

**Pb-free
HEAT**



4607K Series

Bi-color Rectangular Shape Type

Features

| | |
|-------------------------|---|
| Package | 2 × 4.5 Bi-color Rectangular shape type, Water Clear epoxy |
| Product features | <ul style="list-style-type: none"> • Outer Dimension 2 × 4.5 Rectangular shape type • Operation temperature range. Storage Temperature : -30°C~100°C Operating Temperature : -30°C~85°C • Lead-free soldering compatible • RoHS compliant |
| Dominant wavelength | Green : 558nm (BG) : 567nm (PG) Yellow Green : 572nm (PY) Orange : 606nm (AA) Red : 624nm (VR) |
| Half Intensity Angle | BG : $\theta_x = 72\text{deg.}, \theta_y = 78\text{deg.}$, PG : $\theta_x = 74\text{deg.}, \theta_y = 92\text{deg.}$, PY : $\theta_x = 70\text{deg.}, \theta_y = 81\text{deg.}$, AA : $\theta_x = 74\text{deg.}, \theta_y = 92\text{deg.}$, VR : $\theta_x = 69\text{deg.}, \theta_y = 87\text{deg.}$ |
| Die materials | BG,PG,PY : GaP AA,VR : GaAsP |
| Rank grouping parameter | Sorted by luminous intensity per rank taping |
| Soldering methods | TTW (Through The Wave) soldering and manual soldering |
| ESD | 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. | Die Name | Material | Emitted Color | Lens Color | | Dominant Wavelength | | Luminous Intensity | | |
|-----------|----------|----------|---------------|------------|-------|---------------------|----------------|--------------------|------|----------------|
| | | | | | | λd (nm) | | Iv (mcd) | | |
| | | | | | | TYP. | I _F | MIN. | TYP. | I _F |
| AABG4607K | BG | GaP | Green | Water | Clear | 558 | 20 | 2 | 4 | 20 |
| | AA | GaAsP | Orange | | | 606 | 20 | 3 | 6 | 20 |
| VRBG4607K | BG | GaP | Green | Water | Clear | 558 | 20 | 2 | 4 | 20 |
| | VR | GaAsP | Red | | | 624 | 20 | 4 | 8 | 20 |
| VRPG4607K | PG | GaP | Green | Water | Clear | 567 | 20 | 4 | 8 | 20 |
| | VR | GaAsP | Red | | | 624 | 20 | 4 | 8 | 20 |
| VRPY4607K | PY | GaP | Yellow Green | Water | Clear | 572 | 20 | 6 | 12 | 20 |
| | VR | GaAsP | Red | | | 624 | 20 | 4 | 8 | 20 |

Absolute Maximum Ratings

(Ta=25°C)

| Item | Symbol | Absolute Maximum Ratings | | | | | Unit |
|---------------------------------|--------------|--------------------------|------|------|------|------|-------|
| | | BG | PG | PY | AA | VR | |
| Power Dissipation | P_d | 75 | 75 | 75 | 75 | 75 | mW |
| Forward Current | I_F | 30 | 30 | 30 | 30 | 30 | mA |
| Pulse Forward Current ※1 | I_{FRM} | 100 | 100 | 100 | 100 | 100 | mA |
| Derating (Ta=25°C or higher) | ΔI_F | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | mA/°C |
| Reverse Voltage | V_R | 4 | 4 | 4 | 4 | 4 | V |
| Operating Temperature | T_{opr} | -30~+85 | | | | | °C |
| Storage Temperature | T_{stg} | -30~+100 | | | | | °C |

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

※ The ratings specified above are under the condition that only one diode is lit.
50% Max. of each rating shall be applied when two diodes are lit simultaneously.

Electro-Optical Characteristics

(Ta=25°C)

| Item | Conditions | Symbol | Characteristics | | | | | Unit | |
|--------------------------|----------------------|----------------|-----------------|---------|---------|---------|---------|---------|------|
| | | | BG | PG | PY | AA | VR | | |
| Forward Voltage | I _F =20mA | V _F | TYP. | 2.1 | 2.1 | 2.1 | 2.2 | 2.0 | V |
| | | | MAX. | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | |
| Reverse Current | V _R =4V | I _R | MAX. | 100 | 100 | 100 | 100 | 100 | μ A |
| Peak Wavelength | I _F =20mA | λ _p | TYP. | 555 | 560 | 570 | 605 | 630 | nm |
| Dominant Wavelength | I _F =20mA | λ _d | TYP. | 558 | 567 | 572 | 606 | 624 | nm |
| Spectral Line Half Width | I _F =20mA | Δλ | TYP. | 30 | 30 | 30 | 30 | 30 | nm |
| Half Intensity Angle | I _F =20mA | 2θ 1/2 | TYP. | 72(θ x) | 74(θ x) | 70(θ x) | 74(θ x) | 69(θ x) | deg. |
| | | | | 78(θ y) | 92(θ y) | 81(θ y) | 92(θ y) | 87(θ y) | |

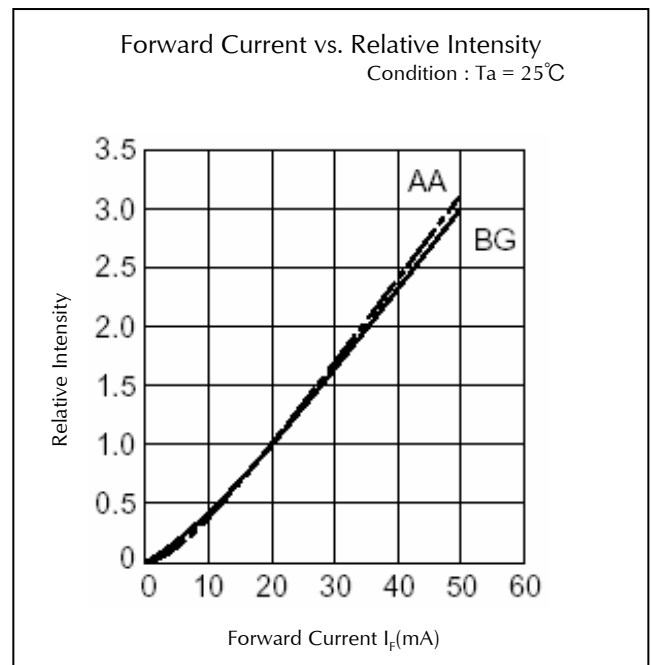
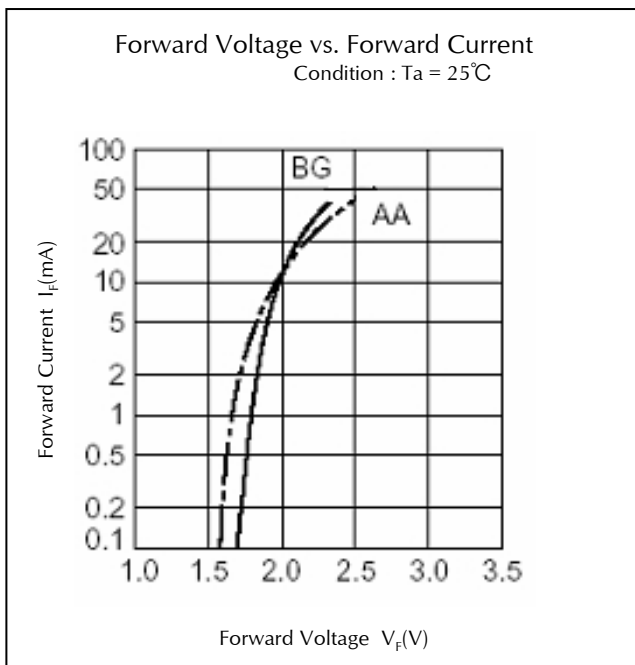
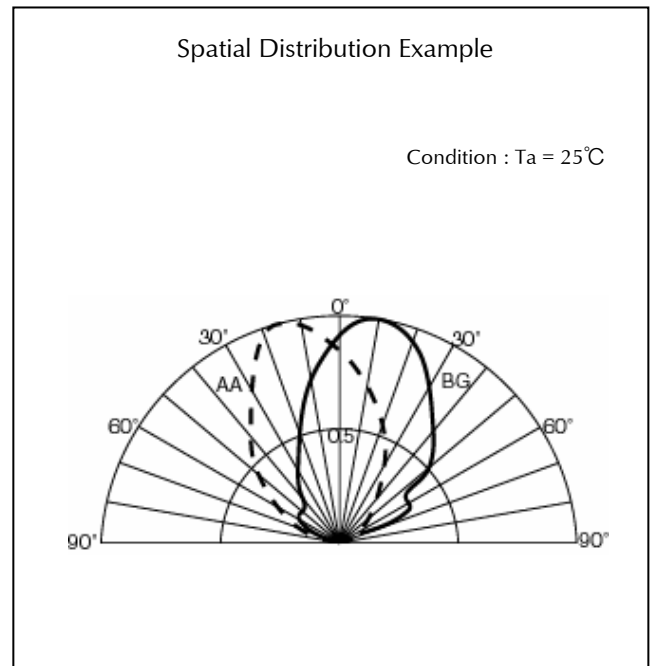
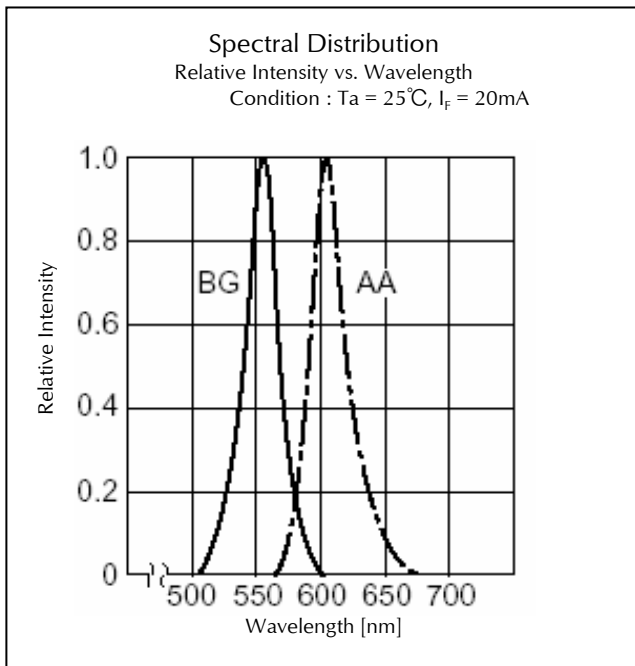
Luminous Intensity Rank

(Ta=25°C)

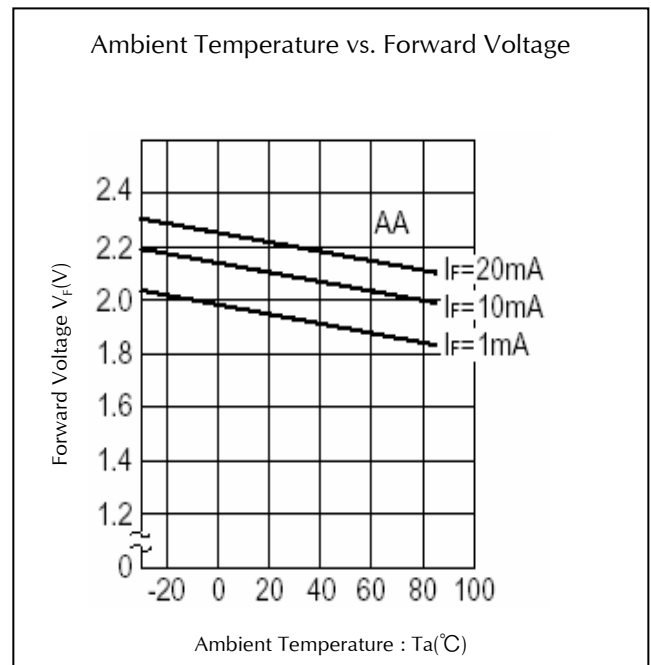
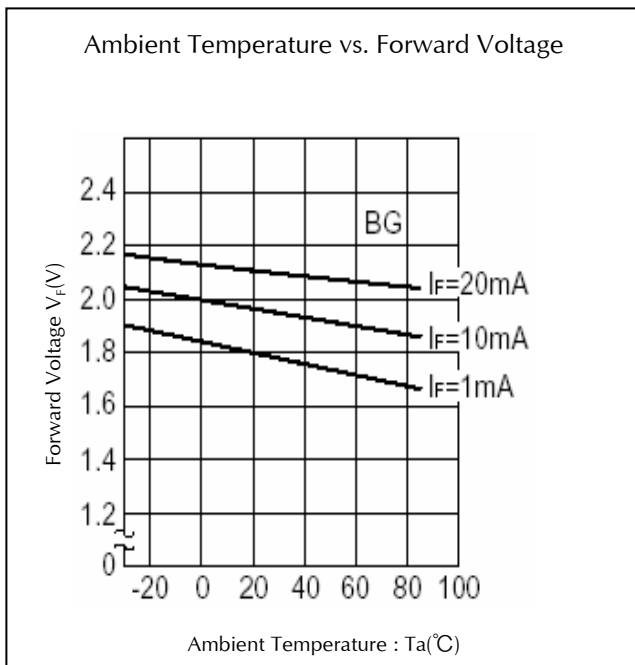
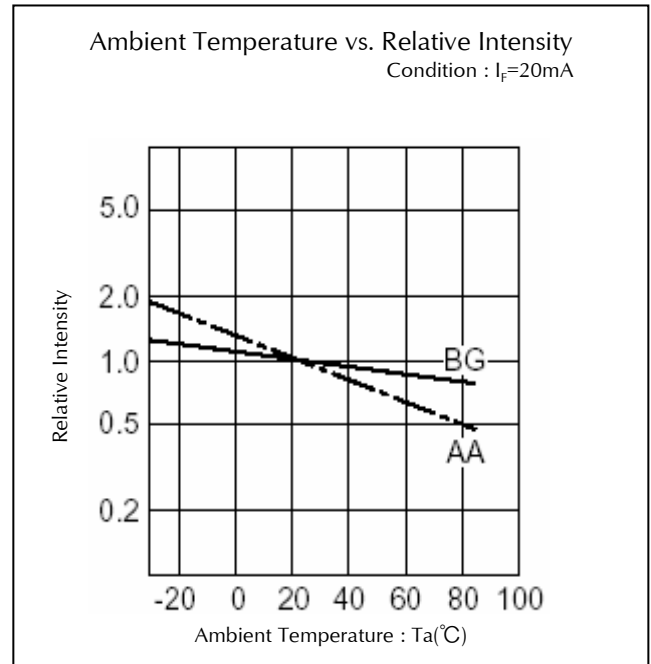
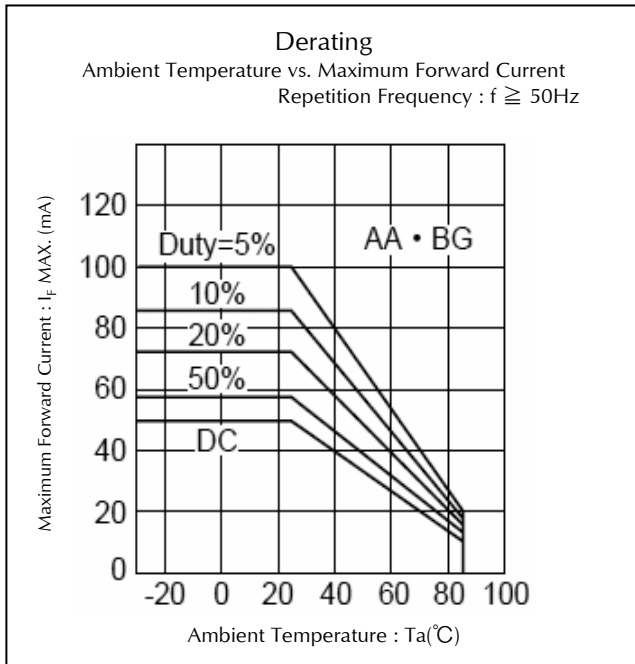
| Rank | I _v (mcd) | | | | | | | | | | | | | | | | Condition |
|------|----------------------|------|------|------|-----------|------|------|------|-----------|------|------|------|-----------|------|------|------|-----------------------|
| | AABG4607K | | | | VRBG4607K | | | | VRPG4607K | | | | VRPY4607K | | | | |
| | BG | | AA | | BG | | VR | | PG | | VR | | PY | | VR | | |
| | MIN. | MAX. | MIN. | MAX. | MIN. | MAX. | MIN. | MAX. | MIN. | MAX. | MIN. | MAX. | MIN. | MAX. | MIN. | MAX. | |
| AA | 2.0 | 5.6 | 3.0 | 8.4 | 2.0 | 5.6 | 4.0 | 11.2 | 4.0 | 11.2 | 4.0 | 11.2 | 6.0 | 16.8 | 4.0 | 11.2 | I _F = 20mA |
| AB | 4.0 | 11.2 | 3.0 | 8.4 | 4.0 | 11.2 | 4.0 | 11.2 | 8.0 | 22.4 | 4.0 | 11.2 | 12.0 | 33.6 | 4.0 | 11.2 | |
| BA | 2.0 | 5.6 | 6.0 | 16.8 | 2.0 | 5.6 | 8.0 | 22.4 | 4.0 | 11.2 | 8.0 | 22.4 | 6.0 | 16.8 | 8.0 | 22.4 | |
| BB | 4.0 | 11.2 | 6.0 | 16.8 | 4.0 | 11.2 | 8.0 | 22.4 | 8.0 | 22.4 | 8.0 | 22.4 | 12.0 | 33.6 | 8.0 | 22.4 | |

Please contact our sales staff concerning rank designation.

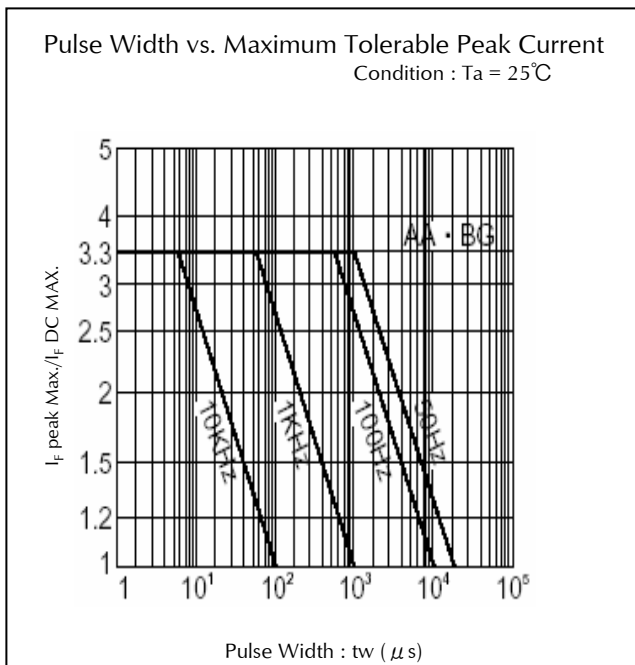
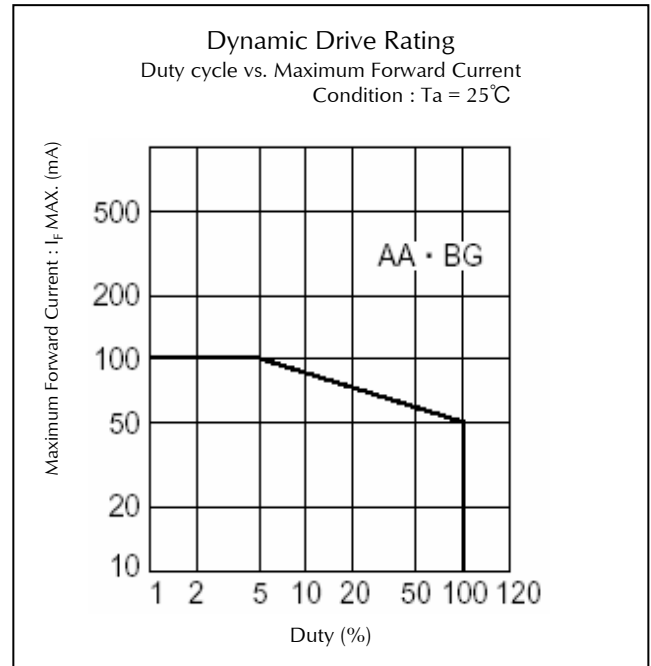
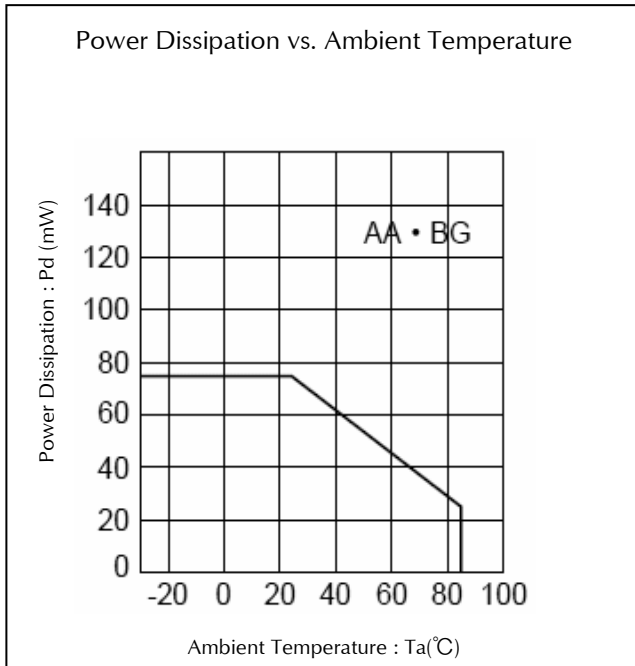
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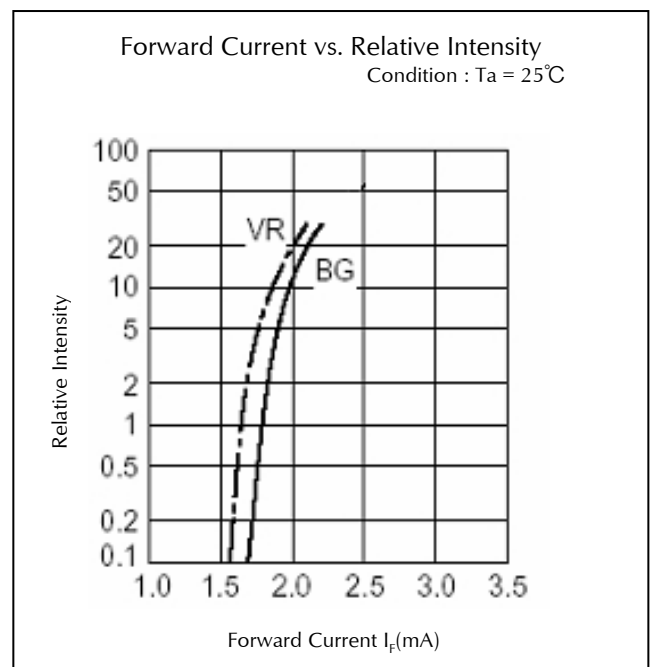
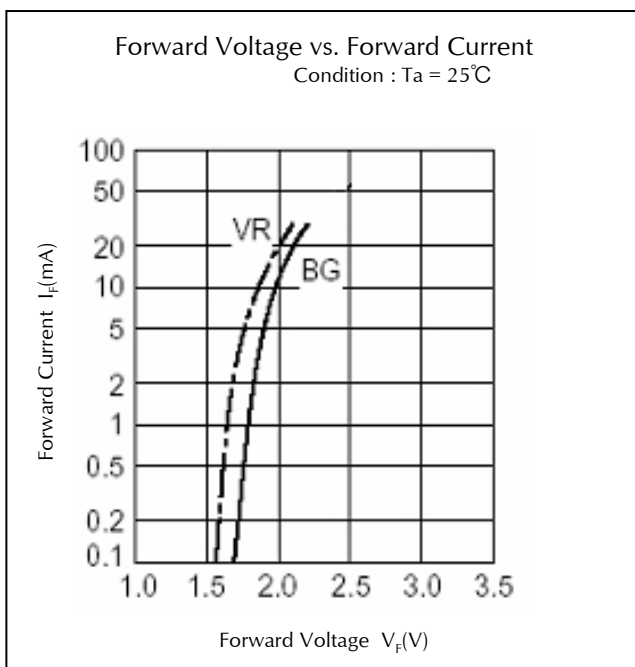
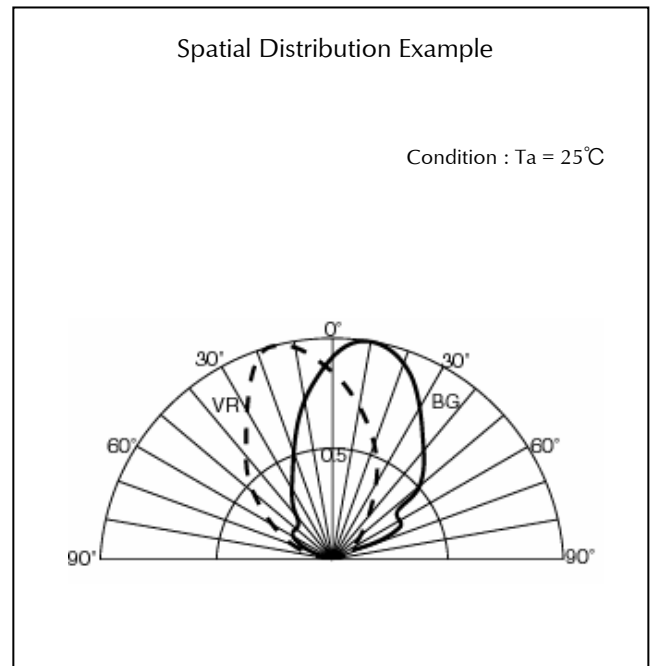
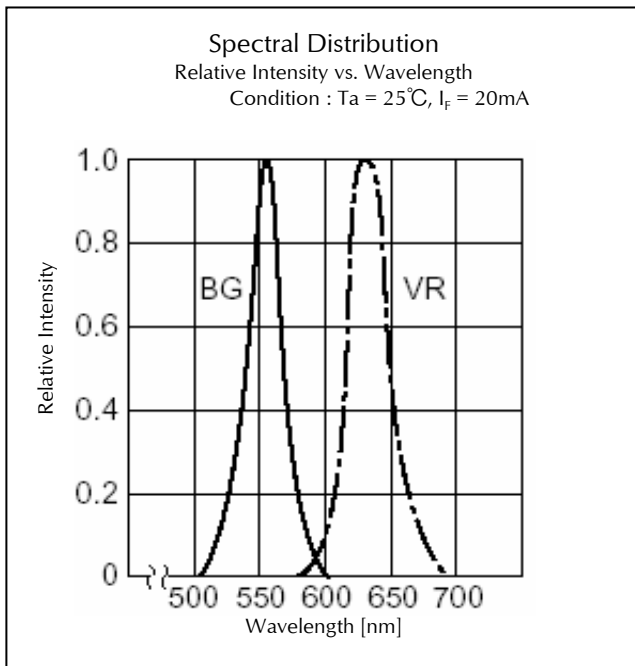
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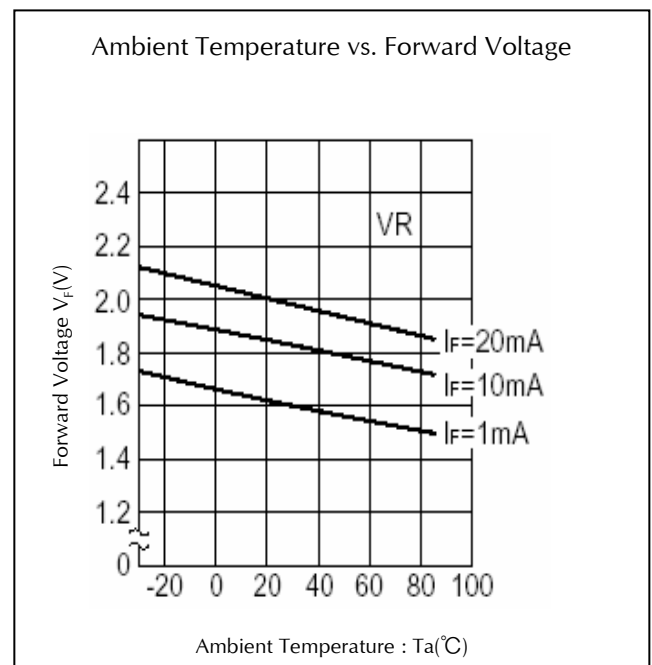
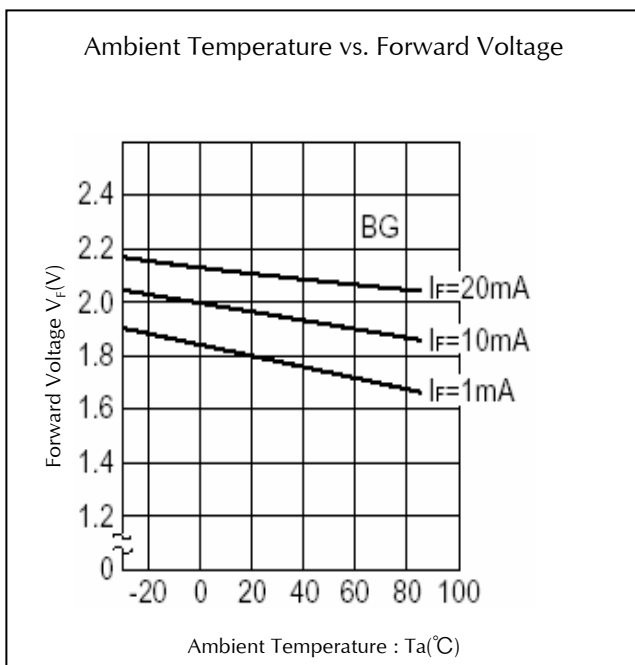
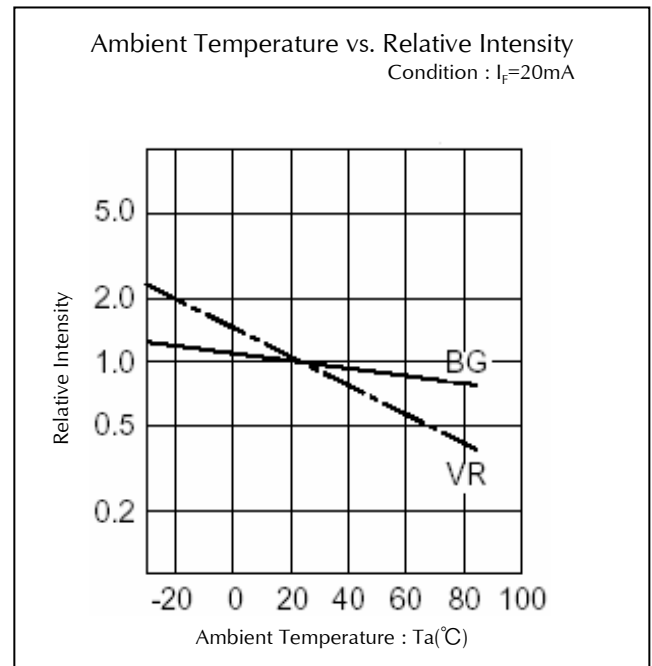
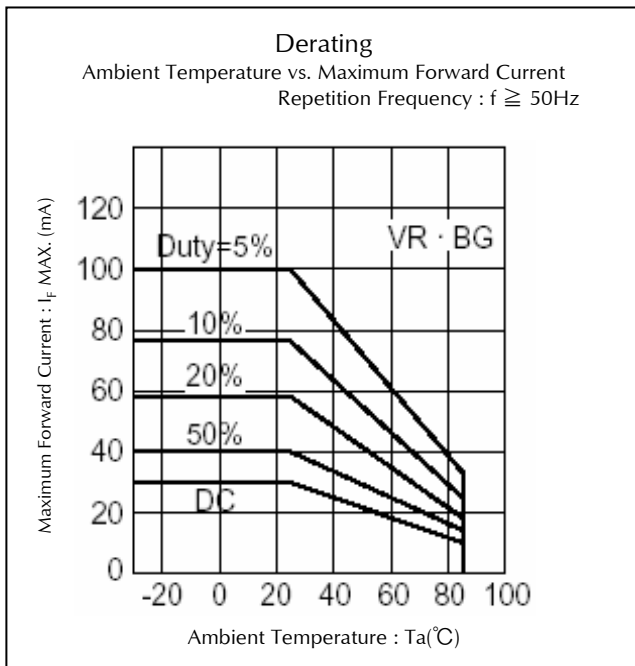
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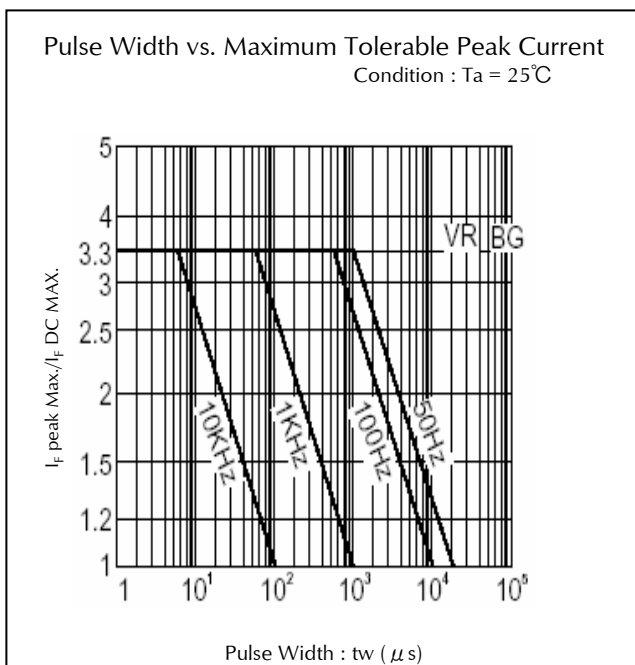
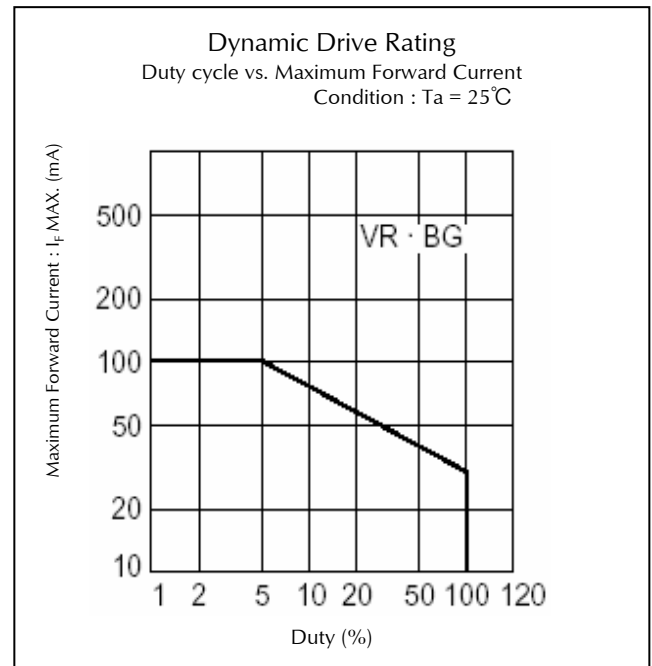
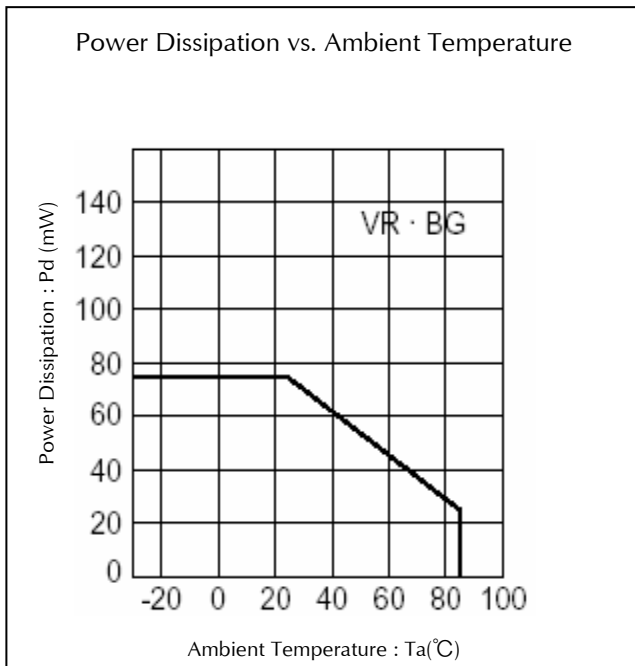
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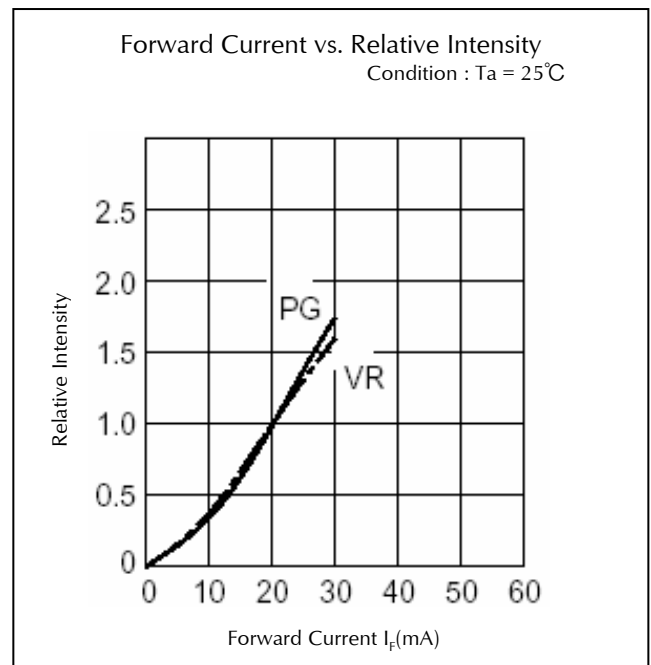
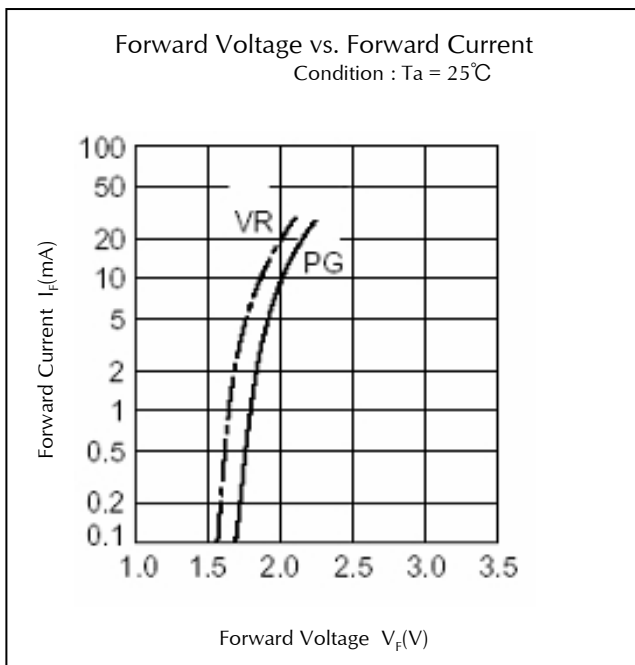
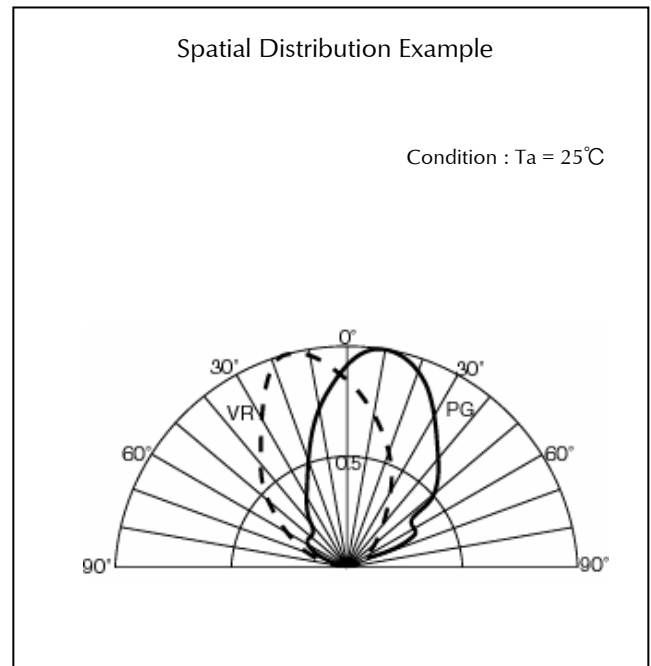
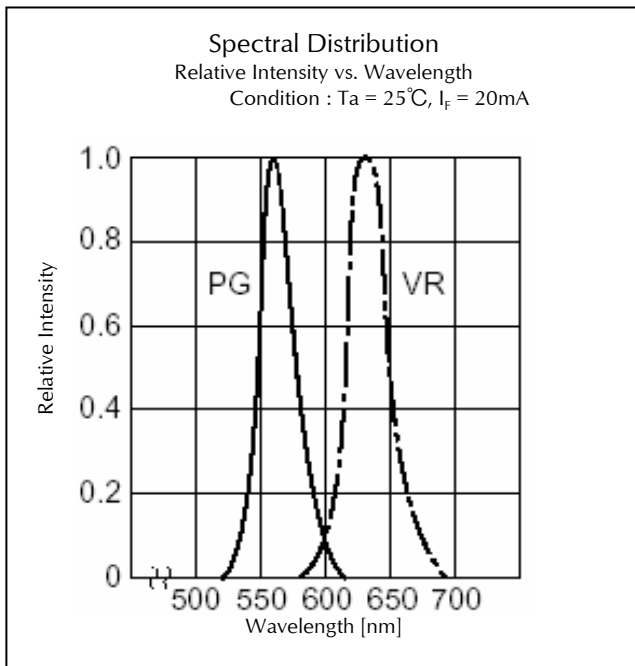
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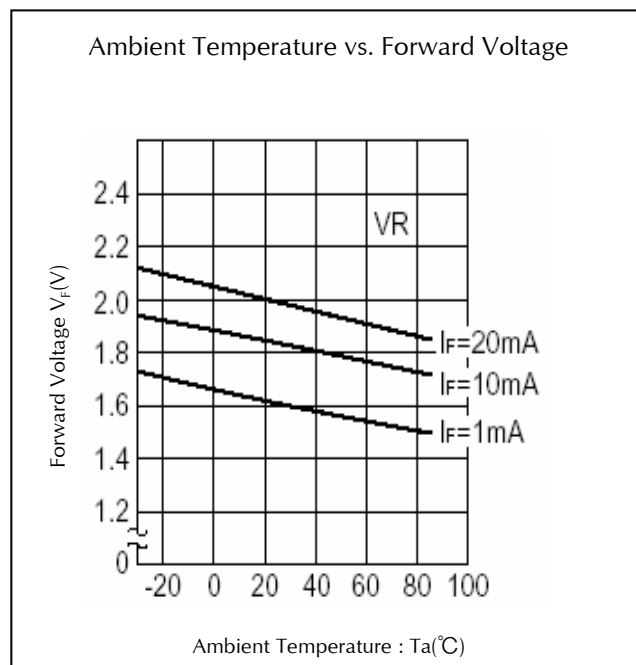
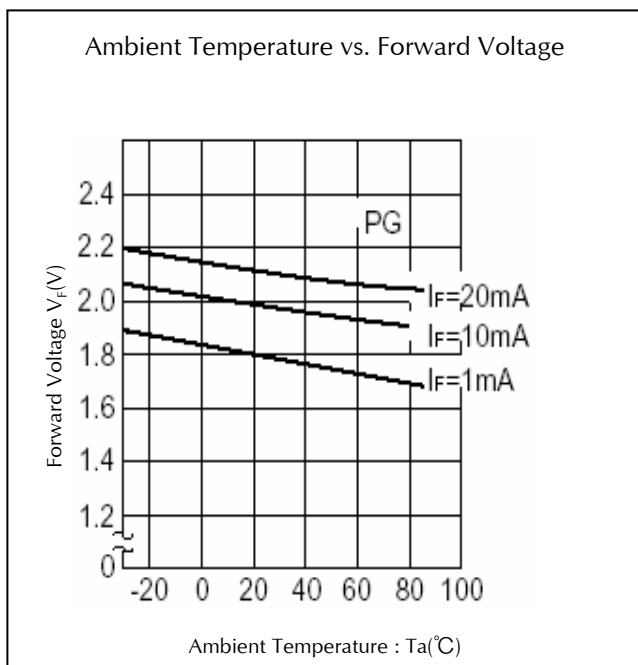
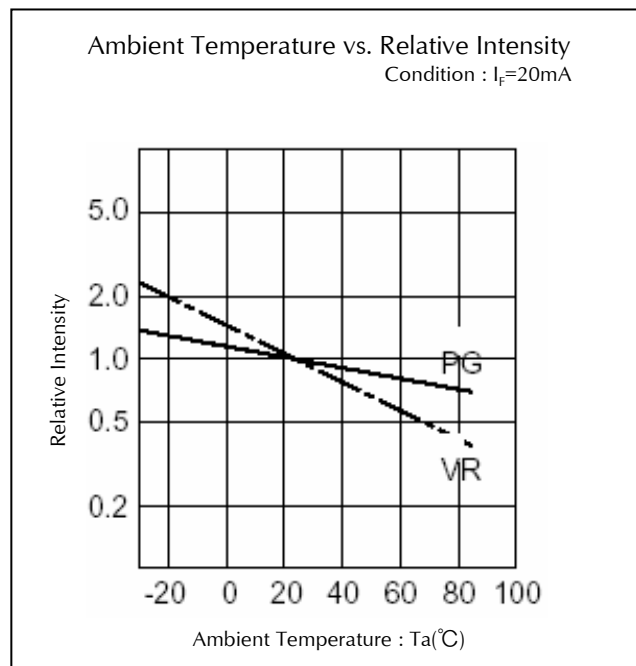
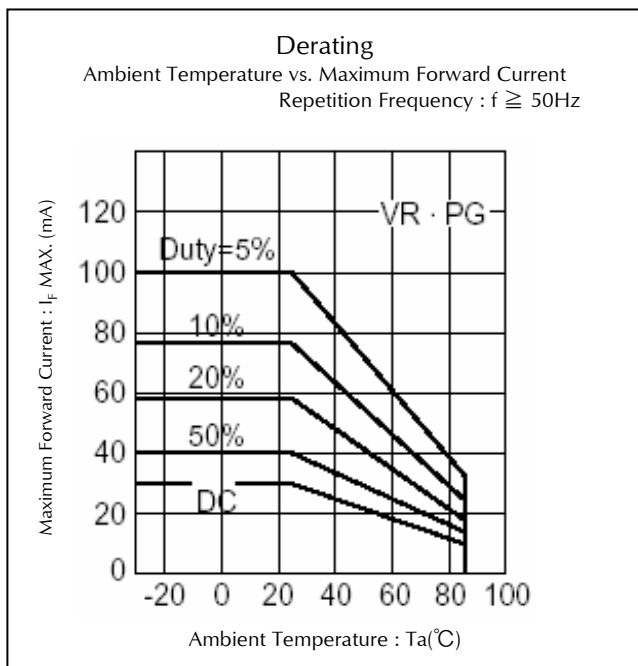
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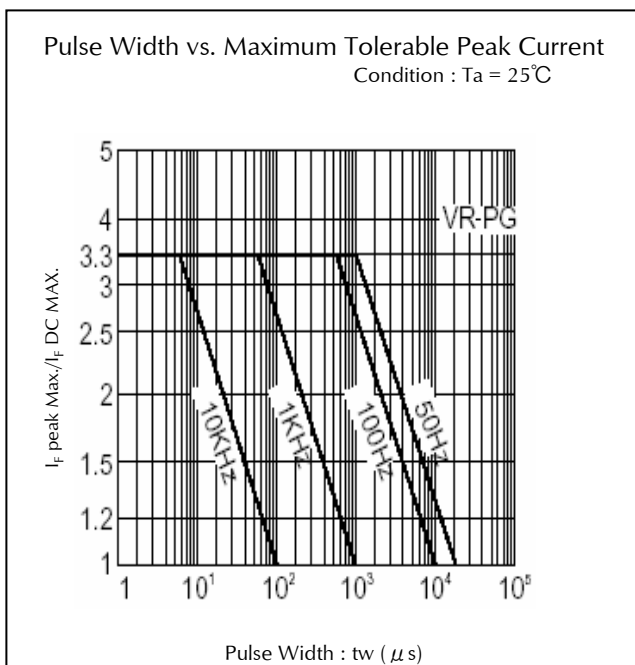
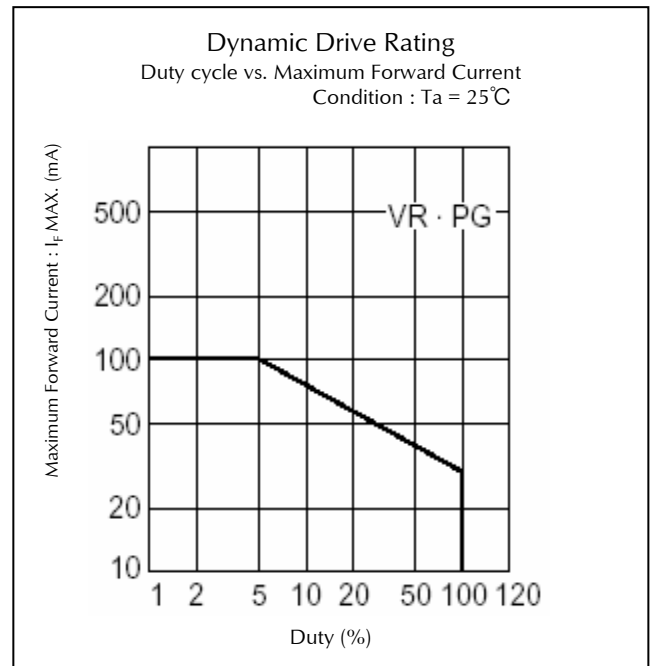
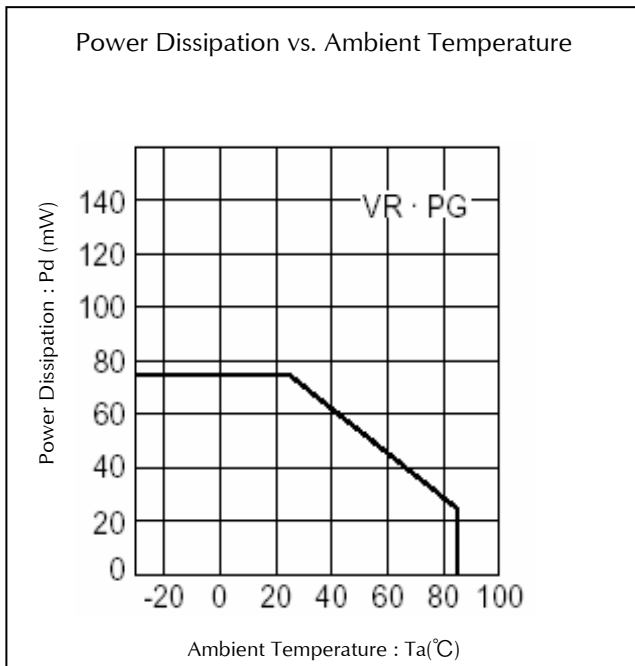
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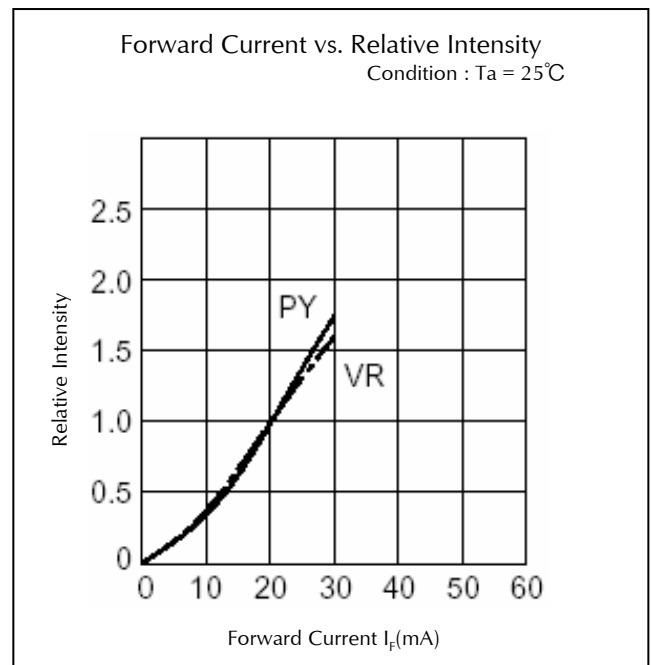
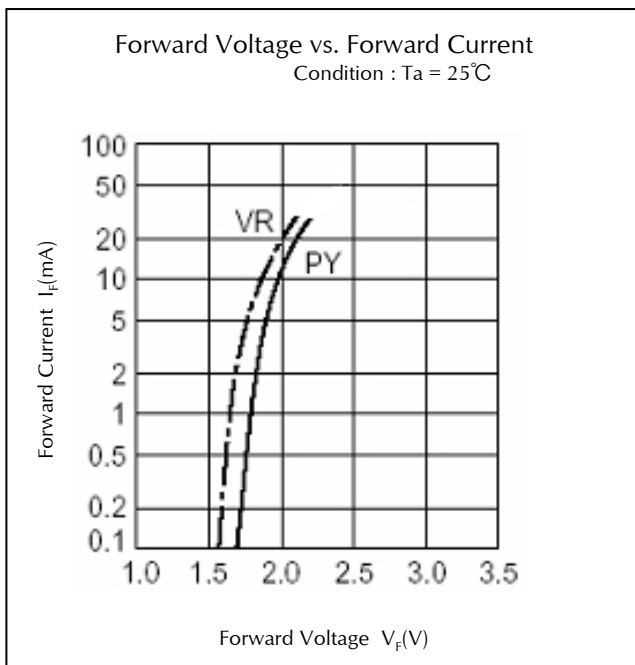
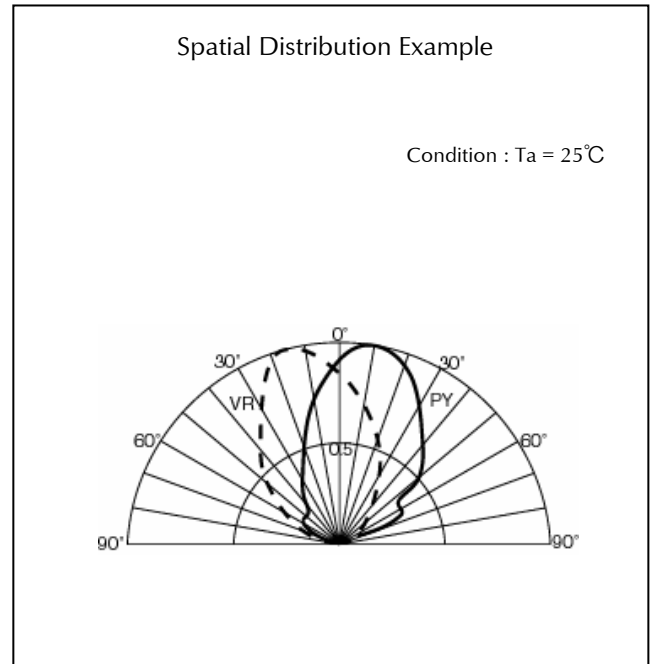
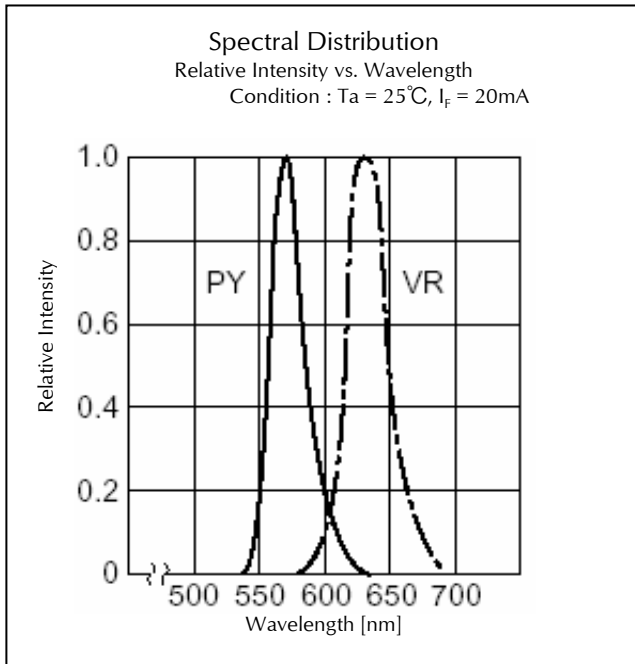
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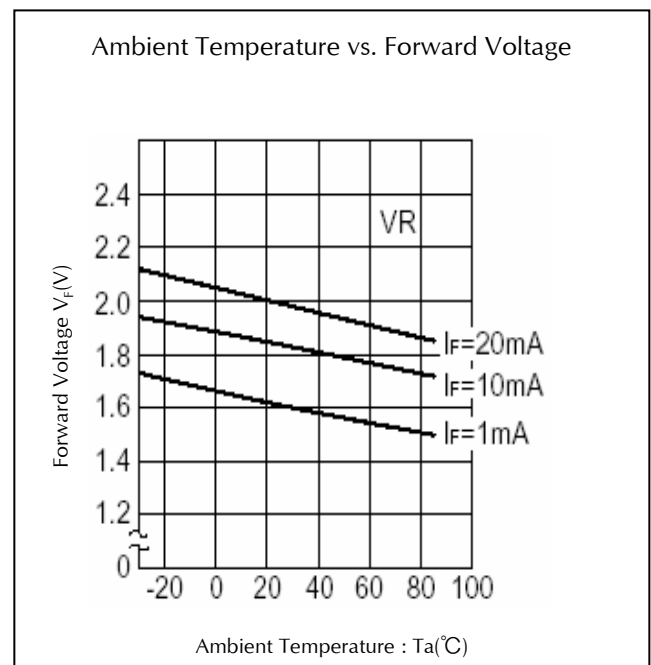
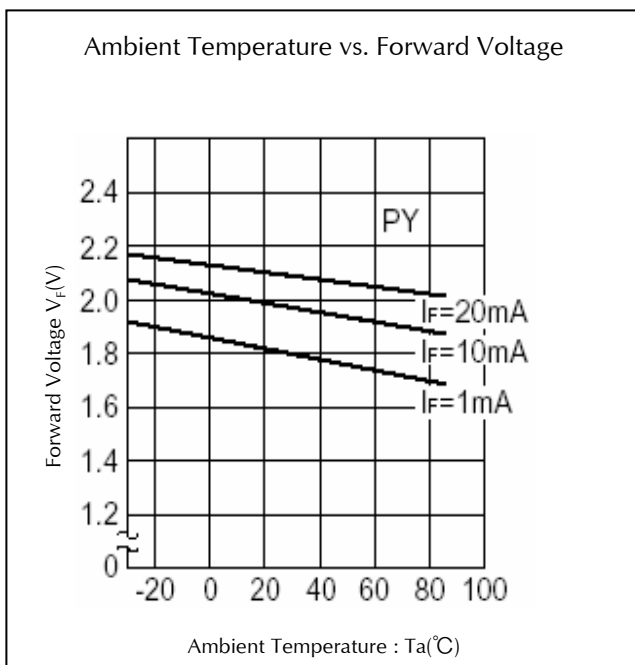
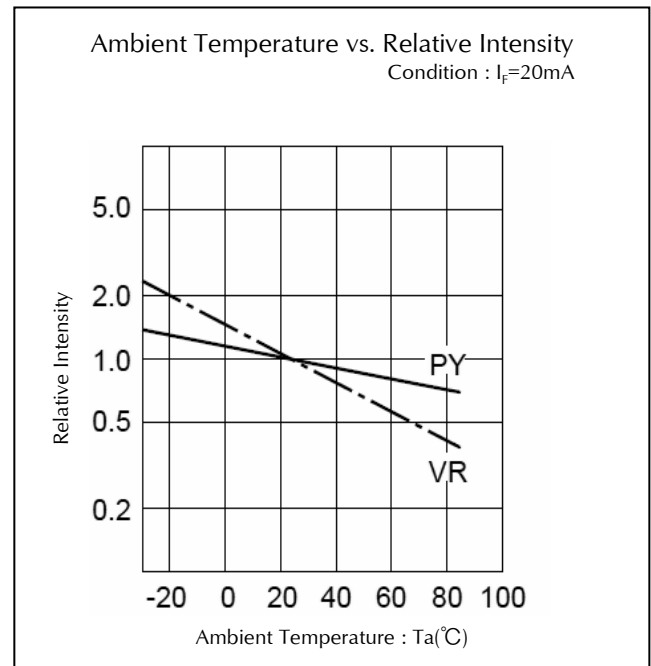
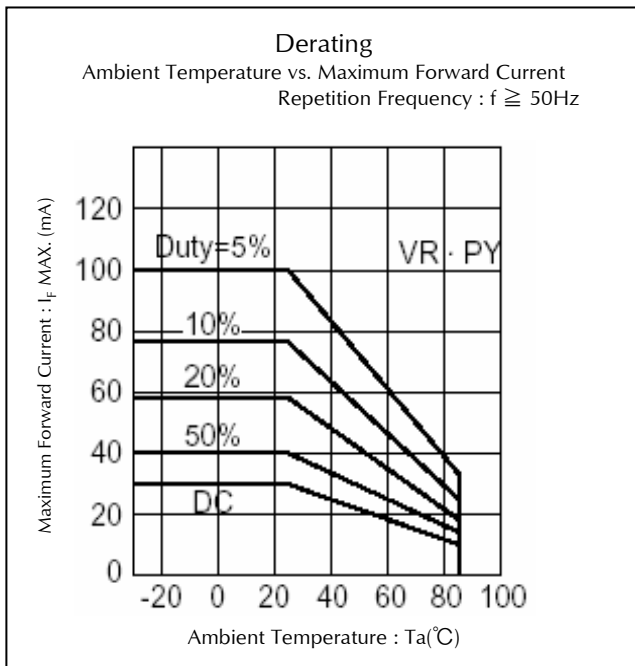
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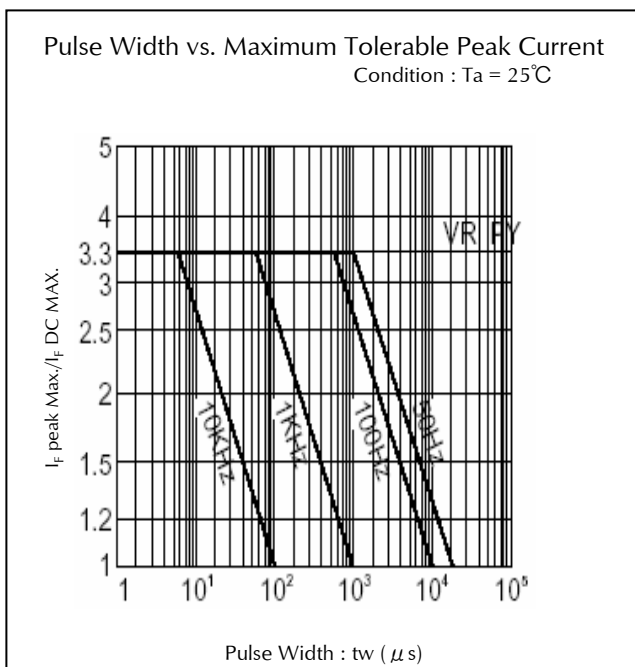
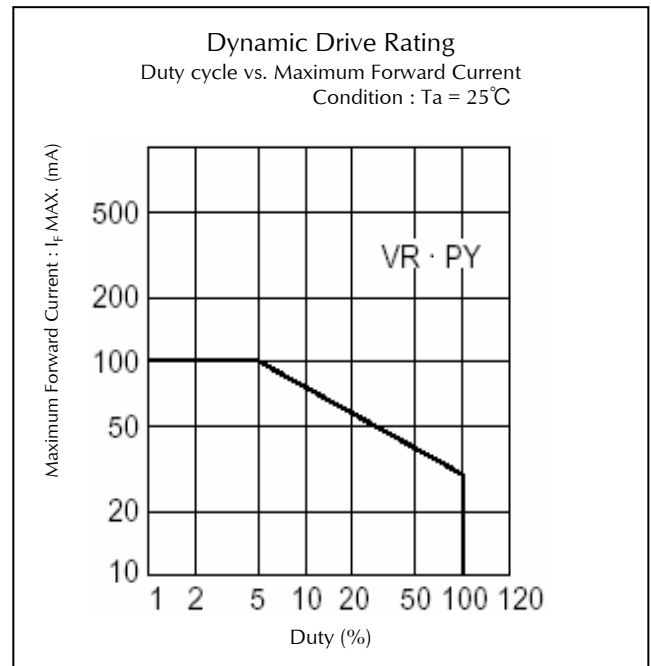
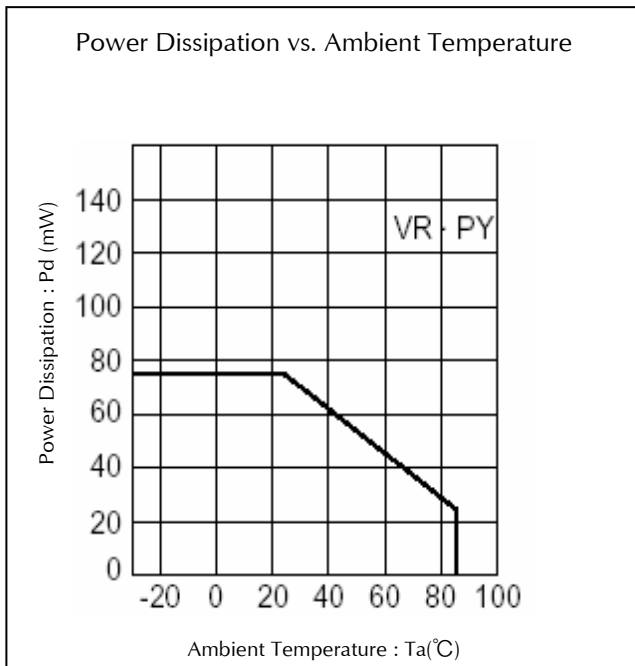
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Technical Data(VRPY)

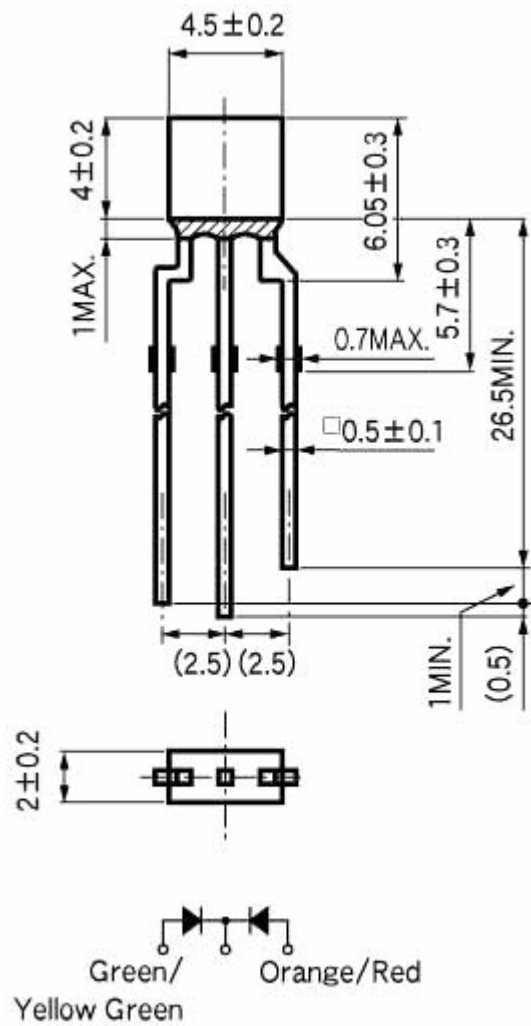


Technical Data(VRPY)



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, 3mm 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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