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TAPE AND BOX TYPE LED LAMPS

LSIR3333/TBS

DATA SHEET

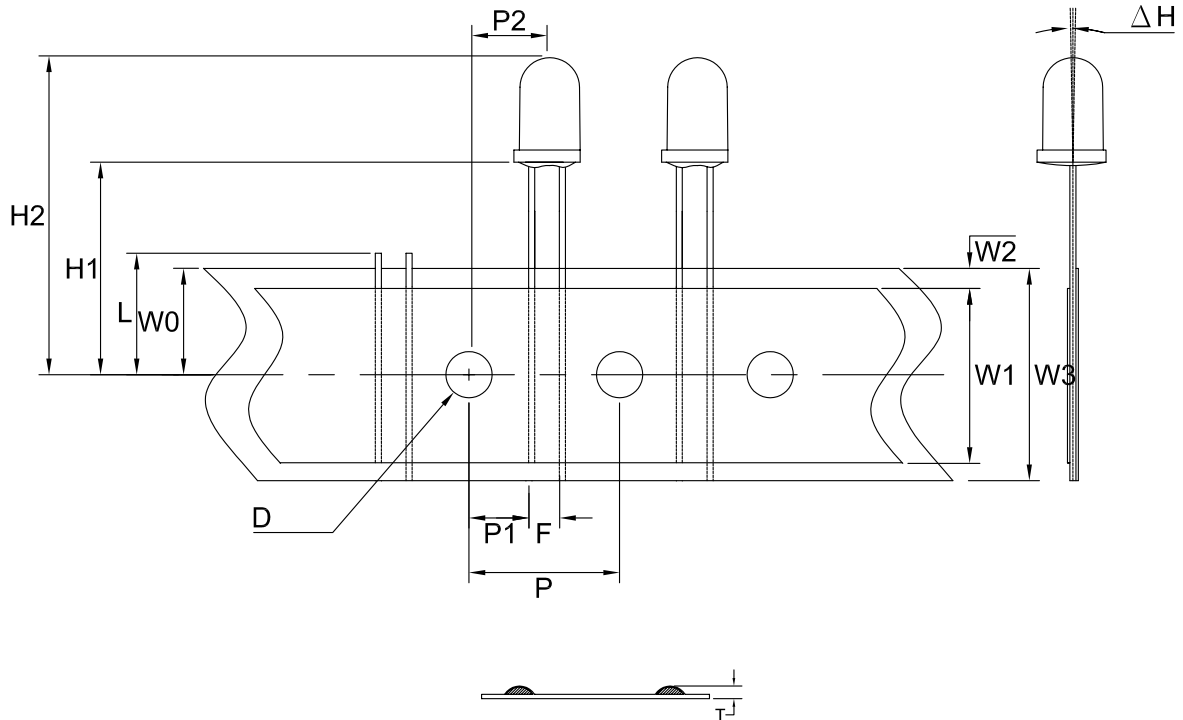
DOC. NO : QW0905-LSIR3333/TBS

REV. : A

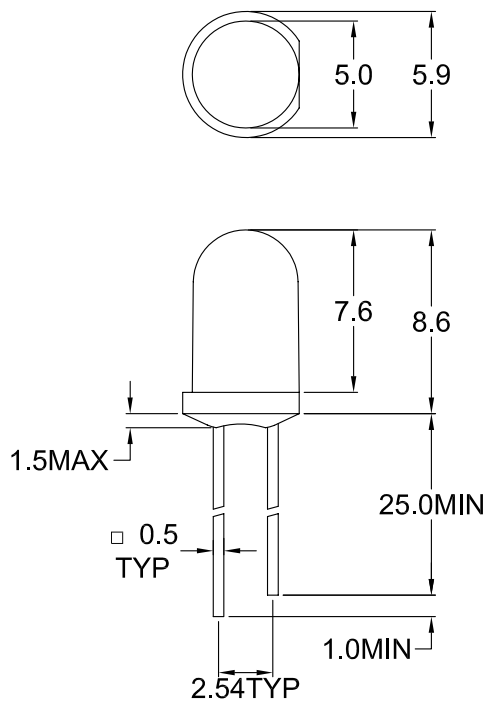
DATE : 09 - Aug - 2004



Package Dimensions



LSIR3333



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.



Features:

- 1. High radiant intensity.
- 2. Suitable for pulsed applications.
- 3. Low average degradation.

Descriptions:

The LSIR3333/TBS series are super-high efficiency Gallium Aluminum Arsenide infrared emitting diodes encapsulated in water clear plastic T-1 3/4 package individually.

Device Selection Guide:

| PART NO | MATERIAL | LENS COLOR |
|--------------|----------|-------------|
| LSIR3333/TBS | GaAlAs | Water Clear |



Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Ratings | UNIT |
|---------------------------------------------------|--------|--------------------------------------------|------|
| | | SIR | |
| Power Dissipation | PD | 100 | mW |
| Peak Forward Current (300PPS, 1 μ s Pulse) | IFP | 3 | A |
| Forward Current | IF | 50 | mA |
| Reverse Voltage | Vr | 5 | V |
| Electrostatic Discharge | ESD | 2000 | V |
| Operating Temperature | Topr | -55 ~ +100 | °C |
| Storage Temperature | Tstg | -55 ~ +100 | °C |
| Soldering Temperature | Tsol | Max 260°C for 5 sec Max (2mm from body) | |

Electrical Optical Characteristics (Aa=25°C)

| PARAMETER | SYMBOL | Min. | Typ. | Max. | UNIT | TEST CONDITION |
|----------------------------|------------------|------|------|------|--------------------|----------------|
| Radiant Intensity | Le | 8.0 | 12 | | mW/sr | IF=20mA |
| Aperture Radiant Incidence | Ee | 1.0 | 1.7 | | mW/cm ² | IF=20mA |
| Peak Emission Wavelength | λ peak | | 880 | | nm | IF=20mA |
| Spectral Line Half Width | $\Delta \lambda$ | | 70 | | nm | IF=20mA |
| Forward Voltage | VF | | 1.4 | 1.7 | V | IF=20mA |
| Reverse Current | IR | | | 100 | μ A | VR=5V |
| Viewing Angle | 2 θ 1/2 | | 20 | | deg | |

Note : 1. The forward voltage data did not including $\pm 0.1V$ testing tolerance.
2. The radiant intensity data did not including $\pm 15\%$ testing tolerance.



• Dimension Symbol Information

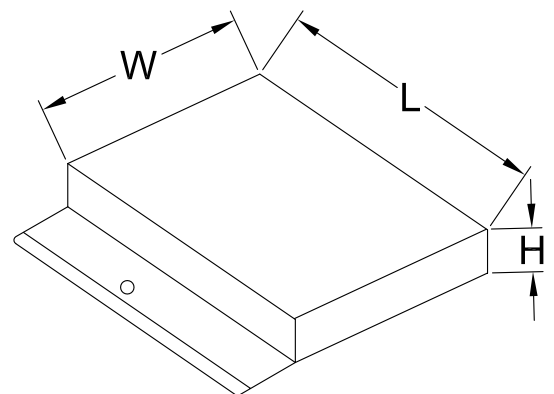
| SYMBOL ITEMS | OPTION CODE | SYMBOL | SPECIFICATIONS | | | |
|---------------------------------------|-------------|--------|----------------|-------|---------|------|
| | | | Minimum | | Maximum | |
| | | | mm | inch | mm | inch |
| Tape Feed Hole Diameter | ----- | D | 3.8 | 0.15 | 4.2 | 0.17 |
| 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 |
| | TBS-2 | | 21.5 | 0.85 | 22.5 | 0.89 |
| | TBS-3 | | 25.5 | 1.0 | 26.5 | 1.04 |
| | TBS-5 | | 22.5 | 0.89 | 23.5 | 0.93 |
| | TBS-6 | | 19.9 | 0.78 | 20.9 | 0.82 |
| | TBS-7 | | 24.0 | 0.94 | 25.0 | 0.98 |
| | TBS-8 | | 24.5 | 0.96 | 25.5 | 1.0 |
| | TBS-9 | | 19.0 | 0.75 | 20.0 | 0.79 |
| | TBS-10 | | 18.4 | 0.72 | 19.4 | 0.76 |
| 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

• Package Dimensions

| 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 | | | | |
| LSIR3331/TBS | 2000PCS | | | | |





Typical Electro-Optical Characteristics Curve

SIR CHIP

Fig.1 Forward Current vs. Forward Voltage

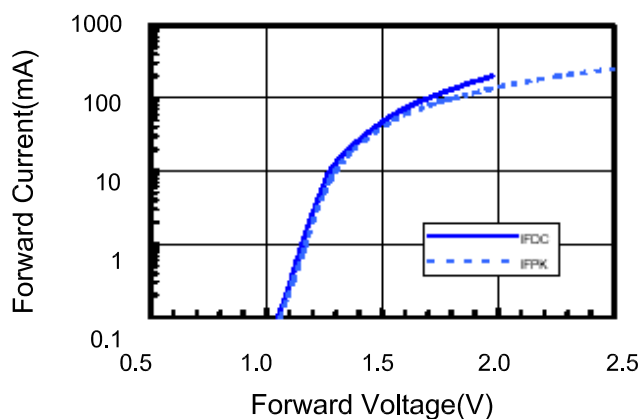


Fig.2 Relative Radiant Intensity vs. Wavelength

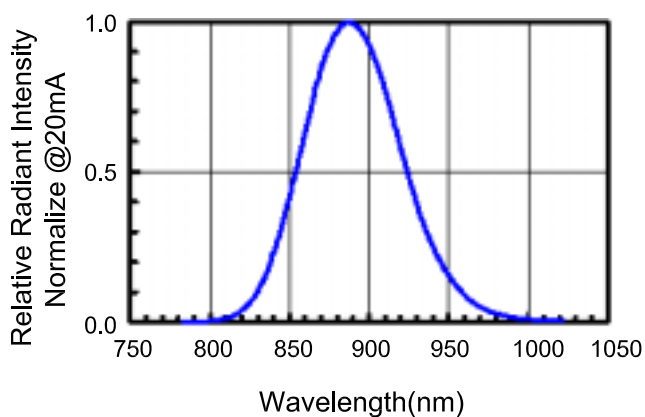


Fig.3 Relative Radiant Power vs. Forward DC Current

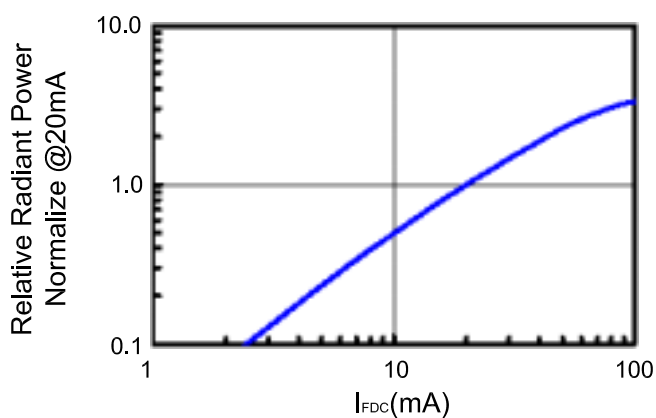


Fig.4 Relative Radiant Power vs. Forward Peak Current

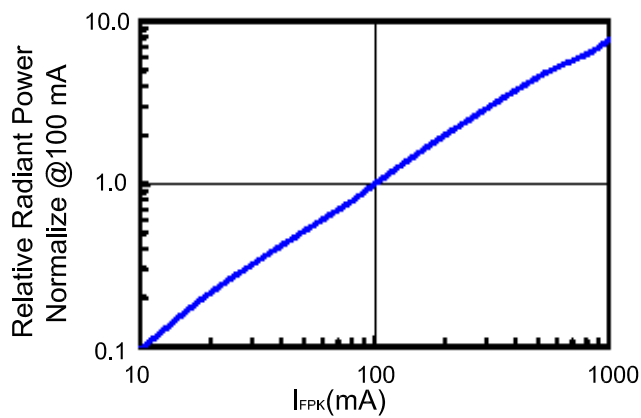


Fig.5 Forward DC Voltage vs. Temperature

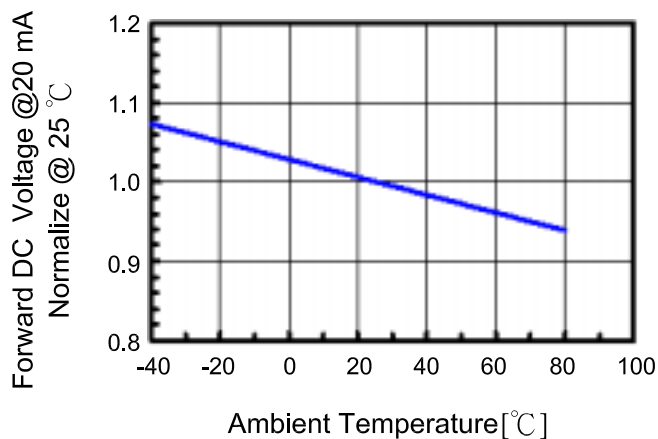
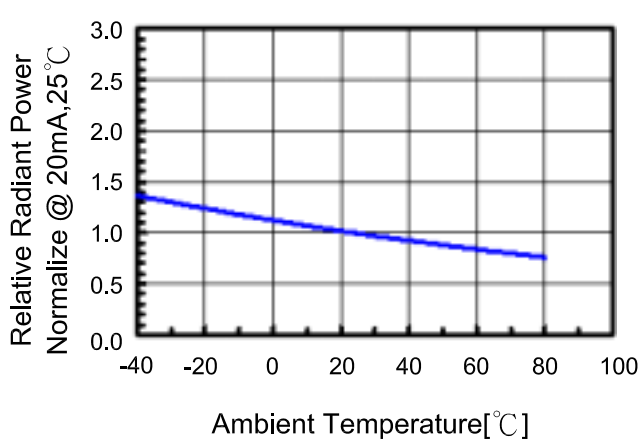


Fig.6 Relative Radiant Power vs. Temperature





Reliability Test:

| Test Item | Test Condition | Description | Reference Standard |
|-------------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Operating Life Test | 1.Under Room Temperature 2.If=20mA 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 MIL-STD-883: 1005 JIS C 7021: B-1 |
| High Temperature Storage Test | 1.Ta=105°C±5°C 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 JIS C 7021: B-10 |
| Low Temperature Storage Test | 1.Ta=-40°C±5°C 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 2.RH=90%~95% 3.t=240hrs±2hrs | The purpose of this test is the resistance of the device under tropical for hours. | MIL-STD-202:103B JIS C 7021: B-11 |
| Thermal Shock Test | 1.Ta=105°C±5°C & -40°C±5°C (10min) (10min) 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 MIL-STD-750: 1051 MIL-STD-883: 1011 |
| Solder Resistance Test | 1.T.Sol=260°C±5°C 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 MIL-STD-750: 2031 JIS C 7021: A-1 |
| Solderability Test | 1.T.Sol=230°C±5°C 2.Dwell time=5±1sec | This test intended to see soldering well performed or not. | MIL-STD-202: 208D MIL-STD-750: 2026 MIL-STD-883: 2003 JIS C 7021: A-2 |