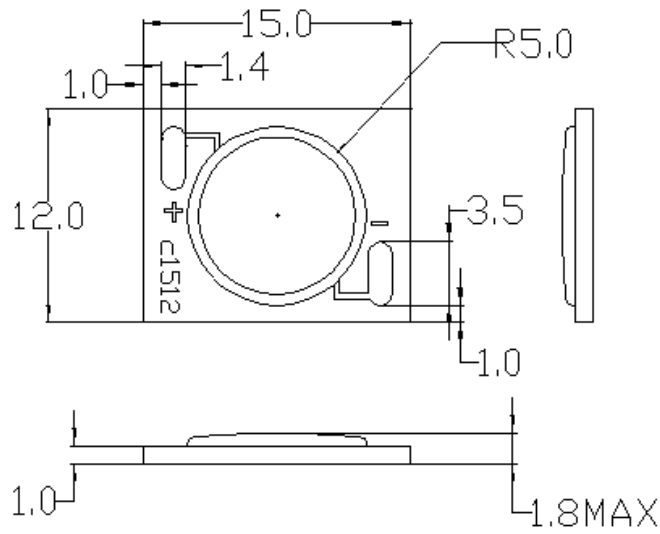


RF-W * ZM15T09-GE SERIES

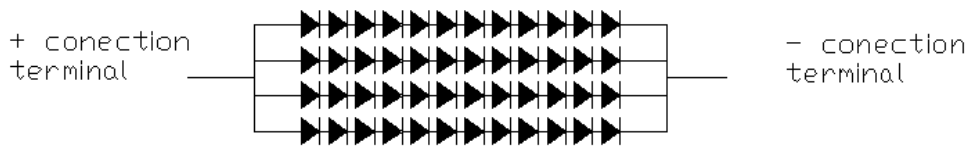
Description

- ◆ Viewing angle:120 deg
- ◆ The materials of the LED dice is GaN
- ◆ 15mm×12mm×1.8mm
- ◆ RoHS compliant lead-free soldering compatible

Package Outline



Equivalent circuit





ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
SENSITIVE DEVICES

NOTES:

1. All dimensions are in millimeters (inches);
2. Tolerances are ±0.3mm (0.012inch) unless otherwise noted.

Absolute maximum ratings at Ta=25°C

| Parameter | Symbol | Value | Unit |
|-----------------------------|--------------------|-----------|------|
| Forward DC current | If | 320 | mA |
| Reverse DC voltage | Vr | 5 | V |
| Operating temperature range | Top | -40 ~+100 | °C |
| Storage temperature range | Tstg | -40~+100 | °C |
| Peak pulsing current | I _{fp} | 480 | mA |
| Thermal Resistance | R _{thj-a} | 1.8 | °C/W |

Electro-optical characteristics at Ta=25°C

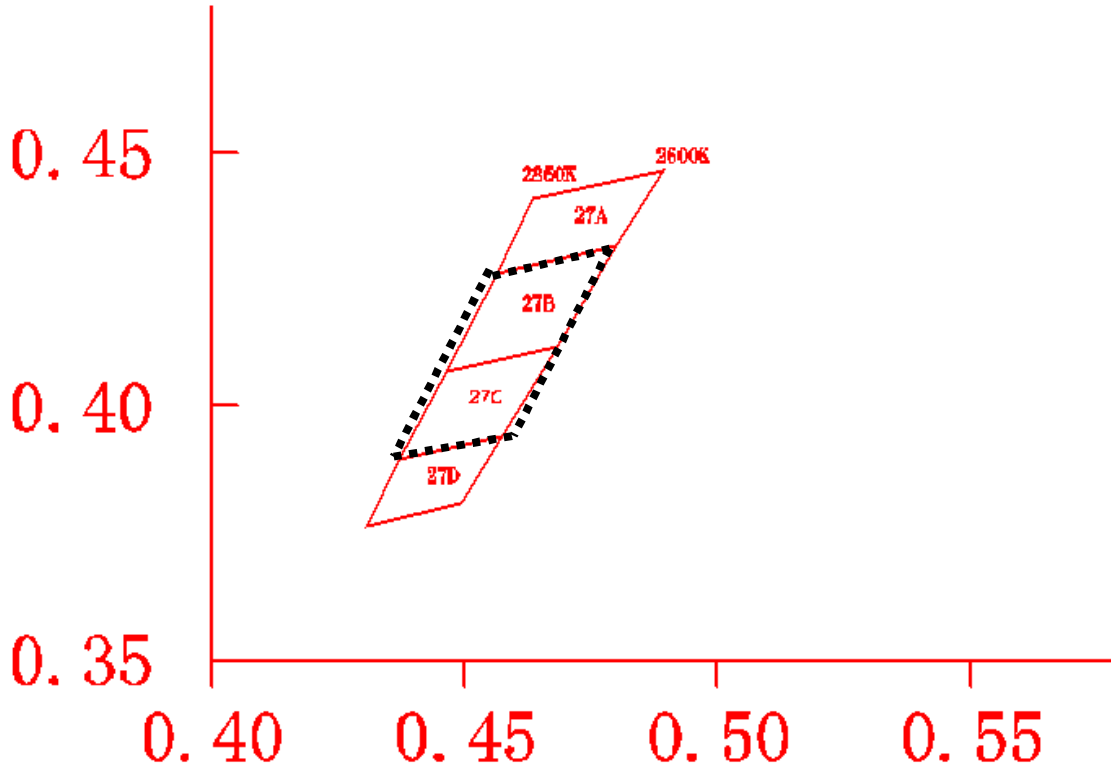
| Parameter | Test Condition | Symbol | Value | | | Unit |
|---------------------------------------|----------------|----------------|-------|------|------|------|
| | | | Min. | Typ. | Max. | |
| Forward voltage | If=240mA | Vf | 34 | -- | 42 | V |
| Luminous flux | If=240mA | Φ | 800 | -- | 1050 | lm |
| Reverse current | Vr=5V | I _r | -- | -- | 10 | μA |
| Color Render Index | If=240mA | CRI | 80 | -- | 85 | -- |
| Correlated Color Temperature of 2700K | If=240mA | CCT | 2600 | -- | 2850 | K |
| Correlated Color Temperature of 3000K | If=240mA | CCT | 2850 | -- | 3200 | K |
| Correlated Color Temperature of 4000K | If=240mA | CCT | 3700 | -- | 4250 | K |
| Correlated Color Temperature of 5000K | If=240mA | CCT | 4750 | -- | 5300 | K |

NOTE: (Tolerance: Φ ±10% , X/Y ±0.01)

IFP Conditions : Pulse Width ≤ 10msec. and Duty ≤ 1/10.

Bin Information

RF-W2ZM15T09-GE Series Bin Information



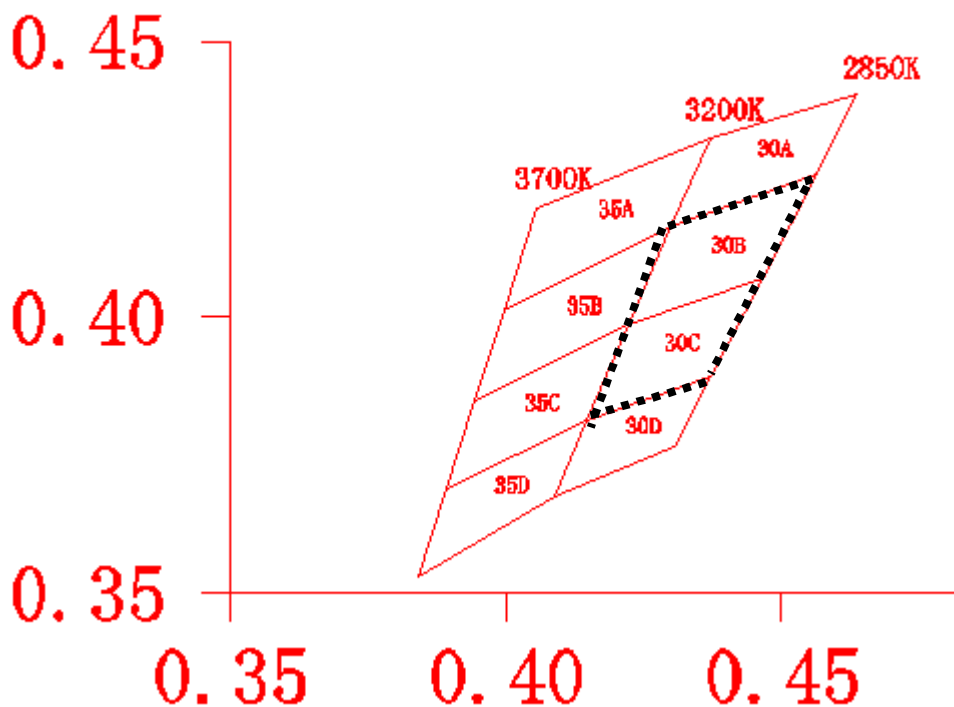
Note:  is high bin

Bin data:

| BIN CODE | CIE-X1 | CIE-Y1 | CIE-X2 | CIE-Y2 | CIE-X3 | CIE-Y3 | CIE-X4 | CIE-Y4 |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|
| 27A | 0.4562 | 0.4260 | 0.4638 | 0.4407 | 0.4889 | 0.4466 | 0.4798 | 0.4316 |
| 27B | 0.4562 | 0.4260 | 0.4464 | 0.4070 | 0.4682 | 0.4120 | 0.4798 | 0.4316 |
| 27C | 0.4464 | 0.4070 | 0.4373 | 0.3893 | 0.4573 | 0.3939 | 0.4682 | 0.4120 |
| 27D | 0.4373 | 0.3893 | 0.4573 | 0.3939 | 0.4495 | 0.3808 | 0.4307 | 0.3764 |

Bin Information

RF-W3ZM15T09-GE Series Bin Information



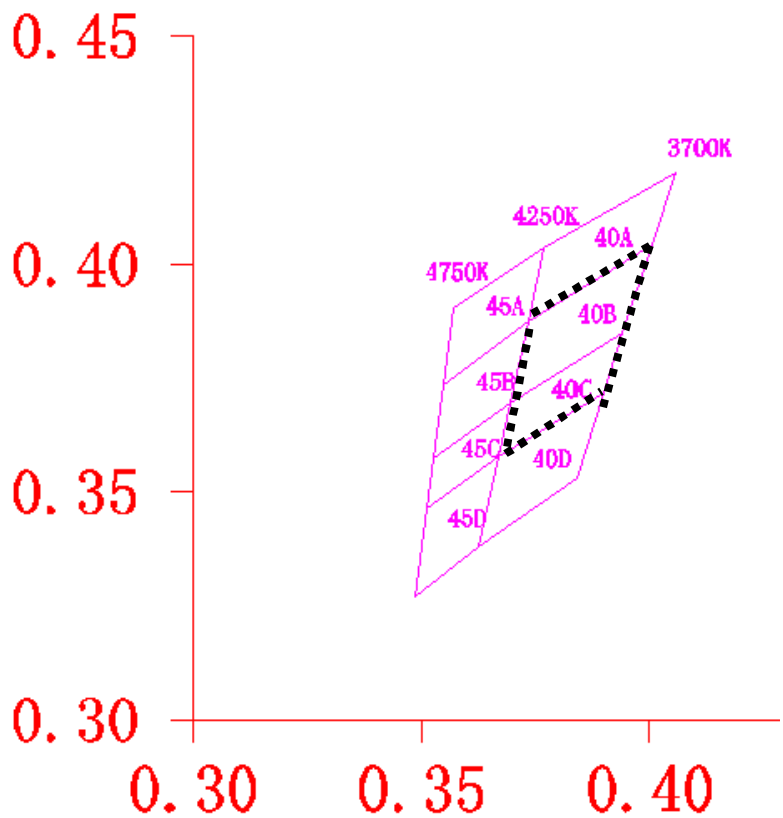
Note:  is high bin


Bin data:

| BIN CODE | CIE-X1 | CIE-Y1 | CIE-X2 | CIE-Y2 | CIE-X3 | CIE-Y3 | CIE-X4 | CIE-Y4 |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|
| 30A | 0.4369 | 0.4326 | 0.4299 | 0.4165 | 0.4562 | 0.4260 | 0.4638 | 0.4407 |
| 30B | 0.4299 | 0.4165 | 0.4222 | 0.3987 | 0.4464 | 0.4070 | 0.4562 | 0.4260 |
| 30C | 0.4222 | 0.3987 | 0.4147 | 0.3814 | 0.4373 | 0.3893 | 0.4464 | 0.4070 |
| 30D | 0.4147 | 0.3814 | 0.4373 | 0.3893 | 0.4307 | 0.3764 | 0.4086 | 0.3674 |
| 35A | 0.4057 | 0.4200 | 0.4369 | 0.4326 | 0.4299 | 0.4165 | 0.3997 | 0.4015 |
| 35B | 0.4299 | 0.4165 | 0.3997 | 0.4015 | 0.3942 | 0.3849 | 0.4222 | 0.3987 |
| 35C | 0.3942 | 0.3849 | 0.3892 | 0.3691 | 0.4147 | 0.3814 | 0.4222 | 0.3987 |
| 35D | 0.3892 | 0.3691 | 0.4147 | 0.3814 | 0.4086 | 0.3674 | 0.3840 | 0.3529 |

Bin Information

RF-W4ZM15T09-GE Series Bin Information

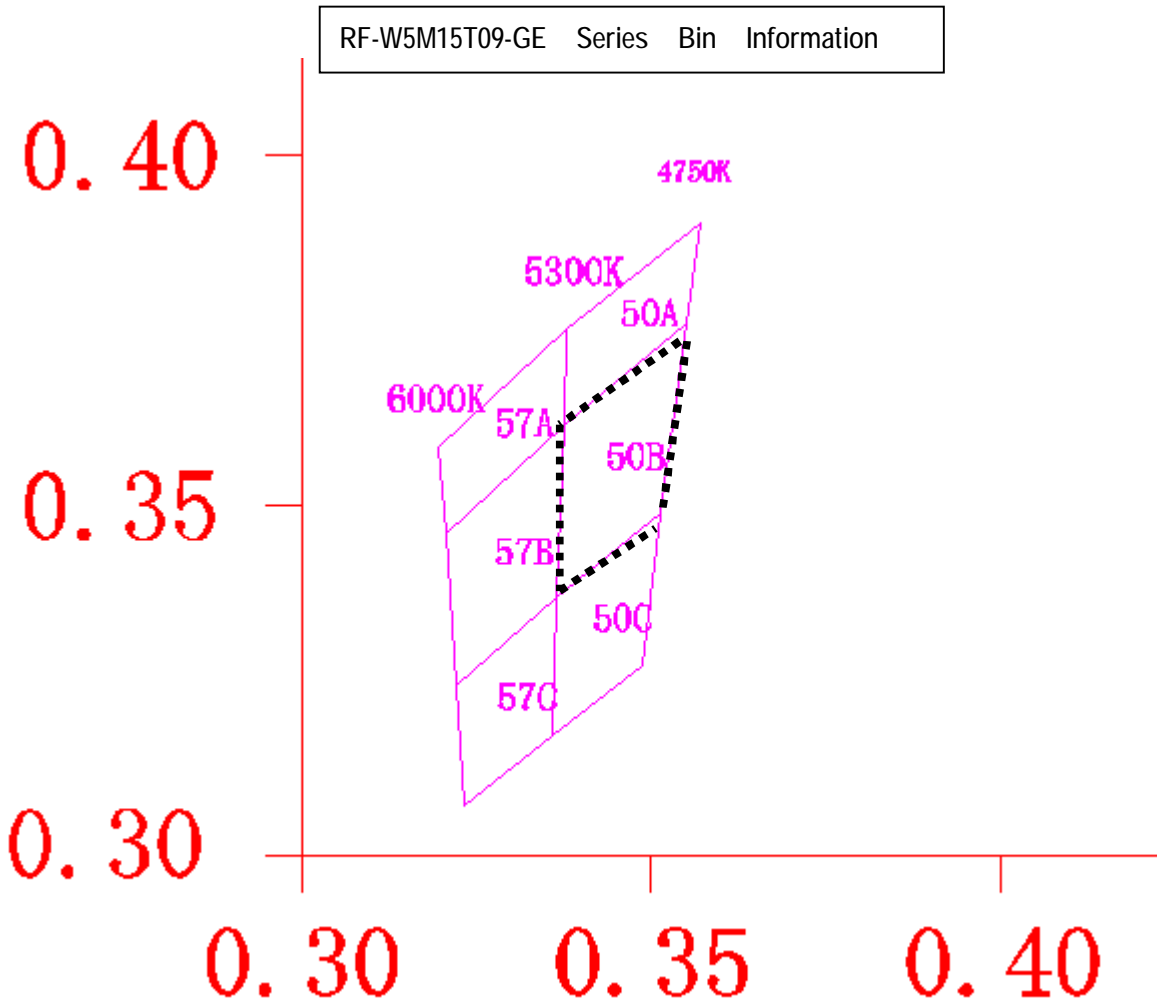


Note:  is high bin

Bin data:

| BIN CODE | CIE-X1 | CIE-Y1 | CIE-X2 | CIE-Y2 | CIE-X3 | CIE-Y3 | CIE-X4 | CIE-Y4 |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|
| 40A | 0.3770 | 0.4035 | 0.4057 | 0.4200 | 0.4006 | 0.4044 | 0.3736 | 0.3874 |
| 40B | 0.4006 | 0.4044 | 0.3736 | 0.3874 | 0.3697 | 0.3697 | 0.3942 | 0.3849 |
| 40C | 0.3900 | 0.3717 | 0.3942 | 0.3849 | 0.3697 | 0.3697 | 0.3670 | 0.3578 |
| 40D | 0.3670 | 0.3578 | 0.3900 | 0.3717 | 0.3840 | 0.3529 | 0.3626 | 0.3380 |
| 45A | 0.3570 | 0.3901 | 0.3770 | 0.4035 | 0.3736 | 0.3874 | 0.3548 | 0.3736 |
| 45B | 0.3736 | 0.3874 | 0.3548 | 0.3736 | 0.3527 | 0.3574 | 0.3697 | 0.3697 |
| 45C | 0.3527 | 0.3574 | 0.3512 | 0.3465 | 0.3670 | 0.3578 | 0.3697 | 0.3697 |
| 45D | 0.3512 | 0.3465 | 0.3670 | 0.3578 | 0.3626 | 0.3380 | 0.3487 | 0.3272 |

Bin Information



Note:  is high bin

Bin data:

| BIN CODE | CIE-X1 | CIE-Y1 | CIE-X2 | CIE-Y2 | CIE-X3 | CIE-Y3 | CIE-X4 | CIE-Y4 |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|
| 50A | 0.3381 | 0.3751 | 0.3376 | 0.3616 | 0.3551 | 0.3760 | 0.3570 | 0.3901 |
| 50B | 0.3376 | 0.3616 | 0.3366 | 0.3369 | 0.3515 | 0.3487 | 0.3551 | 0.3760 |
| 50C | 0.3366 | 0.3369 | 0.3515 | 0.3487 | 0.3487 | 0.3272 | 0.3358 | 0.3171 |
| 57A | 0.3198 | 0.3583 | 0.3206 | 0.3461 | 0.3376 | 0.3616 | 0.3381 | 0.3751 |
| 57B | 0.3206 | 0.3461 | 0.3222 | 0.3243 | 0.3366 | 0.3369 | 0.3376 | 0.3616 |
| 57C | 0.3222 | 0.3243 | 0.3235 | 0.3071 | 0.3358 | 0.3171 | 0.3366 | 0.3369 |

Lumilous flux(LM) BIN:

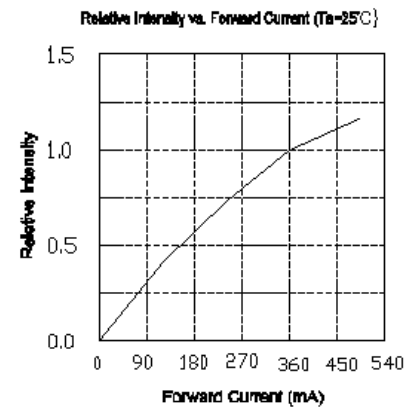
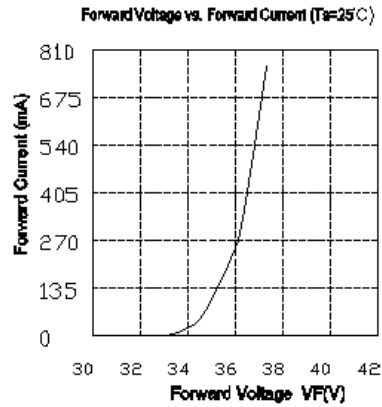
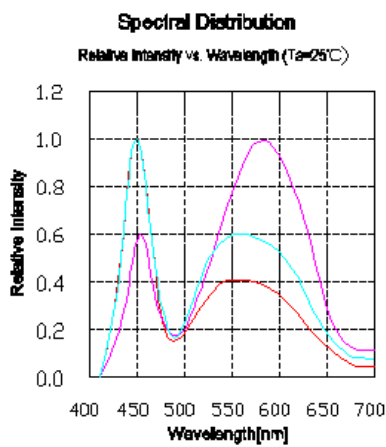
| BIN CODE | MAX | MIN |
|----------|-----|------|
| LC | 600 | 840 |
| LD | 840 | 1200 |

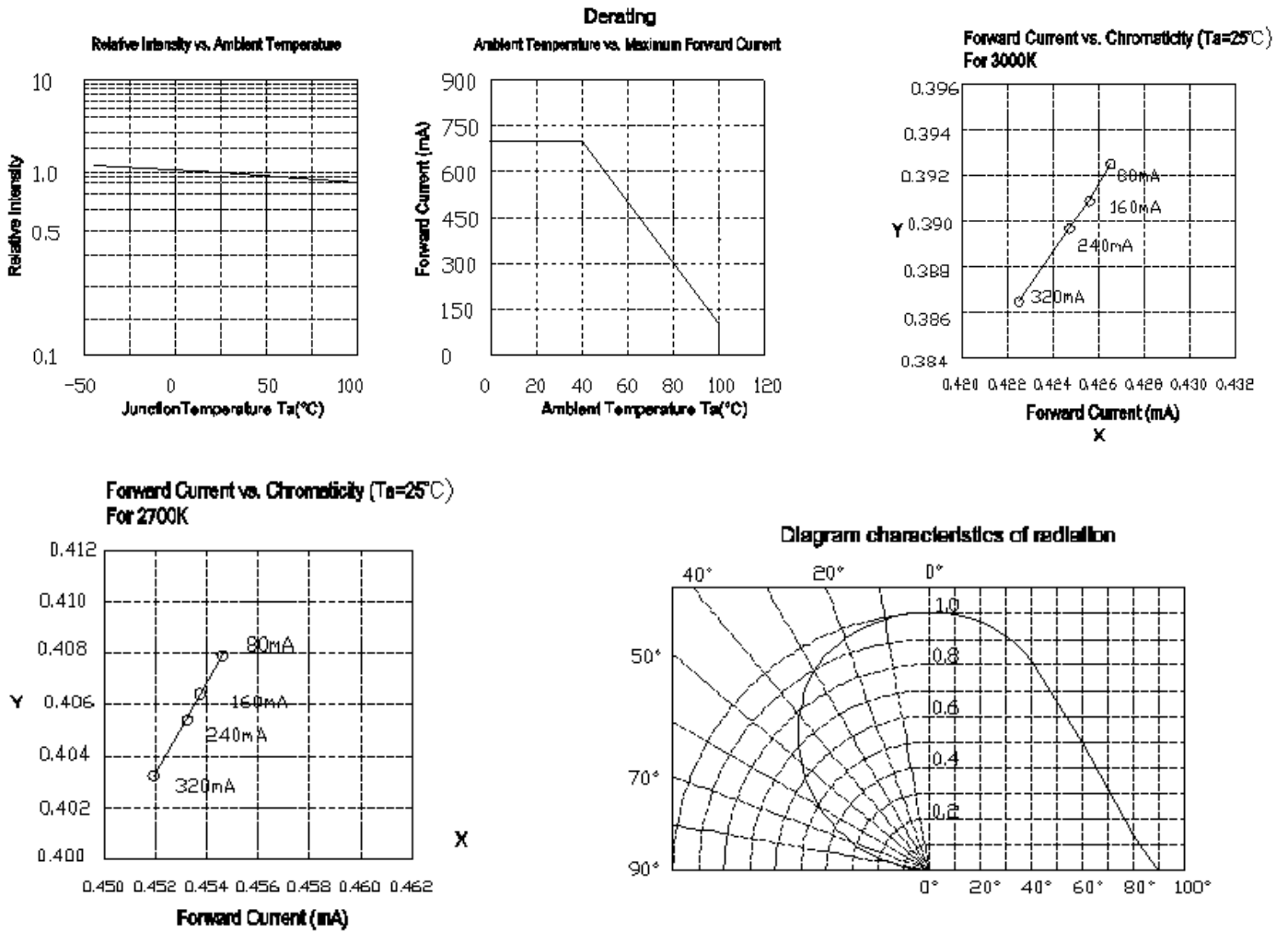
Note: LD is high bin

VF BIN:

| BIN CODE | MAX | MIN |
|----------|-----|-----|
| VJ | 34 | 42 |

Optical characteristics curves





1. Reflow soldering should not be done more than two times
2. When soldering ,do not put stress on the LEDs during heating



Reliability

(1)TEST ITEMS AND RESULTS

| Type | Test Item | Ref. Standard | Test Conditions | Note | Number of Damaged |
|------------------------|------------------------------|---------------|--------------------------------------|-----------|-------------------|
| Environmental Sequence | Temperature Cycle | JESD22A-104 | -40°C 30min ↑↓ 100°C 30min | 100 cycle | 0/10 |
| | High Temperature Storage | JESD22A-103 | T _a =100°C | 1000 hrs | 0/10 |
| | Low Temperature Storage | JESD22A-119 | T _a =-40°C | 1000 hrs | 0/10 |
| Operation Sequence | High Humidity Heat Life Test | JESD22A-101 | 60°C RH=90% I _F =240mA | 1000 hrs | 0/10 |

(2)CRITERIA FOR JUDGING THE DAMAGE

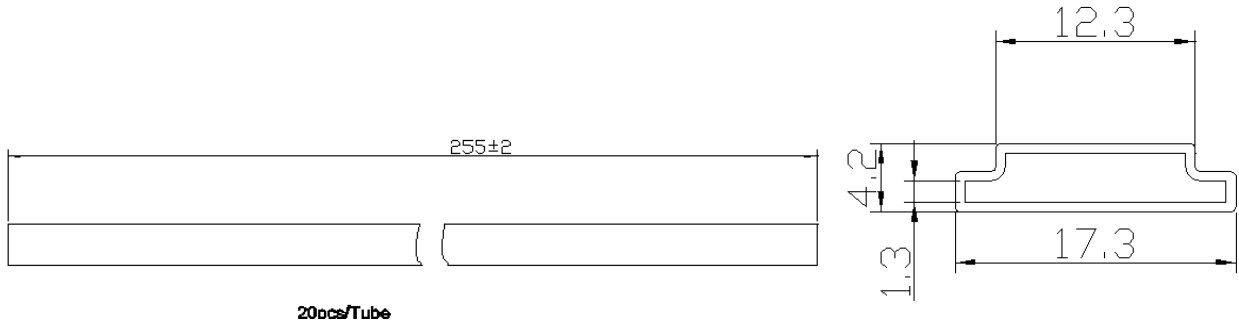
| Item | Symbol | Test Conditions | Criteria for Judgement | |
|-----------------|--------|-----------------|------------------------|-------------|
| | | | Min. | Max. |
| Forward Voltage | VF | IF=240mA | - | U.S.L*)×1.1 |
| Reverse Current | IR | VR=5V | - | U.S.L*)×2.0 |
| Luminous flux | Φ | IF=240mA | L.S.L**)×0.7 | - |

U.S.L.: Upper Standard Level

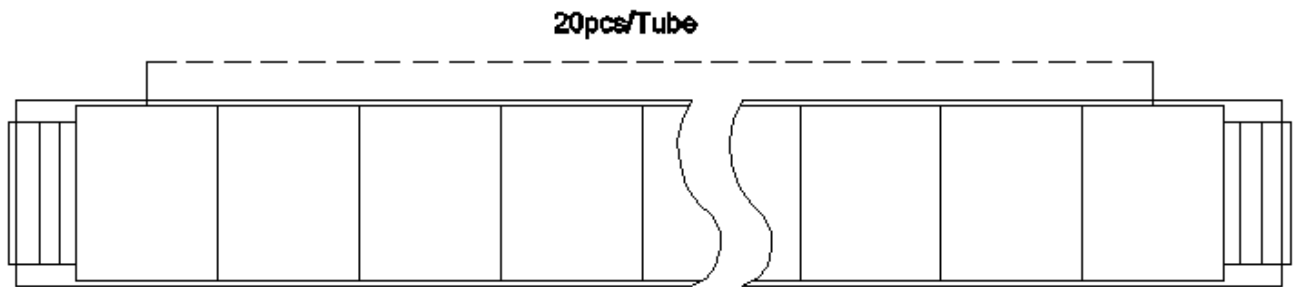
L.S.L.: Lower Standard Level

Packaging Specifications

- Dimensions of Tube (Unit: mm)



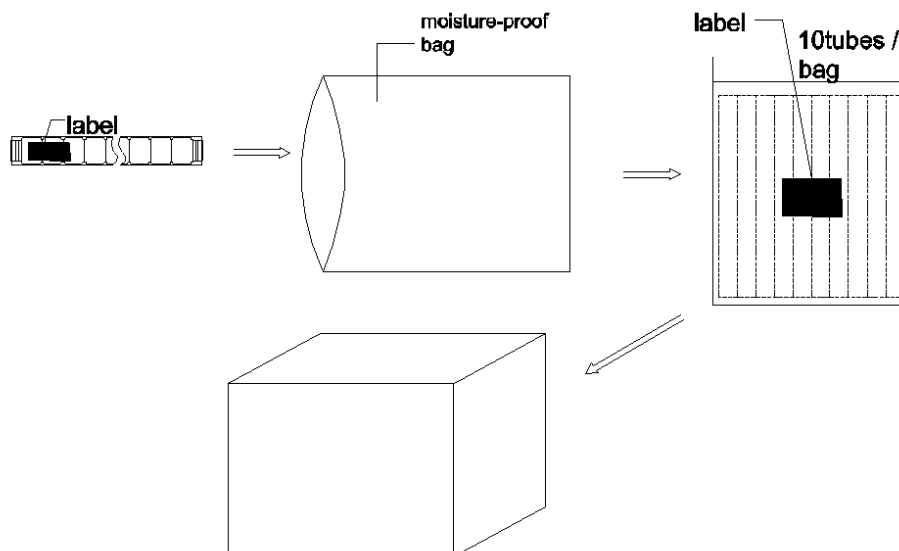
- Arrangement of Tube






NOTES

1.20pcs/Tube.

Packaging specifications



■ Label

| | |
|--|-----------------|
| PART NO. | |
|  | |
| LOT NO. | |
|  | |
| BIN CODE: | QTY: PCS |
|  | DATE: |

CAUTIONS

Package specifications

Reeled products (numbers of products are 500pcs) packed in a seal off moisture-proof bag along with a desiccant one by one, Five moisture-proof bag of maximums (total maximum number of products are 2,500pcs) packed in an inside box (size: about 350mm x about 350 x about 165mm), and it is packed. (Part No., Lot No., quantity should appear on the label on the moisture-proof bag, part No. And quantity should appear on the label on the cardboard box.)

Storage conditions

Before opening the package:

The LEDs should be kept at 30°C or less and 90%RH or less. The LEDs should be used within a year. When storing the LEDs, moisture proof packaging with absorbent material (silica gel) is recommended.

After opening the package:

The LEDs should be kept at 30°C or less and 70%RH or less. The LEDs should be soldered within 168 hours (7days) after opening the package. If unused LEDs remain, they should be stored in moisture proof packages, such as sealed containers with packages of moisture absorbent material (silica gel). It is also recommended to return the LEDs to the original moisture proof bag and to reseal the moisture proof bag again.