

Standard LED-Sortiment 300 pcs

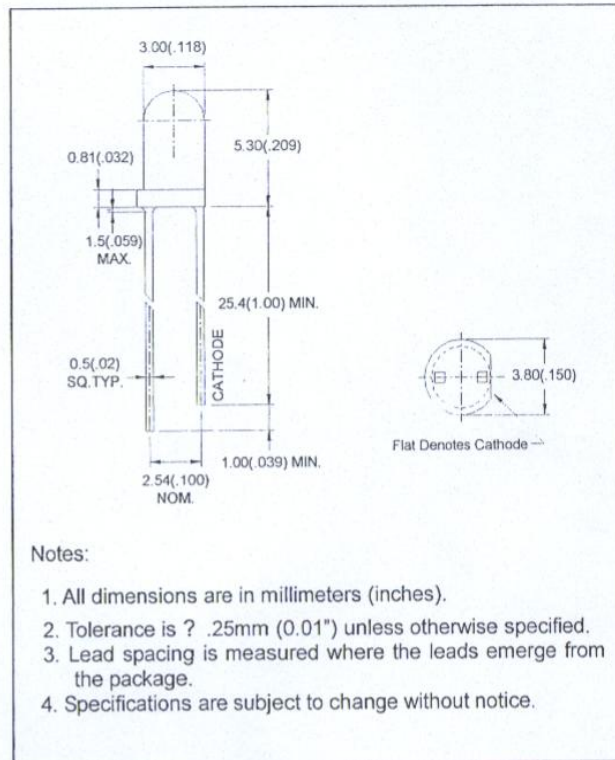
● Features:

1. Chip material: GaAsP/GaP
2. Emitted color : Hi-Eff Red
3. Lens Appearance : Water Clear
4. Low power consumption.
5. High efficiency.
6. Versatile mounting on P.C. Board or panel.
7. Low current requirement.
8. 3mm diameter package.
9. This product don't contained restriction substance, compliance ROHS standard.

● Applications:

1. TV set
2. Monitor
3. Telephone
4. Computer
5. Circuit board

● Package dimensions



● Absolute Maximum Ratings(Ta=25°C)

| Parameter | Symbol | Rating | Unit |
|------------------------------------|------------------|----------------------|------|
| Power Dissipation | Pd | 80 | mW |
| Forward Current | I _F | 30 | mA |
| Peak Forward Current* ¹ | I _{FP} | 150 | mA |
| Reverse Voltage | V _R | 5 | V |
| Operating Temperature | T _{opr} | -40°C~80°C | |
| Storage Temperature | T _{stg} | -40°C~85°C | |
| Soldering Temperature | T _{sol} | 260°C(for 5 seconds) | |

*¹Condition for I_{FP} is pulse of 1/10 duty and 0.1msec width.

Standard LED-Sortiment 300 pcs

● Electrical and optical characteristics(Ta=25°C)

| Parameter | Symbol | Condition | Min. | Typ. | Max. | Unit |
|--------------------------|------------------|------------|------|------|------|------|
| Forward Voltage | V_F | $I_F=20mA$ | - | 2.0 | 2.6 | V |
| Luminous Intensity | I_v | $I_F=20mA$ | - | 80 | - | mcd |
| Reverse Current | I_R | $V_R=5V$ | - | - | 100 | μA |
| Peak Wave Length | λ_p | $I_F=20mA$ | - | 640 | - | nm |
| Dominant Wave Length | λ_d | $I_F=20mA$ | 617 | - | 638 | nm |
| Spectral Line Half-width | $\Delta \lambda$ | $I_F=20mA$ | - | 40 | - | nm |
| Viewing Angle | $2\theta_{1/2}$ | $I_F=20mA$ | - | 30 | - | deg |

● Typical Electro-Optical Characteristics Curves

Fig.1 Relative intensity vs. Wavelength

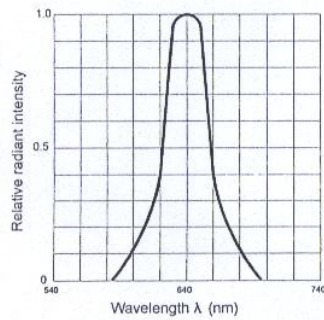


Fig.2 Forward current derating curve vs. Ambient temperature

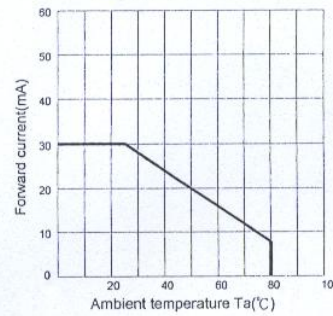


Fig.3 Forward current vs. Forward voltage

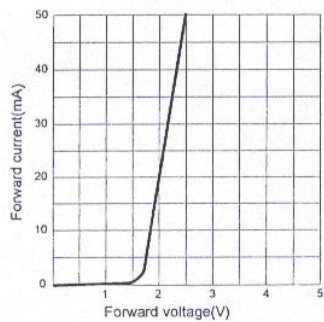


Fig.4 Relative luminous intensity vs. Ambient temperature

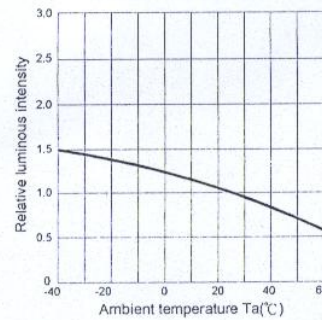


Fig.5 Relative luminous intensity vs. Forward current

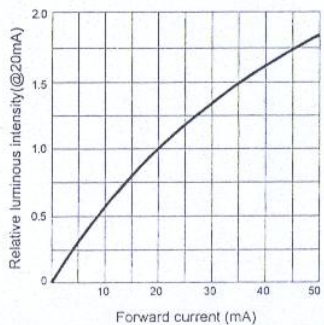
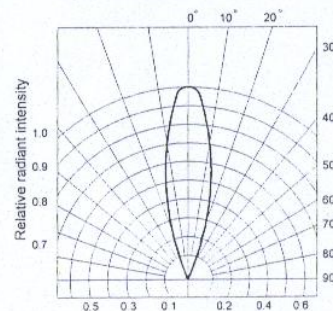


Fig.6 Radiation diagram



Datasheet

Item no. 1564910

V1_0917_01_en

Standard LED-Sortiment 300 pcs

LED LAMPS SPECIFICATION

●COMMODITY : T-1 Standard 1.0"Lead, 3 ϕ

●DEVICE NUMBER : BL-B2141

VERSION : 1.2/2000/01.28

●ELECTRICAL AND OPTICAL CHARACTERISTICS (Ta=25°C)

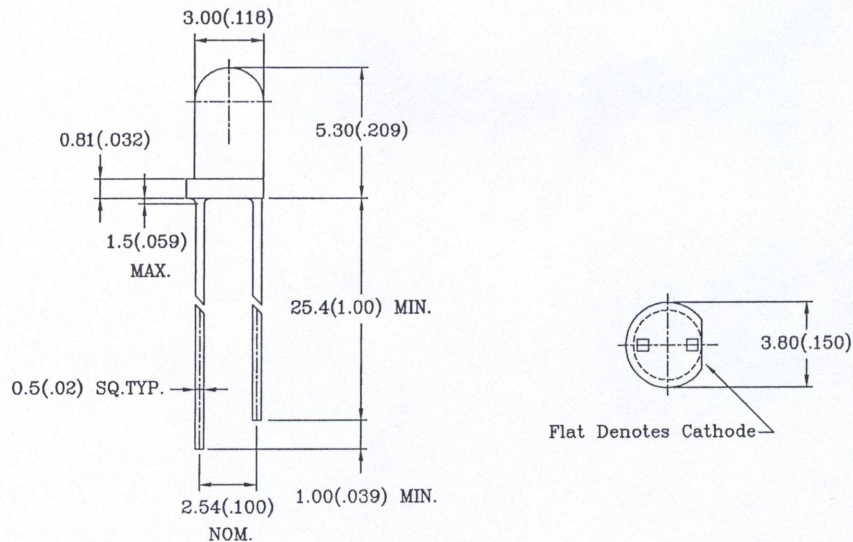
| Chip | | Lens Appearance | Absolute Maximum Rating | | | | Electro-optical Data (At 20mA) | | | Viewing Angle 2 θ 1/2 (deg) |
|---------------|-------------------------------------|--------------------|--------------------------|------------|------------|-----------------|--------------------------------|------|------------------|--|
| Emitted Color | Peak Wave Length λ P(nm) | | $\Delta \lambda$ (nm) | Pd (mW) | If (mA) | Peak If (mA) | Vf(V) | | Iv Typ. (mcd) | |
| | | | | | | | Typ. | Max. | | |
| Green | 568 | Green Diffused | 30 | 80 | 30 | 150 | 2.2 | 2.6 | 40.0 | 35 |

Remark : Viewing angle is the Off-axis angle at which the luminous intensity is half the axial luminous intensity.

●ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| | |
|-----------------------------------|---------------------|
| Reverse Voltage | 5V |
| Reverse Current (-Vr=5V) | 100 μ A |
| Operating Temperature Range | -40°C ~ 85°C |
| Storage Temperature Range | -40°C ~ 85°C |
| Lead Soldering Temperature | 260°C For 5 Seconds |

●PACKAGE DIMENSIONS



NOTES: 1.All dimensions are in millimeters (inches).

2.Tolerance is ± 0.25 mm (0.01") unless otherwise specified.

3.Lead spacing is measured where the leads emerge from the package.

4.Specifications are subject to change without notice.

RELEASED :



ENGINEER :



Datasheet

Item no. 1564910

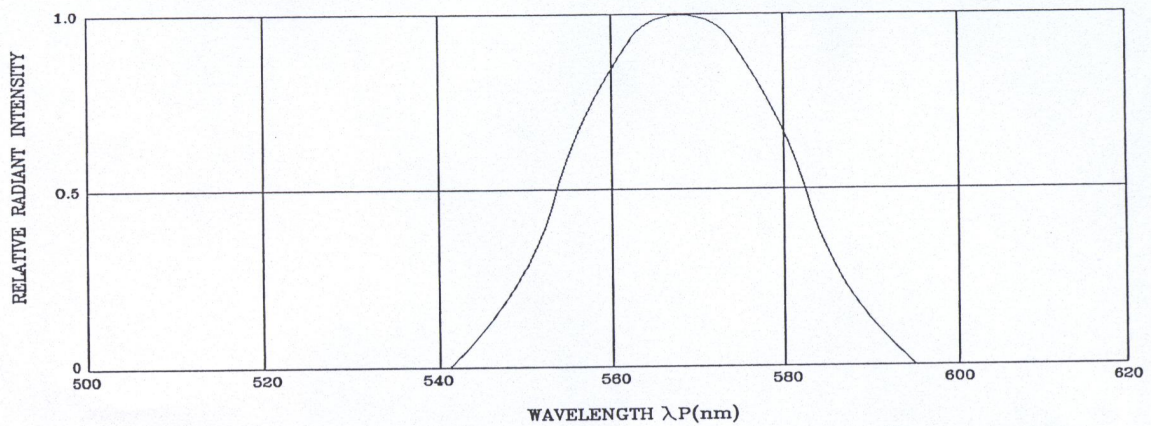
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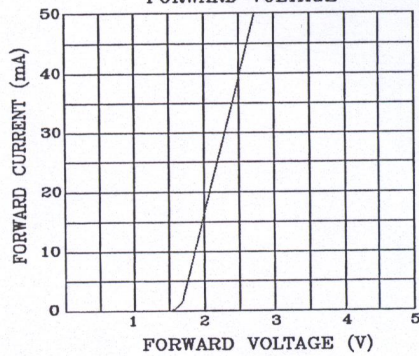
TYPICAL CHARACTERISTICS

DEVICE NUMBER: BL-B2141

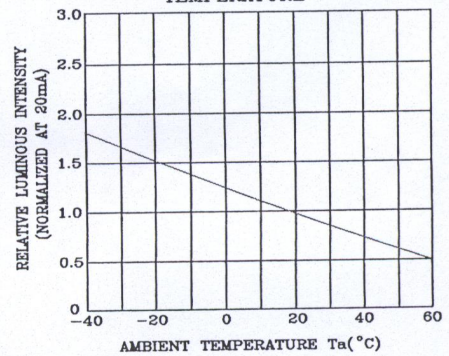
SPECTRAL DISTRIBUTION



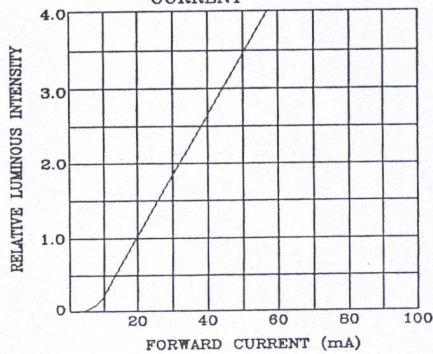
FORWARD CURRENT VS. FORWARD VOLTAGE



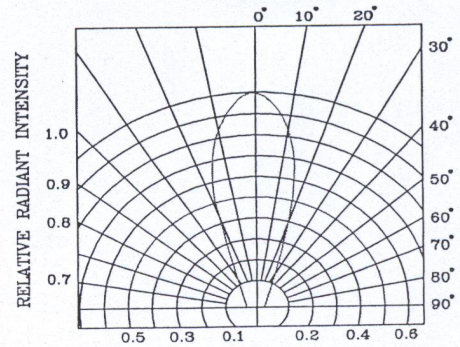
RELATIVE LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE



RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



RADIATION DIAGRAM



Datasheet

Item no. 1564910

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RELIABILITY TEST

DEVICE NO.: BL-B2141

| Classification | Test Item | Reference Standard | Test Conditions | Result |
|--------------------|--|---|--|--------|
| Endurance Test | Operation Life | MIL-STD-750:1026 MIL-STD-883:1005 JIS C 7021 :B-1 | Connect with a power $I_f=30\text{mA}$ T_a =Under room temperature Test time=1,000hrs | 0/100 |
| | High Temperature High Humidity Storage | MIL-STD-202:103B JIS C 7021 :B-11 | $T_a=85^\circ\text{C}\pm 5^\circ\text{C}$ RH=90%-95% Test time=1,000hrs | 0/100 |
| | High Temperature Storage | MIL-STD-883:1008 JIS C 7021 :B-10 | High $T_a=105^\circ\text{C}\pm 5^\circ\text{C}$ Test time=1,000hrs | 0/100 |
| | Low Temperature Storage | JIS-C-7021 :B-12 | Low $T_a=-55^\circ\text{C}\pm 5^\circ\text{C}$ Test time=1,000hrs | 0/100 |
| Environmental Test | Temperature Cycling | MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010 JIS C 7021 :A-4 | $-55^\circ\text{C} \sim 25^\circ\text{C} \sim 105^\circ\text{C} \sim 25^\circ\text{C}$ 30min 5min 30min 5min Test Time=10cycle | 0/100 |
| | Thermal Shock | MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1011 | $105^\circ\text{C}\pm 5^\circ\text{C} \sim -55^\circ\text{C}\pm 5^\circ\text{C}$ 10min 10min Test Time=10cycle | 0/100 |
| | Solder Resistance | MIL-STD-202:201A MIL-STD-750:2031 JIS C 7021 :A-1 | $T_{\text{sol}}=260\pm 5^\circ\text{C}$ Dwell Time=10±1sec. | 0/50 |
| | Solderability | MIL-STD-202:208D MIL-STD-750:2026 MIL-STD-883:2003 JIS C 7021 :A-2 | $T_{\text{sol}}=230\pm 5^\circ\text{C}$ Dwell Time=5±1sec. | 0/50 |
| | Lead Bending Stress | MIL-STD-750:2036 JIS C 7021 :A-11 | $0^\circ\sim 90^\circ\sim 0^\circ$ bend , 3 cycles Weight 250g | 0/50 |

JUDGMENT CRITERIA OF FAILURE FOR THE RELIABILITY

| Measuring items | Symbol | Measuring conditions | Judgement criteria for failure |
|--------------------|--------|----------------------|--------------------------------|
| Forward voltage | VF | $I_F=20\text{mA}$ | Over $U_x1.2$ |
| Reverse current | IR | $V_R=5\text{V}$ | Over U_x2 |
| Luminous intensity | IV | $I_F=20\text{mA}$ | Below $S_x0.5$ |

Note: 1.U means the upper limit of specified characteristics. S means initial value.

2.Measurment shall be taken between 2 hours and after the test pieces have been returned to normal ambient conditions after completion of each test.

Datasheet

Item no. 1564910

V1_0917_01_en

Standard LED-Sortiment 300 pcs

LED LAMPS SPECIFICATION

●COMMODITY : T-1 Standard 1.0"Lead, 3 ϕ

●DEVICE NUMBER : BL-B3141

●ELECTRICAL AND OPTICAL CHARACTERISTICS (Ta=25°C)

VERSION : 1.0

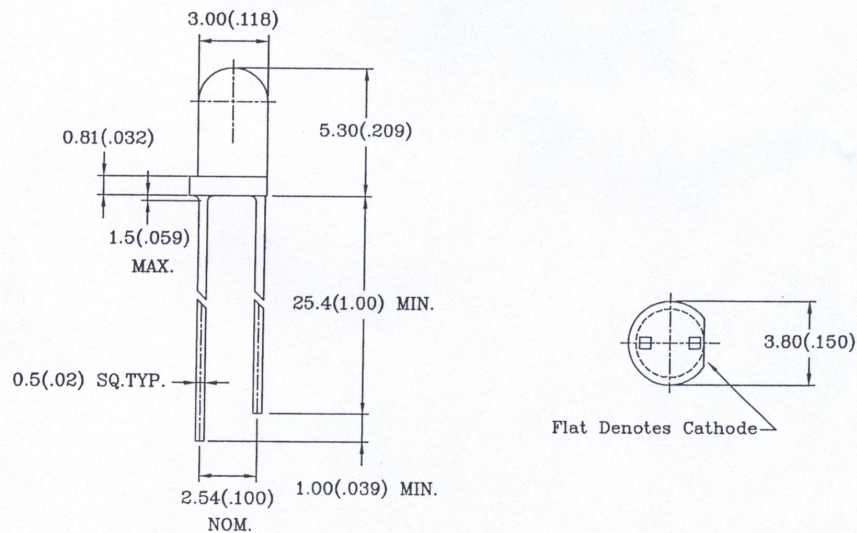
| Chip | | Lens Appearance | Absolute Maximum Rating | | | | Electro-optical Data (At 20mA) | | | Viewing Angle 2 θ 1/2 (deg) |
|---------------|--------------------------------------|--------------------|--------------------------|------------|------------|-------------|--------------------------------|------|------------------|--|
| Emitted Color | Peak Wave Length λP (nm) | | $\Delta \lambda$ (nm) | Pd (mW) | If (mA) | Peak If(mA) | Vf(V) | | Iv Typ. (mcd) | |
| | | | | | | | Typ. | Max. | | |
| Yellow | 585 | Yellow Diffused | 35 | 100 | 30 | 150 | 2.1 | 2.2 | 30 | 35 |

Remark : Viewing angle is the Off-axis angle at which the luminous intensity is half the axial luminous intensity.

●ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Reverse Voltage 5V
 Reverse Current (-Vr=5V) 100 μ A
 Operating Temperature Range -40°C ~ 80°C
 Storage Temperature Range -40°C ~ 85°C
 Lead Soldering Temperature 260°C For 5 Seconds

●PACKAGE DIMENSIONS



- NOTES: 1.All dimensions are in millimeters (inches).
 2.Tolerance is ± 0.25 mm (0.01") unless otherwise specified.
 3.Lead spacing is measured where the leads emerge from the package.
 4.Specifications are subject to change without notice.

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Item no. 1564910

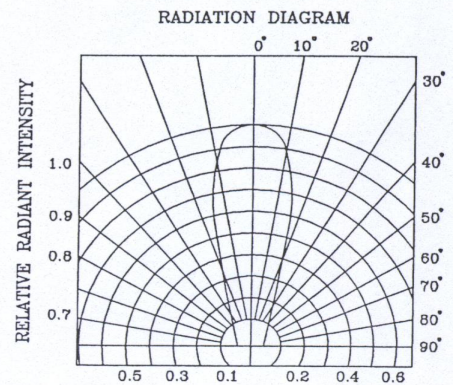
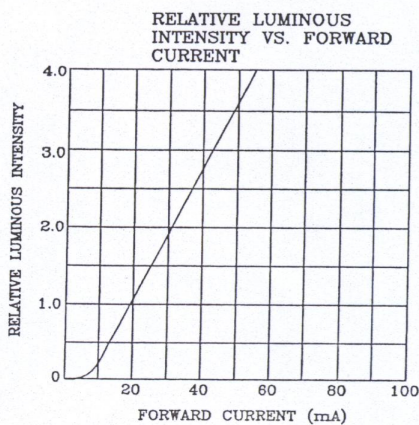
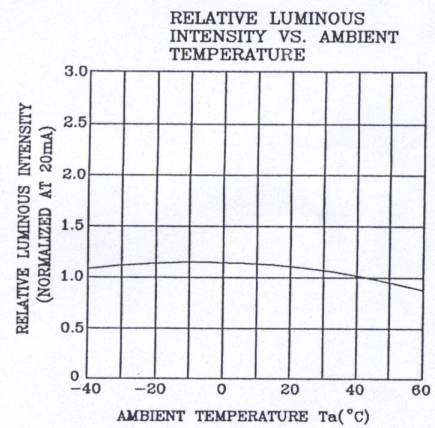
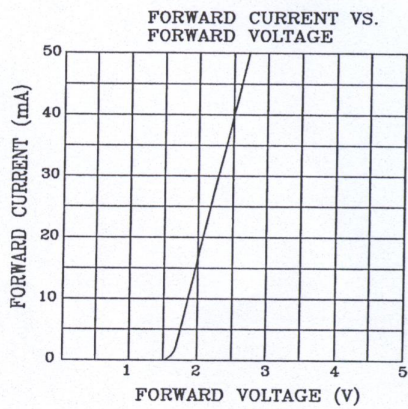
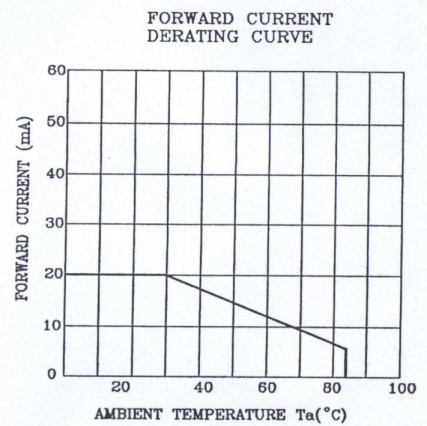
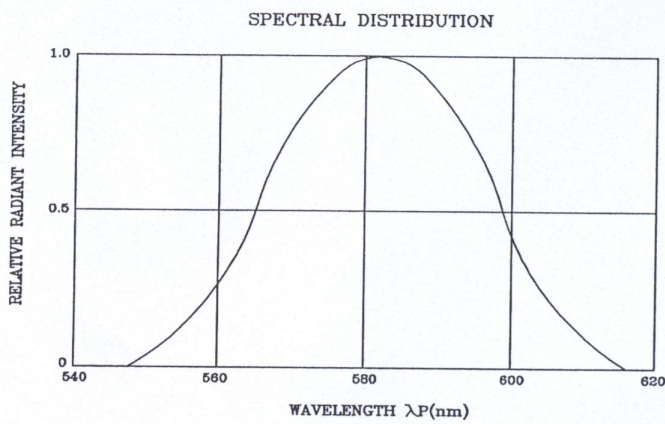
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Standard LED-Sortiment 300 pcs

LED LAMPS SPECIFICATION

- COMMODITY: T-1 Standard 1.0"Lead,3ø
- DEVICE NUMBER: BL-B3141
- ELECTRICAL AND OPTICAL CHARACTERISTICS(Ta=25°C)

REVISION: 1.0



Datasheet

Item no. 1564910

V1_0917_01_en

Standard LED-Sortiment 300 pcs

LED LAMP SPECIFICATION

RELIABILITY TEST

REVISION: 1.0

| Classification | Test Item | Reference Standard | Test Conditions | Result |
|--------------------|--|---|---|--------|
| Endurance Test | Operation Life | MIL-STD-750:1026 MIL-STD-883:1005 JIS C 7021 :B-1 | Connect with a power $I_f=30\text{mA}$ T_a =Under room temperature Test time=1,000hrs | 0/100 |
| | High Temperature High Humidity Storage | MIL-STD-202:103B JIS C 7021 :B-11 | $T_a=85^\circ\text{C}\pm 5^\circ\text{C}$ RH=90%-95% Test time=1,000hrs | 0/100 |
| | High Temperature Storage | MIL-STD-883:1008 JIS C 7021 :B-10 | High $T_a=105^\circ\text{C}\pm 5^\circ\text{C}$ Test time=1,000hrs | 0/100 |
| | Low Temperature Storage | JIS-C-7021 :B-12 | Low $T_a=-55^\circ\text{C}\pm 5^\circ\text{C}$ Test time=1,000hrs | 0/100 |
| Environmental Test | Temperature Cycling | MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010 JIS C 7021 :A-4 | $-35^\circ\text{C} \sim 25^\circ\text{C} \sim 85^\circ\text{C} \sim 25^\circ\text{C}$ 30min 5min 30min 5min Test Time=10cycle | 0/100 |
| | Thermal Shock | MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1011 | $105^\circ\text{C}\pm 5^\circ\text{C} \sim -55^\circ\text{C}\pm 5^\circ\text{C}$ 10min 10min Test Time=10cycle | 0/100 |
| | Solder Resistance | MIL-STD-202:201A MIL-STD-750:2031 JIS C 7021 :A-1 | $T_{\text{sol}}=260\pm 5^\circ\text{C}$ Dwell Time=10±1sec. | 0/50 |
| | Solderability | MIL-STD-202:208D MIL-STD-750:2026 MIL-STD-883:2003 JIS C 7021 :A-2 | $T_{\text{sol}}=230\pm 5^\circ\text{C}$ Dwell Time=5±1sec. | 0/50 |
| | Lead Bending Stress | MIL-STD-750:2036 JIS C 7021 :A-11 | $0^\circ\sim 90^\circ\sim 0^\circ$ bend , 3 cycles Weight 250g | 0/50 |

JUDGMENT CRITERIA OF FAILURE FOR THE RELIABILITY

| Measuring items | Symbol | Measuring conditions | Judgement criteria for failure |
|--------------------|--------|----------------------|--------------------------------|
| Forward voltage | VF | $I_F=20\text{mA}$ | Over $U_x1.2$ |
| Reverse current | IR | $V_R=5\text{V}$ | Over U_x2 |
| Luminous intensity | IV | $I_F=20\text{mA}$ | Below $S_x0.5$ |

Note: 1.U means the upper limit of specified characteristics. S means initial value.

2.Measurment shall be taken between 2 hours and after the test pieces have been returned to normal ambient conditions after completion of each test.

Standard LED-Sortiment 300 pcs

LED LAMPS SPECIFICATION

● COMMODITY : T-1 Standard 1.0" Lead, 3 ϕ

● DEVICE NUMBER : BL-BB53V1

VERSION : 1.1

● ELECTRICAL AND OPTICAL CHARACTERISTICS (Ta=25°C)

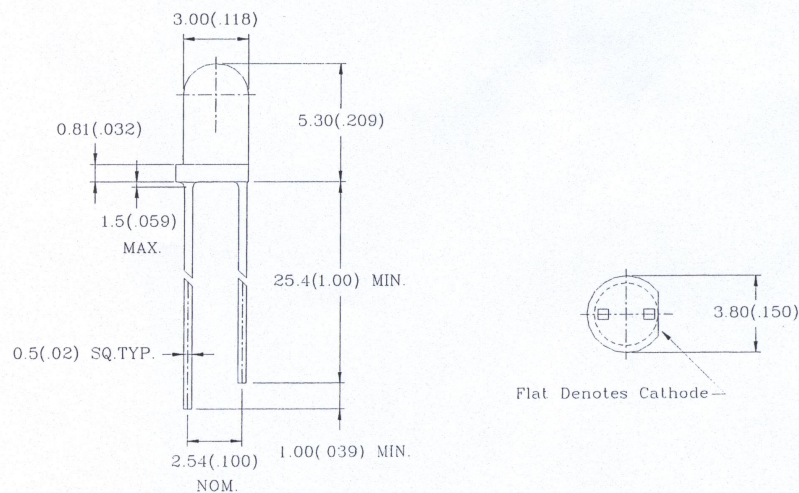
| Chip | | Lens Appearance | Absolute Maximum Rating | | | | Electro-optical Data (At 20mA) | | | Viewing Angle 2 θ 1/2 (deg) |
|------------------|---|------------------------|----------------------------|------------|------------|----------------|-----------------------------------|------|------------------|---|
| Emitted Color | Peak Wave Length λ P(nm) | | $\Delta \lambda$ (nm) | Pd (mW) | If (mA) | Peak If(mA) | Vf(V) | | Iv Typ. (mcd) | |
| | | | | | | | Typ. | Max. | | |
| Super Blue | 470 | Water Clear | 30 | 120 | 30 | 150 | 3.5 | 4.0 | 2000 | 20 |

Remark : Viewing angle is the Off-axis angle at which the luminous intensity is half the axial luminous intensity.

● ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| | |
|--|---------------------|
| Reverse Voltage | 5V |
| Reverse Current (V _R =5V) | 100 μ A |
| Operating Temperature Range | -40°C ~ 80°C |
| Storage Temperature Range | -40°C ~ 85°C |
| Lead Soldering Temperature | 260°C For 5 Seconds |

● PACKAGE DIMENSIONS



NOTES: 1.All dimensions are in millimeters (inches).

2.Tolerance is ± 0.25 mm (0.01") unless otherwise specified.

3.Lead spacing is measured where the leads emerge from the package.

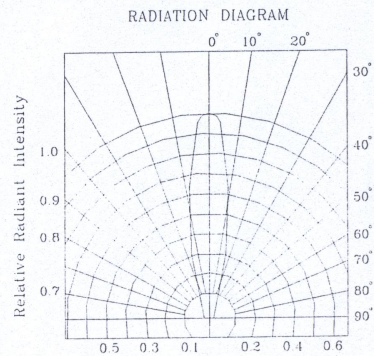
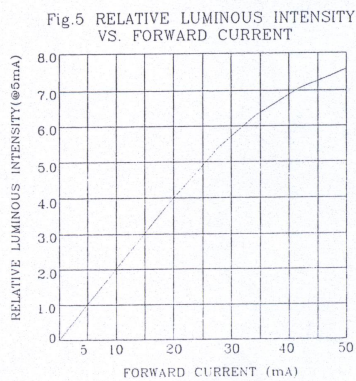
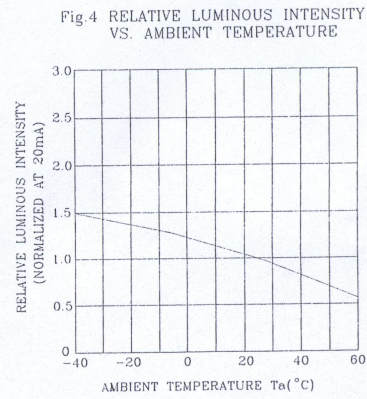
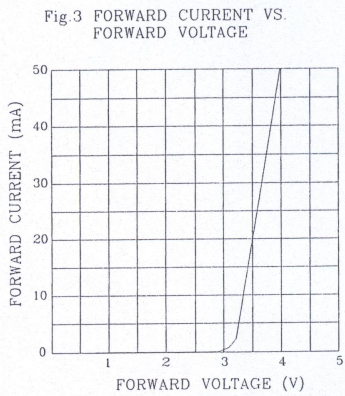
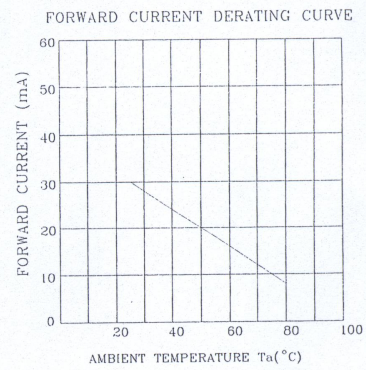
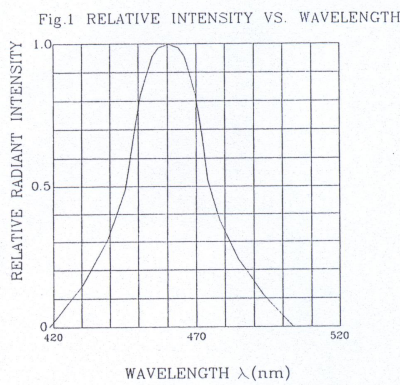
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Standard LED-Sortiment 300 pcs

LED LAMPS SPECIFICATION

- COMMODITY : T-1 Standard 1.0"Lead, 3 ϕ
- DEVICE NUMBER : BL-BB53V1
- ELECTRICAL AND OPTICAL CHARACTERISTICS (Ta=25°C)

VERSION : 1.0



Datasheet

Item no. 1564910

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Standard LED-Sortiment 300 pcs

LED LAMPS SPECIFICATION RELIABILITY TEST

VERSION : 1.0

| Classification | Test Item | Reference Standard | Test Conditions | Result |
|--------------------|--|---|--|--------|
| Endurance Test | Operation Life | MIL-STD-750:1026 MIL-STD-883:1005 JIS C 7021 :B-1 | Connect with a power $I_f=20mA$ T_a =Under room temperature Test time=1,000hrs | 0/100 |
| | High Temperature High Humidity Storage | MIL-STD-202:103B JIS C 7021 :B-11 | $T_a=85^{\circ}C \pm 5^{\circ}C$ RH=90%-95% Test time=240hrs | 0/100 |
| | High Temperature Storage | MIL-STD-883:1008 JIS C 7021 :B-10 | High $T_a=105^{\circ}C \pm 5^{\circ}C$ Test time=1,000hrs | 0/100 |
| | Low Temperature Storage | JIS-C-7021 :B-12 | Low $T_a=-55^{\circ}C \pm 5^{\circ}C$ Test time=1,000hrs | 0/100 |
| Environmental Test | Temperature Cycling | MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010 JIS C 7021 :A-4 | $-55^{\circ}C \sim 25^{\circ}C \sim 105^{\circ}C \sim 25^{\circ}C$ 30min 5min 30min 5min Test Time=10cycle | 0/100 |
| | Thermal Shock | MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1011 | $-55^{\circ}C \pm 5^{\circ}C \sim 105^{\circ}C \pm 5^{\circ}C$ 10min 10min Test Time=10cycle | 0/100 |
| | Solder Resistance | MIL-STD-202:201A MIL-STD-750:2031 JIS C 7021 :A-1 | $T_{sol}=260 \pm 5^{\circ}C$ Dwell Time=5 \pm 1sec. | 0/50 |
| | Solder ability | MIL-STD-202:208D MIL-STD-750:2026 MIL-STD-883:2003 JIS C 7021 :A-2 | $T_{sol}=230 \pm 5^{\circ}C$ Dwell Time=5 \pm 1sec. | 0/50 |
| | Lead Bending Stress | MIL-STD-750:2036 JIS C 7021 :A-11 | $0^{\circ} \sim 90^{\circ} \sim 0^{\circ}$ bend , 3 cycles Weight 250g | 0/50 |

JUDGMENT CRITERIA OF FAILURE FOR THE RELIABILITY

| Measuring items | Symbol | Measuring conditions | Judgement criteria for failure |
|--------------------|--------|----------------------|--------------------------------|
| Forward voltage | V_F | $I_f=20mA$ | Over $U_x1.2$ |
| Reverse current | I_r | $V_r=5V$ | Over U_x2 |
| Luminous intensity | I_v | $I_f=20mA$ | Below $S_x0.5$ |

Notes: 1.U means the upper limit of specified characteristics. S means initial value.

2.Measurement shall be taken between 2 hours and after the test pieces have been returned to normal ambient conditions after completion of each test.

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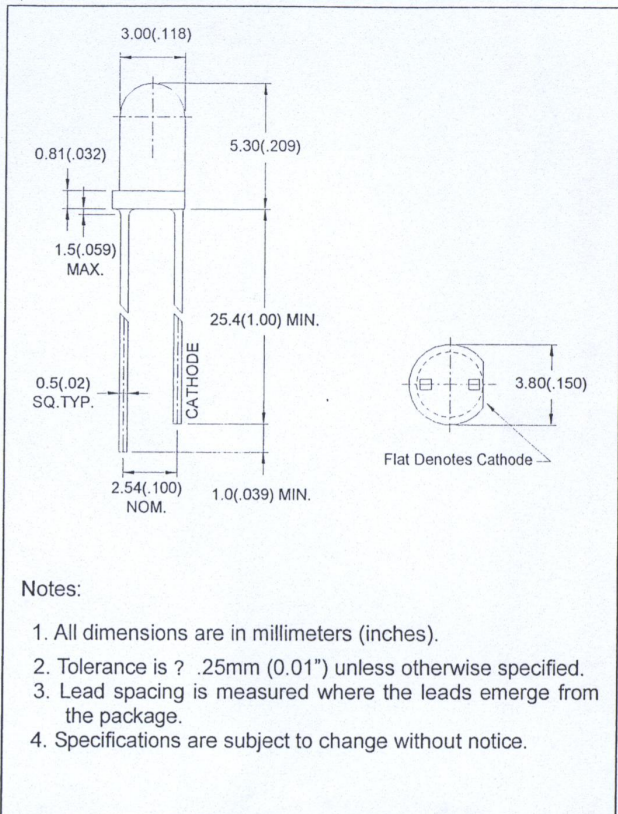
● Features:

1. Chip material: AlInGaN
2. Emitted color : White
3. Lens Appearance : Water Clear
4. Low power consumption.
5. High efficiency.
6. Versatile mounting on P.C. Board or panel.
7. Low current requirement.
8. 5mm diameter package.
9. This product don't contained restriction substance, compliance ROHS standard.

● Applications:

1. TV set
2. Monitor
3. Telephone
4. Computer
5. Circuit board

● Package dimensions:



● Absolute maximum ratings($T_a=25^\circ\text{C}$)

| Parameter | Symbol | Rating | Unit |
|------------------------------------|-----------|---|------|
| Power Dissipation | P_d | 100 | mW |
| Forward Current | I_F | 30 | mA |
| Peak Forward Current* ¹ | I_{FP} | 100 | mA |
| Reverse Voltage | V_R | 5 | V |
| Operating Temperature | T_{opr} | $-40^\circ\text{C} \sim 80^\circ\text{C}$ | |
| Storage Temperature | T_{stg} | $-40^\circ\text{C} \sim 85^\circ\text{C}$ | |
| Soldering Temperature | T_{sol} | 260°C (for 5 seconds) | |

*¹Condition for I_{FP} is pulse of 1/10 duty and 0.1msec width.

Standard LED-Sortiment 300 pcs

● Electrical and optical characteristics(Ta=25°C)

| Parameter | Symbol | Condition | Min. | Typ. | Max. | Unit |
|--------------------------|------------------|-------------------|------|------|------|---------------|
| Forward Voltage | V_F | $I_F=20\text{mA}$ | - | 3.5 | 4.0 | V |
| Luminous Intensity | I_v | $I_F=20\text{mA}$ | - | 1200 | - | mcd |
| Reverse Current | I_R | $V_R=5\text{V}$ | - | - | 100 | μA |
| Peak Wave Length | X | $I_F=20\text{mA}$ | - | 0.32 | - | nm |
| Dominant Wave Length | Y | $I_F=20\text{mA}$ | - | 0.31 | - | nm |
| Spectral Line Half-width | $\Delta \lambda$ | $I_F=20\text{mA}$ | - | 35 | - | nm |
| Viewing Angle | $2\theta_{1/2}$ | $I_F=20\text{mA}$ | - | 25 | - | deg |

● Typical electro-optical characteristics curves

Fig.1 Relative intensity vs. Wavelength

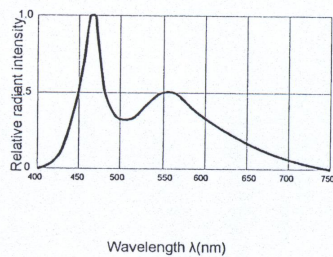


Fig.2 Forward current derating curve vs. Ambient temperature

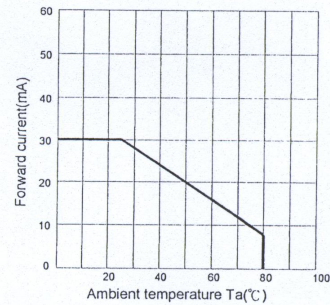


Fig.3 Forward current vs. Forward voltage

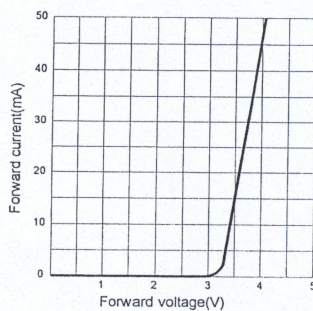


Fig.4 Relative luminous intensity vs. Ambient temperature

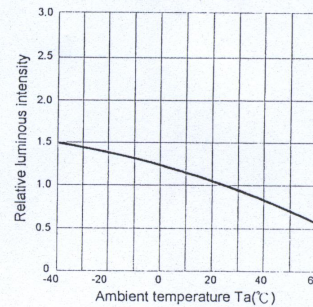


Fig.5 Relative luminous intensity vs. Forward current

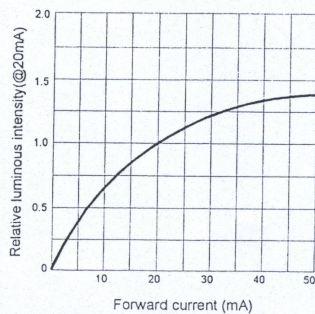
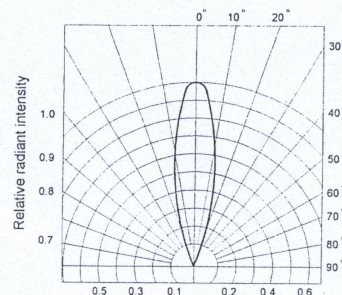


Fig.6 Radiation diagram

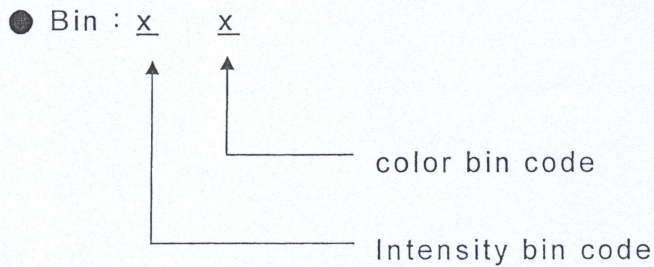


Standard LED-Sortiment 300 pcs

Bin Limits

1. Intensity Bin Limits (At $I_F=20\text{mA}$)

| Bin Code | Min. (mcd) | Max. (mcd) |
|----------|------------|------------|
| : | : | : |
| U | 410 | 820 |
| V | 620 | 1230 |
| W | 930 | 1840 |
| X | 1390 | 2760 |
| Y | 2090 | 4260 |
| : | : | : |



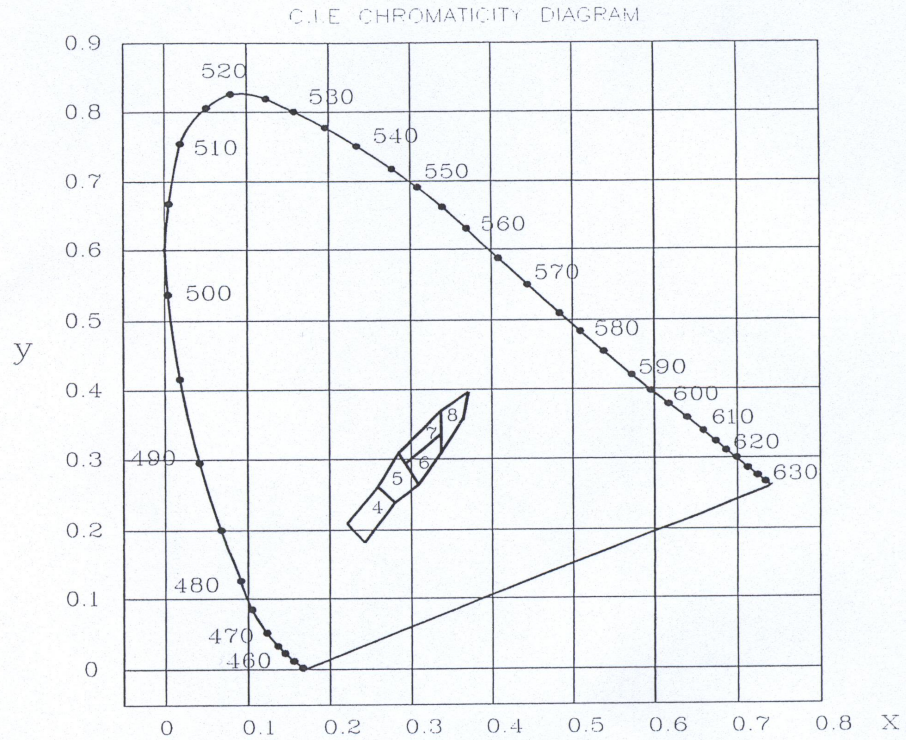
Datasheet

Item no. 1564910

V1_0917_01_en

Standard LED-Sortiment 300 pcs

2. Color Bin Limits (nm at 20mA)



| Bin | Chromaticity coordinates | | | | |
|-----|--------------------------|-------|-------|-------|-------|
| | x | | | | |
| 4 | x | 0.245 | 0.225 | 0.260 | 0.279 |
| | y | 0.190 | 0.215 | 0.262 | 0.242 |
| 5 | x | 0.279 | 0.260 | 0.283 | 0.305 |
| | y | 0.242 | 0.262 | 0.305 | 0.265 |
| 6 | x | 0.305 | 0.287 | 0.330 | 0.330 |
| | y | 0.265 | 0.295 | 0.339 | 0.305 |
| 7 | x | 0.287 | 0.283 | 0.330 | 0.330 |
| | y | 0.295 | 0.305 | 0.360 | 0.339 |
| 8 | x | 0.330 | 0.330 | 0.361 | 0.356 |
| | y | 0.305 | 0.360 | 0.385 | 0.351 |

Standard LED-Sortiment 300 pcs

LED LAMPS SPECIFICATION

●COMMODITY : T-1 3/4 Standard 1.0"Lead, 5 ϕ

●DEVICE NUMBER : BL-B4534

VERSION : 1.0 /2000.12.21

●ELECTRICAL AND OPTICAL CHARACTERISTICS (Ta=25°C)

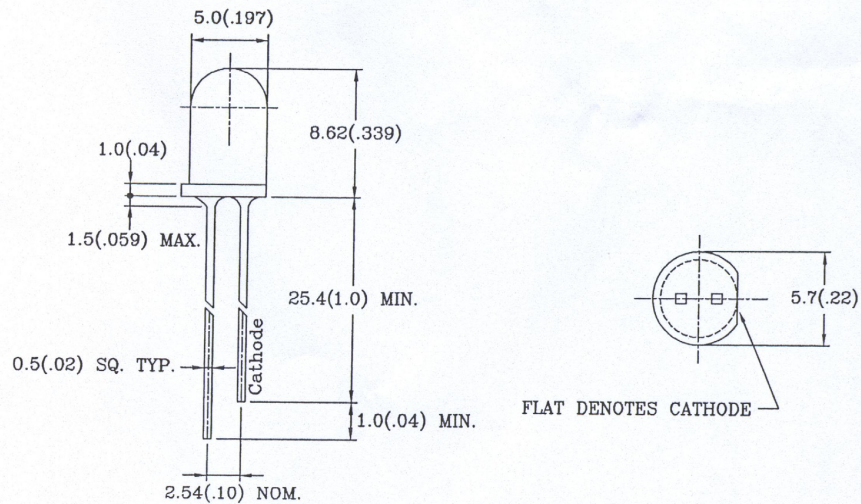
| Chip | | Lens Appearance | Absolute Maximum Rating | | | | Electro-optical Data (At 20mA) | | | Viewing Angle 2 θ 1/2 (deg) |
|---------------|-------------------------------------|--------------------|--------------------------|------------|------------|-------------|--------------------------------|------|------------------|--|
| Emitted Color | Peak Wave Length λ P(nm) | | $\Delta \lambda$ (nm) | Pd (mW) | If (mA) | Peak If(mA) | Vf(V) | | Iv Typ. (mcd) | |
| | | | | | | | Typ. | Max. | | |
| Hi-Eff Red | 635 | Red Diffused | 45 | 80 | 30 | 150 | 2.0 | 2.6 | 80.0 | 35 |

Remark : Viewing angle is the Off-axis angle at which the luminous intensity is half the axial luminous intensity.

●ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| | |
|-----------------------------------|---------------------|
| Reverse Voltage | 5V |
| Reverse Current (-Vr=5V) | 100 μ A |
| Operating Temperature Range | -40°C ~ 80°C |
| Storage Temperature Range | -40°C ~ 85°C |
| Lead Soldering Temperature | 260°C For 5 Seconds |

●PACKAGE DIMENSIONS




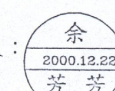
NOTES: 1.All dimensions are in millimeters (inches).

2.Tolerance is ± 0.25 mm (0.01") unless otherwise specified.

3.Lead spacing is measured where the leads emerge from the package.

4.Specifications are subject to change without notice.

RELEASED : 

ENGINEER : 

Datasheet

Item no. 1564910

V1_0917_01_en

Standard LED-Sortiment 300 pcs

LED LAMPS SPECIFICATION

● COMMODITY : T-1 3/4 Standard 1.0"Lead, 5 ϕ

● DEVICE NUMBER : BL-B2134

VERSION : 1.2/2000.02.21

● ELECTRICAL AND OPTICAL CHARACTERISTICS (Ta=25°C)

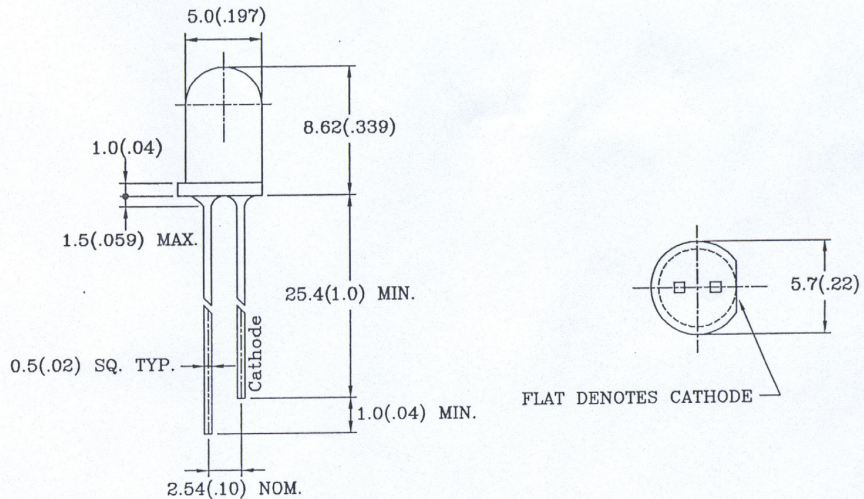
| Chip | | Lens Appearance | Absolute Maximum Rating | | | | Electro-optical Data (At 20mA) | | Viewing Angle 2 θ 1/2 (deg) | |
|---------------|-------------------------------------|--------------------|--------------------------|------------|------------|-------------|--------------------------------|-----|--|------------------|
| Emitted Color | Peak Wave Length λ P(nm) | | $\Delta \lambda$ (nm) | Pd (mW) | If (mA) | Peak If(mA) | Vf(V) | | | Iv Typ. (mcd) |
| | | Typ. | | | | | Max. | | | |
| Green | 568 | Green Diffused | 30 | 80 | 30 | 150 | 2.2 | 2.6 | 80.0 | 35 |

Remark : Viewing angle is the Off-axis angle at which the luminous intensity is half the axial luminous intensity.

● ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| | |
|-----------------------------------|---------------------|
| Reverse Voltage | 5V |
| Reverse Current (VR=5V) | 100 μ A |
| Operating Temperature Range | -40°C ~ 80°C |
| Storage Temperature Range | -40°C ~ 85°C |
| Lead Soldering Temperature | 260°C For 5 Seconds |

● PACKAGE DIMENSIONS



- NOTES: 1.All dimensions are in millimeters (inches).
 2.Tolerance is ± 0.25 mm (0.01") unless otherwise specified.
 3.Lead spacing is measured where the leads emerge from the package.
 4.Specifications are subject to change without notice.

RELEASED : 曾志宏
2000.07.20

ENGINEER : 余愛萍
2000.07.20

Standard LED-Sortiment 300 pcs

LED LAMPS SPECIFICATION

● COMMODITY : T-1 3/4 Standard 1.0"Lead, 5 ϕ

● DEVICE NUMBER : BL-B3134

VERSION : 1.2/2000/02/21

● ELECTRICAL AND OPTICAL CHARACTERISTICS (Ta=25°C)

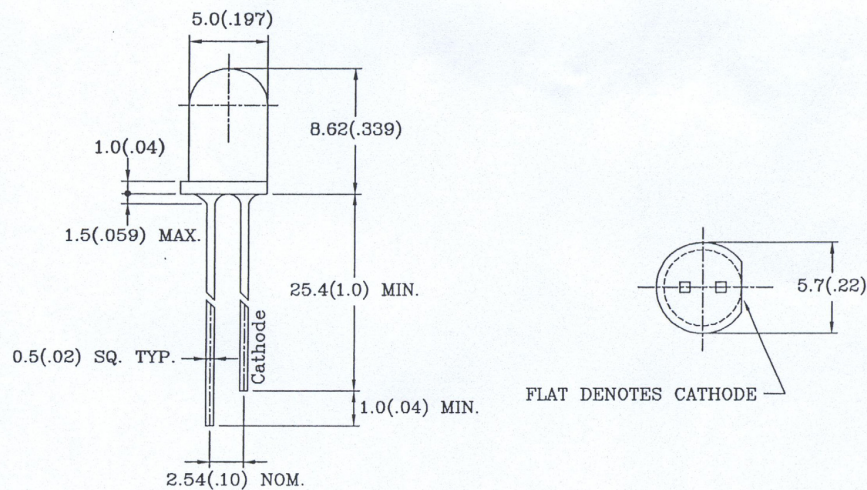
| Chip | | Lens Appearance | Absolute Maximum Rating | | | | Electro-optical Data (At 20mA) | | | Viewing Angle 2 θ 1/2 (deg) |
|---------------|-------------------------------------|--------------------|--------------------------|------------|------------|-----------------|--------------------------------|------|------------------|--|
| Emitted Color | Peak Wave Length λ P(nm) | | $\Delta \lambda$ (nm) | Pd (mW) | If (mA) | Peak If (mA) | Vf(V) | | Iv Typ. (mcd) | |
| | | | | | | | Typ. | Max. | | |
| Yellow | 585 | Yellow Diffused | 35 | 80 | 30 | 150 | 2.1 | 2.6 | 70.0 | 35 |

Remark : Viewing angle is the Off-axis angle at which the luminous intensity is half the axial luminous intensity.

● ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| | |
|--|---------------------|
| Reverse Voltage | 5V |
| Reverse Current (V _R =5V) | 100 μ A |
| Operating Temperature Range | -40°C ~ 80°C |
| Storage Temperature Range | -40°C ~ 85°C |
| Lead Soldering Temperature | 260°C For 5 Seconds |

● PACKAGE DIMENSIONS





NOTES: 1.All dimensions are in millimeters (inches).

2.Tolerance is ± 0.25 mm (0.01") unless otherwise specified.

3.Lead spacing is measured where the leads emerge from the package.

4.Specifications are subject to change without notice.

RELEASED : 

ENGINEER : 

Datasheet

Item no. 1564910

V1_0917_01_en

Standard LED-Sortiment 300 pcs

LED LAMPS SPECIFICATION

● COMMODITY : T-1 3/4 Standard 1.0"Lead, 5 ϕ

● DEVICE NUMBER : BL-BB53V4V

● ELECTRICAL AND OPTICAL CHARACTERISTICS (Ta=25°C)

VERSION : 1.0

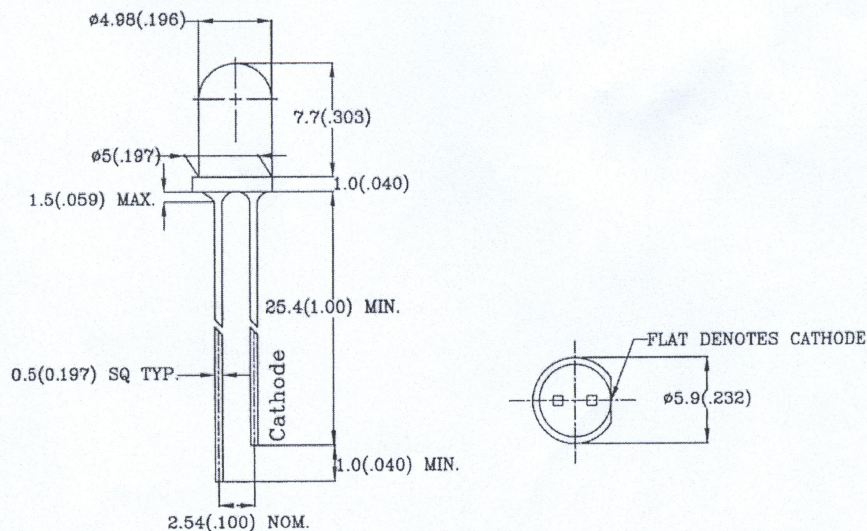
| Chip | | Lens Appearance | Absolute Maximum Rating | | | | Electro-optical Data (At 20mA) | | Viewing Angle 2 θ 1/2 (deg) | |
|---------------|--------------------------------------|--------------------|--------------------------|------------|------------|-------------|--------------------------------|------|--|------------------|
| Emitted Color | Peak Wave Length λ_p (nm) | | $\Delta \lambda$ (nm) | Pd (mW) | If (mA) | Peak If(mA) | Vf(V) | | | Iv Typ. (mcd) |
| | | | | | | | Typ. | Max. | | |
| Super Blue | 470 | Water Clear | 20 | 100 | 30 | 100 | 2.6 | 3.0 | 1000 | 12 |

Remark : Viewing angle is the Off-axis angle at which the luminous intensity is half the axial luminous intensity.

● ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| | |
|--|---------------------|
| Reverse Voltage | 5V |
| Reverse Current (V _R =5V) | 100 μ A |
| Operating Temperature Range | -40°C ~ 80°C |
| Storage Temperature Range | -40°C ~ 85°C |
| Lead Soldering Temperature | 260°C For 5 Seconds |

● PACKAGE DIMENSIONS



NOTES: 1.All dimensions are in millimeters (inches).

2.Tolerance is ± 0.25 mm (0.01) unless otherwise specified.

3.The products are sensitive to static electricity and care must be fully taken when handling products.

4.Lead spacing is measured where the leads emerge from the package.

5.Specifications are subject to change without notice.

Standard LED-Sortiment 300 pcs

LED LAMPS SPECIFICATION

- COMMODITY: T-1 3/4 1.0"Lead,5 ϕ
- DEVICE NUMBER: BL-BB53V4V
- ELECTRICAL AND OPTICAL CHARACTERISTICS(Ta=25 C)

REVISION: 1.0

Fig.1 RELATIVE INTENSITY VS. WAVELENGTH

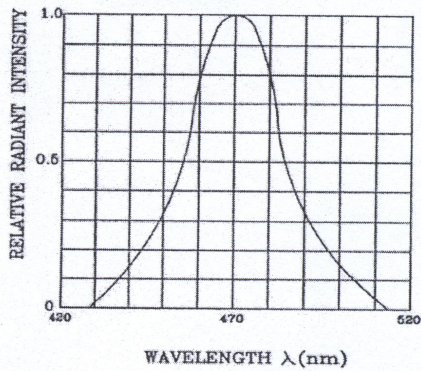


Fig.2 FORWARD CURRENT DERATING CURVE

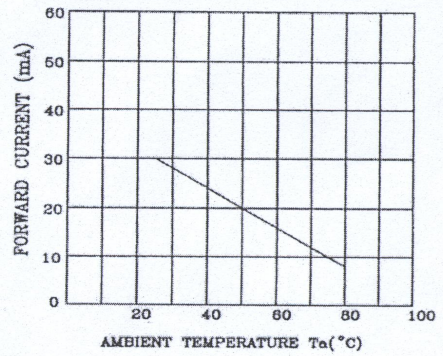


Fig.3 FORWARD CURRENT VS. FORWARD VOLTAGE

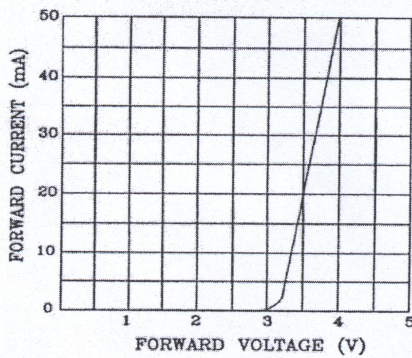


Fig.4 RELATIVE LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

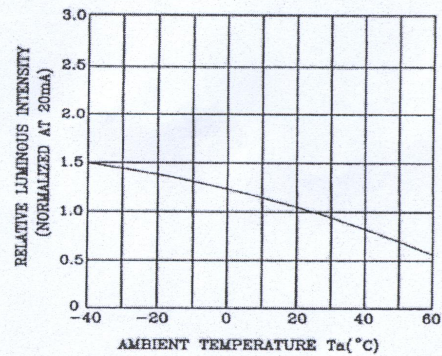
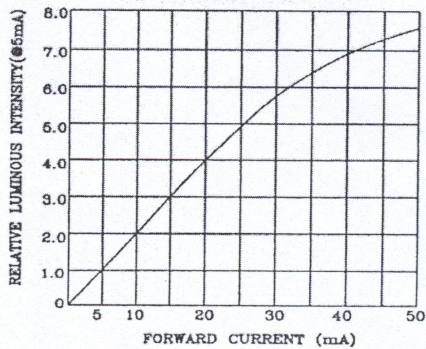
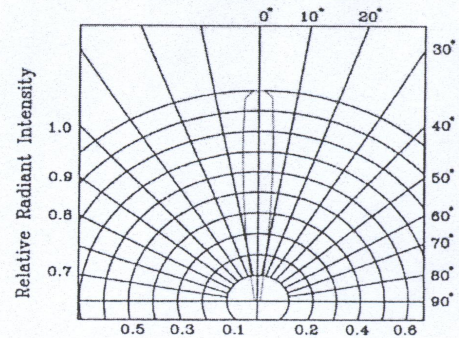


Fig.5 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



RADIATION DIAGRAM



Datasheet

Item no. 1564910

V1_0917_01_en

Standard LED-Sortiment 300 pcs

LED LAMPS SPECIFICATION

RELIABILITY TEST

REVISION: 1.0

| Classification | Test Item | Reference Standard | Test Conditions | Result |
|--------------------|--|---|--|--------|
| Endurance Test | Operation Life | MIL-STD-750:1026 MIL-STD-883:1005 JIS C 7021 :B-1 | Connect with a power $I_f=20\text{mA}$ T_a =Under room temperature Test time=1,000hrs | 0/100 |
| | High Temperature High Humidity Storage | MIL-STD-202:103B JIS C 7021 :B-11 | $T_a=85^\circ\text{C}\pm 5^\circ\text{C}$ RH=90%-95% Test time=240hrs | 0/100 |
| | High Temperature Storage | MIL-STD-883:1008 JIS C 7021 :B-10 | High $T_a=105^\circ\text{C}\pm 5^\circ\text{C}$ Test time=1,000hrs | 0/100 |
| | Low Temperature Storage | JIS-C-7021 :B-12 | Low $T_a=-55^\circ\text{C}\pm 5^\circ\text{C}$ Test time=1,000hrs | 0/100 |
| Environmental Test | Temperature Cycling | MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010 JIS C 7021 :A-4 | $-55^\circ\text{C} \sim 25^\circ\text{C} \sim 105^\circ\text{C} \sim 25^\circ\text{C}$ 30min 5min 30min 5min Test Time=10cycle | 0/100 |
| | Thermal Shock | MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1011 | $-55^\circ\text{C}\pm 5^\circ\text{C} \sim 105^\circ\text{C}\pm 5^\circ\text{C}$ 10min 10min Test Time=10cycle | 0/100 |
| | Solder Resistance | MIL-STD-202:201A MIL-STD-750:2031 JIS C 7021 :A-1 | $T_{\text{sol}}=260\pm 5^\circ\text{C}$ Dwell Time= $5\pm 1\text{sec}$. | 0/50 |
| | Solder ability | MIL-STD-202:208D MIL-STD-750:2026 MIL-STD-883:2003 JIS C 7021 :A-2 | $T_{\text{sol}}=230\pm 5^\circ\text{C}$ Dwell Time= $5\pm 1\text{sec}$. | 0/50 |
| | Lead Bending Stress | MIL-STD-750:2036 JIS C 7021 :A-11 | $0^\circ\sim 90^\circ\sim 0^\circ$ bend , 3 cycles Weight 250g | 0/50 |

JUDGMENT CRITERIA OF FAILURE FOR THE RELIABILITY

| Measuring items | Symbol | Measuring conditions | Judgement criteria for failure |
|--------------------|--------|----------------------|--------------------------------|
| Forward voltage | V_F | $I_f=20\text{mA}$ | Over $U_x1.2$ |
| Reverse current | I_r | $V_r=5\text{V}$ | Over U_x2 |
| Luminous intensity | I_v | $I_f=20\text{mA}$ | Below $S_x0.5$ |

Note: 1.U means the upper limit of specified characteristics. S means initial value.

2.Measurment shall be taken between 2 hours and after the test pieces have been returned to normal ambient conditions after completion of each test.

Datasheet

Item no. 1564910

V1_0917_01_en

Standard LED-Sortiment 300 pcs

LED LAMPS SPECIFICATION

●COMMODITY : T-1 3/4 1.0"Lead, 5 ϕ

●DEVICE NUMBER : BL-BZ43V4V =BL-BZ53V4V-M36

●ELECTRICAL AND OPTICAL CHARACTERISTICS (Ta=25°C)

VERSION : 1.0

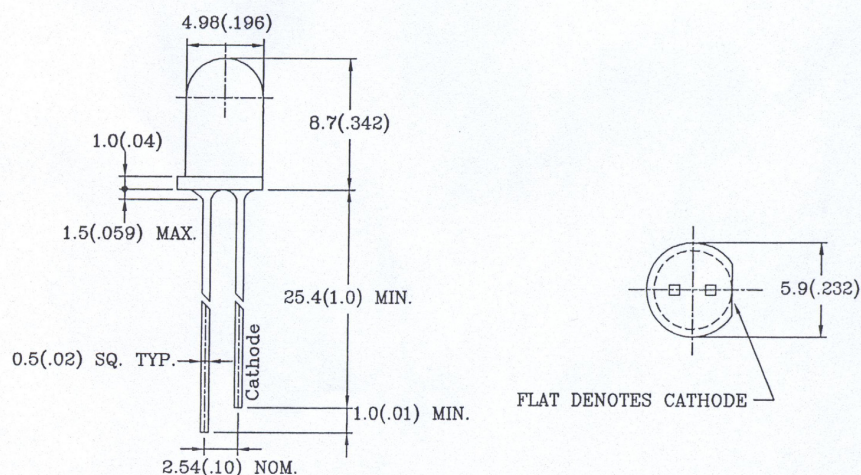
| Chip | | | Lens Appearance | Absolute Maximum Rating | | | Electro-optical Data (At 20mA) | | | Viewing Angle 2 θ 1/2 (deg) |
|---------------|--|------|--------------------|-------------------------|------------|----------------|--------------------------------|------|------------------|--|
| Emitted Color | Chromatically Coordinates(note 4) (At 20mA) | | | Pd (mW) | If (mA) | Peak If(mA) | Vf(V) | | Iv Typ. (mcd) | |
| | X | Y | | | | | Typ. | Max. | | |
| White | 0.31 | 0.32 | Water Clear | 100 | 30 | 100 | 3.5 | 4.0 | 3000 | 12 \pm 2 |

Remark : Viewing angle is the Off-axis angle at which the luminous intensity is half the axial luminous intensity.

●ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Reverse Voltage 5V
 Reverse Current (VR=5V) 100 μ A
 Operating Temperature Range -40°C ~ 80°C
 Storage Temperature Range -40°C ~ 85°C
 Lead Soldering Temperature 260°C For 5 Seconds

●PACKAGE DIMENSIONS



NOTES: 1.All dimensions are in millimeters (inches).

2.Tolerance is \pm 0.25mm (0.01") unless otherwise specified.

3.The products are sensitive to static electricity and care must be fully taken when handling products.

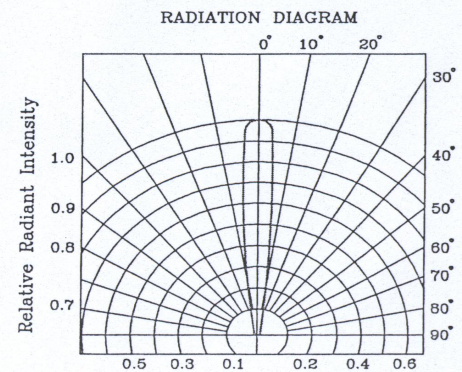
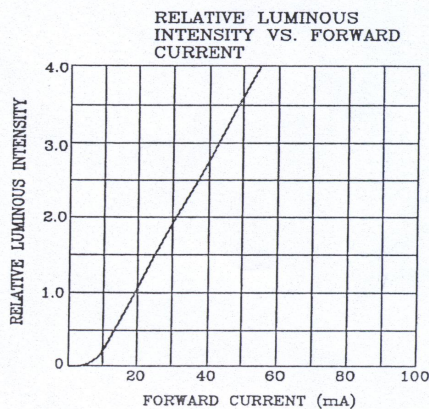
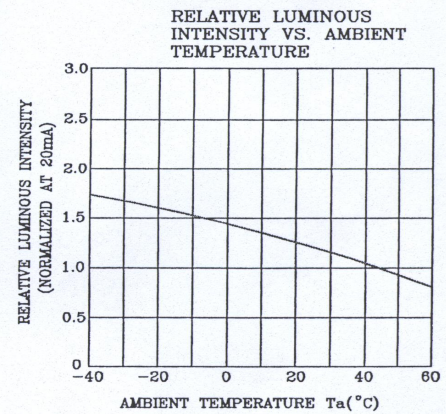
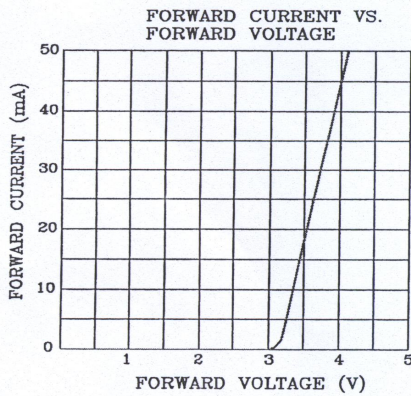
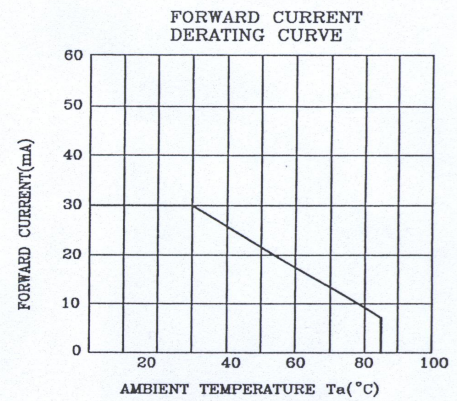
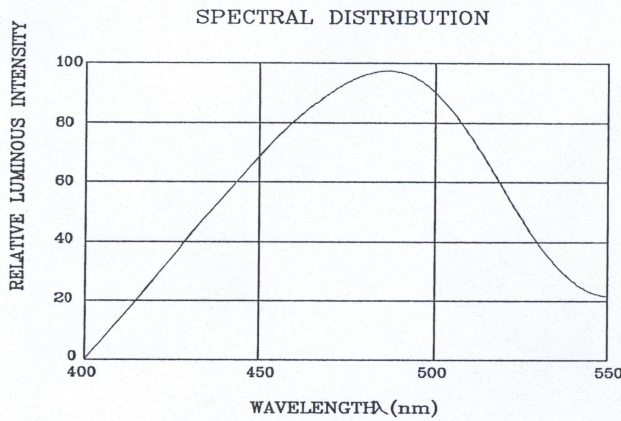
4.Lead spacing is measured where the leads emerge from the package.

5.Specifications are subject to change without notice.

Standard LED-Sortiment 300 pcs

SURFACE MOUNT CHIP LED LAMP SPECIFICATION

- COMMODITY: T-1 Standard 1.0" Lead 5 ϕ
- DEVICE NUMBER: BL-BZ43V4V= BL-BZ53V4V-M36
- ELECTRICAL AND OPTICAL CHARACTERISTICS (Ta=25°C) REVISION: 1.0



Datasheet

Item no. 1564910

V1_0917_01_en

Standard LED-Sortiment 300 pcs

LED LAMP SPECIFICATION

RELIABILITY TEST

REVISION: 1.0

| Classification | Test Item | Reference Standard | Test Conditions | Result |
|--------------------|--|---|---|--------|
| Endurance Test | Operation Life | MIL-STD-750:1026 MIL-STD-883:1005 JIS C 7021 :B-1 | Connect with a power $I_f=30\text{mA}$ T_a =Under room temperature Test time=1,000hrs | 0/100 |
| | High Temperature High Humidity Storage | MIL-STD-202:103B JIS C 7021 :B-11 | $T_a=85^\circ\text{C}\pm 5^\circ\text{C}$ RH=90%-95% Test time=1,000hrs | 0/100 |
| | High Temperature Storage | MIL-STD-883:1008 JIS C 7021 :B-10 | High $T_a=105^\circ\text{C}\pm 5^\circ\text{C}$ Test time=1,000hrs | 0/100 |
| | Low Temperature Storage | JIS-C-7021 :B-12 | Low $T_a=-55^\circ\text{C}\pm 5^\circ\text{C}$ Test time=1,000hrs | 0/100 |
| Environmental Test | Temperature Cycling | MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010 JIS C 7021 :A-4 | $-35^\circ\text{C} \sim 25^\circ\text{C} \sim 85^\circ\text{C} \sim 25^\circ\text{C}$ 30min 5min 30min 5min Test Time=10cycle | 0/100 |
| | Thermal Shock | MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1011 | $105^\circ\text{C}\pm 5^\circ\text{C} \sim -55^\circ\text{C}\pm 5^\circ\text{C}$ 10min 10min Test Time=10cycle | 0/100 |
| | Solder Resistance | MIL-STD-202:201A MIL-STD-750:2031 JIS C 7021 :A-1 | $T_{\text{sol}}=260\pm 5^\circ\text{C}$ Dwell Time=10±1sec. | 0/50 |
| | Solderability | MIL-STD-202:208D MIL-STD-750:2026 MIL-STD-883:2003 JIS C 7021 :A-2 | $T_{\text{sol}}=230\pm 5^\circ\text{C}$ Dwell Time=5±1sec. | 0/50 |
| | Lead Bending Stress | MIL-STD-750:2036 JIS C 7021 :A-11 | $0^\circ\sim 90^\circ\sim 0^\circ$ bend , 3 cycles Weight 250g | 0/50 |

JUDGMENT CRITERIA OF FAILURE FOR THE RELIABILITY

| Measuring items | Symbol | Measuring conditions | Judgement criteria for failure |
|--------------------|--------|----------------------|--------------------------------|
| Forward voltage | VF | $I_F=20\text{mA}$ | Over $U_x1.2$ |
| Reverse current | IR | $V_R=5\text{V}$ | Over U_x2 |
| Luminous intensity | IV | $I_F=20\text{mA}$ | Below $S_x0.5$ |

Note: 1.U means the upper limit of specified characteristics. S means initial value.

2.Measurment shall be taken between 2 hours and after the test pieces have been returned to normal ambient conditions after completion of each test.

Standard LED-Sortiment 300 pcs

CARBON FILM RESISTORS,FLAMEPROOF

1. Applicable Scope:

This standard specification is for use in consumer electronics, computers, telecommunications, control instruments...etc.

2. Part Number:

It is composed by Type, Rated Wattage, Nominal Resistance, Tolerance and Package/Terminal Form. e.g.

| | | | | |
|-----------|---------------|--------------------|-----------|-----------------------|
| <u>RD</u> | <u>1/4W</u> | <u>100Ω</u> | <u>J</u> | <u>T/B</u> |
| Type | Rated Wattage | Nominal Resistance | Tolerance | Package/Terminal Form |

2.1 Type :

Carbon Film Resistors are called "RD". "RDN" represents flameproof.

2.2 Rated Wattage:

Shown by "W", such as RD 1/8W(1/6W, 1/4WS), 1/4W(1/2WS), 1/2W; RDN 1W, 2W.

2.3 Nominal Resistance:

Ω, KΩ, MΩ are its unit, which be in accordance with JIS-C6409 article 6 (EIA RS-196A) series.

2.4 Tolerance:

It is measured by Bridge-method at room temperature and expressed by a capital letter.

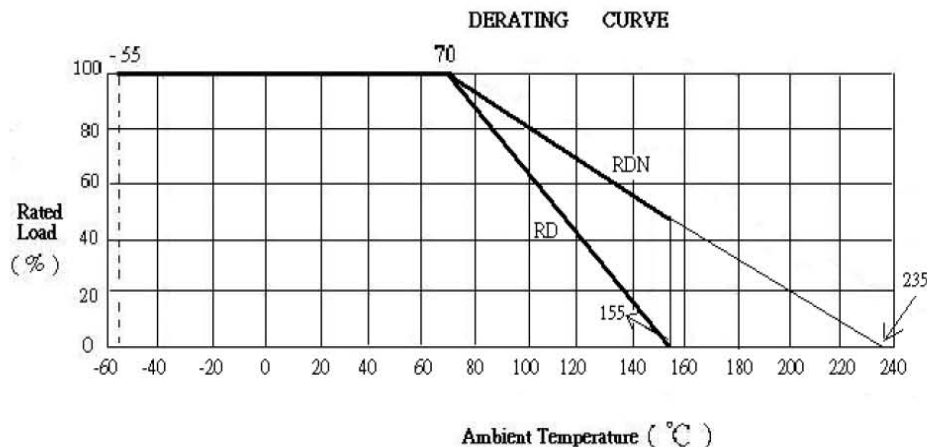
G=± 2% , J=± 5% ,K= ±10%.

2.5 Package/Terminal Form:

T/R = tape & reel ; T/B=tape in box; Bulk=axial form in plastic bag; F1...F4 forms, M form and MG form.

3. Rated Power:

Rated power is the value of Max load voltage specified at the ambient temperature of 70°C, and shall meet the functions of electrical and mechanical performance. When the ambient temperature surpasses above mentioned temperature, the value declines as per following DERATING CURVE



Standard LED-Sortiment 300 pcs

CARBON FILM RESISTORS, FLAMEPROOF

3.1 Rated Voltage:

It is calculated through the following formula:

where E: rated voltage (V)

P: rated power (W)

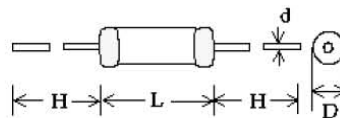
R: nominal resistance value (Ω)

$$E = \sqrt{PXR}$$

However, in case the voltage calculated exceeds the maximum load voltage, such the maximum load voltage shall be regarded as its rated voltage, means whichever less.

4. Dimension and structure:

4.1 Dimension:



| TYPE | L \pm 0.5 | D \pm 0.5 | H \pm 3 | d \pm 0.05 | Resistance Range | Unit mm Max Working Voltage |
|-----------------------|-------------|---------------|-----------|--------------|-----------------------------|--------------------------------|
| RD1/8W, 1/6W, (1/4WS) | 3.7 Max | 1.7 \pm 0.2 | 30 | 0.45 | 3.9 Ω ~4.7M Ω | 200V |
| RD1/4W (1/2WS) | 6.4 | 2.4 | 30 | 0.6 | 3.9 Ω ~10M Ω | 250V |
| RD1/2W | 9 | 3.5 | 30 | 0.65 | 3.9 Ω ~10M Ω | 350V |
| RDN1W | 11 | 4.5 | 30 | 0.8 | 3.9 Ω ~10M Ω | 500V |
| RDN2W | 15 | 5.0 | 30 | 0.8 | 3.9 Ω ~10M Ω | 750V |

- © Notes: 1. too low or too high ohm value can be supplied only case by case.
 2. Max Overload Voltage is 2 times of Max Working voltage.
 3. Resistance value over 4.7M Ω (\geq 4.7M Ω), while RD 1/6W is \geq 1M Ω , the tolerance shall be \pm 10%.
 4. RD 1/4W, 1/2W can also supply flameproof form (RDN).
 5. RDN-form Dielectric Withstanding, please refer to RSN page similar size column.

4.2 STRUCTURE

4.2.1 Ceramic Rod:

It is made of Forsterite imported from Japan.

4.2.2 Carbon Film:

Under high vacuum and high temperature to split and oxidize the pure carbon-hydric.

4.2.3 Terminal:

Terminal is to be firmly connected with resistors element, both electrically and mechanically, and allow easy soldering.

4.2.4 Coating:

Coating is done by EPOXY insulating paint which is solid enough to be free from looseness, crack and easy breakage. The paint shall be limited within 1mm of lead wires from resistors body while the rated wattage is 2W the paint is limited within 2mm. RDN type is coated by flameproof paint which is resistant to 800 $^{\circ}$ C without causing looseness, crack and easy breakage.

4.2.5 Marking:

Marking is made by color coding on surface.

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5. Operating Temperature Range: -55°C ~ 155°C

6. Mechanical Performance:

6.1 Terminal tensile:

To Fix the resistor body, a static load of 1.5kgs. (1/8W & 1/4W axial form:1kg.) is to be gradually applied into the terminal for 10 seconds without causing any looseness and fall.

6.2 Twist withstand:

To bend the lead wire at the point of about 6mm from resistor body to 90°, then catch the wire at 1.2 ± 0.4mm apart from the bent point end and turn it (clockwise) by 360 degrees perpendicular to the resistor axis at speed of 5 seconds per turn, and do the same counterclockwise again which constitute a whole turn. Repeat the turn 2 times without causing any break and looseness.

7. Electrical Performance:

7.1 Resistance Temperature Coefficient:

It shall be as following:

| TYPE | T.C. | | | |
|-------------|--------|------------|-------------|-------------|
| | 0~450 | 0~700 | 0~1000 | 0~1300 |
| 1/6W, 1/8W | ≤47KΩ | 51KΩ~100KΩ | 110KΩ~330KΩ | 360KΩ~1MΩ |
| 1/4W & OVER | ≤100KΩ | 110KΩ~1MΩ | 1.1MΩ~2.2MΩ | 2.4MΩ~4.7MΩ |

$$T.C. (ppm/°C) = [(R2 - R1) \div R1] \times [1 \div (T2 - T1)] \times 10^6$$

where

R1: resistance value at reference temperature

R2: resistance value at test temp.

T1: reference temp. (usu. 25°C)

T2: test temp. (about 75°C)

7.2 Temperature Cycle:

Following temp. cycles are to be made 5 times and then put at room temp. for one hour, the resistance value change rate between pre-and-post test shall be within ± 1%.

| Steps | Temperature(°C) | Time (minutes) |
|----------------------|-----------------|----------------|
| 1 st step | -55 ± 3 | 30 |
| 2 nd step | Room temp. | 3 |
| 3 rd step | 155 ± 3 | 30 |
| 4 th step | Room temp. | 3 |

7.3 Short Time Over Load:

When the resistors are applied 2.5 times as much as rated wattage for 5 seconds continuously, it shows no evidence of arc, flame...etc. Removing the voltage and place the resistors to the normal condition for 30 minutes, the resistance value change rate between pre-and-post test shall be within ± 1%.

7.4 Insulation Character :

Resistors are located in a V-shaped metal trough. Using the DC500V megger instrument 2 poles to clutch either side of lead wires and metal trough, measuring the Insulation Resistance which shall be over 10000MΩ.

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7.5 Voltage Withstanding:

Resistors are located in a V-shaped metal trough. RD: applying Max overload voltage for one minute (RDN: applying Max Working Voltage for one minute) and should find no physical damage to the resistors. The resistance value change shall be within $\pm 0.5\%$.

7.6 Load Life:

The resistors arrayed are sent into the 70°C oven, applying rated voltage at the cycle of 1.5 hours ON, 0.5 hour OFF for 1000_{-0}^{+48} hours in total. Then, after removing the voltage, take the resistors out of the oven and left under normal temp. for one hour cooling. The resistance value change rate between pre-and-post test shall be within $\pm 5\%$.

7.7 Moisture-proof Load Life:

The resistors arrayed are placed into a constant temp./humidity oven at the temp. of $40 \pm 2^{\circ}\text{C}$ and the humidity of $90\sim 95\%$, then rated power is applied for 1.5 hours and cut off for 0.5 hour. The similar cycle will be repeated for 500_{-0}^{+24} hours in total (including cut-off time). Then remove the voltage, taking the resistors out of the oven and leaving them at room temp. for one hour. The resistance value change rate between pre-and-post test shall be within $\pm 5\%$. There also shall be no evidence of remarkable change on appearance, and the marking shall not be illegible.

7.8 Solder-ability:

The leads with flux are dipped in a melted solder of $235 \pm 5^{\circ}\text{C}$ for 2 seconds, more than 95% of the circumference of the lead wires shall be covered with solder.

7.9 Resistance to Soldering Heat:

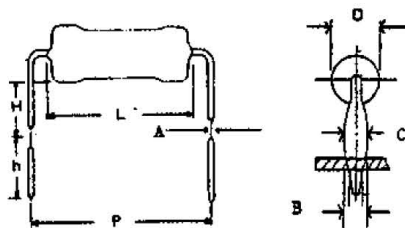
Two leads are together dipped in a melted solder of $270 \pm 5^{\circ}\text{C}$ for 10 ± 1 seconds, or $350 \pm 10^{\circ}\text{C}$ for 3.5 ± 0.5 seconds, Then remove the resistors and leaving them at room temp. for one hour. The resistance value change rate between pre-and-post test shall be within $\pm 1\%$.

7.10 Incombustibility:(only for RDN)

The resistors are applied the power of 16 times the rated wattage for 5 min. and shall not get flame.

8. Forming:

8.1 MG Form:



Unit: mm

| Wattage | L ± 1 | D ± 0.5 | P | H | h ± 1 | A ± 0.02 | B ± 0.05 | C ± 0.2 |
|-------------|-----------|-------------|--------------|------------|-----------|--------------|--------------|-------------|
| 1/4W(1/2WS) | 6.5 | 2.6 | 10 ± 1 | 7 ± 1 | 4.5 | 0.2 | 0.8 | 12 |
| 1/2W | 9 | 3.5 | 15 ± 1.5 | 7 ± 1 | 4.5 | 0.2 | 0.8 | 12 |
| 1W | 11 | 4.5 | 15 ± 1.5 | 7 ± 1 | 4.5 | 0.3 | 1 | 14 |
| 2W | 15 | 5.0 | 20 ± 2 | 10 ± 2 | 4.5 | 0.3 | 1 | 14 |

Datasheet

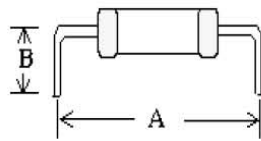
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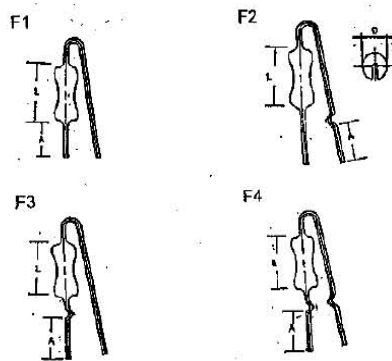
8.2 M Form



| Unit: mm | | | | |
|----------|----|--------|----------|--------|
| Form | M0 | M1 | M2 | M3 |
| A | 5 | 10±0.5 | 12.5±0.5 | 15±0.5 |
| B | 14 | 7±1 | 6±1 | 6±1 |
| | 14 | 10±1 | 6±1 | 6±1 |

RD 1/6W:M0, RD1/4W:M1 & M2, RD 1/2W:M2 & M3

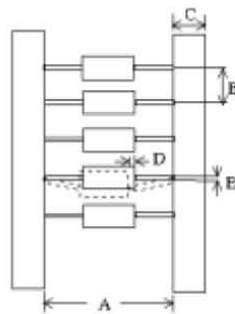
8.3 F Form



| Unit: mm | | | | |
|----------|-----|-------|-------|------------|
| Wattage | L±1 | D±0.5 | A±0.5 | Applicable |
| 1/2W | 9 | 3.5 | 4 | F1~F4 |
| 1W | 11 | 4.5 | 4 | F1~F4 |
| 2W | 15 | 5.0 | 4 | F1~F4 |

9. Packing:

9.1 Taping Specifications:



| Unit: mm | | | | | | |
|----------|------|------------|-------|-----|-------|-------|
| Wattage | Size | A | B | C±1 | D Max | E Max |
| | Type | | | | | |
| ≤ 1/4W | T-26 | 26+1 -0 | 5±0.5 | 6 | 0.6 | 1.2 |
| | T-52 | 52±1 | 5±0.5 | 6 | 0.6 | 1.2 |
| 1/2W | T-52 | 52±1 | 5±0.5 | 6 | 0.6 | 1.2 |
| 1W | T-63 | 63±1 | 5±0.5 | 6 | 0.6 | 1.2 |
| 2W | T-63 | 63±1 | 10±1 | 6 | 0.6 | 1.2 |
| | T-76 | 76±1.5 | 10±1 | 6 | 0.6 | 1.2 |

Datasheet

Item no. 1564910

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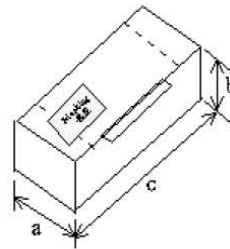
Standard LED-Sortiment 300 pcs

CARBON FILM RESISTORS, FLAMEPROOF

9.2 Tape in Box:

Unit: mm

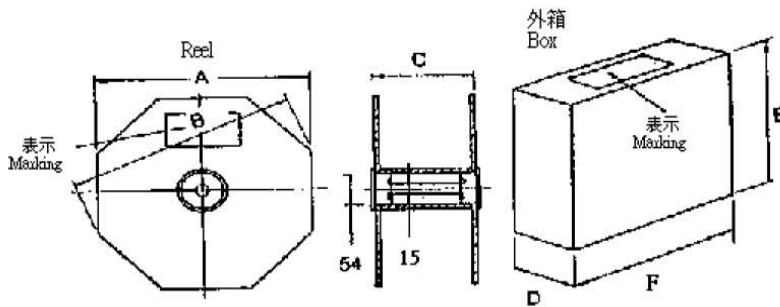
| Wattage | TYPE | QTY PER BOX | a | b | c |
|-------------|------|-------------|-----|-----|-----|
| 1/8W(1/4WS) | T-26 | 5,000 | 50 | 70 | 255 |
| | T-52 | 5,000 | 75 | 70 | 255 |
| 1/4W(1/2WS) | T-26 | 4,000 | 50 | 90 | 255 |
| | T-52 | 5,000 | 75 | 100 | 255 |
| 1/2W | T-52 | 1,000 | 75 | 55 | 255 |
| 1W | T-63 | 1,000 | 85 | 105 | 260 |
| 2W | T-63 | 1,000 | 100 | 110 | 265 |



9.3 Tape & Reel:

Unit: mm

| Wattage | TYPE | QTY PER REEL | A | B | C | D | E | F |
|-------------|------|--------------|-----|-----|----|-----|-----|-----|
| 1/4W(1/2WS) | T-52 | 5,000 | 285 | 310 | 75 | 80 | 295 | 295 |
| 1/2W | T-52 | 2,500 | 285 | 310 | 75 | 80 | 295 | 295 |
| 1W | T-63 | 2,000 | 285 | 310 | 75 | 95 | 295 | 295 |
| 2W | T-63 | 1,000 | 285 | 310 | 75 | 95 | 295 | 295 |
| | T-76 | 1,000 | 285 | 310 | 90 | 105 | 295 | 295 |



A

B

C

D

E

F

G

H

1

2

3

4

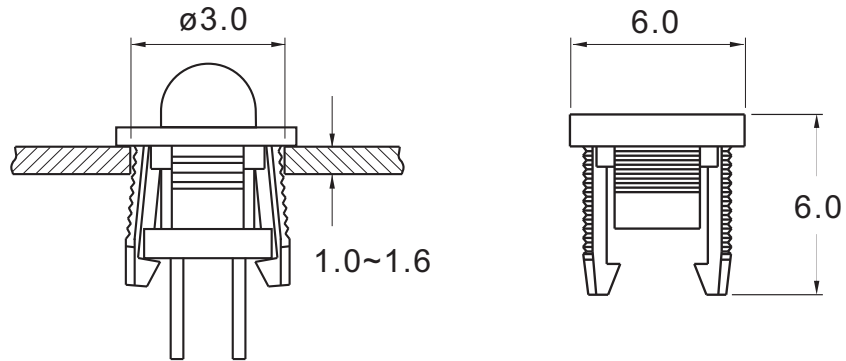
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6

SPECIFICATION

MATERIAL : NYLON 94V-2 (UL)
 COLOR : BLACK
 TOLERANCE : ±0.2

HOLE IN CHASSIS



| | | | | | | | |
|------|----------|-------------|-------------|----------|---------|------------|--|
| | | | | DRAW No | | SU-0708001 | |
| DATE | REVISION | APPROVAL BY | DIMENSION | mm | PART No | LEDA-03 | |
| | | | DRAW BY | Rikki | NAME | LED HOLDER | |
| | | | APPROVAL BY | Andy | | | |
| | | | DATE | 30-09-05 | | | |

A

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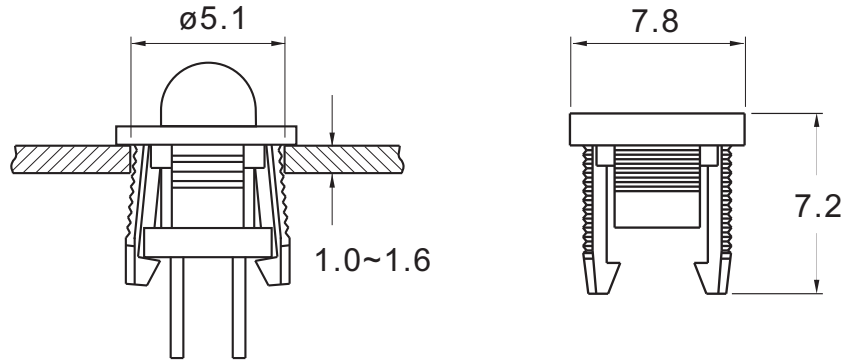
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6

SPECIFICATION

MATERIAL : NYLON 94V-2 (UL)
 COLOR : BLACK
 TOLERANCE : ±0.2

HOLE IN CHASSIS



| | | | | | | |
|------|----------|-------------|-------------|------------|------------|------------|
| | | | | DRAW No | SU-0600206 | |
| DATE | REVISION | APPROVAL BY | DIMENSION | mm | PART No | LEDA-05 |
| | | | DRAW BY | T.C. CHENG | NAME | LED HOLDER |
| | | | APPROVAL BY | Andy | | |
| | | | DATE | 30-09-05 | | |