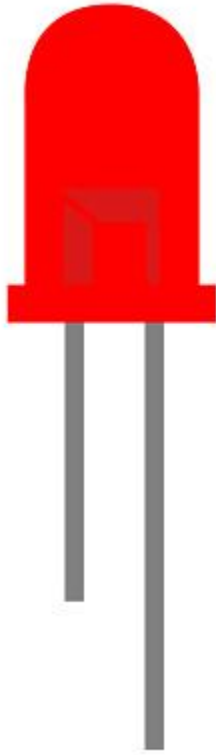


Red LED



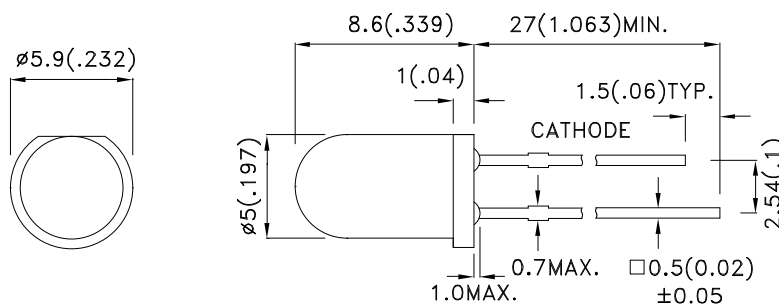
Features

- LOW POWER CONSUMPTION.
- POPULAR T-1 3/4 DIAMETER PACKAGE.
- GENERAL PURPOSE LEADS.
- RELIABLE AND RUGGED.
- LONG LIFE - SOLID STATE RELIABILITY.
- AVAILABLE ON TAPE AND REEL.
- RoHS COMPLIANT.

Description

The Super Bright Red source color devices are made with Gallium Aluminum Arsenide Red Light Emitting Diode.

Package Dimensions



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.25 (0.01)$ " unless otherwise noted.
3. Lead spacing is measured where the leads emerge from the package.
4. Specifications are subject to change without notice.



Selection Guide

Part No.	Dice	Lens Type	Iv (mcd) [2] @ 20mA		Viewing Angle [1]
			Min.	Typ.	2θ1/2
WP7113SRD/D	Super Bright Red (GaAlAs)	RED DIFFUSED	180	250	30°

Notes:

1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.
2. Luminous intensity/ luminous Flux: +/-15%.

Electrical / Optical Characteristics at TA=25°C

Symbol	Parameter	Device	Typ.	Max.	Units	Test Conditions
λ _{peak}	Peak Wavelength	Super Bright Red	660		nm	I _F =20mA
λ _D [1]	Dominant Wavelength	Super Bright Red	640		nm	I _F =20mA
Δλ _{1/2}	Spectral Line Half-width	Super Bright Red	20		nm	I _F =20mA
C	Capacitance	Super Bright Red	45		pF	V _F =0V;f=1MHz
V _F [2]	Forward Voltage	Super Bright Red	1.85	2.5	V	I _F =20mA
I _R	Reverse Current	Super Bright Red		10	uA	V _R = 5V

Notes:

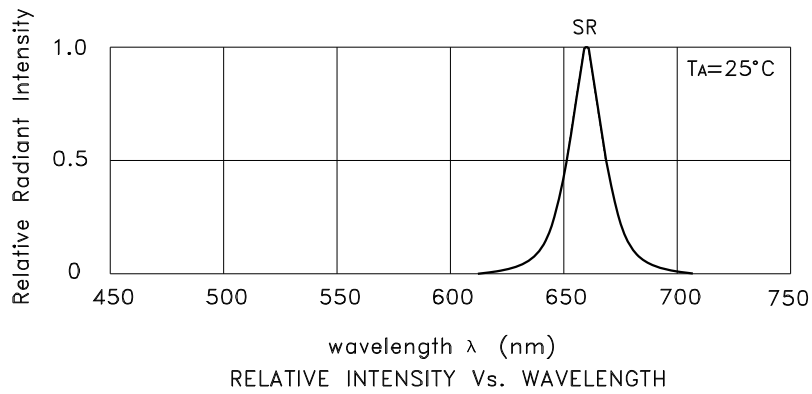
1. Wavelength: +/-1nm.
2. Forward Voltage: +/-0.1V.

Absolute Maximum Ratings at TA=25°C

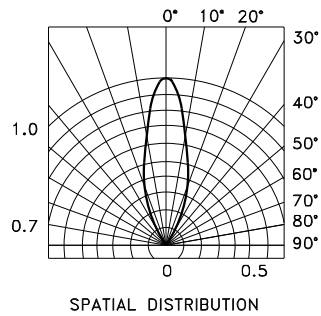
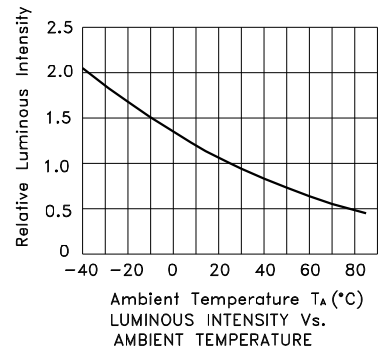
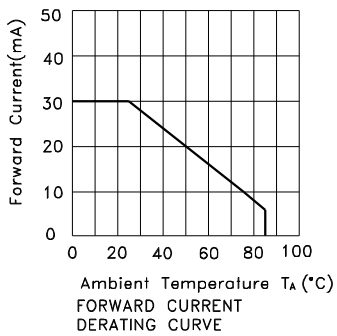
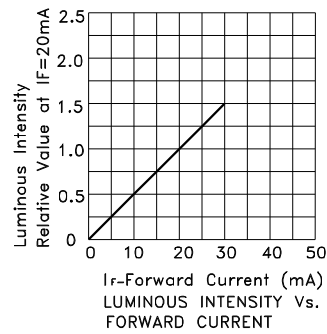
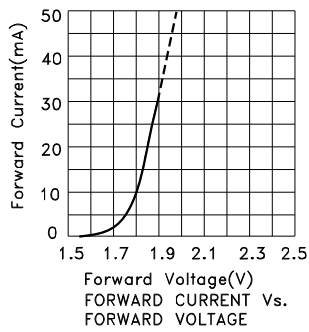
Parameter	Super Bright Red	Units
Power dissipation	75	mW
DC Forward Current	30	mA
Peak Forward Current [1]	155	mA
Reverse Voltage	5	V
Operating/Storage Temperature	-40°C To +85°C	
Lead Solder Temperature [2]	260°C For 3 Seconds	
Lead Solder Temperature [3]	260°C For 5 Seconds	

Notes:

1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. 2mm below package base.
3. 5mm below package base.



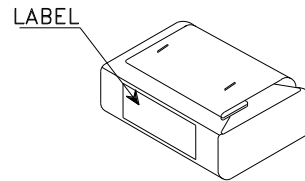
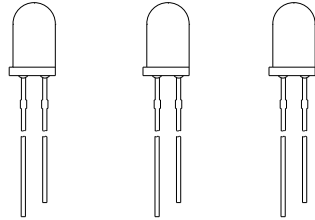
Super Bright Red WP7113SRD/D



Kingbright

PACKING & LABEL SPECIFICATIONS

WP7113SRD/D

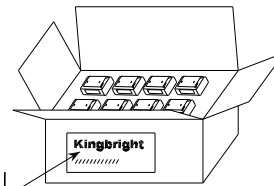


500PCS / BAG




32K / 9# BOX

OUTSIDE LABEL



OUTSIDE LABEL

16K / 5# BOX

<h1>Kingbright</h1>				
Q.C.	<table border="1"> <tr> <td style="text-align: center;">QC</td> </tr> <tr> <td style="text-align: center;">XX XX XXXX</td> </tr> <tr> <td style="text-align: center;">PASSED</td> </tr> </table>	QC	XX XX XXXX	PASSED
QC				
XX XX XXXX				
PASSED				
TYPE NO : WP7113XXX				
QUANTITY : 500 pcs				
S/N : XX	CODE: XX			
LOT NO:  <small>XX-XXXXX</small>				
RoHS Compliant				

LED MOUNTING METHOD

1. The lead pitch of the LED must match the pitch of the mounting holes on the PCB during component placement. Lead-forming may be required to insure the lead pitch matches the hole pitch. Refer to the figure below for proper lead forming procedures.

(Fig. 1)

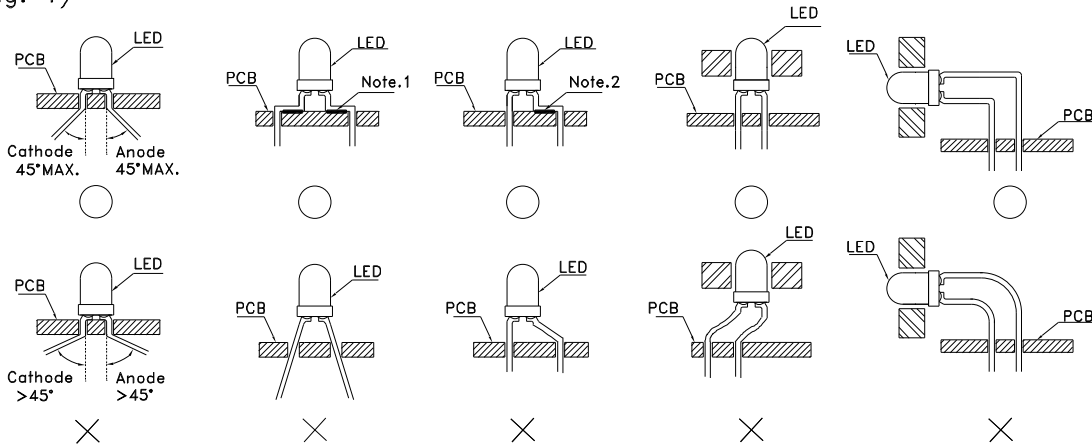


Fig.1

”○” Correct mounting method ”×” Incorrect mounting method

Note 1-2 : Do not route PCB trace in the contact area between the leadframe and the PCB to prevent short-circuits.

2. When soldering wire to the LED, use individual heat-shrink tubing to insulate the exposed leads to prevent accidental contact short-circuit.

(Fig. 2)

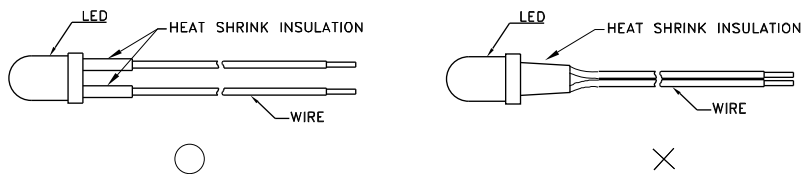


Fig. 2

3. Use stand-offs (Fig. 3) or spacers (Fig. 4) to securely position the LED above the PCB.

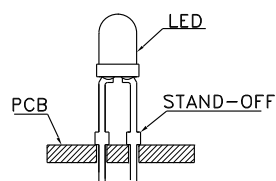


Fig. 3

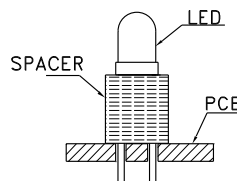


Fig. 4

LEAD FORMING PROCEDURES

1. Maintain a minimum of 2mm clearance between the base of the LED lens and the first lead bend. (Fig. 5 and 6)

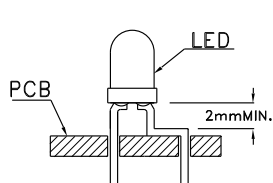


Fig. 5

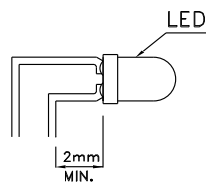


Fig. 6

2. Lead forming or bending must be performed before soldering, never during or after Soldering.
3. Do not stress the LED lens during lead-forming in order to fractures in the lens epoxy and damage the internal structures.
4. During lead forming, use tools or jigs to hold the leads securely so that the bending force will not be transmitted to the LED lens and its internal structures. Do not perform lead forming once the component has been mounted onto the PCB. (Fig. 7)
5. Do not bend the leads more than twice. (Fig. 8)

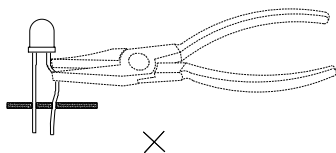


Fig. 7

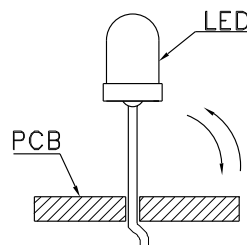


Fig. 8

6. After soldering or other high-temperature assembly, allow the LED to cool down to 50°C before applying outside force (Fig. 9). In general, avoid placing excess force on the LED to avoid damage. For any questions please consult with Kingbright representative for proper handling procedures.

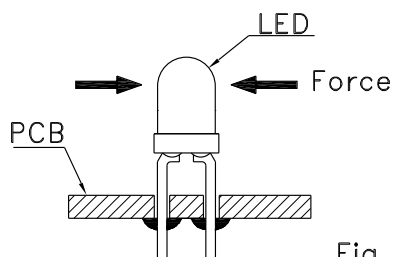
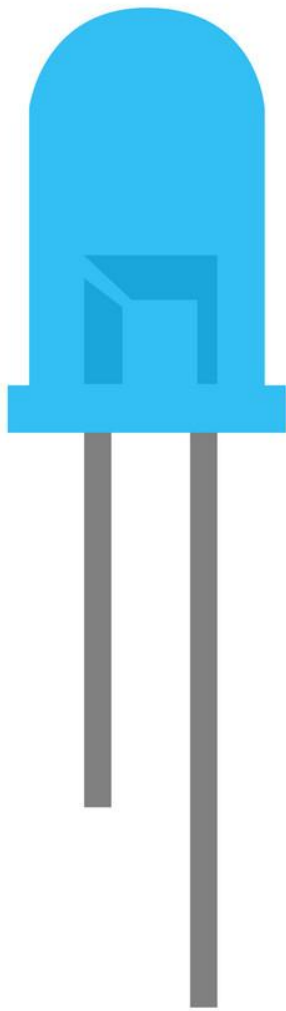


Fig. 9

Blue LED



Data Sheet for 5mm Super Bright Blue LED

5A3 Series

Angle: 15°

Class: Q

Part No: WW05A3SBQ4-N

Data Sheet For 5mm Super Bright Blue LED

5A3 Series

Angle 15°

Class: Q

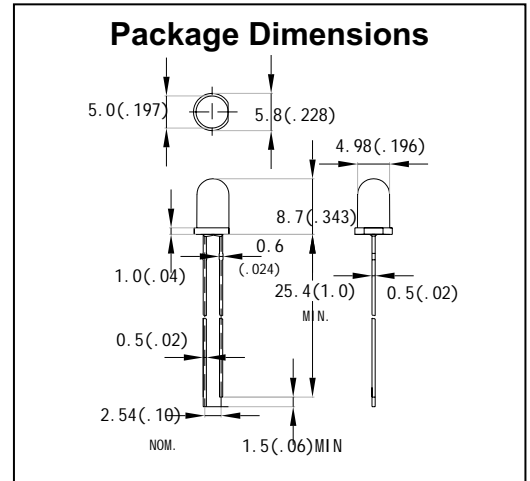
Features

- Standard T-1 Diameter Type Package.
- General Purpose Leads
- Reliable and Rugged

Absolute Maximum Ratings at Ta=25°C

Parameter	MAX.	Unit
Power Dissipation	100	mW
Peak Forward Current ($\leq 1/10$ Duty Cycle, 0.1ms Pulse Wide)	100	mA
Continuous Forward Current	20	mA
Derating Linear From 50°C	0.4	mA/°C
Reverse Voltage	5	V
Operating Temperature Range	-40°C to +80°C	
Storage Temperature Range	-40°C to +80°C	
Lead Soldering Temperature [4mm(.157") From Body]	260°C for 3 Seconds	

Package Dimensions



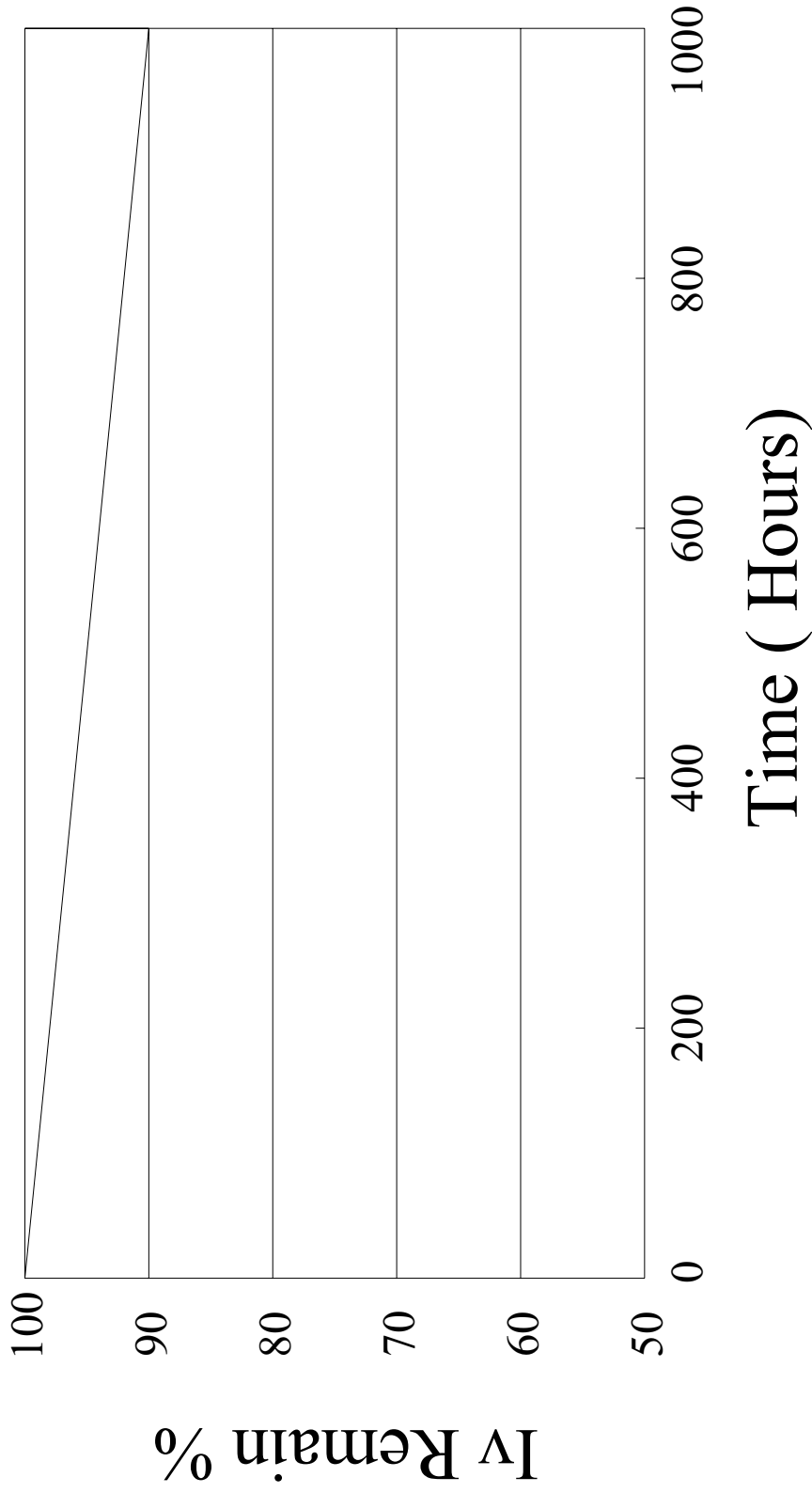
Electrical Optical Characteristics at Ta=25°C

Part Number	Lens color	Source Color	Dominant Wavelength λ_d / nm $I_F = 20\text{mA}$ (Note 8)			Luminous Intensity I_v / mcd $I_F = 20\text{mA}$ (Note 5)			Forward Voltage / V $I_F = 20\text{mA}$			Viewing Angle / Deg (Note 6)
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
WW05A3SBQ4-N	Water Clear	Blue	465	---	475	4900	6300	---	---	3.2	4.0	15°
Reverse Voltage = 5V						Reverse Current = 50 μ A						

Notes:

1. All dimensions are in millimeter.
2. Tolerance of measurement is $\pm 0.25\text{mm}(.01")$ unless others otherwise noted.
3. Protruded resin under flanges is $1.0\text{mm}(0.4")$ max.
4. Lead spacing is measured where the leads emerge from the package.
5. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve. Tolerance of measurement of luminous intensity is $\pm 5\%$
6. $\theta_{1/2}$ is the off-axis angle at which the luminous intensity is half the axial luminous intensity. It use many parameters that correspond to the CIE 1931 2° Tolerance of measurement of angle is ± 5 degree
7. Caution in ESD: Static Electricity and surge damages the LED. It is recommended to use a wrist band or anti-electrostatic glove when handling the LED. All devices, equipment and machinery must be properly grounded.
8. The dominant wavelength λ_d is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.
9. Specifications are subject to change without notice.

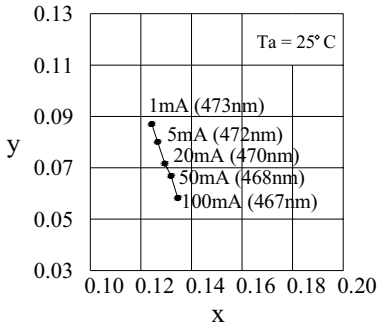
Super Bright LED "Q" Class Series Light Intensity (Iv) vs Time(T)



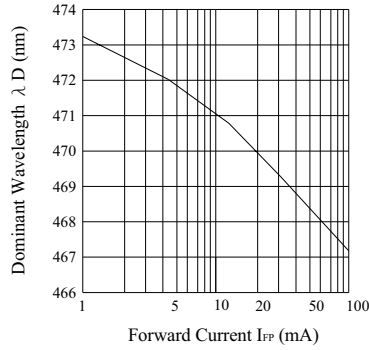
Operating Current : 20mA
Tj : 25° C

Typical Characteristic for Super Bright Blue LED

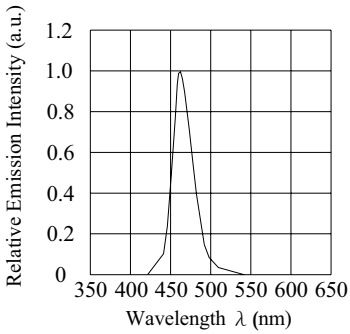
Forward Current vs. Chromaticity Coordinate (λD)



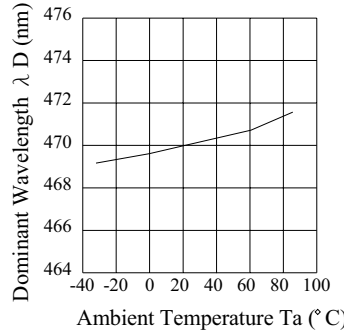
Forward Current vs. Dominant Wavelength



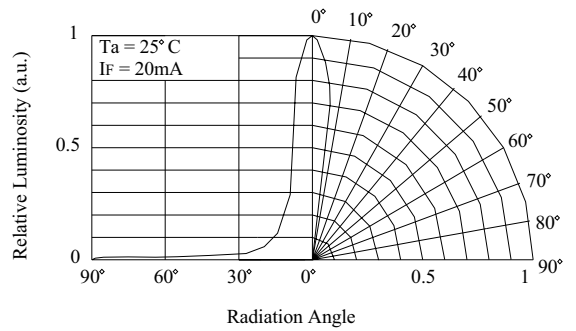
Spectrum



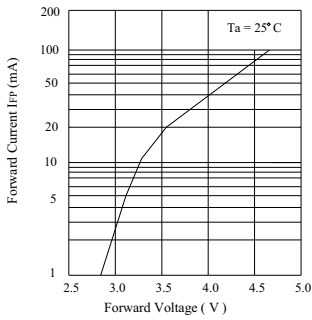
Ambient Temperature vs. Dominant Wavelength



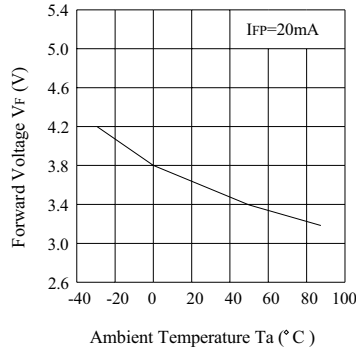
Directivity (Angle : 15°)



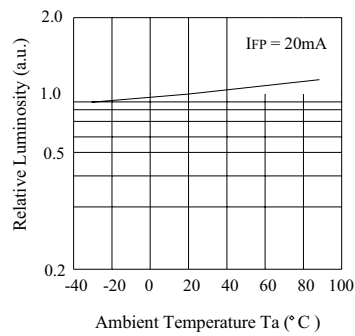
Forward Voltage vs. Forward Current



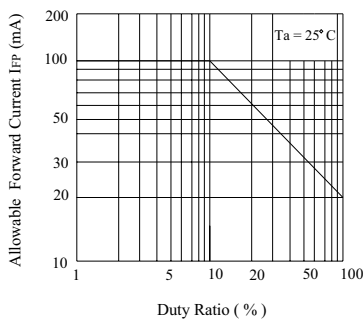
Ambient Temperature vs. Forward Voltage



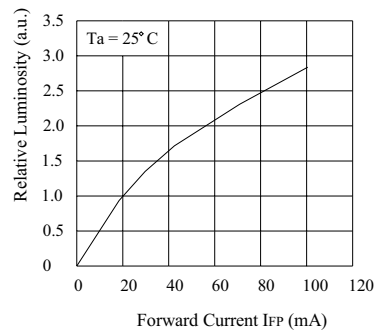
Ambient Temperature vs. Relative Luminosity



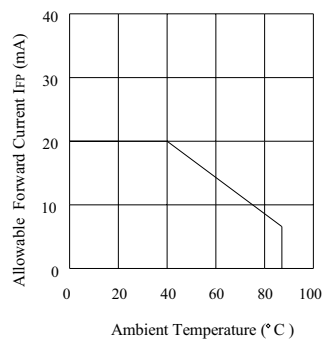
Duty Ratio vs. Allowable Forward Current



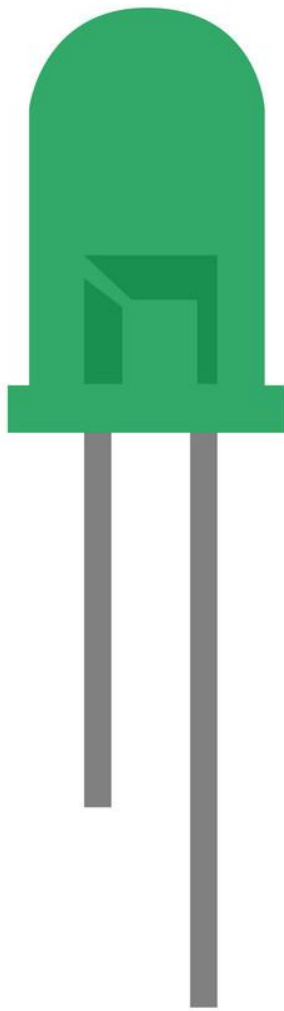
Forward Current vs. Relative Luminosity



Ambient Temperature vs. Allowable Forward Current



Green LED



Green LED - T1 (5mm)



RoHS
Compliant



Features

- Standard 5mm round package
- High luminous output
- Water clear lens

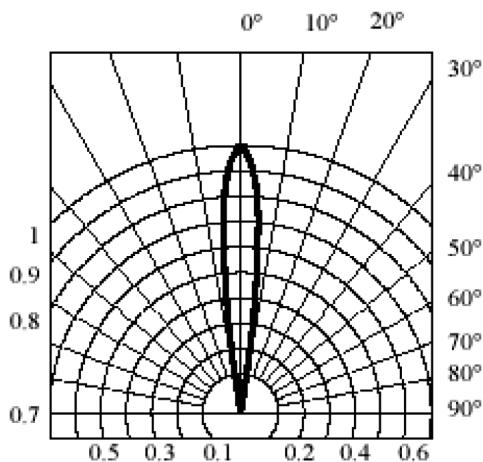
Maximum Ratings at $T_A = 25^\circ\text{C}$

Reverse Voltage (<math><100\mu\text{A}</math>)	: 5V
D.C. Forward Current	: 30mA
Pulse Current (Pulse Width of 0.1ms, 1/10 Duty Cycle)	: 100mA
Operating Temperature Range	: -25°C to $+85^\circ\text{C}$
Storage Temperature Range	: -40°C to 100°C
Soldering Temperature Dip Soldering	: 260°C for 5s
Soldering Temperature Hand Soldering	: 350°C for 3s

Electrical and Optical Characteristics at $T_A = 25^\circ\text{C}$

LED Chip			Lens Colours	Dominant Wavelength (nm) at 20mA	Luminous Intensity (mcd) at 20mA		Forward Voltage (V) at 20mA		Viewing Angle $2\theta^{1/2}$ ($^\circ$)
Material	Emitted Colours	Brightness			Minimum	Typical	Typical	Maximum	
InGaN / Sapphire	True Green	Mega	Water Clear	520	19,500	45,000	3.2	4	15

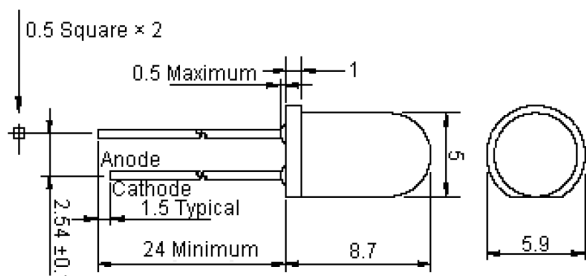
Radiation Diagrams



Green LED - T1 (5mm)



Diagram



Dimensions : Millimetres

Part Number Table

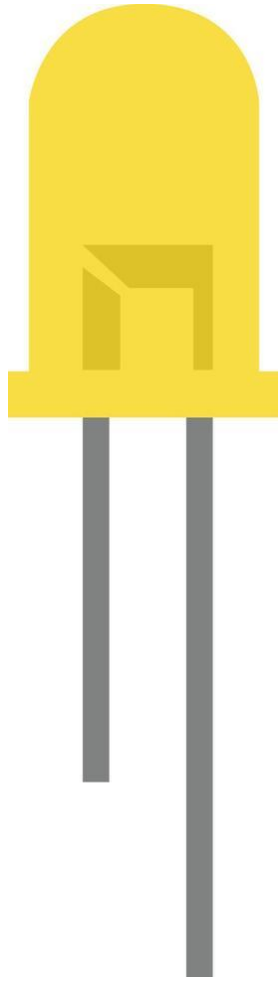
Description	Part Number
Green LED – T1 (5mm)	MC703-1061

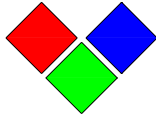
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Yellow LED





深圳市昱申科技有限公司
CHINA YOUNG SUN LED TECHNOLOGY CO., LTD.

TEL: (86) 755-28079401 28079402 28079403 28079404 28079405
FAX: (86) 755-28079407 E-mail: info@100LED.com Web: www.100LED.com

Model No.: YSL-R531Y3D-D2

Applications:

- Decorations
- Bill Insperctor
- Inceticial Lights
- Medical Appliance

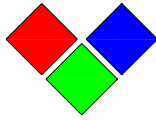
Absolute Maximum Ratings: (Ta=25°C) .

ITEMS	Symbol	Absolute Maximum Rating	Unit
Forward Current	I _F	20	mA
Peak Forward Current	I _{FP}	30	mA
Suggestion Using Current	I _{SU}	16-18	mA
Reverse Voltage (V _R =5V)	I _R	10	uA
Power Dissipation	P _D	105	mW
Operation Temperature	T _{OPR}	-40 ~ 85	°C
Storage Temperature	T _{STG}	-40 ~ 100	°C
Lead Soldering Temperature	T _{SOL}	Max. 260°C for 3 Sec. Max. (3mm from the base of the expoxy bulb)	

Absolute Maximum Ratings: (Ta=25°C)

ITEMS	Symbol	Test condition	Min.	Typ.	Max.	Unit
Forward Voltage	V _F	I _F =20mA	1.8	---	2.2	V
Wavelength (nm) or TC(k)	Δλ	I _F =20mA	587	---	591	nm
*Luminous intensity	I _v	I _F =20mA	150	---	200	mcd
50% Viewing Angle	2θ 1/2	I _F =20mA	40	---	60	deg

Address: 5/F, Building B, Anzhilong Indl., Qinghua East Road., Longhua Town, Shenzhen CHINA. 518109



深圳市昱申科技有限公司

CHINA YOUNG SUN LED TECHNOLOGY CO., LTD.

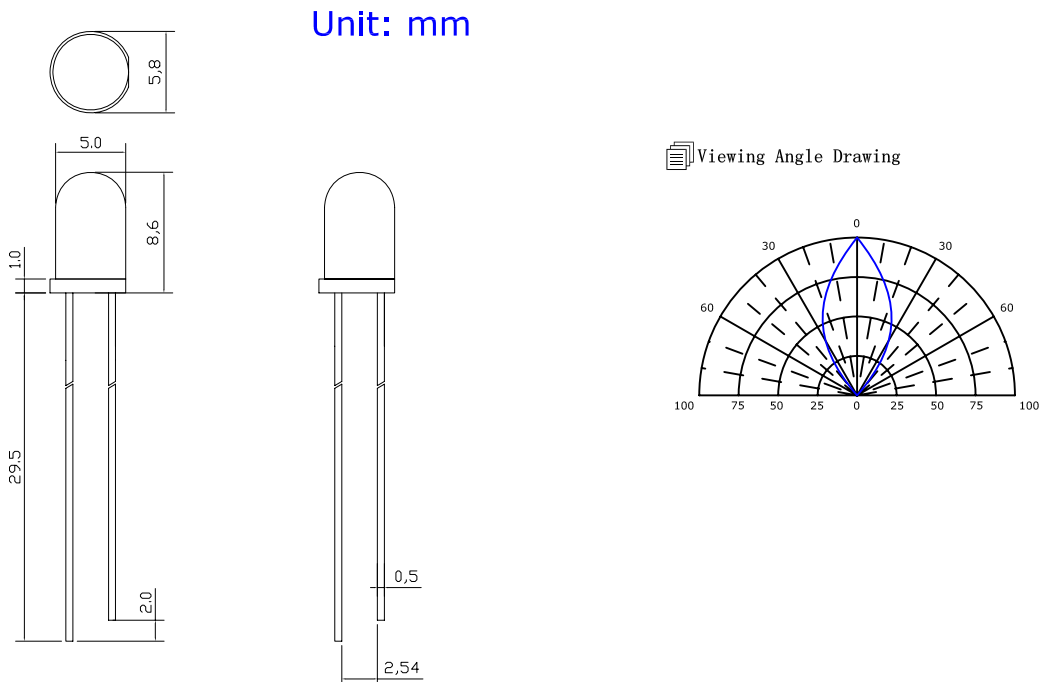
TEL: (86) 755-28079401 28079402 28079403 28079404 28079405
 FAX: (86) 755-28079407 E-mail: info@100LED.com Web: www.100LED.com

Light Degradation in mcd: (I_F=20mA)

Colors	Light Degradation in mcd after Different Hours					
	216 Hrs	360 Hrs	792 Hrs	1104 Hrs	1992 Hrs	2328 Hrs
Red	1.52%	-1.22%	-3.10%	-4.68%	-5.72%	-8.27%
Yellow	-1.71%	-2.97%	-5.93%	-8.13%	-8.90%	-11.10%
Blue	3.13%	-0.33%	-3.84%	-8.23%	-21.32%	-24.92%
Green	-8.02%	-9.78%	-14.25%	-17.37%	-20.79%	-22.30%
Hours	48 Hrs	168 Hrs	336 Hrs	360Hrs	720 Hrs	1008 Hrs
Cool White	10.56%	6.72%	-2.29%	-7.68%	-17.32%	-22.48%
Pure White	13.66%	8.22%	-1.45%	-8.50%	-19.52%	-25.26%
Warm White	3.02%	-4.38%	-15.18%	-21.15%	-27.19%	-29.97%

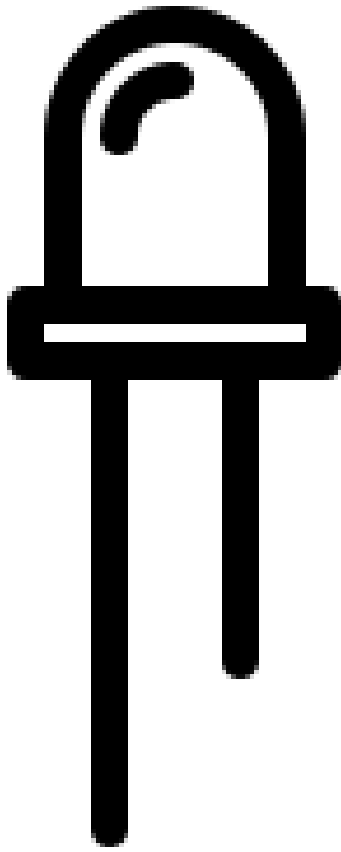
Mechanical Dimensions:

- All dimension are in mm, tolerance is ± 0.2 mm unless otherwise noted
- An epoxy meniscus may extend about 1.5mm down the leads.
- Burr around bottom of epoxy may be 0.5mm Maximum



Address: 5/F, Building B, Anzhihong Indl., Qinghua East Road., Longhua Town, Shenzhen CHINA. 518109

White LED





Technical Data Sheet

5 mm Round White LED (T-1 3/4)

Preliminary

334-15/T1C1-4WYA

Features

- Popular T-1 3/4 colorless 5mm package.
- High luminous power.
- Typical chromaticity coordinates $x=0.30$, $y=0.29$ according to CIE1931.
- Bulk, available taped on reel.
- ESD-withstand voltage: up to 4KV
- The product itself will remain within RoHS compliant version.



Descriptions

- The series is designed for application required high luminous intensity.
- The phosphor filled in the reflector converts the blue emission of InGaN chip to ideal white.

Applications

- Outdoor Displays
- Optical Indicators
- Backlighting
- Marker Lights

Device Selection Guide

PART NO.	Chip		Lens Color
	Material	Emitted Color	
334-15/T1C1-4WYA	InGaN	White	Water Clear



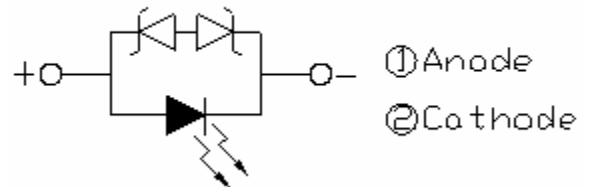
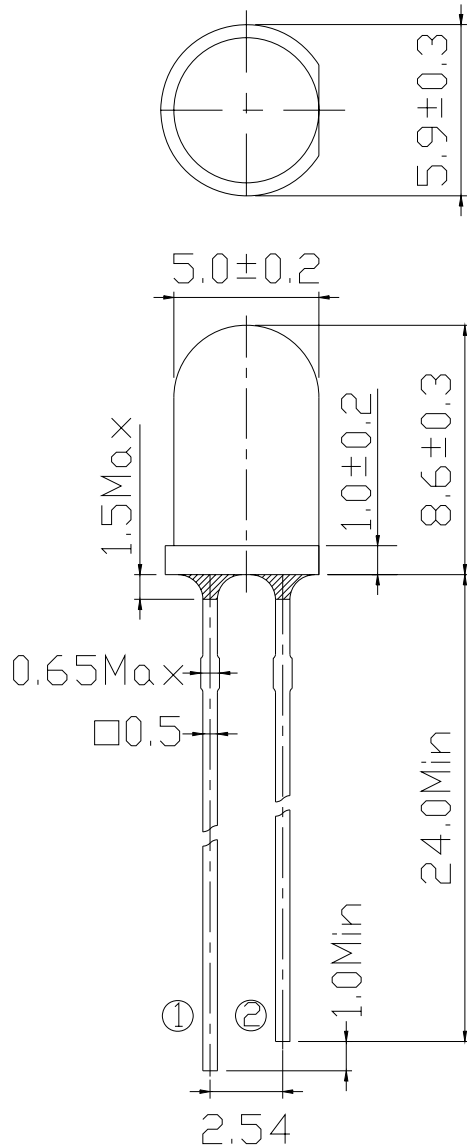
Technical Data Sheet

5 mm Round White LED (T-1 3/4)

Preliminary

334-15/T1C1-4WYA

Package Dimensions



Notes:

- 1.All dimensions are in millimeters, and tolerance is 0.25mm except being specified.
- 2.Lead spacing is measured where the lead emerges from the package.
- 3.Protruded resin under flange is 1.5mm Max. LED.



Technical Data Sheet

5 mm Round White LED (T-1 3/4)

Preliminary

334-15/T1C1-4WYA

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Continuous Forward Current	I _F	30	mA
Peak Forward Current(Duty /10 @ 1KHZ)	I _{FP}	100	mA
Reverse Voltage	V _R	5	V
Operating Temperature	T _{opr}	-40 ~ +85	°C
Storage Temperature	T _{stg}	-40 ~ +100	°C
Soldering Temperature (T=5 sec)	T _{sol}	260 ± 5	°C
Power Dissipation	P _d	100	mW
Zener Reverse Current	I _z	100	mA
Electrostatic Discharge	ESD	4K	V



Technical Data Sheet

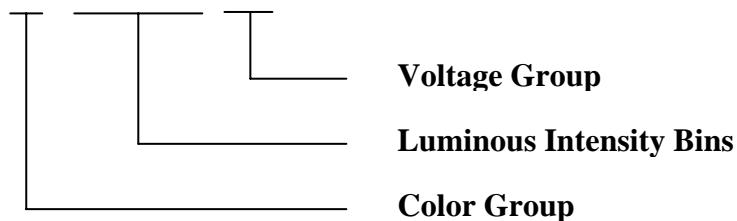
5 mm Round White LED (T-1 3/4)

Preliminary

334-15/T1C1-4WYA

Production Designation

334-15/T1C1-□ □ □ □



Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Forward Voltage	V_F	$I_F=20mA$	3.0	----	3.6	V
Zener Reverse Voltage	V_Z	$I_Z=5mA$	5.2	----	----	V
Reverse Current	I_R	$V_R=5V$	----	----	50	uA
Luminous Intensity	I_V	$I_F=20mA$	14250	----	28500	mcd
Viewing Angle	2θ 1/2	$I_F=20mA$	----	15	----	deg
Chromaticity Coordinates	x	$I_F=20mA$	----	0.30	----	
	y		----	0.29	----	



Technical Data Sheet

5 mm Round White LED (T-1 3/4)

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Luminous Intensity Combination (mcd at 20mA)

Rank	Min	Max
W	14250	18000
X	18000	22500
Y	22500	28500

*Measurement Uncertainty of Luminous Intensity: $\pm 15\%$

Forward Voltage Combination (V at 20mA)

Group	A			
	0	1	2	3
Rank				
Min.	2.80	3.00	3.20	3.40
Max.	3.00	3.20	3.40	3.60

*Measurement Uncertainty of Forward Voltage : $\pm 0.1V$

Color Combination (at 20mA)

Group	Bins
4	A0+B5+B6



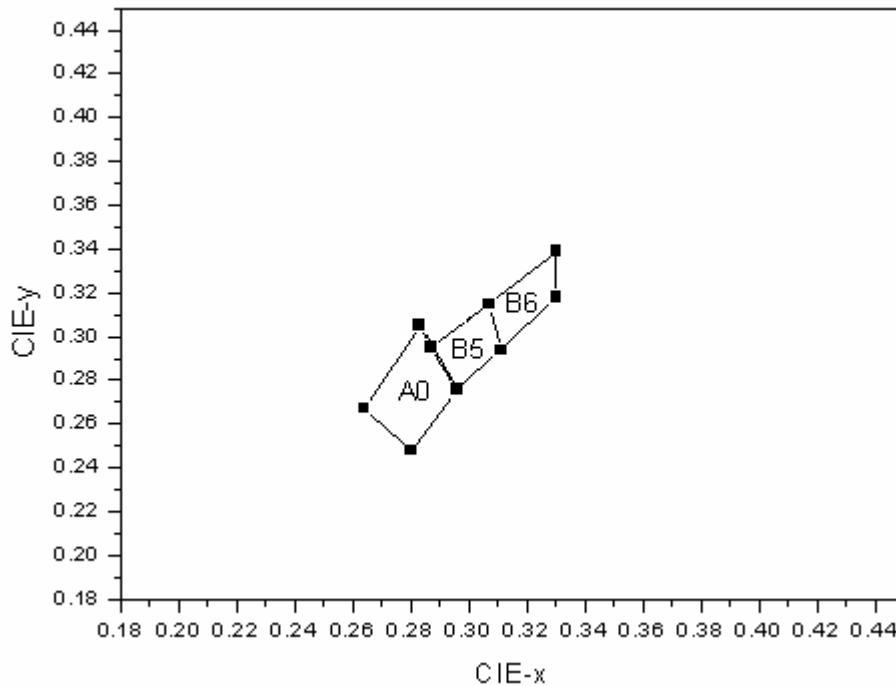
Technical Data Sheet

5 mm Round White LED (T-1 3/4)

Preliminary

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CIE Chromaticity Diagram



Color Ranks (IF=20mA , Ta=25°C)

Color Ranks		CIE			
A0	X	0.264	0.283	0.296	0.28
	Y	0.267	0.305	0.267	0.248
B5	X	0.287	0.307	0.311	0.296
	Y	0.295	0.315	0.294	0.276
B6	X	0.307	0.33	0.33	0.311
	Y	0.315	0.339	0.318	0.294

*Measurement uncertainty of the color coordinates : ± 0.01



Technical Data Sheet

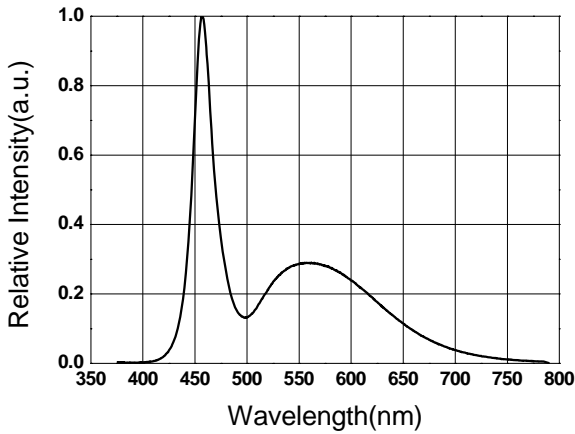
5 mm Round White LED (T-1 3/4)

Preliminary

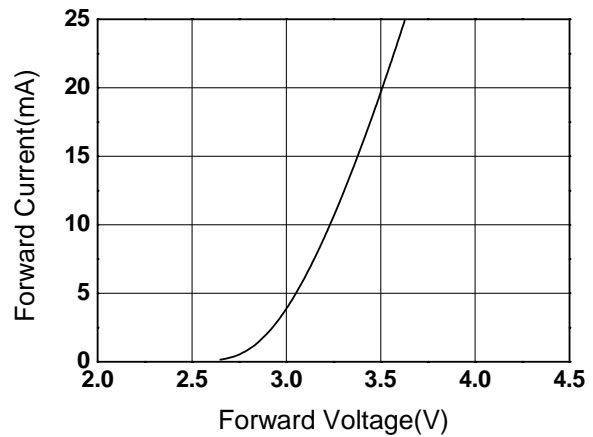
334-15/T1C1-4WYA

Typical Electro-Optical Characteristics Curves

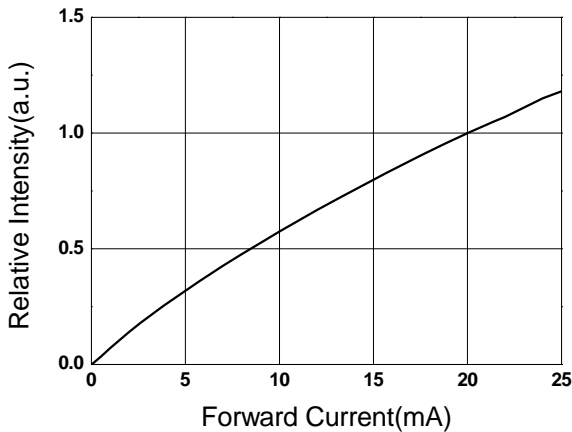
Relative Intensity vs. Wavelength



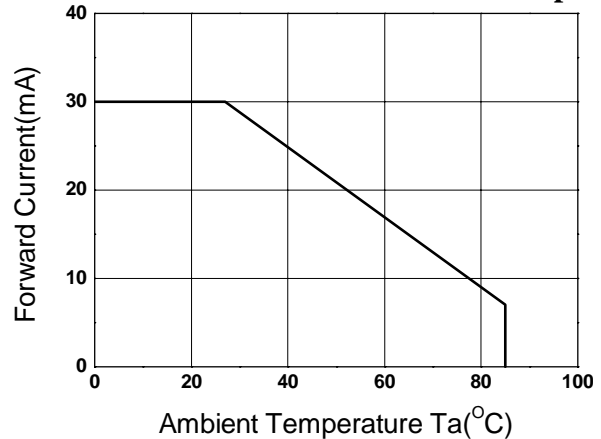
Forward Current vs. Forward Voltage



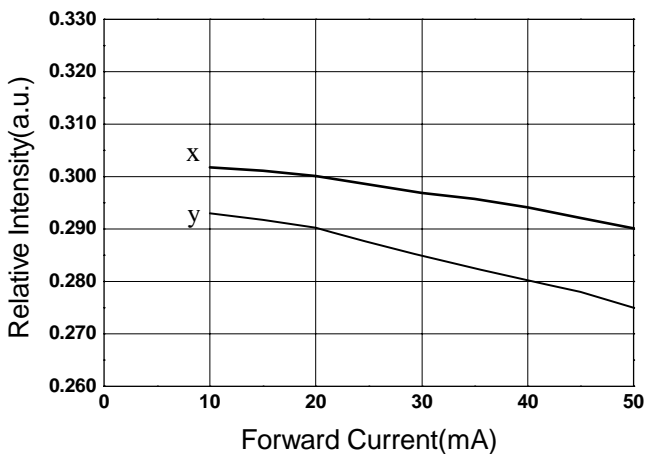
Relative Intensity vs. Forward Current



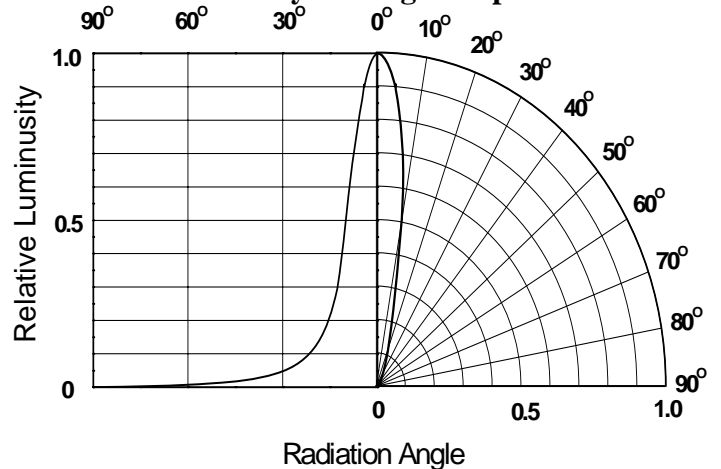
Forward Current vs. Ambient Temp.



Chromaticity Coordinate vs. Forward Current



Relative Intensity vs. Angle Displacement





Technical Data Sheet

5 mm Round White LED (T-1 3/4)

Preliminary

334-15/T1C1-4WYA

Packing Quantity Specification

1. 500PCS/1Bag , 5Bags/1Box
2. 10Boxes/1Carton

Label Form Specification

EVERLIGHT	
CPN:	
P/N:	
 RoHS	
334-15/T1C1-4WYA	
QTY :	CAT:
	HUE:
LOT NO :	REF:
	
MADE IN TAIWAN	

CPN: Customer's Production Number
P/N: Production Number
QTY: Packing Quantity
CAT: Ranks of Luminous Intensity and Forward Voltage
HUE: Color Rank
REF: Reference
LOT No: Lot Number
MADE IN TAIWAN: Production Place



Technical Data Sheet

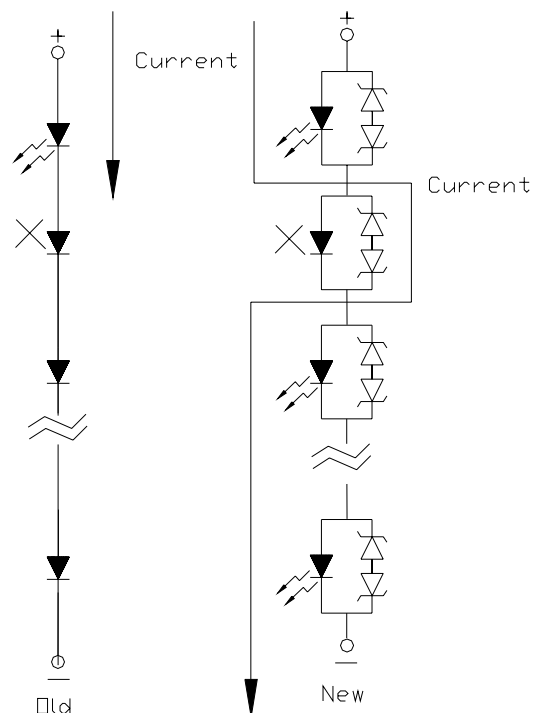
5 mm Round White LED (T-1 3/4)

Preliminary

334-15/T1C1-4WYA

Notes

1. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
2. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
3. These specification sheets include materials protected under copyright of EVERLIGHT corporation. Please don't reproduce or cause anyone to reproduce them without EVERLIGHT's consent.
4. Below the zener reference voltage V_z , all the current flows through LED and as the voltage rises to V_z , the zener diode "breakdown." If the voltage tries to rise above V_z current flows through the zener branch to keep the voltage at exactly V_z .
5. When the LED is connected using serial circuit, if either piece of LED is no light up but current can't flow through causing others to light down. In new design, the LED is parallel with zener diode. if either piece of LED is no light up but current can flow through causing others to light up





Technical Data Sheet

5 mm Round White LED (T-1 3/4)

Preliminary

334-15/T1C1-4WYA

6. Soldering Condition

Careful attention should be paid during soldering. When soldering, leave more than 3mm from solder joint to case, and soldering beyond the base of the tie bar is recommended.

Avoiding applying any stress to the lead frame while the LEDs are at high temperature particularly when soldering.

Recommended soldering conditions:

Hand Soldering		DIP Soldering	
Temp. at tip of iron	400°C Max. (30W Max.)	Preheat temp.	100°C Max. (60 sec Max.)
Soldering time	3 sec Max.	Bath temp.	265 Max.
Distance	3mm Min.(From solder joint to case)	Bath time.	5 sec Max.
		Distance	3mm Min.

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