Xpower LED 3W Series

Model No: ZL-X□□□3□-□□□

Spec No: ZZ-GY-S0353

Xpower LED series is designed for higher current operation and super high flux output applications. It's easy and free to design applications by package SMD design and its special color management. For high volume applications, custom Xpower designs are available upon request, to meet specific needs.

Features

1. Highest luminous flux output
2. Long operating lifetime (up to 100,000 hours)
3. More energy efficient than incandescent and most halogen lamps
4. Low forward voltage operated
5. Instant light (Less than 100ns)
6. No UV
7. Superior ESD protection
8. Available in Pure White, Warm White, Green, Blue, Royal Blue, Cyan, Red and Amber
9. SMT design

Typical Applications

1. Portable flashlight
2. Automotive lights
3. Reading lights
4. LCD TV / Monitor backlight
5. Indoor and Outdoor Commercial lighting
6. Decorative/Entertainment lighting
7. General lighting

…

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Part Number of Xpower LED Series

Code form : ZL-$X_1X_2X_3X_4X_5X_6$-X_7

-X1 : Power LED type

Xi, Xpower SMT high power LED series

Gi, Gpower PCB high power LED series

Ti, Topview high power LED series

Hi, Hpower MVPCB & no lens high power LED series

-X2 : Xpower series heatsink type

E, Xpower emitter series (no heatsink)

H, Hexagon Star heatsink type series

Q, Quadrangle Star heatsink type series

R, Round heatsink type series

-X3 : Lens Type

B, Batwing type (120° Angle 2 $\theta_{1/2}$)

L, Lambertian type (140° Angle 2 $\theta_{1/2}$)

S, Side emitting type (80° Angle θ_{peak})

N, No lens type (120° Angle 2 $\theta_{1/2}$)

-X4 : Chip quantity

01, one chips

02, two chips

…

-X5 : Power

H, 0.5W power LED, half of 1W power

1, 1W power LED

3, 3W power LED

-X6 : Color

W, Pure white color (CCT 4500-10000K)

L, Warm white color (CCT 3000-4500K)

R, Red color (620-630nm)

A, Amber color (585-595nm)

B, Blue color (455-475nm)

G, Green color (520-535nm)

T, Full color

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-X7 : Chip size

…

24, 24mil

30, 30mil

40, 40mil

…

FC, flip chip

-X8: Package Type

T, Taping package type

B, Box package type

-X9: Current

A, 350mA

B, 700m

Part Number group for Xpower 3W Series

Emitter	**Lens Type**	**Pure White**	**Warm White**	**Red**	**Green**
	Lambertian	ZL-XEL*3W-*B*	ZL-XEL*3L-*B*	ZL-XEL*3R-*B*	ZL-XEL*3G-*B*
	Batwing	ZL-XEB*3W-*B*	ZL-XEB*3L-*B*	ZL-XEB*3R-*B*	ZL-XEB*3G-*B*
	Lens Type	**Blue**	**Amber**		
	Lambertian	ZL-XEL*3B-*B*	ZL-XEL*3A-*B*		
	Batwing	ZL-XEB*3B-*B*	ZL-XEB*3A-*B*		
Star (Hexagon)	**Lens Type**	**Pure White**	**Warm White**	**Red**	**Green**
	Lambertian	ZL-XHL*3W-*B*	ZL-XHL*3L-*B*	ZL-XHL*3R-*B*	ZL-XHL*3G-*B*
	Batwing	ZL-XHB*3W-*B*	ZL-XHB*3L-*B*	ZL-XHB*3R-*B*	ZL-XHB*3G-*B*
	Lens Type	**Blue**	**Amber**		
	Lambertian	ZL-XHL*3B-*B*	ZL-XHL*3A-*B*		
	Batwing	ZL-XHB*3B-*B*	ZL-XHB*3A-*B*		

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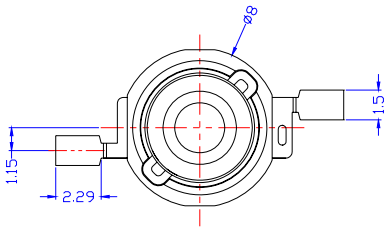
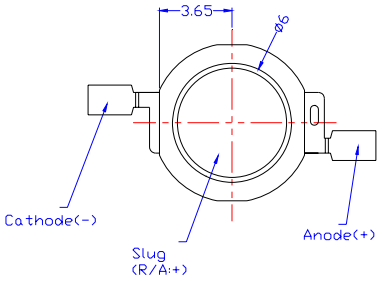
Mechanical Dimensions for Xpower Emitter series

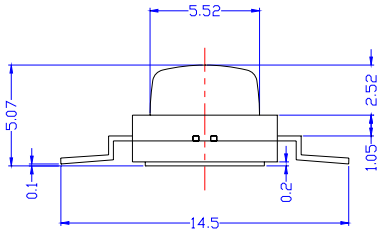
Batwing

Top View



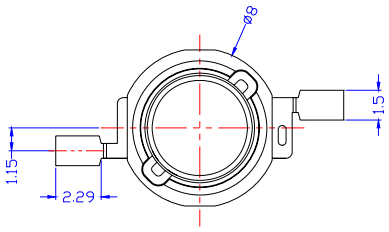
Bottom View



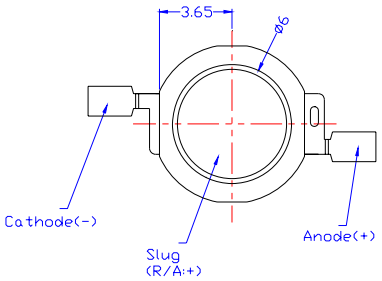


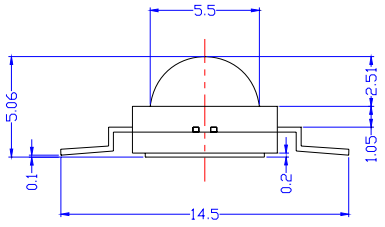
Lambertian

Top View



Bottom View





Notes:

1. All dimensions are in millimeters.
2. All dimensions without tolerances are for reference only.
3. The package material of the body is heat-resistance polymer, and the plating material of the lead frame is Ag.

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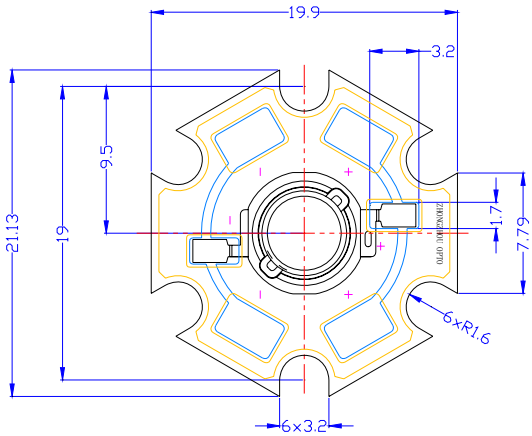
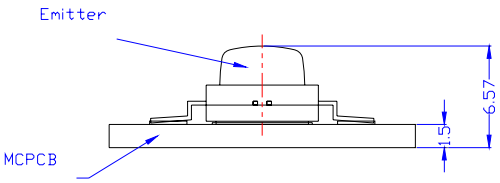
Mechanical Dimensions for Xpower Crux series

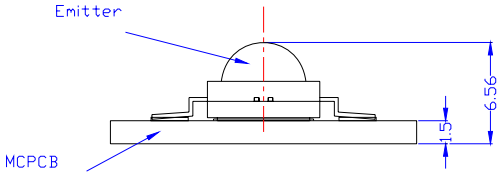
Xpower Star



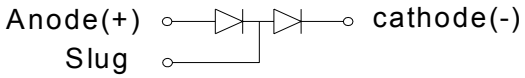
Batwing



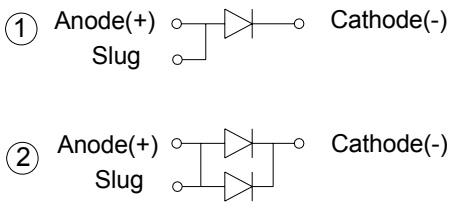
Lambertian



ZL-X□□□3□-□□A type:



ZL-X□□□3□-□□B type:



Notes:

1. All dimensions are in millimeters. All dimensions without tolerances are for reference only.
2. Electrical interconnection pads labeled on the MCPCB with “+” and “-“to denote positive and negative, respectively.
3. Attention: the polarity of slug may be “+” in Red 、Amber and some Blue and White products. It is important that the slug can’t contact aluminum or other eletric material surface. It is strongly recommended that an insulative heat dissipation film should be coated on the aluminum surface.
4. Recommended heat sink provider: ERM/www.heatsink.com; ALPHA/www.alphanovatech.com; AAVID/www.aavid.com

Characteristics for Xpower 3W series

Pure White

1. Typical Electrical & Optical Characteristics at I_F=350/700mA, T_A = 25℃

Parameter	Symbol		Value			Unit
			Min.	Typ.	Max.	
Luminous Flux	Φ_V		90	110	-	lm
Correlated Color Temperature	CCT		-	6000	-	K
CRI	Ra		-	80	-	-
Forward Voltage	V_F	A Type	6.0	7	8	V
		B Type	-	4	-	
View Angle	2Θ1/2		Lambertian		140	deg.
			Batwing		120	

2. Absolute Maximum Ratings

Parameter	Symbol		Value	Unit
Forward Current	I_F	A Type	400	mA
		B Type	800	
Power Dissipation	P_D		3.2	W
Junction Temperature	T_J		125	℃
Operating Temperature	T_{opr}		-30~85	℃
Storage Temperature	T_{stg}		-40~100	℃
ESD Sensitivity	-		1000	V HBM

Notes:

1. The measured value is tested by an integrator system.
2. Tolerance of measurement of luminous flux ±15%
3. Tolerance of measurement of CCT ±5%
4. Tolerance of measurement of forward voltage ±0.05V
5. R is measured with an Xpower Star PCB.
6. Do not drive at rated current more than 5 sec. without heatsink for Xpower emitter series.

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Characteristics for Xpower 3W series

Warm White

1. Typical Electrical & Optical Characteristics at I_F=350/700mA, T_A = 25℃

Parameter	Symbol		Value			Unit
			Min.	Typ.	Max.	
Luminous Flux	Φ_V		80	100	-	lm
Correlated Color Temperature	CCT		-	3500	-	K
CRI	Ra		-	80	-	-
Forward Voltage	V_F	A Type	6.0	7.0	8.0	V
		B Type	-	4.0	-	
View Angle	2Θ1/2		Lambertian		140	deg.
			Batwing		120	

2. Absolute Maximum Ratings

Parameter	Symbol		Value	Unit
Forward Current	I_F	A Type	400	mA
		B Type	800	
Power Dissipation	P_D		3.2	W
Junction Temperature	T_J		125	℃
Operating Temperature	T_{opr}		-30~85	℃
Storage Temperature	T_{stg}		-40~100	℃
ESD Sensitivity	-		1000	V HBM

Notes:

1. The measured value is tested by an integrator system.
2. Tolerance of measurement of luminous flux ±15%
3. Tolerance of measurement of CCT ±5%
4. Tolerance of measurement of forward voltage ±0.05V
5. R is measured with an Xpower Star PCB.
6. Do not drive at rated current more than 5 sec. without heatsink for Xpower emitter series.

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Characteristics for Xpower 3W series

Blue

1. Typical Electrical & Optical Characteristics at I_F=350/700mA, T_A = 25℃

Parameter	Symbol		Value			Unit
			Min.	Typ.	Max.	
Luminous Flux	Φ_V		19	21	-	lm
Dominant Wavelength	λ_D		-	465	-	nm
Forward Voltage	V_F	A Type	6.0	7.0	8.0	V
		B Type	-	4.0	-	
View Angle	2Θ1/2		Lambertian		140	deg.
			Batwing		120	

2. Absolute Maximum Ratings

Parameter	Symbol		Value	Unit
Forward Current	I_F	A Type	400	mA
		B Type	800	
Power Dissipation	P_D		3.2	W
Junction Temperature	T_J		125	℃
Operating Temperature	T_{opr}		-30~85	℃
Storage Temperature	T_{stg}		-40~100	℃
ESD Sensitivity	-		1000	V HBM

Notes:

1. The measured value is tested by an integrator system.
2. Tolerance of measurement of luminous flux ±15%
3. Tolerance of measurement of dominant wavelength ±1nm
4. Tolerance of measurement of forward voltage ±0.05V
5. R is measured with an Xpower Star PCB.
6. Do not drive at rated current more than 5 sec. without heatsink for Xpower emitter series.

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Characteristics for Xpower 3W series

Green

1. Typical Electrical & Optical Characteristics at I_F=350/700mA, T_A = 25℃

Parameter	Symbol		Value			Unit
			Min.	Typ.	Max.	
Luminous Flux	Φ_V		100	120	-	lm
Dominant Wavelength	λ_D		520	525	535	nm
Forward Voltage	V_F	A Type	6.0	7.0	8.0	V
		B Type	-	4.0	-	
View Angle	2Θ1/2		Lambertian		140	deg.
			Batwing		120	

2. Absolute Maximum Ratings

Parameter	Symbol		Value	Unit
Forward Current	I_F	A Type	400	mA
		B Type	800	
Power Dissipation	P_D		3.2	W
Junction Temperature	T_J		125	℃
Operating Temperature	T_{opr}		-30~85	℃
Storage Temperature	T_{stg}		-40~100	℃
ESD Sensitivity	-		1000	V HBM

Notes:

1. The measured value is tested by an integrator system.
2. Tolerance of measurement of luminous flux ±15%
3. Tolerance of measurement of dominant wavelength ±1nm
4. Tolerance of measurement of forward voltage ±0.05V
5. R is measured with an Xpower Star PCB.
6. Do not drive at rated current more than 5 sec. without heatsink for Xpower emitter series.

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Characteristics for Xpower 3W series

Red

1. Typical Electrical & Optical Characteristics at I_F=700mA, T_A = 25℃

Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
Luminous Flux	Φ_V	60	70	-	lm
Dominant Wavelength	λ_D	620	625	632	nm
Forward Voltage	V_F	2.0	2.5	3.0	V
View Angle	2Θ1/2	Lambertian		140	deg.
		Batwing		120	

2. Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Forward Current	I_F	800	mA
Power Dissipation	P_D	2.4	W
Junction Temperature	T_J	125	℃
Operating Temperature	T_{opr}	-30~85	℃
Storage Temperature	T_{stg}	-40~100	℃
ESD Sensitivity	-	1000	V HBM

Notes:

1. The measured value is tested by an integrator system.
2. Tolerance of measurement of luminous flux ±15%
3. Tolerance of measurement of dominant wavelength ±1nm
4. Tolerance of measurement of forward voltage ±0.05V
5. R is measured with an Xpower Star PCB.
6. Do not drive at rated current more than 5 sec. without heatsink for Xpower emitter series.

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Characteristics for Xpower 3W series

Amber

1. Typical Electrical & Optical Characteristics at I_F=700mA, T_A = 25℃

Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
Luminous Flux	Φ_V	60	70	-	lm
Dominant Wavelength	λ_D	585	590	595	nm
Forward Voltage	V_F	2.0	2.5	3.0	V
View Angle	2Θ1/2	Lambertian		140	deg.
		Batwing		120	

1. Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Forward Current	I_F	800	mA
Power Dissipation	P_D	2.4	W
Junction Temperature	T_J	125	℃
Operating Temperature	T_{opr}	-30~85	℃
Storage Temperature	T_{stg}	-40~100	℃
ESD Sensitivity	-	1000	V HBM

Notes:

1. The measured value is tested by an integrator system.
2. Tolerance of measurement of luminous flux ±15%
3. Tolerance of measurement of dominant wavelength ±1nm
4. Tolerance of measurement of forward voltage ±0.05V
5. R is measured with an Xpower Star PCB.
6. Do not drive at rated current more than 5 sec. without heatsink for Xpower emitter series.

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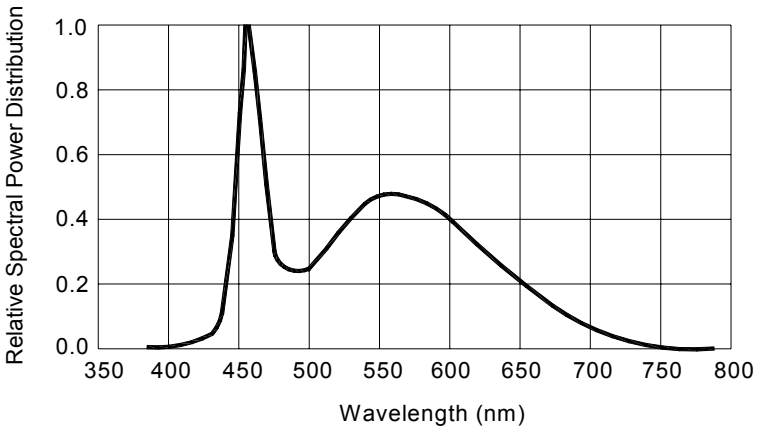
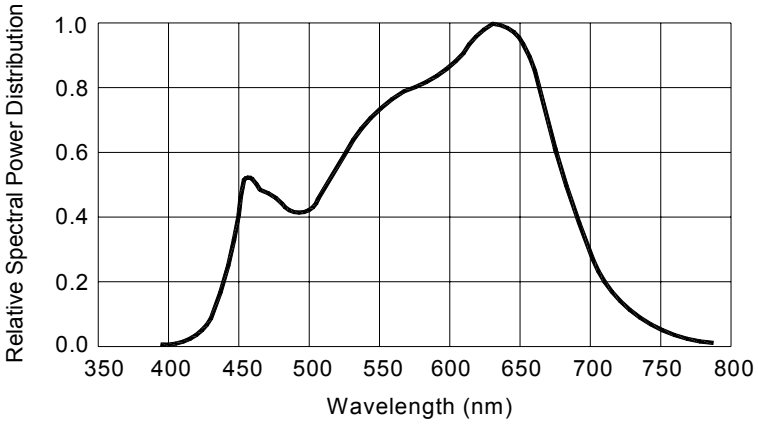
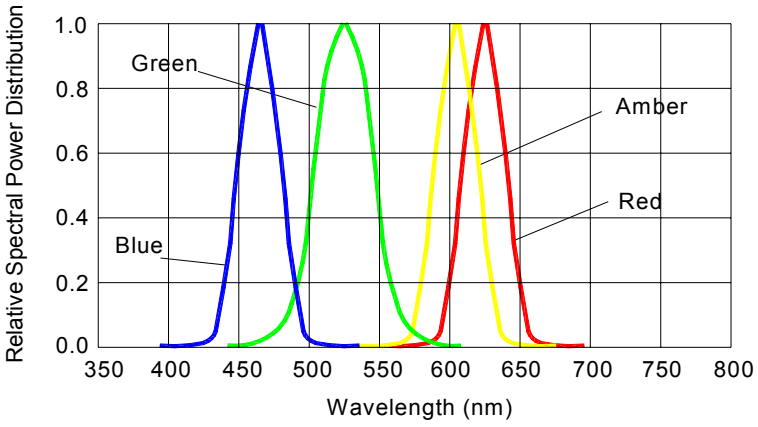
Wavelength Characteristics, T_A=25℃



Pure White Color Spectrum of Typical 6500K Part



Warm White Color Spectrum of Typical 3300K Part



Color Spectrum of Blue,Green,Red,Amber Part

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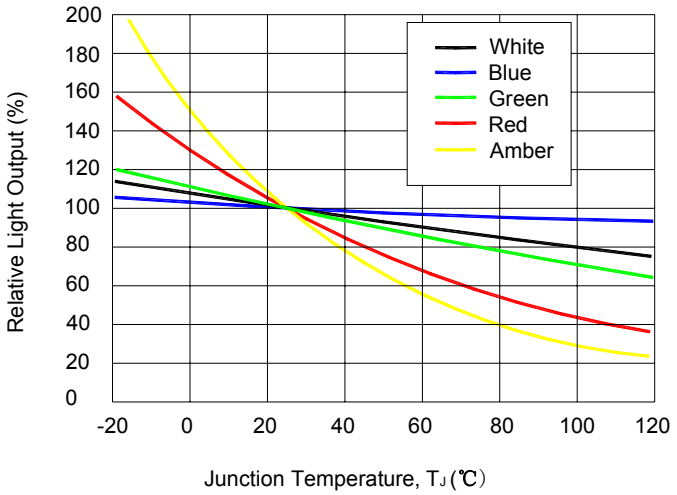
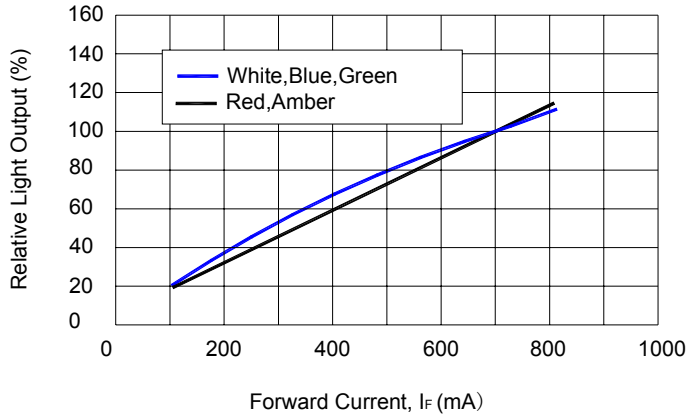
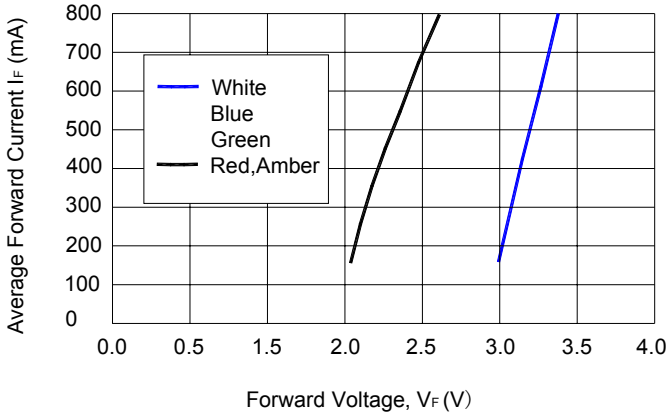
Light Output, Forward Current Characteristics, T_A=25℃



Relative Light Output vs. Junction Temperature at I_F=700mA, T_A=25℃



Forward Current vs. Relative Light Output , T_A=25℃



Forward Voltage vs. Forward Current, T_A=25℃

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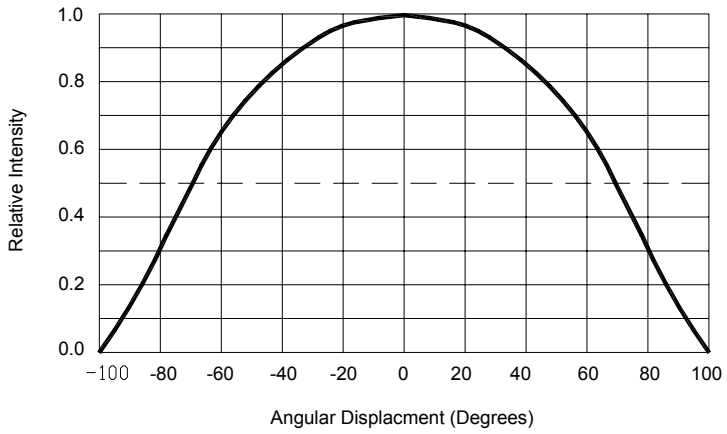
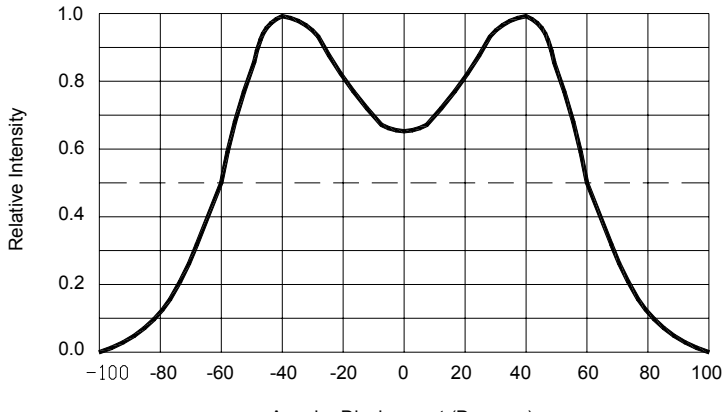
Typical Lens Type Radiation Pattern



Typical Radiation Pattern for Xpower Lambertian



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NOTE:

1) The LED shall be used under allowed conditions. Z-light cannot take any responsibility for any troubles that are caused by using the LEDs at conditions exceeding our specifications.

2) The LED must be used as soon as tore open, otherwise the plank will be oxygenated.

3) The Blue、Green、White products shall be care of the static electricity.

4) 2mm from body for 6 seconds below 260℃.

Please avoid the soldered LEDs from clashing or librating before the lens' temperature cool down.

5) The circuit shall be designed according to certain current or relative operating voltage.

6) These LEDs are designed and manufactured for standard applications such as electric home appliances, communication equipment, office equipment, electronic instrumentation and so on. It is recommended to consult with Z-light. In advance if user's application requires any particular quality or reliability that concerns human life. Examples would be medical equipment, aerospace applications, traffic signals, safety system equipment and so on.

7) We reserve the right to make technical changes without prior notice.

8) All the content interpretation reserved to Z-Light.

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