

LUMIMICRO – FLASH LED SPECIFICATION

FLASH WHITE LED

Super Luminosity White LED

MODEL: LMFLSP100

| | | | | |
|------------|-------------|-------------|---------------------|-------------|
| Customer | | Model | LMFLSP100 | |
| | | Issued Date | 2003 – 11 - 20 | |
| Checked By | Approved By | Description | Chip Type White LED | |
| | | Written By | Checked By | Approved by |
| | | | | |

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Date: 2005-06-10,

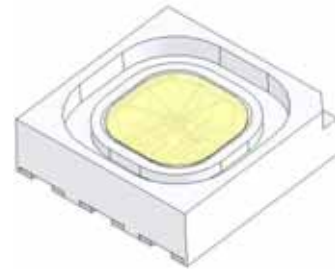
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Features

- [1] Built-in 3chip Super-luminosity Chip LED
- [2] Built-in zener Diode- Flash LED
- [3] Super-luminosity chip LED
- [4] Blue LED + Organic - Inorganic Phosphore
- [5] Using a package with high heat dissipation properties, it can be driven with a large current
- [6] Wide viewing angle
- [7] External dimensions: 5.0 x 5.0 x 1.5t mm
- [8] Lead frame package with individual 6 pin



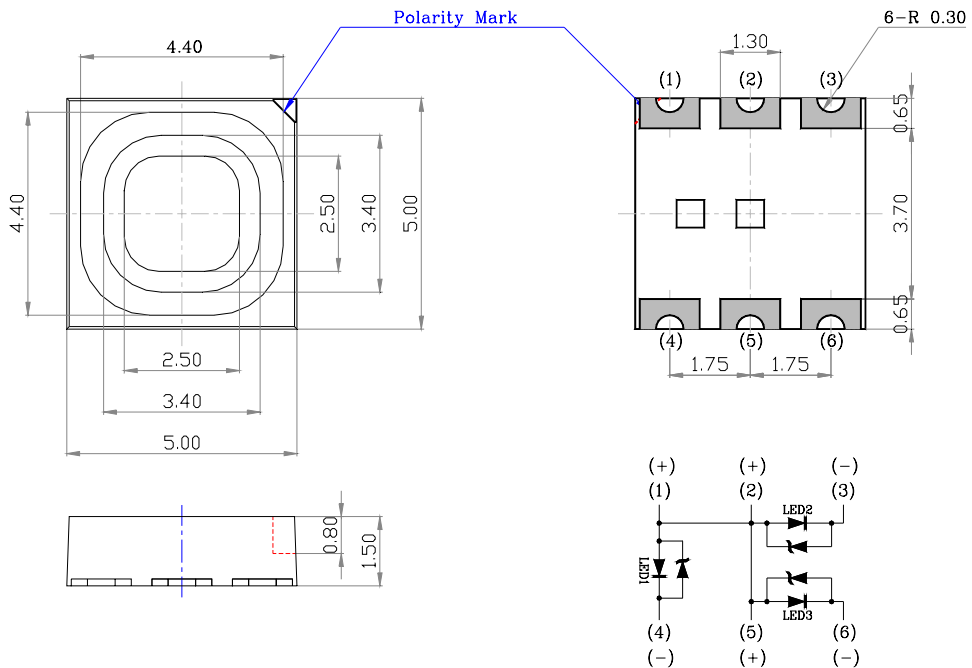
3 LED Chip Die + 3 Port Zener Diode

Model: LMFLSP100

Applications

- [1] Camera Flash
- [2] Hand Carrier Flash

Outline Dimensions



Unit: mm, Tolerance: ± 0.1



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Absolute Maximum Ratings.

| Parameter | Symbol | Rating Value | Unit |
|-----------------------|--------|--|------|
| Power Dissipation | PD | 300 | mW |
| Forward Current | IF | 90 | mA |
| Forward Pulse Current | IPF | 180 | mA |
| Reverse Voltage | VR | 5 | V |
| Operating Temperature | TOT | -30 to +85 | |
| Storage Temperature | TST | -40 to +100 | |
| Soldering Temperature | TSD | Reflow: 240 for 10sec Hand Soldering: 350 for 10sec | |

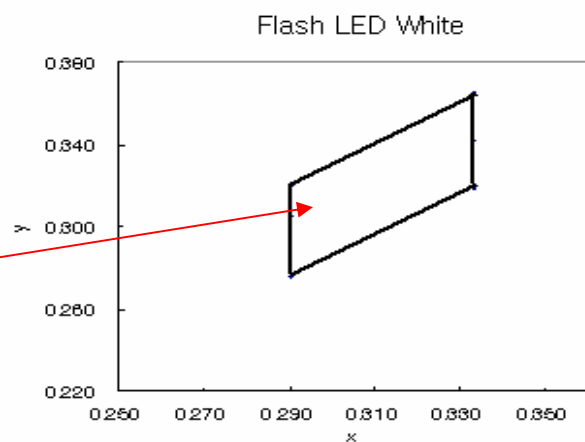
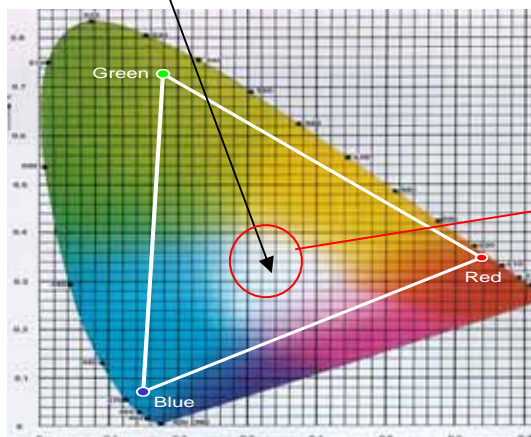
* Duty ratio=1/10, Pulse width < 30ms.

Electro-optical Spec.

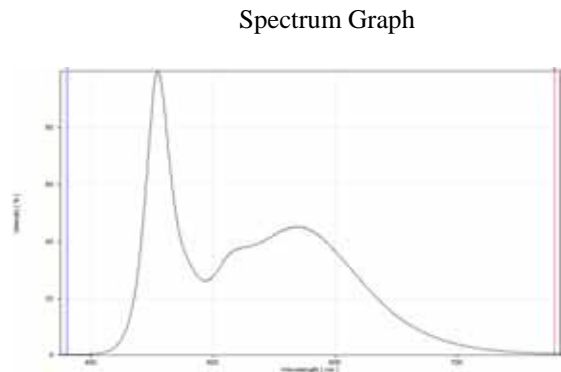
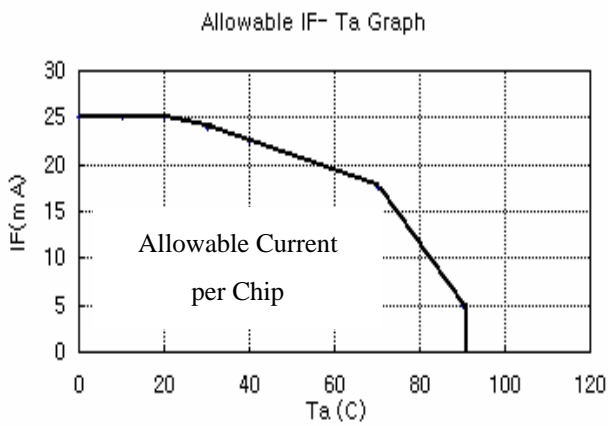
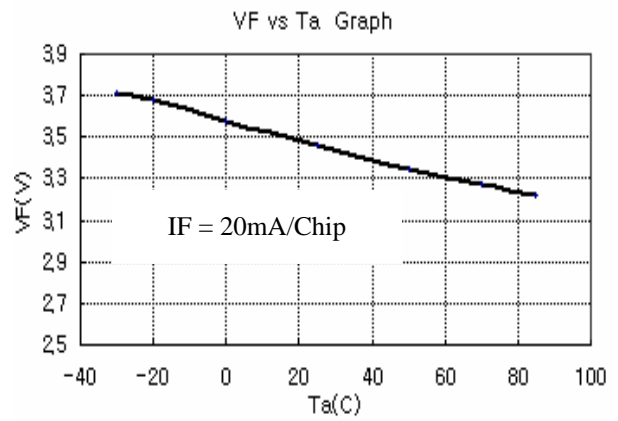
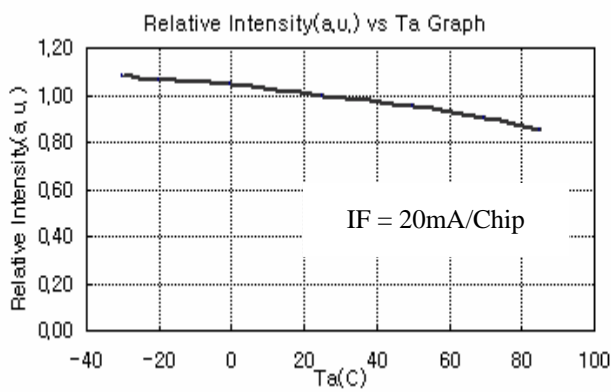
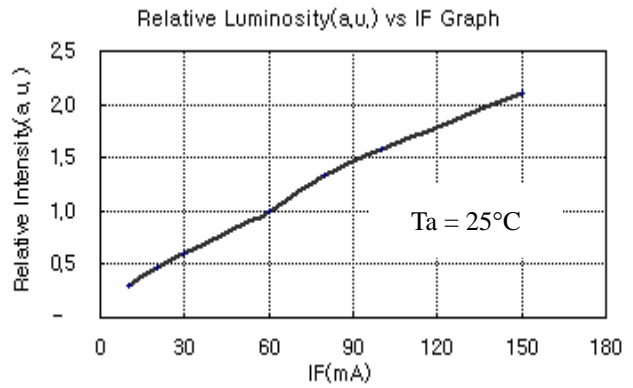
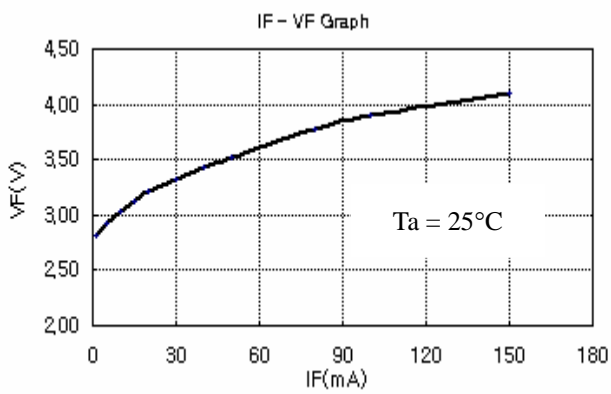
| Parameter | Symbol | Condition | Min | Typ. | Max | Unit |
|--------------------|--------|--------------------|-----|------|-----|------|
| Forward Voltage 1 | VF 1 | IF=20m A/each chip | - | 3.4 | 3.8 | V |
| Forward Voltage 2 | VF 2 | IF=10uA | 1.8 | - | - | V |
| Luminous Intensity | IV | IF=20mA/ each chip | 2.5 | 4.0 | - | cd |

The tolerance of Intensity measurement: $\pm 10\%$, The tolerance of VF measurement: $\pm 0.1V$ **C.I.E**

| x | y |
|-------|-------|
| 0.290 | 0.276 |
| 0.290 | 0.320 |
| 0.330 | 0.318 |
| 0.330 | 0.365 |

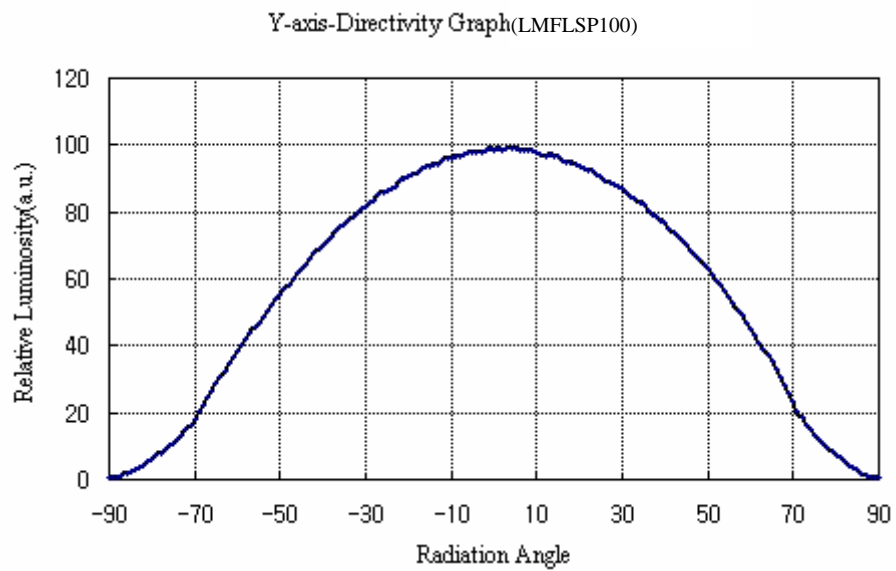
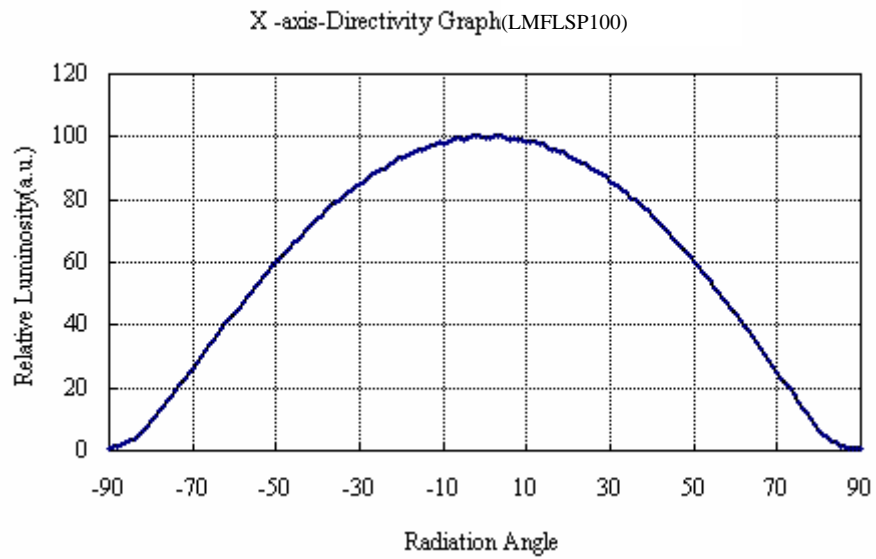
- The uncertainty of the C.I.E coordinates measurement: ± 0.01

FLASH LED-LMFLSP100 - Optical & Electrical Characteristics



- VF : Forward Voltage(V), IF : Forward Current(m A), Ta : Ambient Temperature(°C)



Directivity (LMFLSP100)

Reliability Results

| | ITEMS | CONDITION | NOTE | Fail/sample |
|---|--|--|-----------------|-------------|
| 1 | RESISTANCE TO SOLDERING HEAT (REFLOW SOLDERING) | TSID=260°C, 10SEC (PRE TREATMENT 30°C, 70%, 168hrs) | 2 TIMES | 0/20 |
| 2 | SOLDERBILITY (REFLOW SOLDERING) | TSID=215°C ± 5 °C, 3 SEC (LEAD SOLDER) | 1 TIME OVER 95% | 0/20 |
| 3 | THERMAL SHOCK | -40°C ~ 100°C , 30min AT EACH TEMP. | 10CYCLES | 0/20 |
| 4 | Vibration | 10 ~ 2000 ~ 100Hz Sweep 4min, 200m/s ² | 500 HRS | 0/20 |
| 5 | HIGH TEMPERATURE STORAGE | Ta = 100 °C | 500 HRS | 0/20 |
| 6 | LIFE TIME 1 | Curen = 25mA / One Chip @ ROOM TEMP. | 500 HRS | 0/20 |
| 7 | LIFE TIME 2 | Curen = 15mA / One Chip @ 60°C , 90%RH | 300 HRS | 0/20 |
| 8 | ON / OFF TEST | IF = 180mA , Pulse Width 0.5sec, Duty Ratio 1/2 | 200,000Cycles | 0/20 |

* Criteria For Failure

| Item | Strnbol | Model | Failure Criteria | |
|--------------------|---------|-----------|------------------|-------------|
| | | | Min | Max |
| Forward Voltage | VF | LMFLSP100 | _ | U.S.L*)×1.1 |
| C.I.E. x,y | x,y | LMFLSP100 | L.S.L*)×0.8 | U.S.L*)×1.2 |
| Luminous Intensity | IV | LMFLSP100 | L.S.L*)×0.5 | _ |

U.S.L*) : Upper Standard Level

L.S.L*) : Lower Standard Level



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Precautions For Use

This device should not be used in any type of fluid such as water, oil, organic solvent, etc.

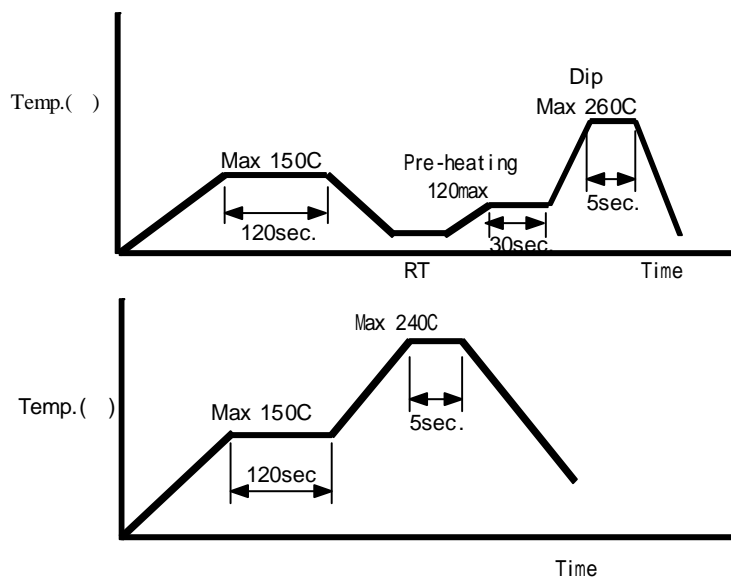
When washing is required, IPA should be used.

When the LEDs are illuminating, operating current should be decided after considering the ambient maximum temperature.

LEDs must be stored to maintain a clean atmosphere. If the LEDs are stored for 3 months or more after being shipped from LUMIMICRO, sealed container with a nitrogen atmosphere should be used for storage.

The LEDs must be dip soldered within seven days after opening the moisture-proof packing. Repack unused Products with anti-moisture packing, fold to close any opening and then store in dry place. The appearance and specifications of the product may be modified for improvement without notice. These LEDs are sensitive to the static electricity and surge. It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs. If Over voltage which exceeds the absolute maximum rating is applied to LEDs, it will cause damage in LEDs and result in destruction. Damaged LEDs will show some unusual characteristics such as remarkably increased leak current, turn-on voltage becomes lower and the LEDs get unlighted at low current.

Soldering Condition



Solder Dip Conditions

The Immersion of leads into a solder bath @MAX260 shall be to 5 seconds max.

Reflow Conditions

Preliminary heating to be at 150 max. for 2 minutes max.
Soldering heat to be at 240 max. for 5 seconds max.

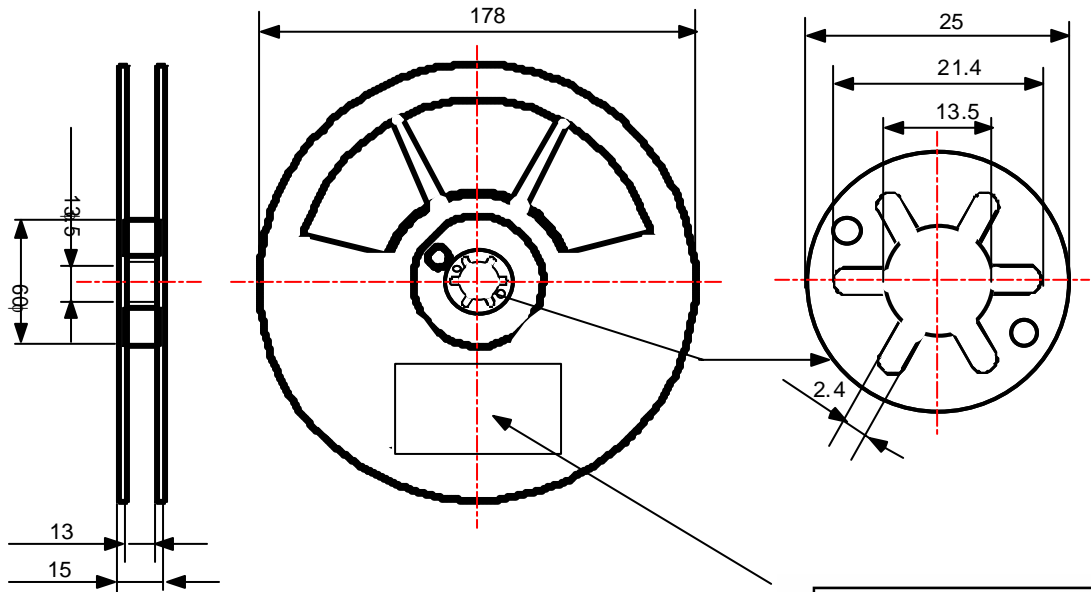
For Manual Soldering

Not more than 5 seconds @MAX300 , under Soldering iron.

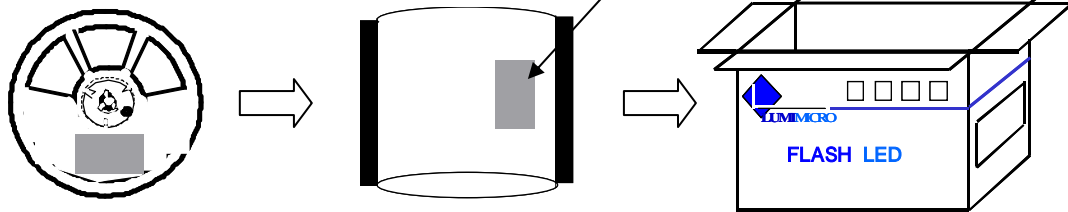
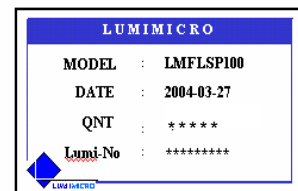


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Reel Dimensions



| One Reel | Unit | Tolerance |
|-----------|------|-----------|
| Max 750EA | mm | ± 0.1 |



- Aluminum Bag

| | Reel in a Bag | Silica in a Bag | Goods QNT in a Bag |
|--------------|---------------|-----------------|--------------------|
| Aluminum Bag | 1 Reel | 1 Silica | Max : 750ea |

- Box Spec.


| | Dimensions (Width/Thickness) Unit:mm | Reels in Box | Goods QNT in Box |
|--------|---|--------------|------------------|
| Box-L1 | 275/ 285/ 50 | 10 | Max : 7,500ea |



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Label Spec.

| LUMIMICRO | |
|--------------------------|----------------------|
| MODEL : LMFLSP100 | Model Name |
| DATE : 2004-03-27 | Shipping Date |
| QNT : ***** | Taping Quantity |
| Lumi-No : ***** | Lumimicro-Lot Number |



Weight: 65.1 mg (Measurement Tolerance: $\pm 10\%$)