet strictest requirements.
- Designed to permit easy post-reflow solder joint inspection.

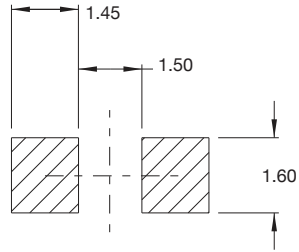
Electro-Optical Characteristics and Ratings

| PART NUMBER | 7016X13 | 7016X1 | 7016X3 | 7016X5 | 7016X11 |
|---|--------------|--------------|--------------|--------------|--------------|
| Output Color | Amber | Red | Yellow | Green | Red |
| Diffusion | Non-Diffused | Non-Diffused | Non-Diffused | Non-Diffused | Non-Diffused |
| Package Color | Clear | Clear | Clear | Clear | Clear |
| Test Current (mA) | 20 | 20 | 20 | 20 | 20 |
| Forward Voltage Typ. (V) | 2.0 | 2.0 | 2.1 | 2.2 | 1.75 |
| Forward Voltage Max. (V) | 2.8 | 2.8 | 2.8 | 2.8 | 2.5 |
| Luminous Intensity Typ. (mcd) | 2.2 | 2.2 | 2.2 | 5.6 | 5.6 |
| Luminous Intensity Max. (mcd) | 6.3 | 6.3 | 6.3 | 16.0 | 16.0 |
| Luminous Intensity Min. (mcd) | 1.7 | 2.2 | 2.1 | 2.2 | 2.1 |
| Peak Wavelength (nm) | 610 | 650 | 585 | 563 | 660 |
| Viewing Angle 2θ 1/2 (degrees) | 110 | 110 | 110 | 110 | 110 |
| Power Dissipation (mW) | 75 | 75 | 75 | 75 | 75 |
| Operating Temperature (°C) | -25 to +80 | -25 to +80 | -25 to +80 | -25 to +80 | -25 to +80 |
| Storage Temperature (°C) | -30 to +85 | -30 to +85 | -30 to +85 | -30 to +85 | -30 to +85 |
| Peak Forward Current Max. (1μs @ 10% duty cycle) (mA) | 75 | 75 | 75 | 75 | 75 |

Dimensions

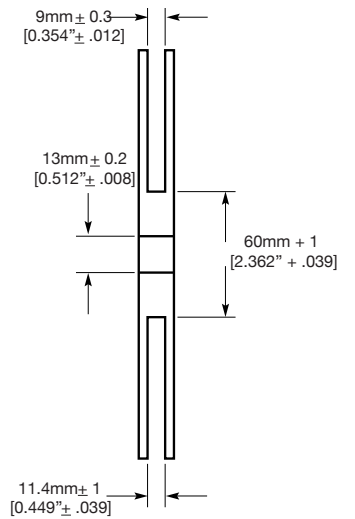
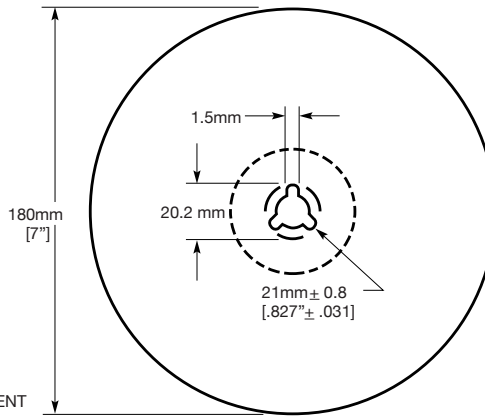
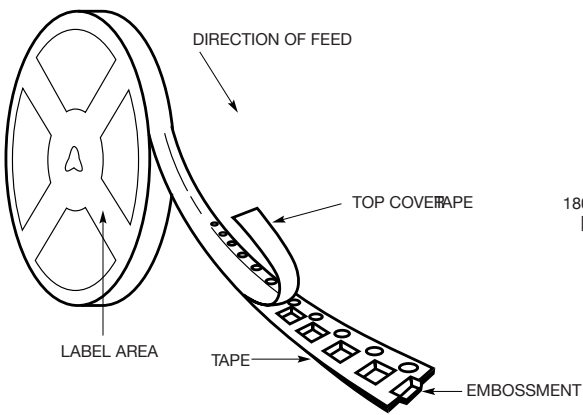
Solder Pad Geometry (Dimensions in mm)

7016X Series



Direction of Feed

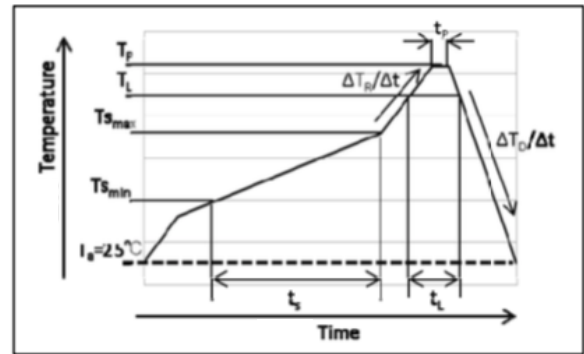
Reel Dimensions



Recommended Reflow Soldering Profile

• Meaning of marks, Conditions

| Mark | Meanings | Conditions |
|-----------------------|--|----------------|
| $T_{S_{max}}$ | Maximum of pre-heating temperature | 180°C |
| $T_{S_{min}}$ | Minimum of pre-heating temperature | 140°C |
| T_s | Time from $T_{S_{min}}$ to $T_{S_{max}}$ | Over 60sec. |
| T_L | Reference temperature | 210~250°C |
| t_L | Retention time for T_L | Within 40sec. |
| T_P | Peak temperature | 250°C(Max) |
| t_p | Time for peak temperature | Within 10sec. |
| $\Delta T_R/\Delta t$ | Temperature rising rate | Under 3°C/sec. |
| $\Delta T_D/\Delta t$ | Temperature decreasing rate | Over -3°C/sec. |



※Above conditions are for reference. Therefore, evaluate by customer's own circuit boards and reflow furnaces before using, because stress from circuit boards and temperature variations of reflow furnaces vary by customer's own conditions.

4-7. Attention Points in Soldering Operation

This product was developed as a surface mount LED especially suitable for reflow soldering. So reflow soldering is recommended. In case of implementing manual soldering, please take care of following points.

①SOLDER USED

Sn-Cu, Sn-Ag-Cu, Sn-Ag-Bi-Cu

②HAND SOLDERING CONDITION

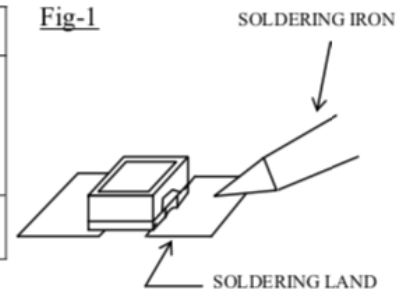
LED products do not contain reinforcement material such as a glass fillers.

So thermal stress by soldering greatly influence its reliability.

Please keep following points for manual soldering.

| | ITEM | RECOMMENDED CONDITION |
|----|--------------------------|---|
| a) | Heating method | Condition) Temp. of iron top less than 400°C within 3 sec. Heating on PCB pattern, not direct to the LED. (Fig-1) |
| b) | Handling after soldering | Please handle after the part temp. Goes down to room temp. |

Fig-1



4-8. Cleaning after Soldering

Please follow the conditions below if the cleaning is necessary after soldering.

| | |
|---------------------|--|
| Solvent | We recommend to use alcohols solvent such as, isopropyl alcohols |
| Temperature | Under 30°C within 3 minutes |
| Ultrasonic Cleaning | 15W / Below 1 liter (capacity of tank) |
| Drying | Under 100°C within 3 minutes |

Compliances and Approvals

