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TAPE AND BOX ROUND TYPE LED LAMPS



Lead-Free Parts

LSR2043-PF/TBS-1

DATA SHEET

DOC. NO : QW0905-LSR2043-PF/TBS-1

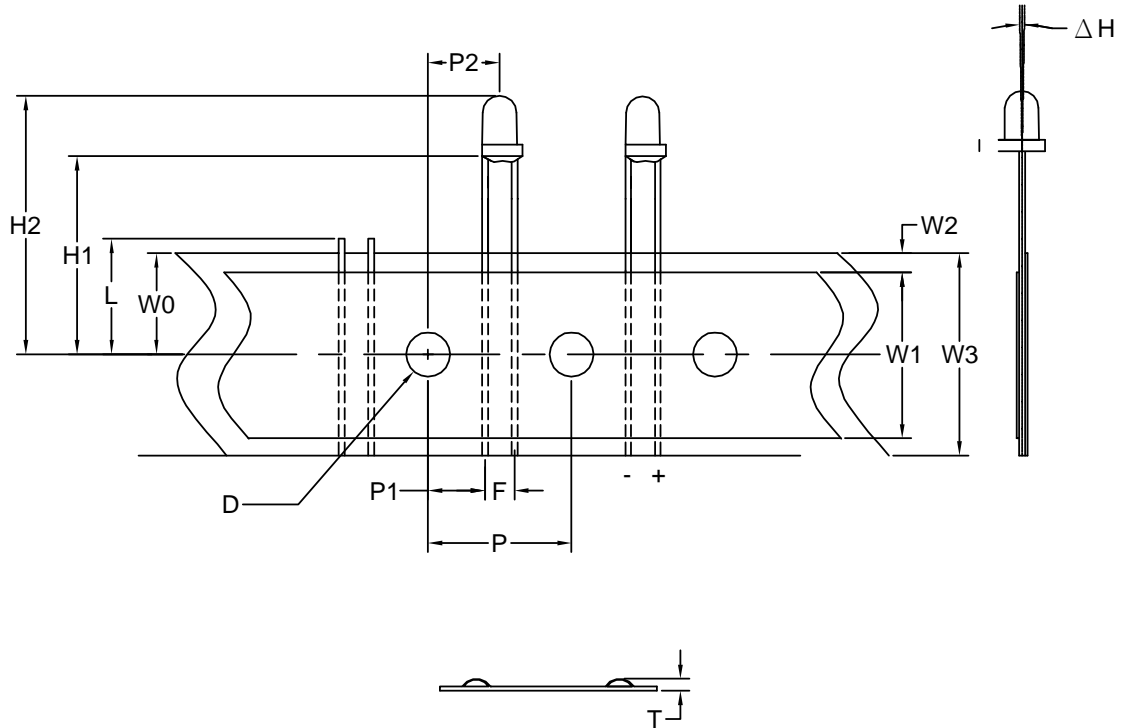
REV. : A

DATE : 29 - Jan. - 2009

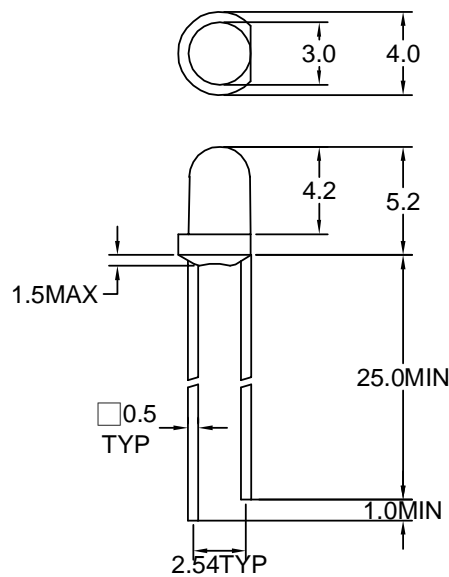




### Package Dimensions



### LSR2043-PF



Note : 1.All dimension are in millimeter tolerance is  $\pm 0.25\text{mm}$  unless otherwise noted.  
2.Specifications are subject to change without notice.



## Absolute Maximum Ratings at Ta=25 °C

| Parameter                               | Symbol | Ratings    | UNIT |
|---|--------|------------|------|
|   |        | SR         |      |
| Forward Current                         | IF     | 30         | mA   |
| Peak Forward Current<br>Duty 1/10@10KHz | IFP    | 100        | mA   |
| Power Dissipation                       | PD     | 100        | mW   |
| Reverse Current @5V                     | Ir     | 10         | μA   |
| Operating Temperature                   | Topr   | -40 ~ +85  | °C   |
| Storage Temperature                     | Tstg   | -40 ~ +100 | °C   |

\* Static Electricity or power surge will damage the LED. Use of a conductive wrist band or anti-electrostatic glove is recommended when handling these LED. All devices, equipment and machinery must be properly grounded.

## Typical Electrical &amp; Optical Characteristics (Ta=25 °C)

| PART NO          | MATERIAL | COLOR   |             | Peak wave length<br>λ Pnm | Spectral halfwidth<br>Δ λ nm | Forward voltage<br>@20mA(V) |      | Luminous intensity<br>@20mA(mcd) |      | Viewing angle<br>2θ 1/2<br>(deg) |
|------------------|----------|---------|-------------|---------------------------|------------------------------|-----------------------------|------|----------------------------------|------|----------------------------------|
|                  |          | Emitted | Lens        |                           |                              | Min.                        | Max. | Min.                             | Typ. |                                  |
| LSR2043-PF/TBS-1 | GaAlAs   | Red     | Water Clear | 660                       | 20                           | 1.5                         | 2.4  | 120                              | 220  | 30                               |

Note : 1.The forward voltage data did not including ±0.1V testing tolerance.  
2. The luminous intensity data did not including ±15% testing tolerance.



• Dimension Symbol Information

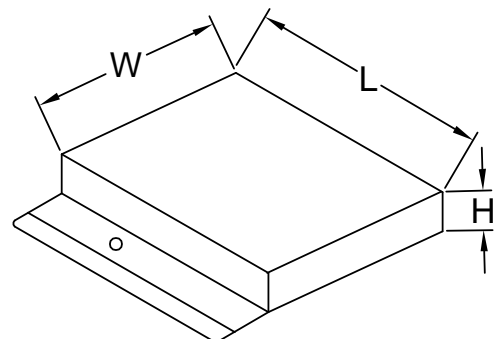
| SYMBOL ITEMS                          | OPTION CODE | SYMBOL | SPECIFICATIONS |       |         |      |
|---------------------------------------|-------------|--------|----------------|-------|---------|------|
|                                       |             |        | Minimum        |       | Maximum |      |
|                                       |             |        | mm             | inch  | mm      | inch |
| Tape Feed Hole Diameter               | -----       | D      | 3.8            | 0.15  | 4.2     | 0.17 |
| Component Lead Pitch                  | -----       | F      | 2.3            | 0.09  | 3.0     | 0.12 |
| Front-To-Rear Deflection              | -----       | △H     | -----          | ----- | 2.0     | 0.08 |
| Feed Hole To Bottom Of Component      | TBS-1       | H1     | 17.5           | 0.69  | 18.5    | 0.73 |
| Feed Hole To Overall Component Height | -----       | H2     | -----          | ----- | 36      | 1.42 |
| Lead Length After Component Height    | -----       | L      | W0             |       | 11      | 0.43 |
| Feed Hole Pitch                       | -----       | P      | 12.4           | 0.49  | 13      | 0.51 |
| Lead Location                         | -----       | P1     | 4.4            | 0.17  | 5.8     | 0.23 |
| Center Of Component Location          | -----       | P2     | 5.1            | 0.2   | 7.7     | 0.3  |
| Overall Taped Package Thickness       | -----       | T      | -----          | ----- | 1.42    | 0.06 |
| Feed Hole Location                    | -----       | W0     | 8.5            | 0.33  | 9.75    | 0.38 |
| Adhesive Tape Width                   | -----       | W1     | 14.5           | 0.57  | 15.5    | 0.61 |
| Adhesive Tape Position                | -----       | W2     | 0              | 0     | 4.0     | 0.16 |
| Tape Width                            | -----       | W3     | 17.5           | 0.69  | 19      | 0.75 |

REMARK:TBS= Tape And Box Straight Leads

• Dimensions Symbol Information

| Description       | Symbol       | Specification |      |         |      |
|-------------------|--------------|---------------|------|---------|------|
|                   |              | minimum       |      | maximum |      |
|                   |              | mm            | inch | mm      | inch |
| Overall Length    | L            | 330           | 13.0 | 340     | 13.4 |
| Overall Width     | W            | 265           | 10.4 | 275     | 10.8 |
| Overall Thickness | H            | 50            | 1.97 | 60      | 2.4  |
| Part No.          | Quantity/Box |               |      |         |      |
| LSR2043-PF/TBS-1  | 2500PCS      |               |      |         |      |

• Package Dimensions





### Typical Electro-Optical Characteristics Curve

SR CHIP

Fig.1 Forward current vs. Forward Voltage

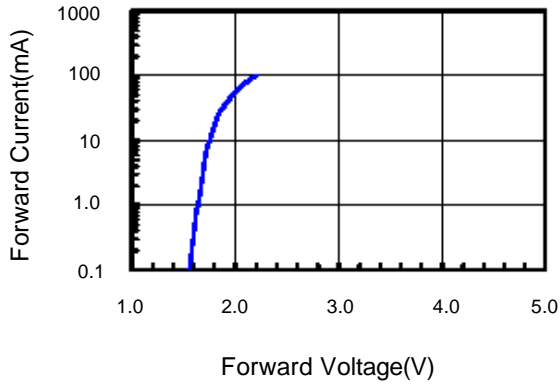


Fig.2 Relative Intensity vs. Forward Current

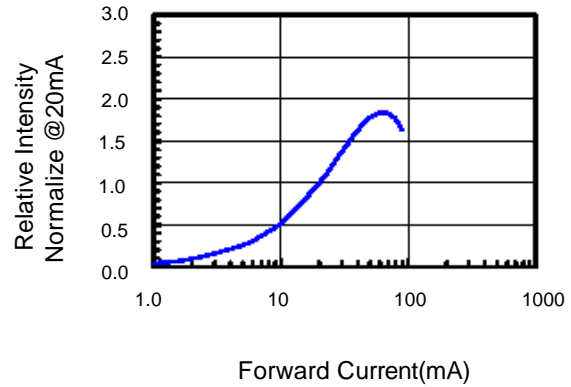


Fig.3 Forward Voltage vs. Temperature

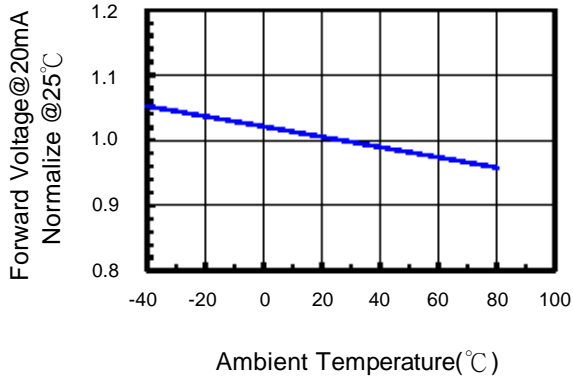


Fig.4 Relative Intensity vs. Temperature

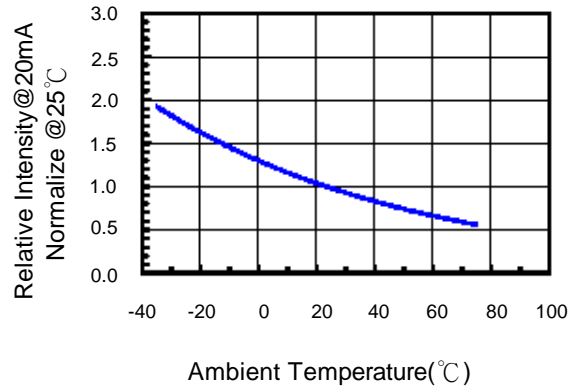


Fig.5 Relative Intensity vs. Wavelength

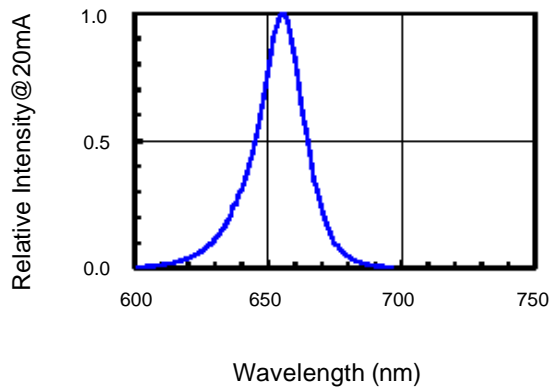
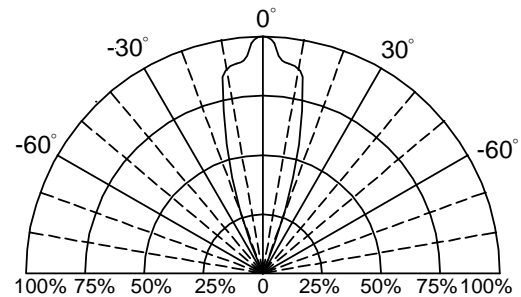


Fig.6 Directivity Radiation





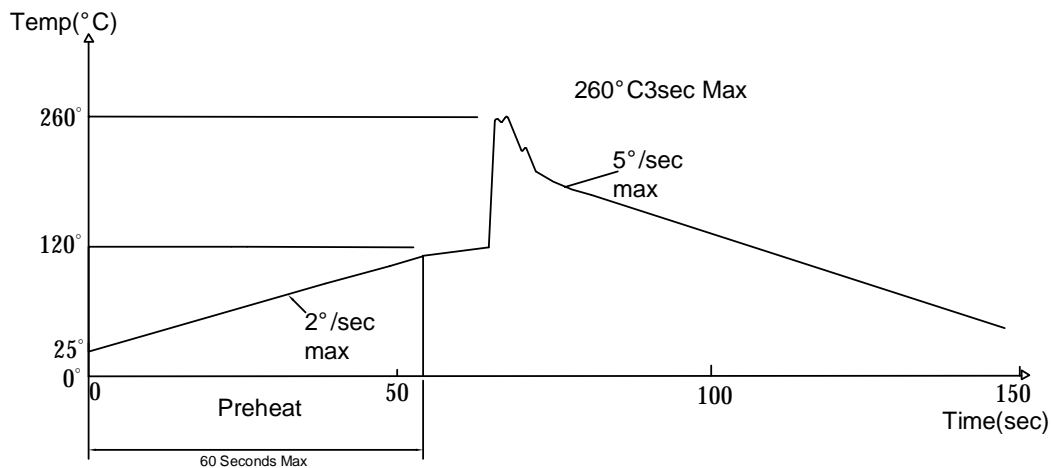
### Soldering Condition(Pb-Free)

#### 1.Iron:

Soldering Iron:30W Max  
Temperature 350° C Max  
Soldering Time:3 Seconds Max(One time only)  
Distance:2mm Min(From solder joint to body)

#### 2.Wave Soldering Profile

Dip Soldering  
Preheat: 120° C Max  
Preheat time: 60seconds Max  
Ramp-up  
2° C/sec(max)  
Ramp-Down:-5° C/sec(max)  
Solder Bath:260° C Max  
Dipping Time:3 seconds Max  
Distance:2mm Min(From solder joint to body)



Note: 1.Wave solder should not be made more than one time.  
2.You can just only select one of the soldering conditions as above.

**Reliability Test:**

| Test Item                           | Test Condition   | Description   | Reference Standard   |
|-------------------------------------|--|---|--|
| Operating Life Test                 | 1.Under Room Temperature<br>2.If=20mA<br>3.t=1000 hrs (-24hrs, +72hrs) | This test is conducted for the purpose of determining the resistance of a part in electrical and thermal stressed.  | MIL-STD-750: 1026<br>MIL-STD-883: 1005<br>JIS C 7021: B-1                      |
| High Temperature Storage Test       | 1.Ta=105 °C±5°C<br>2.t=1000 hrs (-24hrs, +72hrs)                       | The purpose of this is the resistance of the device which is laid under condition of high temperature for hours.  | MIL-STD-883:1008<br>JIS C 7021: B-10   |
| Low Temperature Storage Test        | 1.Ta=-40 °C±5°C<br>2.t=1000 hrs (-24hrs, +72hrs)                       | The purpose of this is the resistance of the device which is laid under condition of low temperature for hours.   | JIS C 7021: B-12   |
| High Temperature High Humidity Test | 1.Ta=65 °C±5°C<br>2.RH=90 %-95%<br>3.t=240hrs ±2hrs                    | The purpose of this test is the resistance of the device under tropical for hours.  | MIL-STD-202:103B<br>JIS C 7021: B-11   |
| Thermal Shock Test                  | 1.Ta=105 °C±5°C & -40 °C±5°C (10min) (10min)<br>2.total 10 cycles      | The purpose of this is the resistance of the device to sudden extreme changes in high and low temperature.  | MIL-STD-202: 107D<br>MIL-STD-750: 1051<br>MIL-STD-883: 1011                    |
| Solder Resistance Test              | 1.T.Sol=260 °C±5°C<br>2.Dwell time= 10 ±1sec.                          | This test intended to determine the thermal characteristic resistance of the device to sudden exposures at extreme changes in temperature when soldering the lead wire. | MIL-STD-202: 210A<br>MIL-STD-750: 2031<br>JIS C 7021: A-1                      |
| Solderability Test                  | 1.T.Sol=230 °C±5°C<br>2.Dwell time=5 ±1sec                             | This test intended to see soldering well performed or not.  | MIL-STD-202: 208D<br>MIL-STD-750: 2026<br>MIL-STD-883: 2003<br>JIS C 7021: A-2 |