



**Pb-free
HEAT**



U□38□3X Series

Single Color ϕ 3 Flush Mount Round Shape Type

Features

| | |
|-------------------------|---|
| Package | ϕ 3 Round shape type, UB,UC,UG : Water Clear epoxy UY : Pale Yellow Clear epoxy UR : Pale Red Clear epoxy |
| Product features | <ul style="list-style-type: none"> Outer Dimension ϕ 3 Round shape type Operation temperature range. Storage Temperature : -40°C~100°C Operating Temperature : -40°C~85°C Lead-free soldering compatible RoHS compliant |
| Dominant wavelength | Blue : 470nm (UB) Blue Green : 505nm (UC) Green : 525nm (UG) Yellow : 590nm (UY) Red : 626nm (UR) |
| Half Intensity Angle | UB,UC,UG : 26 deg. UY,UR : 22 deg. |
| Die materials | UB,UC,UG : InGaN, UY,UR : AlGaInP |
| Rank grouping parameter | Sorted by luminous intensity per rank taping |
| Soldering methods | TTW (Through The Wave) soldering and manual soldering |
| ESD | InGaN : Less than 1kV(HBM), AlGaInP : More than 2kV(HBM) |
| Packing | Bulk : 200pcs(MIN.) |

Recommended Applications

Amusement Equipment, Electric Household Appliances, OA/FA, Other General Applications

Color and Luminous Intensity

(Ta=25°C)

| Part No. | Material | Emitted Color | Lens Color | | Dominant Wavelength | | Luminous Intensity | | |
|----------|----------|---------------|-------------|-------|---------------------|----------------|--------------------|-------|----------------|
| | | | | | λd (nm) | | Iv (mcd) | | |
| | | | | | TYP. | I _F | MIN. | TYP. | I _F |
| UB3803X | InGaN | Blue | Water Clear | Clear | 470 | 20 | 500 | 1,000 | 20 |
| UC3803X | InGaN | Blue Green | | | 505 | 20 | 1,200 | 3,360 | 20 |
| UG3803X | InGaN | Green | | | 525 | 20 | 1,680 | 3,360 | 20 |
| UY3863X | AlGaInP | Yellow | | | 590 | 20 | 720 | 1,440 | 20 |
| UR3863X | AlGaInP | Red | | | 630 | 20 | 640 | 1,280 | 20 |

Absolute Maximum Ratings

(Ta=25°C)

| Item | Symbol | Absolute Maximum Ratings | | | | | Unit |
|------------------------------|--------------|--------------------------|------|------|------|------|-------|
| | | UB | UC | UG | UY | UR | |
| Power Dissipation | P_d | 105 | 105 | 105 | 150 | 150 | mW |
| Forward Current | I_F | 25 | 25 | 25 | 50 | 50 | mA |
| Pulse Forward Current ※1 | I_{FRM} | 60 | 60 | 60 | 100 | 100 | mA |
| Derating (Ta=25°C or higher) | ΔI_F | 0.33 | 0.33 | 0.33 | 0.67 | 0.67 | mA/°C |
| Reverse Voltage | V_R | 5 | 5 | 5 | 5 | 5 | V |
| Operating Temperature | T_{opr} | -40~+85 | | | | | °C |
| Storage Temperature | T_{stg} | -40~+100 | | | | | °C |

 ※1 I_{FRM} Measurement condition : Pulse Width \leq 1ms., Duty \leq 1/20.

Electro-Optical Characteristics

(Ta=25°C)

| Item | Conditions | Symbol | Characteristics | | | | | Unit | |
|--------------------------|----------------------|----------------|-----------------|-----|-----|-----|-----|------|------|
| | | | UB | UC | UG | UY | UR | | |
| Forward Voltage | I _F =20mA | V _F | TYP. | 3.7 | 3.7 | 3.7 | 2.2 | 2.2 | V |
| | | | MAX. | 4.2 | 4.2 | 4.2 | 2.8 | 2.8 | |
| Reverse Current | V _R =5V | I _R | MAX. | 100 | 100 | 100 | 100 | 100 | μ A |
| Peak Wavelength | I _F =20mA | λ _p | TYP. | 465 | 502 | 517 | 592 | 641 | nm |
| Dominant Wavelength | I _F =20mA | λ _d | TYP. | 470 | 505 | 525 | 590 | 630 | nm |
| Spectral Line Half Width | I _F =20mA | Δλ | TYP. | 26 | 30 | 35 | 18 | 18 | nm |
| Half Intensity Angle | I _F =20mA | 2θ 1/2 | TYP. | 26 | 26 | 26 | 22 | 22 | deg. |



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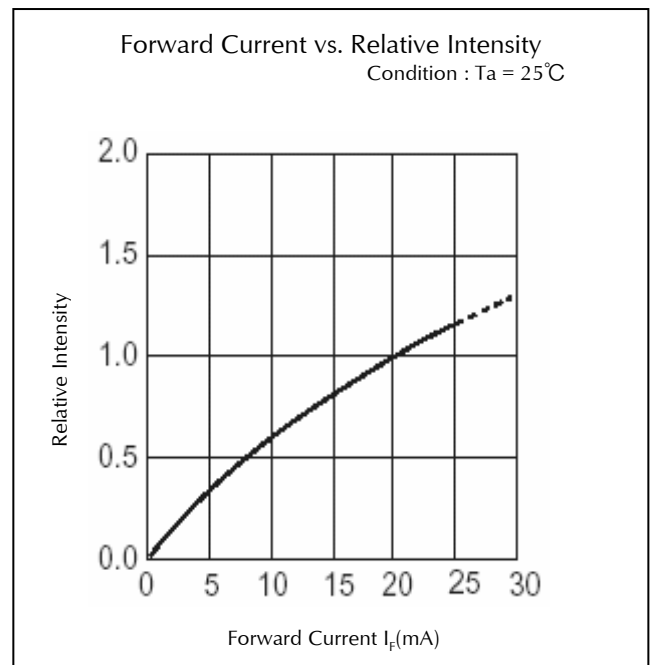
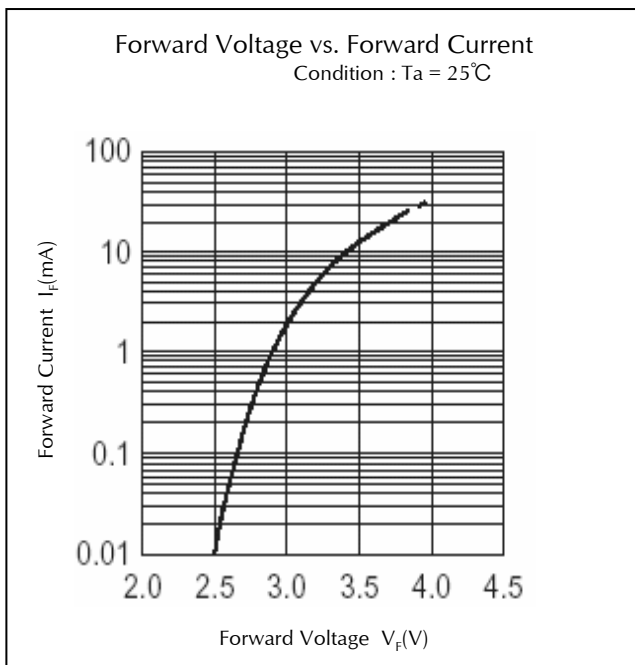
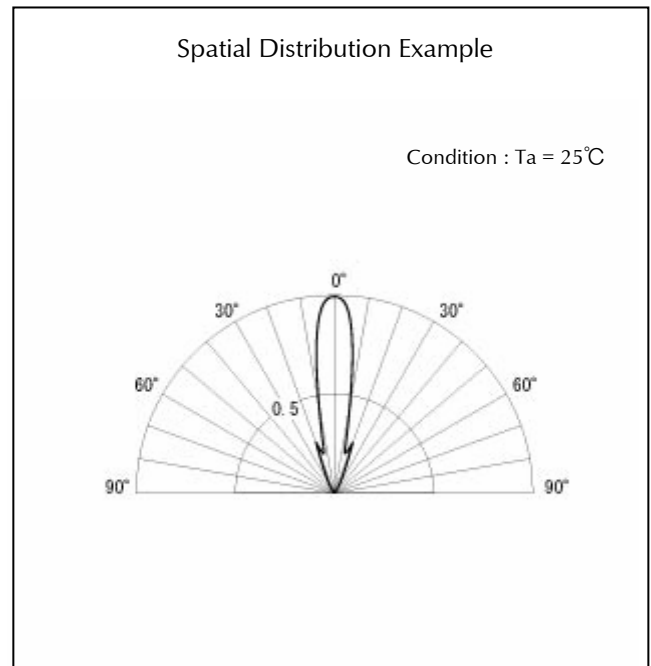
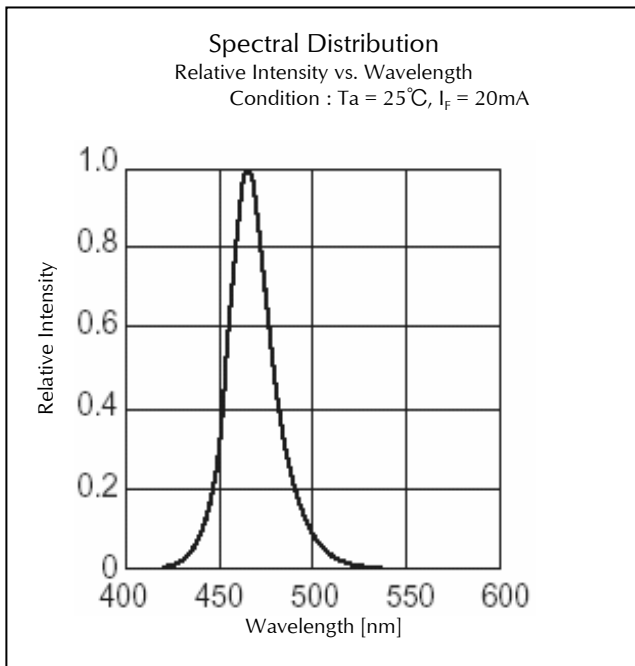
Luminous Intensity Rank

(Ta=25°C)

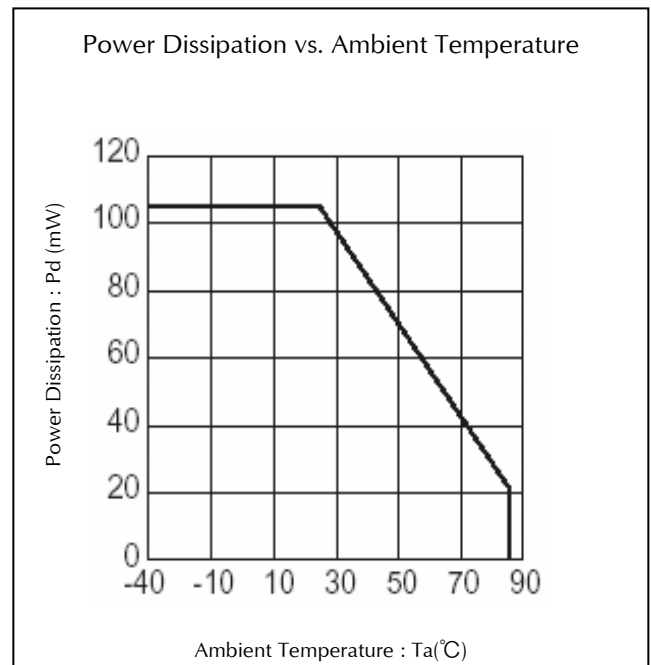
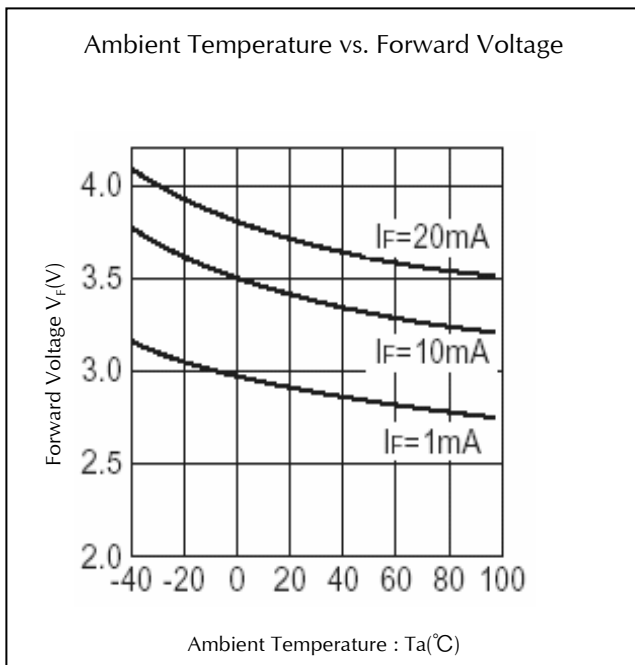
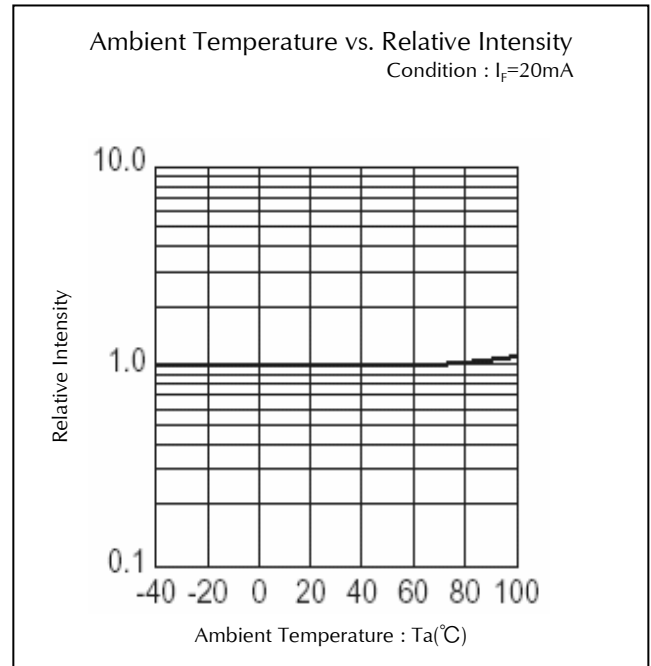
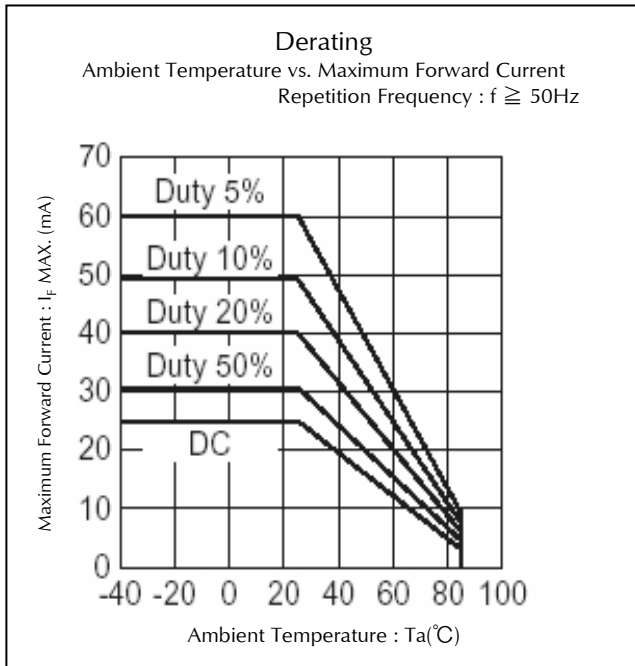
| Rank | I _v (mcd) | | | | | | | | | | Condition |
|------|----------------------|-------|-------|-------|-------|--------|-------|-------|-------|-------|-----------------------|
| | UB | | UC | | UG | | UY | | UR | | |
| | MIN. | MAX. | MIN. | MAX. | MIN. | MAX. | MIN. | MAX. | MIN. | MAX. | |
| A | / | | 1,200 | 2,400 | / | | 720 | 1,440 | 640 | 1,280 | I _F = 20mA |
| B | | | 1,680 | 3,360 | | | 1,000 | 2,000 | 900 | 1,800 | |
| C | 500 | 1,000 | 2,400 | 4,800 | 1,680 | 3,360 | 1,440 | 2,880 | 1,280 | 2,560 | |
| D | 700 | 1,400 | 3,360 | 6,720 | 2,400 | 4,800 | 2,000 | 4,000 | 1,800 | 3,600 | |
| E | 1,000 | 2,000 | 4,800 | 9,600 | 3,360 | 6,720 | 2,880 | 5,760 | 2,560 | 5,120 | |
| F | 1,400 | 2,800 | 6,720 | - | 4,800 | 9,600 | 4,000 | - | 3,600 | - | |
| G | 2,000 | 4,000 | / | | 6,720 | 13,440 | / | | / | | |
| H | 2,800 | - | | | 9,600 | - | | | | | |

Please contact our sales staff concerning rank designation of UY and UR.

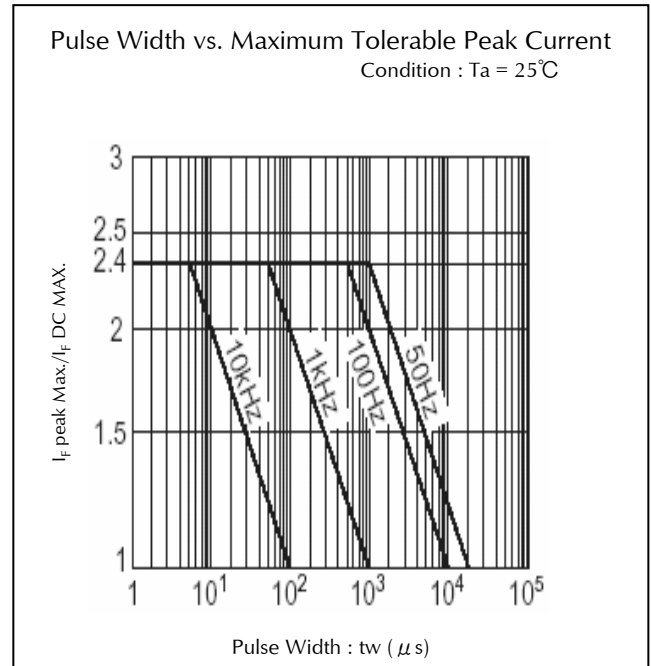
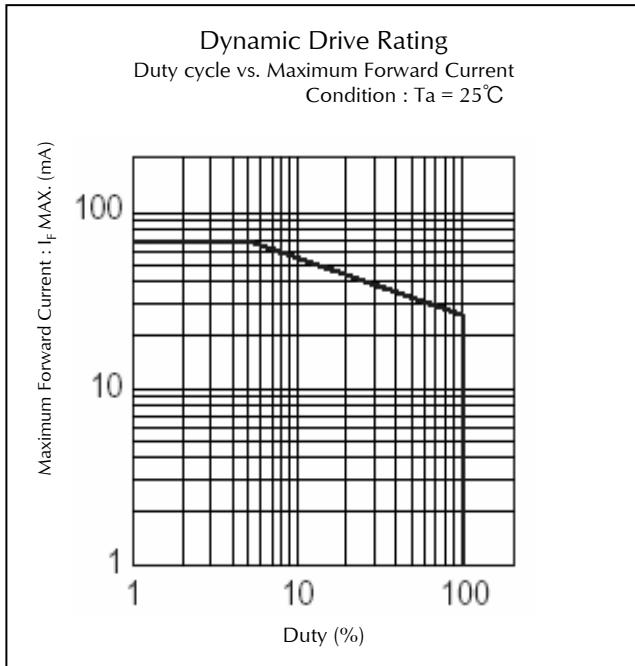
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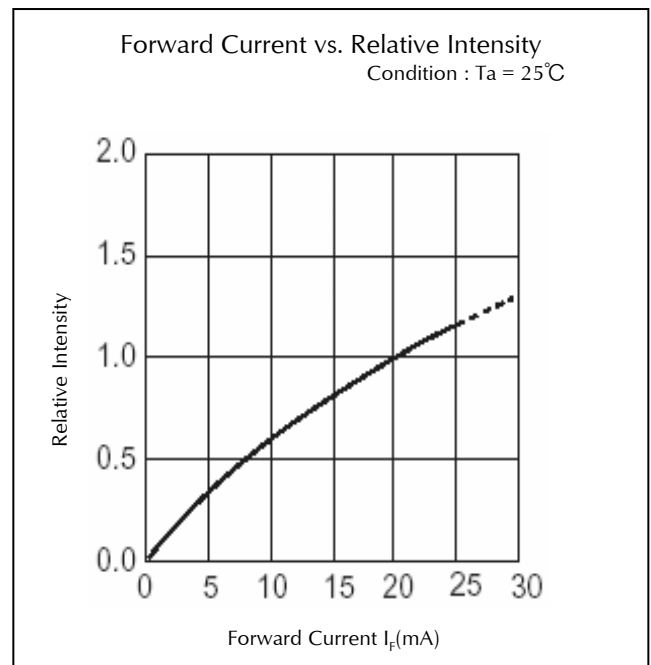
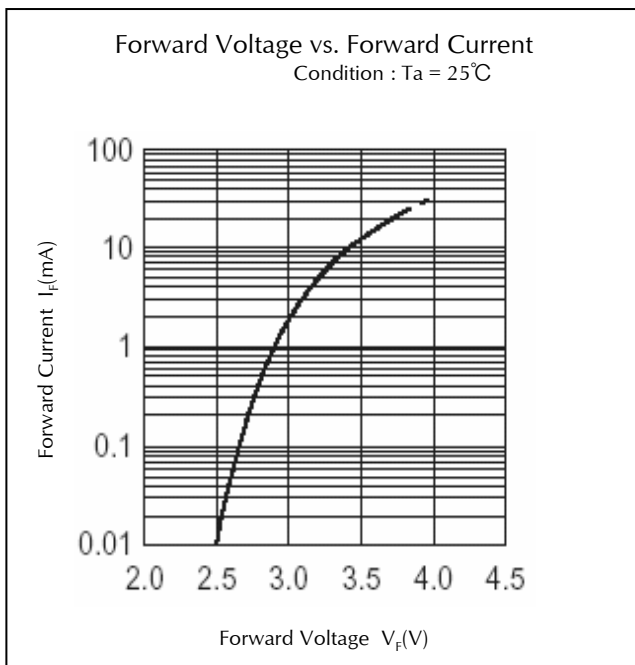
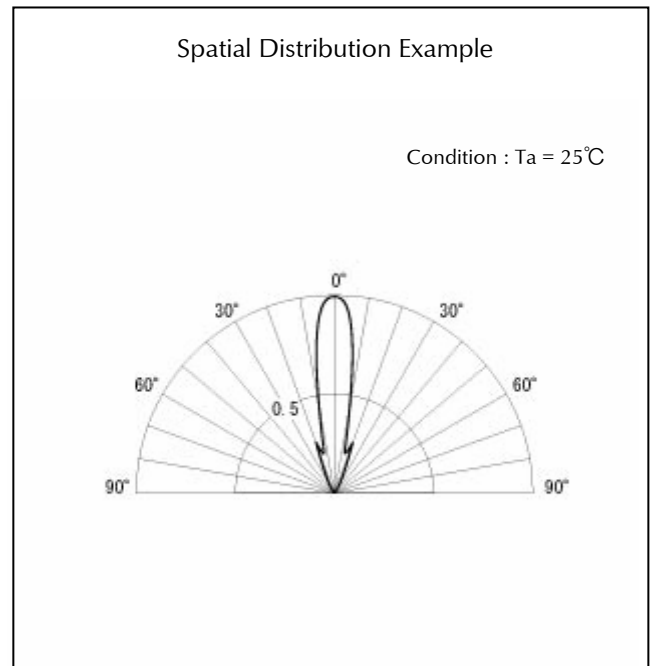
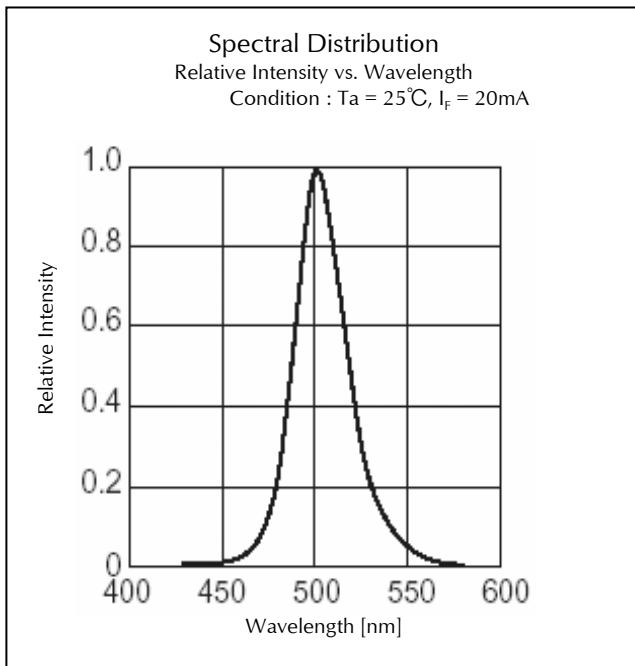
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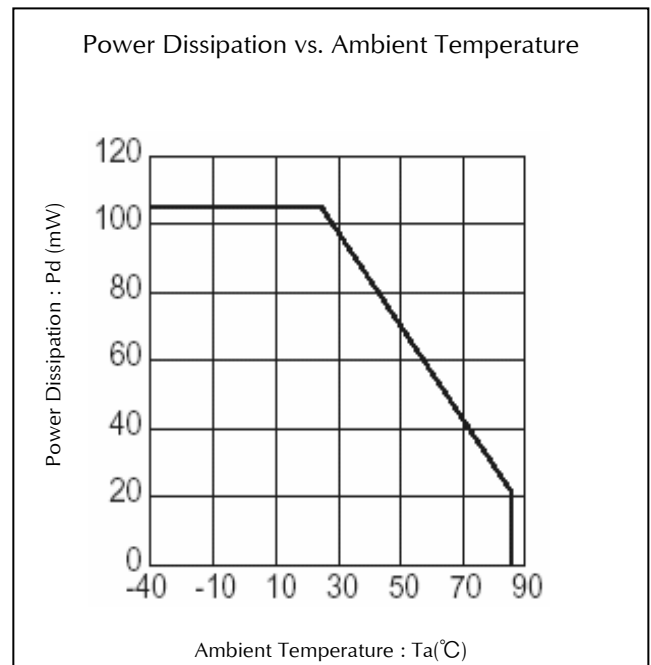
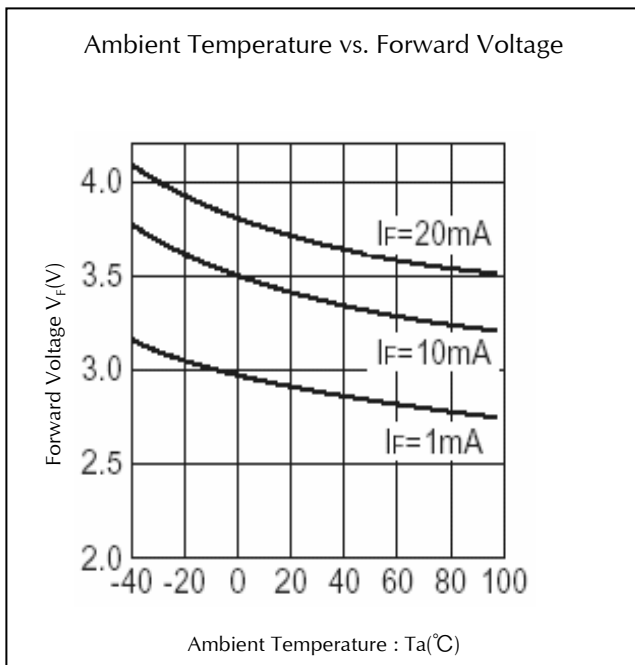
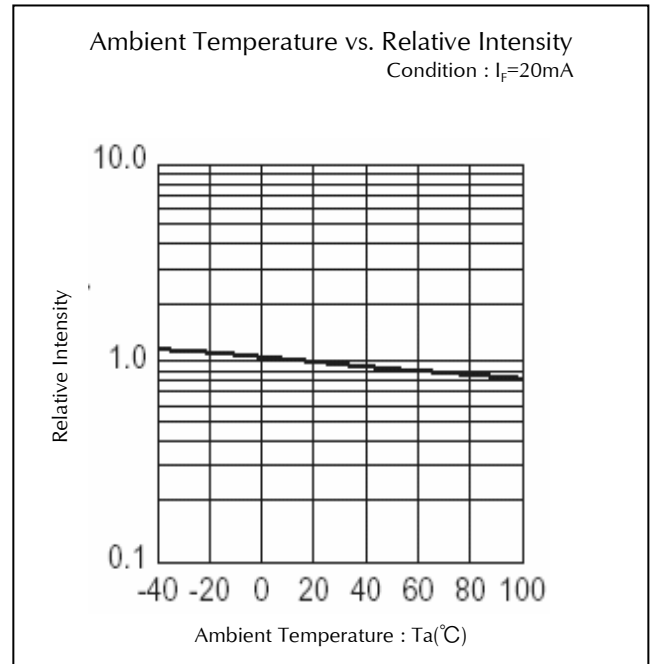
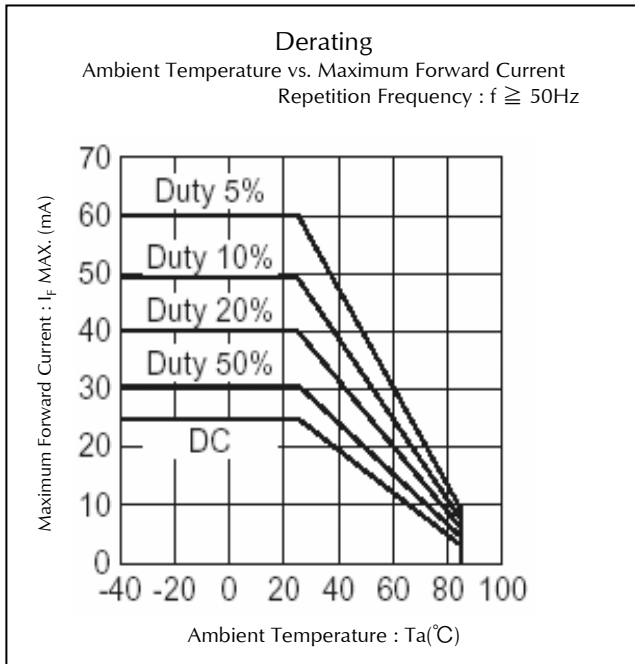
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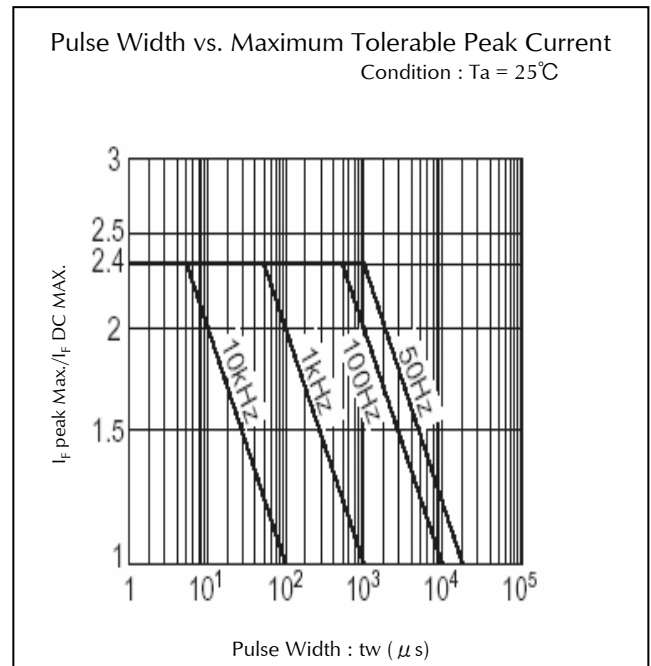
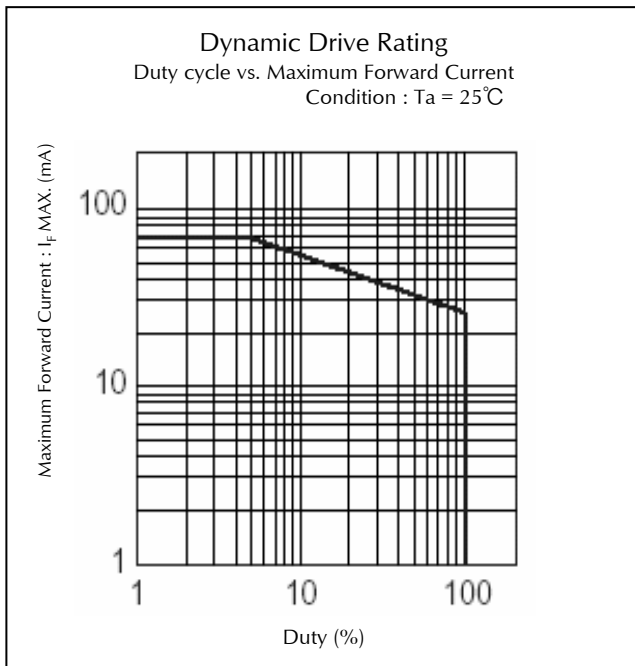
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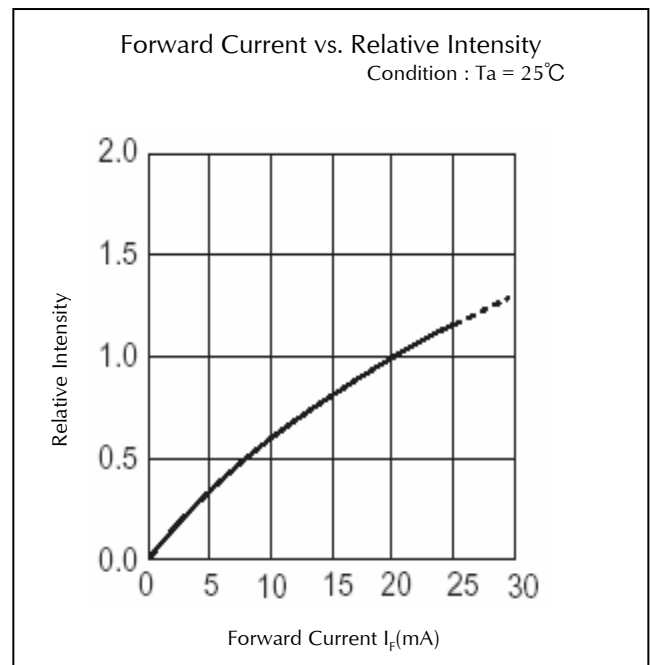
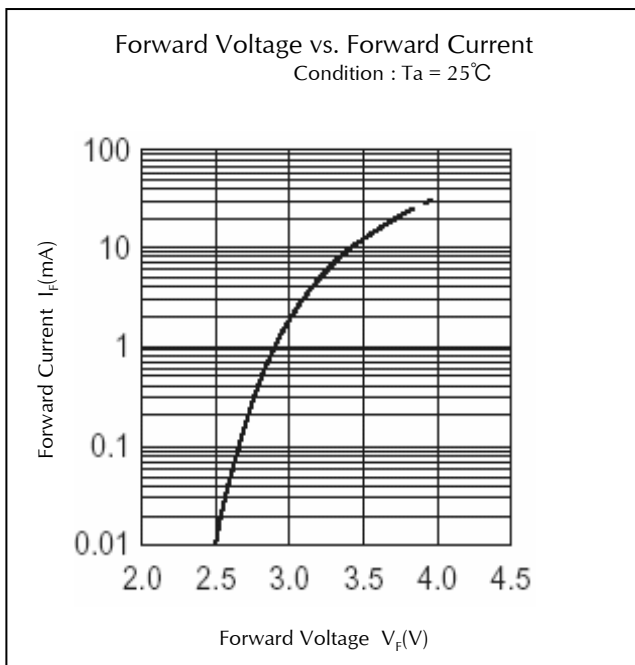
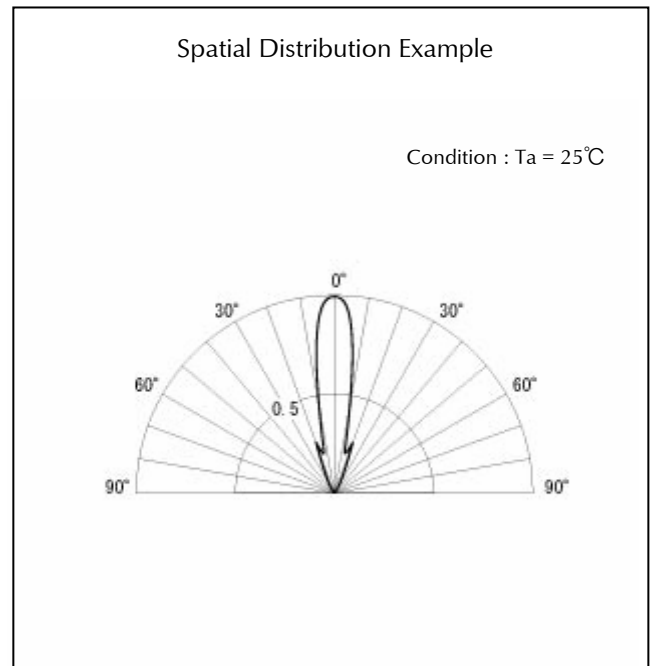
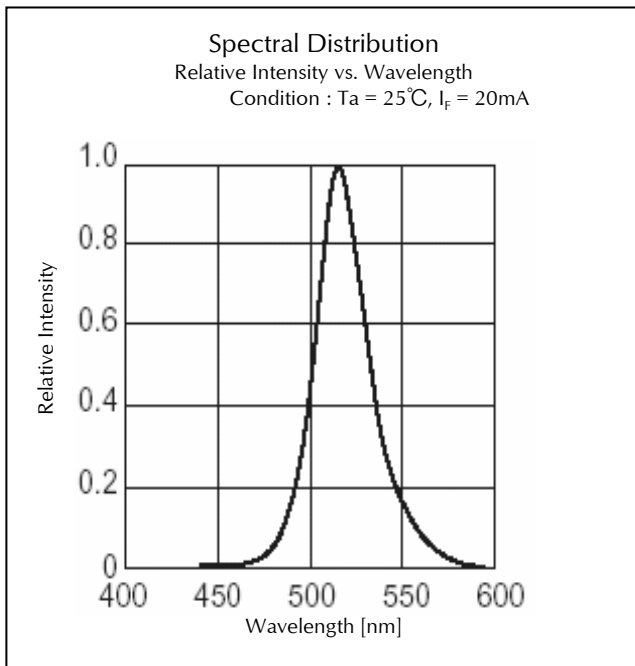
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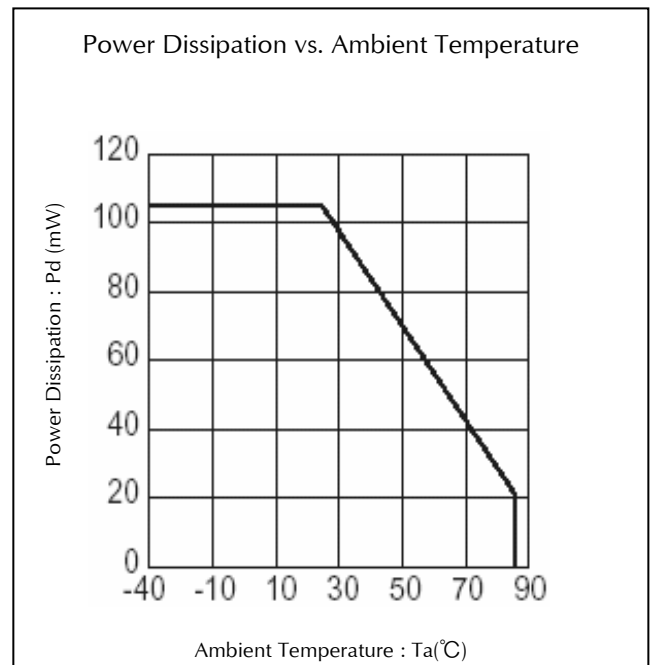
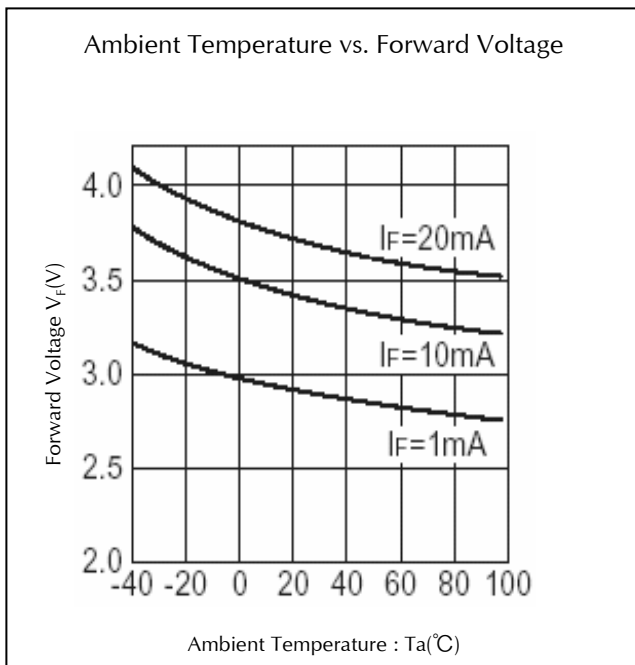
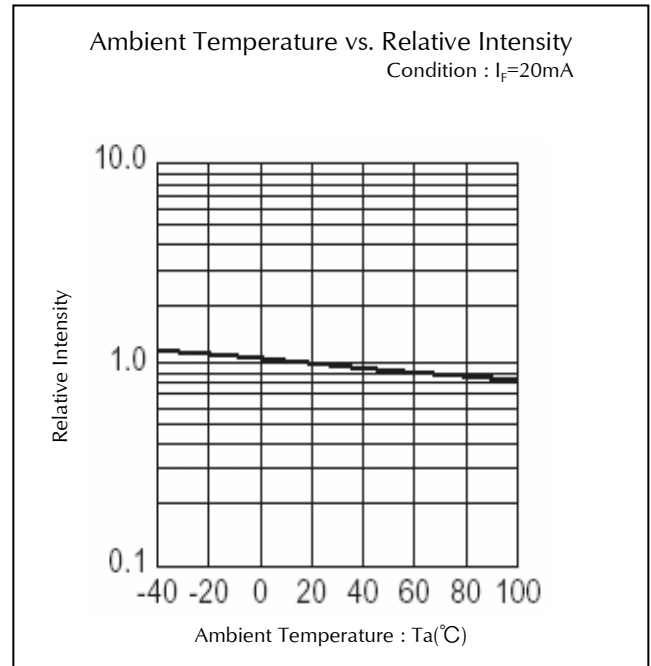
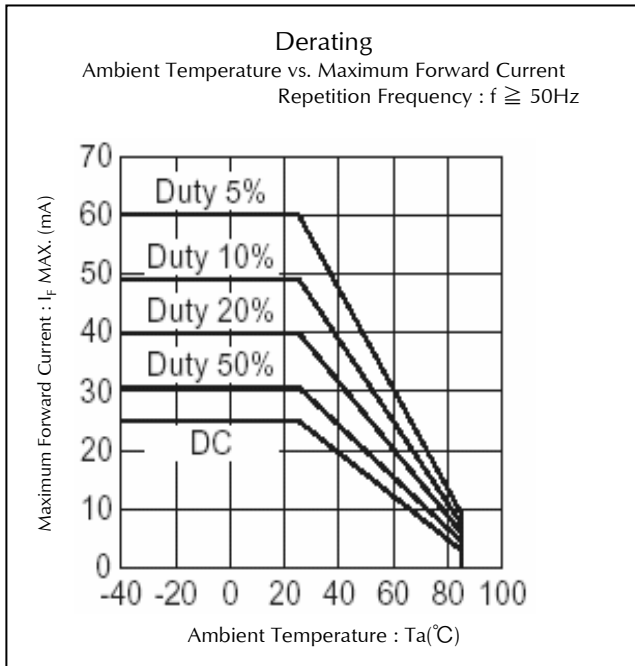
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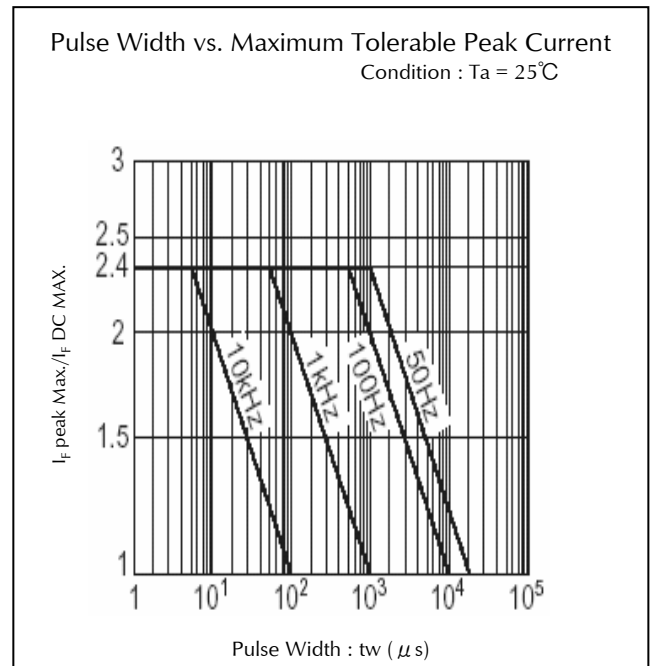
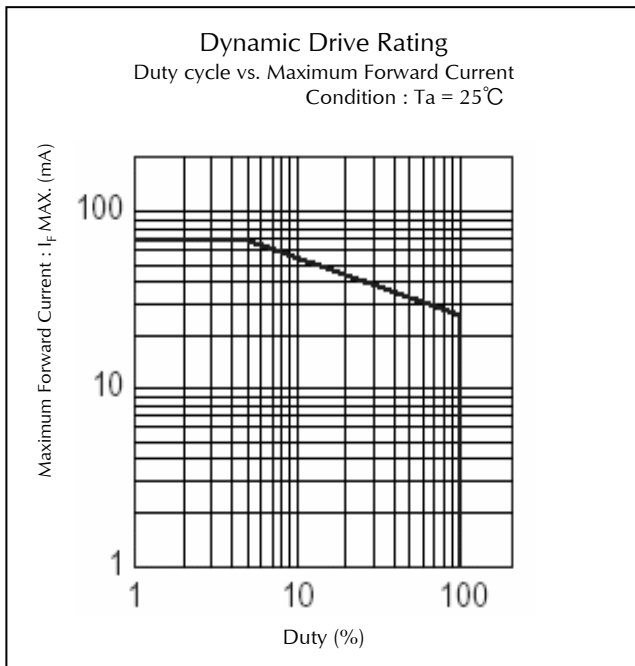
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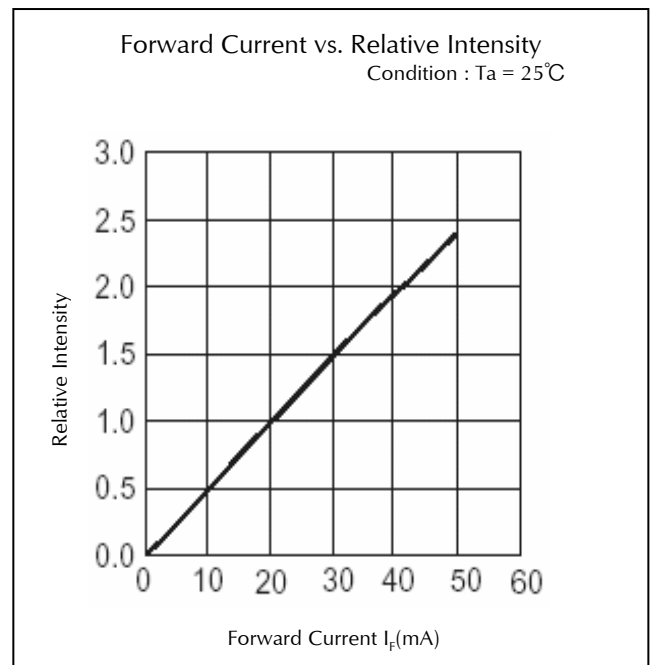
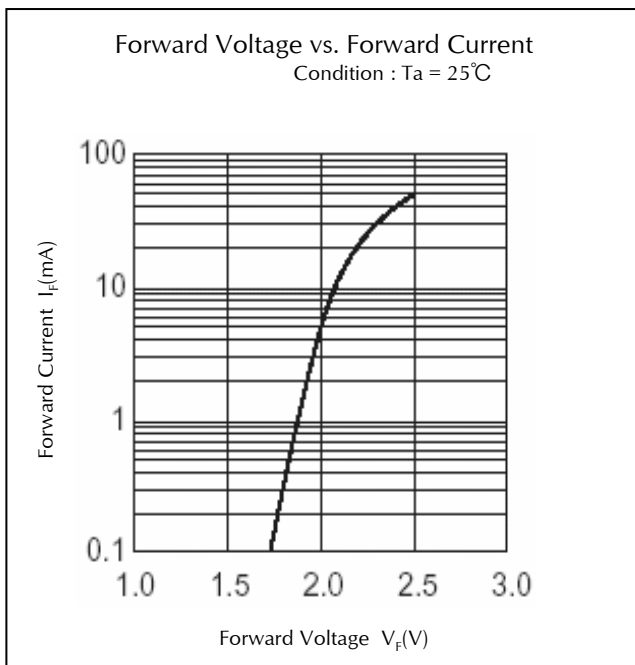
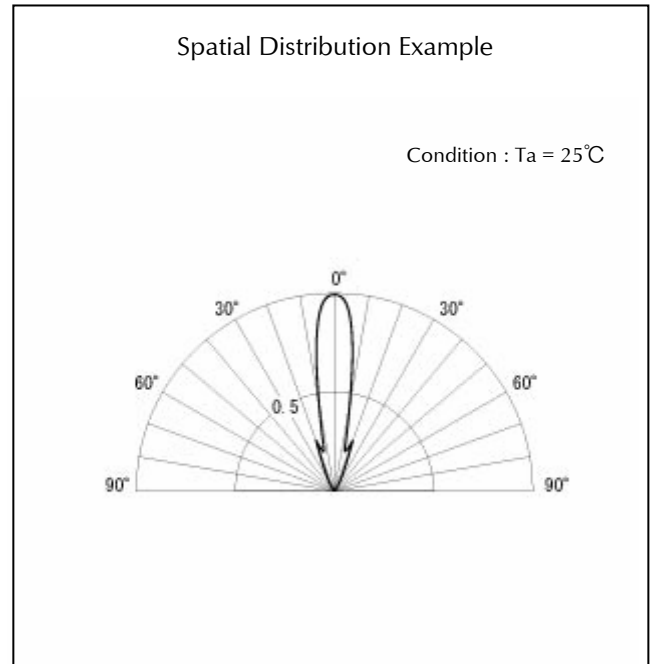
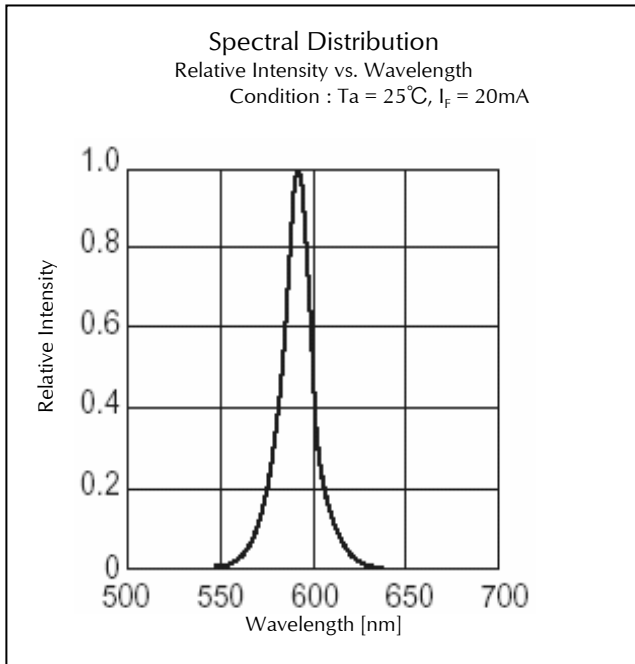
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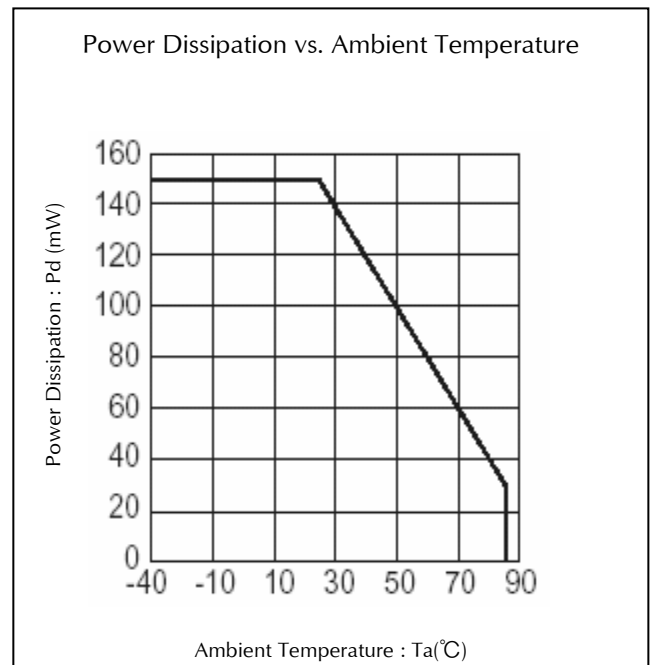
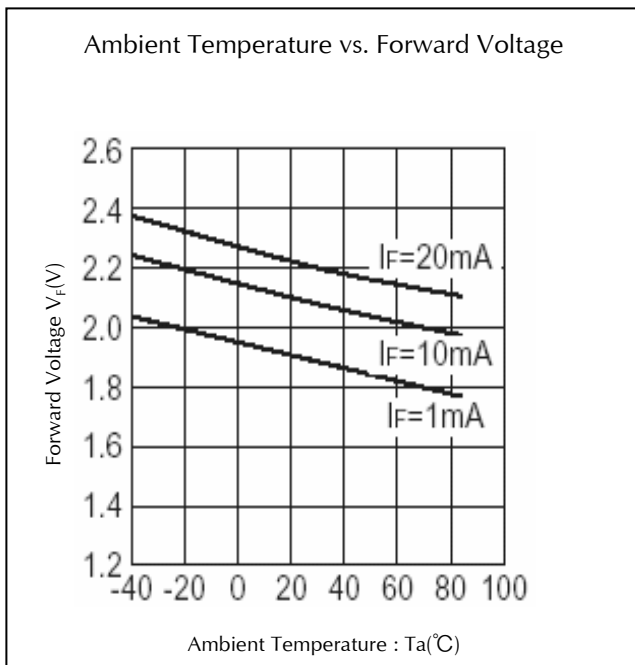
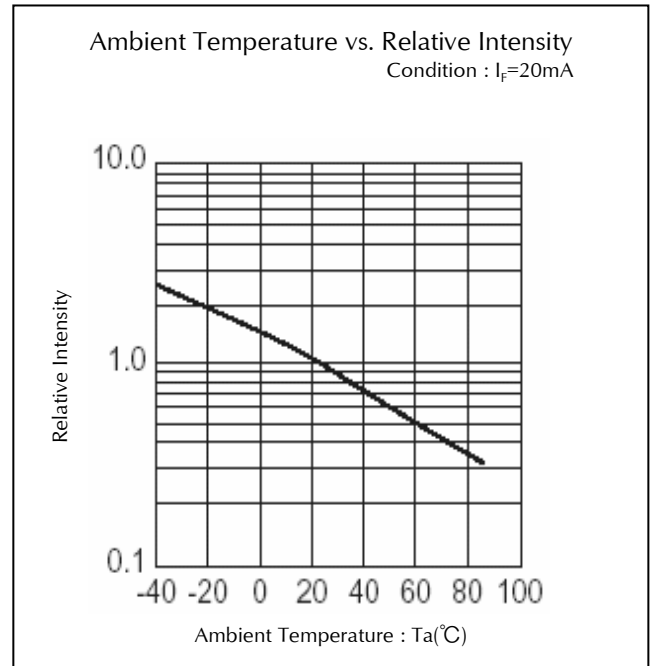
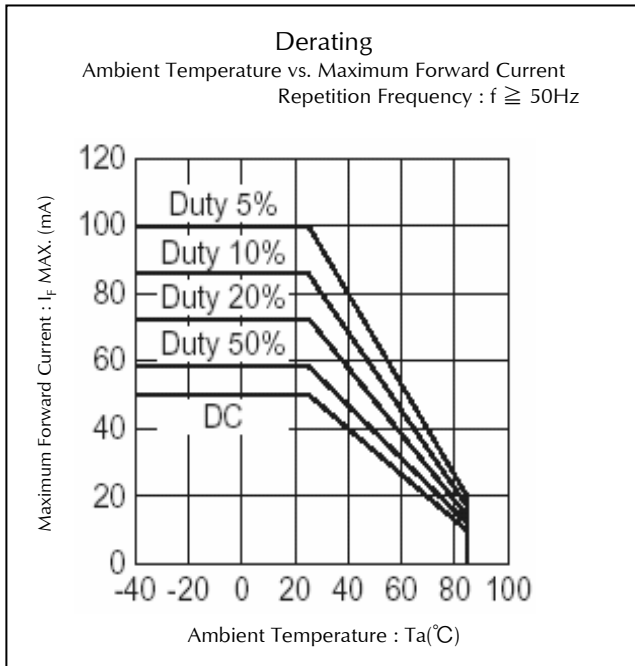
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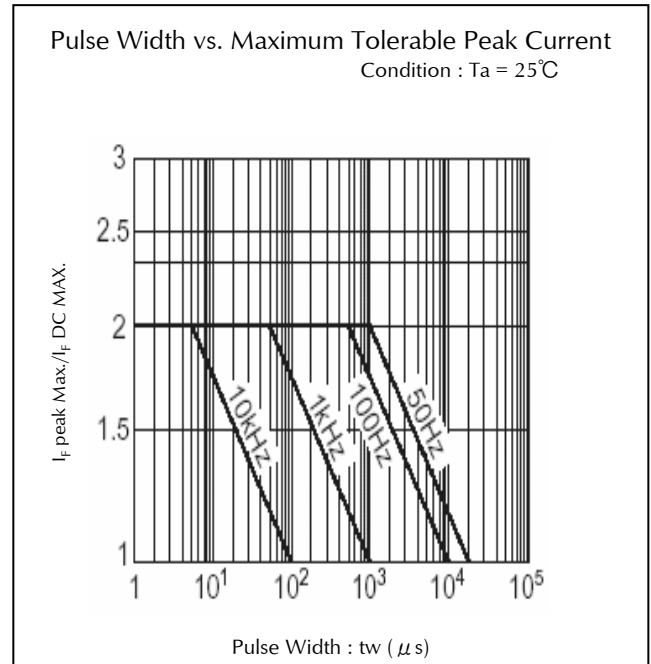
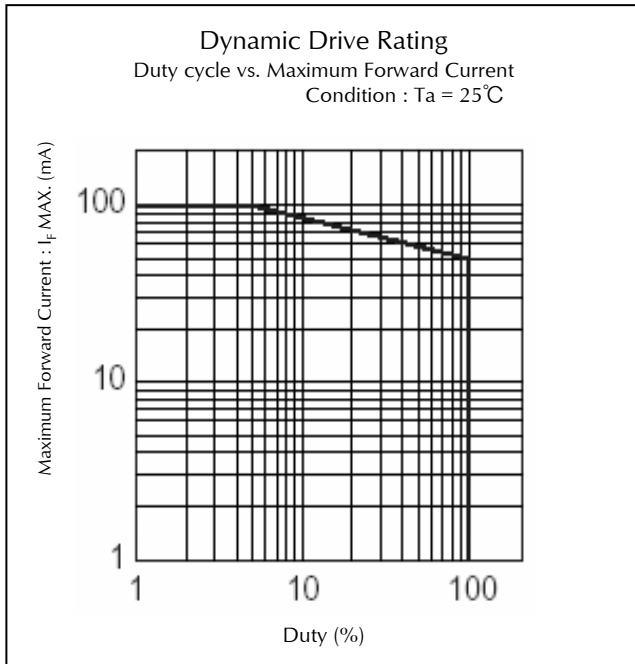
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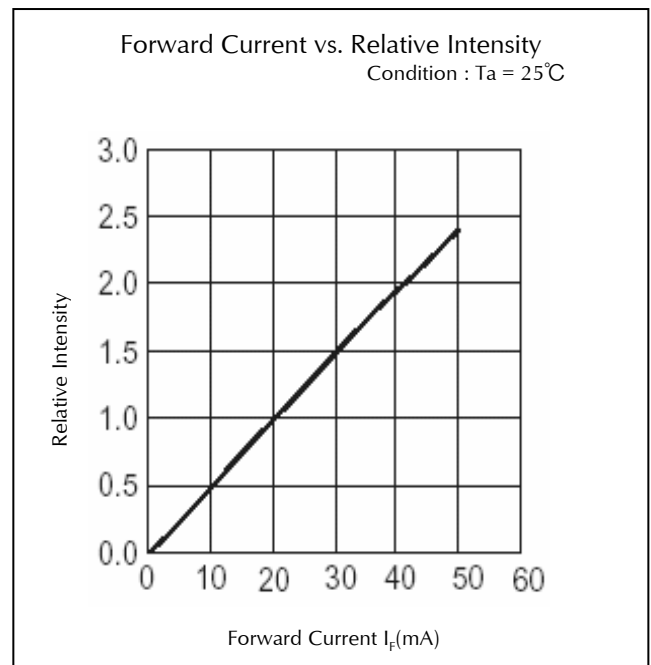
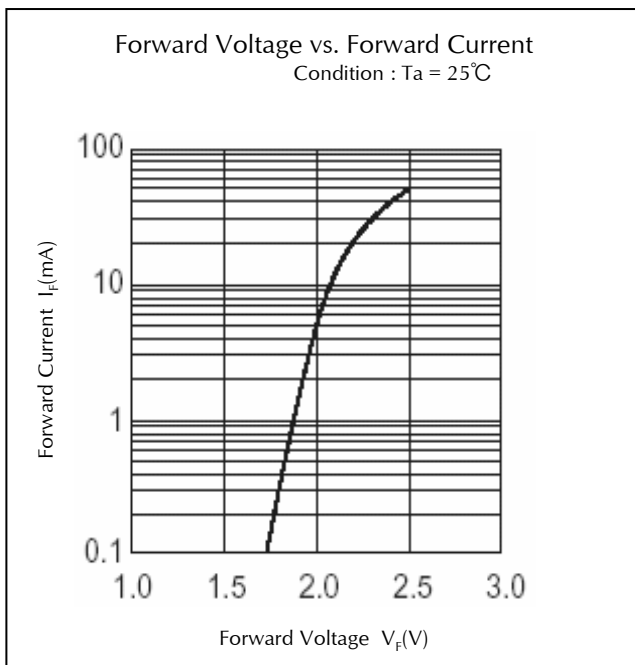
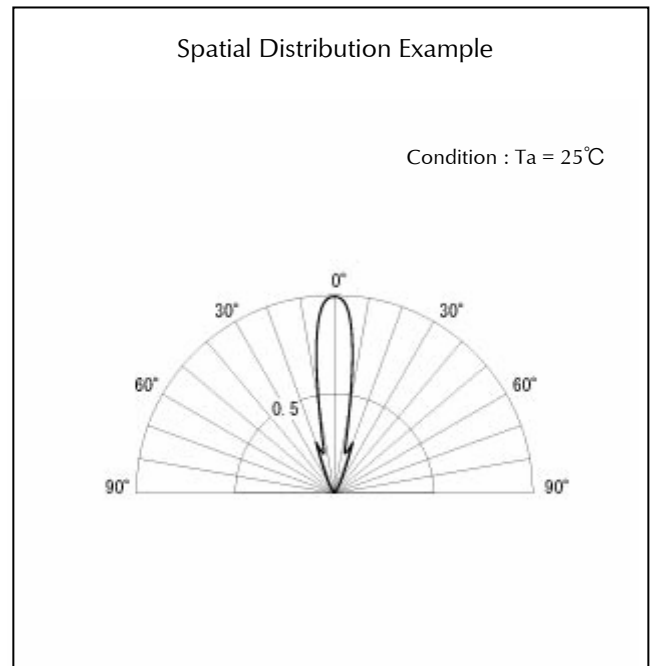
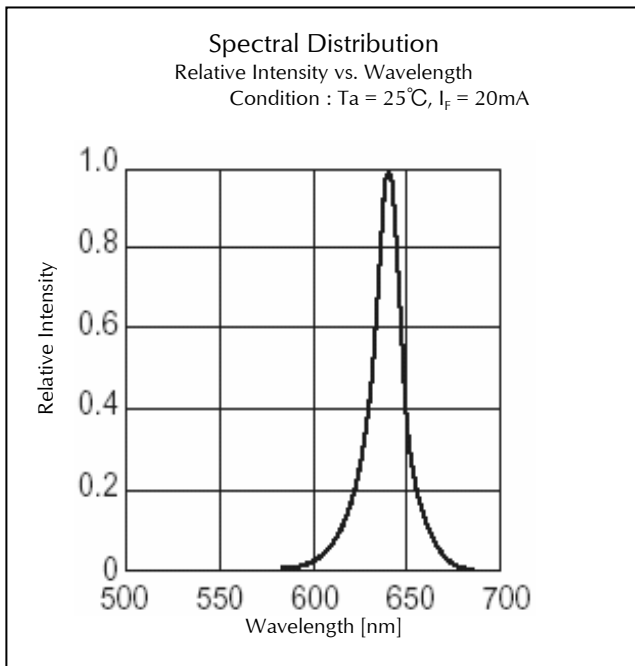
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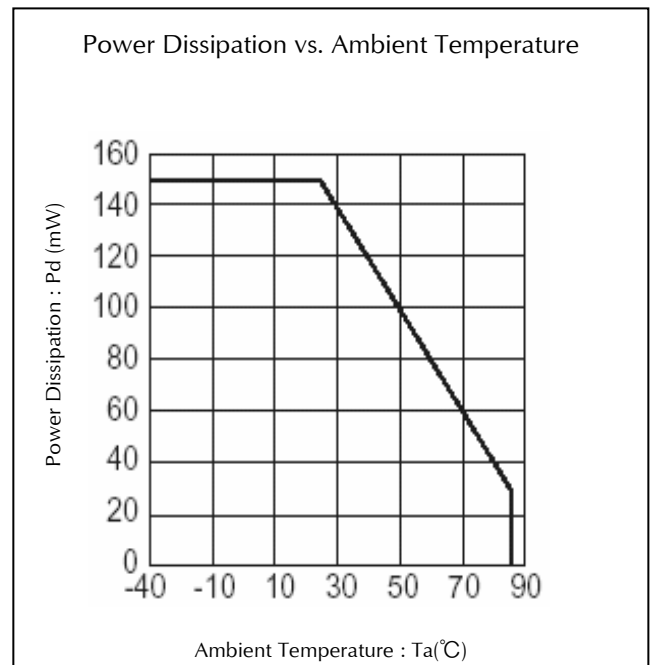
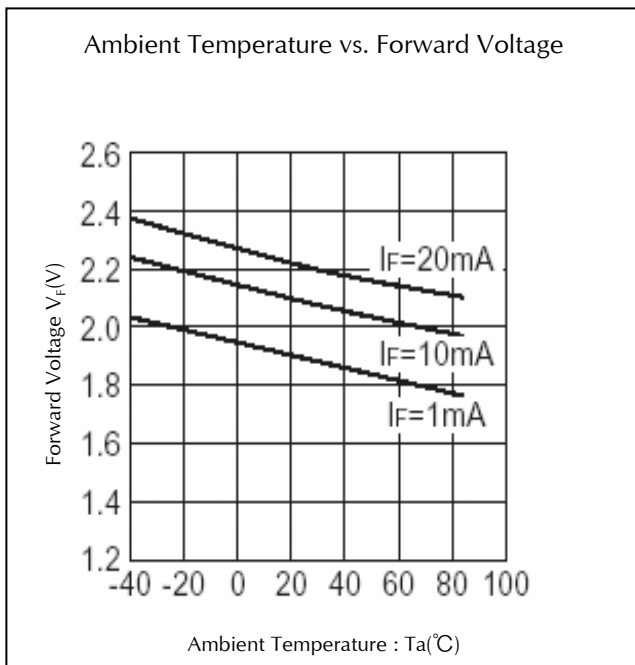
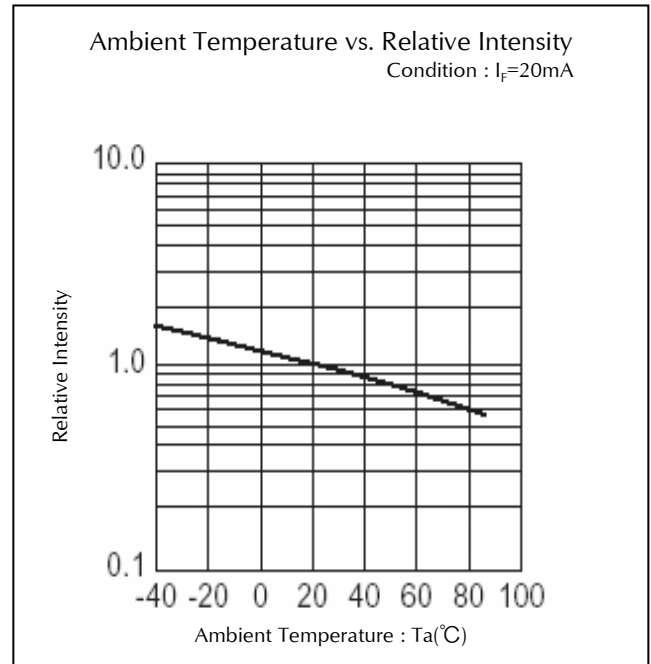
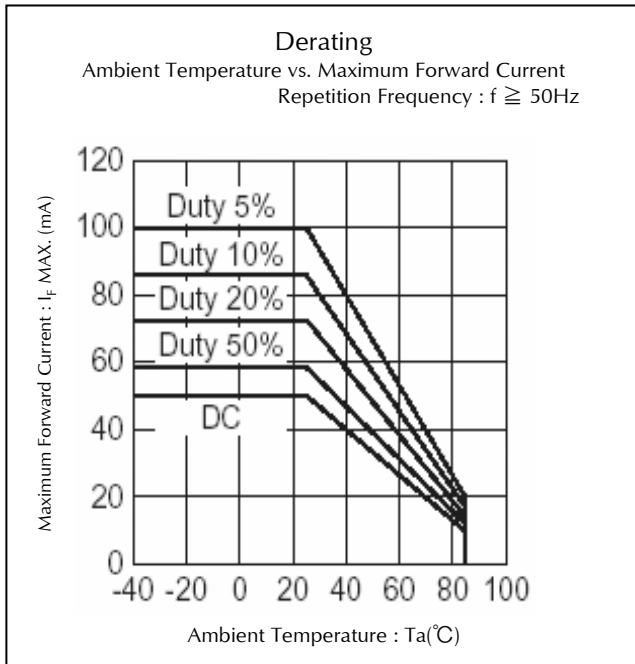
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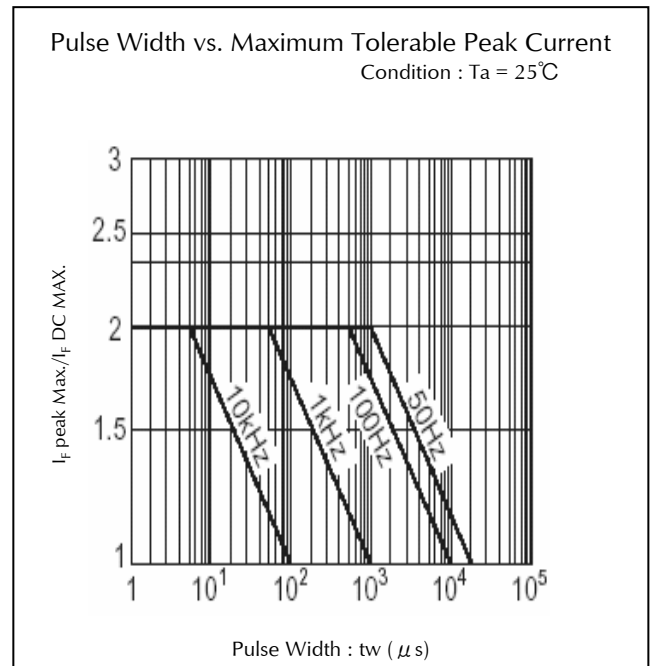
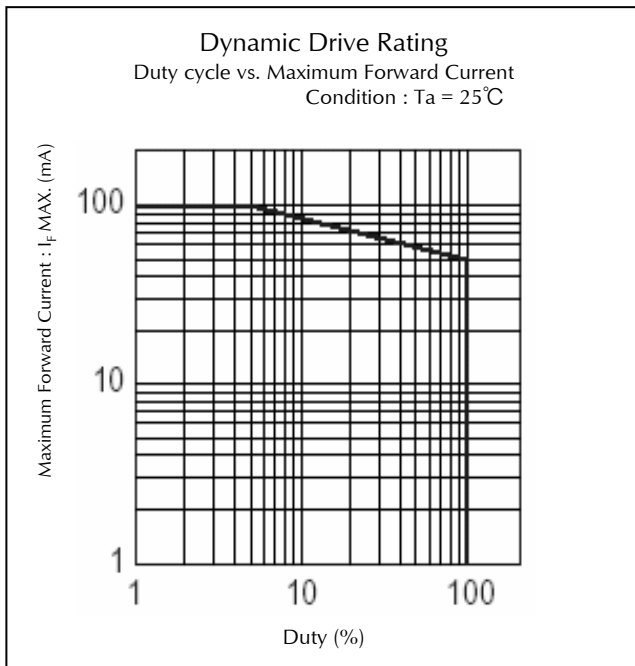
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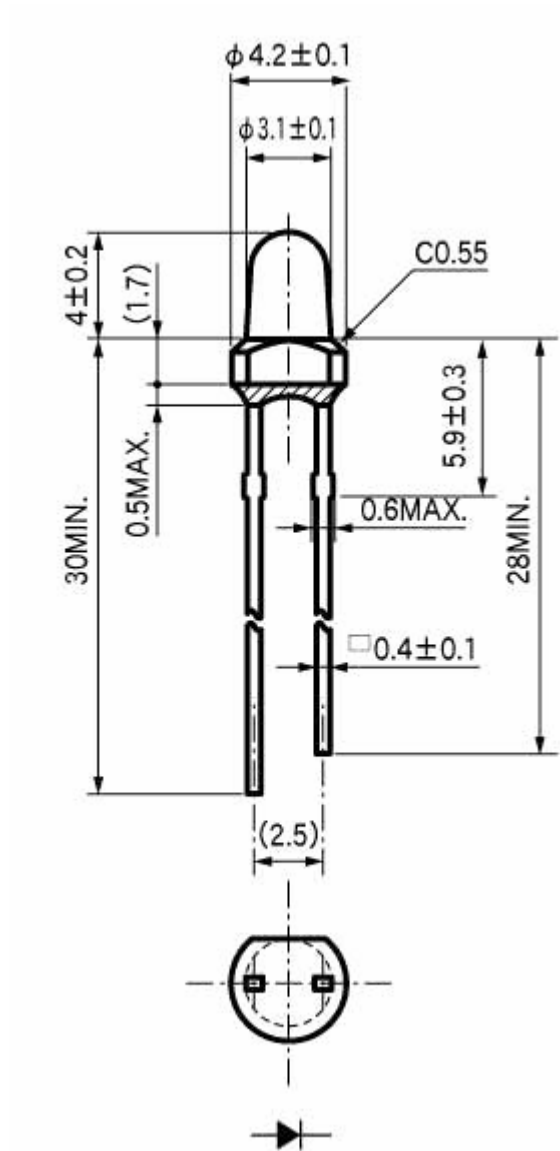


Technical Data(UR)



Package Dimensions

(Unit: mm)



TTW (Through The Wave) soldering Conditions

| | | |
|-------------------|--------|--------|
| Pre-heating | 100 °C | (MAX.) |
| Solder Bath Temp. | 265°C | (MAX.) |
| Dipping Time | 5 s | (MAX.) |

- 1) The dip soldering process shall be 2 times maximum.
- 2) The product shall be cooled to room temp. before the second dipping process.

※The detail is described to LED and Photodetector handling precautions of home page:
"Mounting through-hole Type Devices" and "Soldering", and use it after the confirmation, please.

Manual Soldering Conditions

| | | |
|------------------------------|---------|--------|
| Iron tip temp. | 400°C | (MAX.) |
| Soldering time and frequency | 3 s | (MAX.) |
| | 2 times | (MAX.) |

※The detail is described to LED and Photodetector handling precautions of home page:
"Mounting through-hole Type Devices" and "Soldering", and use it after the confirmation, please.

Reliability Testing Result

| Reliability Testing Result | Applicable Standard | Testing Conditions | Duration | Failure |
|-------------------------------|-----------------------|---|----------|---------|
| Room Temp. Operating Life | EIAJ ED-4701/100(101) | Ta = 25°C, If = Maximum Rated Current | 1,000 h | 0/25 |
| Resistance to Soldering Heat | EIAJ ED-4701/300(302) | 260±5°C, 1.6mm from package base | 10s | 0/25 |
| Temperature Cycling | EIAJ ED-4701/100(105) | Minimum Rated Storage Temperature(30min) ~Normal Temperature(15min) ~Maximum Rated Storage Temperature(30min) ~Normal Temperature(15min) | 5 cycles | 0/25 |
| Wet High Temp. Storage Life | EIAJ ED-4701/100(103) | Ta = 60±2°C, RH = 90±5% | 1,000 h | 0/25 |
| High Temp. Storage Life | EIAJ ED-4701/200(201) | Ta = Maximum Rated Storage Temperature | 1,000 h | 0/25 |
| Low Temp. Storage Life | EIAJ ED-4701/200(202) | Ta = Minimum Rated Storage Temperature | 1,000 h | 0/25 |
| Lead Tension | EIAJ ED-4701/400(401) | 10N, 1time (□0.4 and Flat Package : 5N) | 10s | 0/10 |
| Vibration, Variable Frequency | EIAJ ED-4701/400(403) | 98.1m/s ² (10G), 100 ~ 2KHz sweep for 20min., XYZ each direction | 2 h | 0/10 |

Failure Criteria

| Items | Symbols | Conditions | Failure criteria |
|---------------------|----------------|---|---|
| Luminous Intensity | Iv | If Value of each product Luminous Intensity | Testing Min. Value < Spec. Min. Value x 0.5 |
| Forward Voltage | V _F | If Value of each product Forward Voltage | Testing Max. Value ≥ Spec. Max. Value x 1.2 |
| Reverse Current | I _R | V _R = Maximum Rated Reverse Voltage V | Testing Max. Value ≥ Spec. Max. Value x 2.5 |
| Cosmetic Appearance | - | - | Occurrence of notable decoloration, deformation and cracking |

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