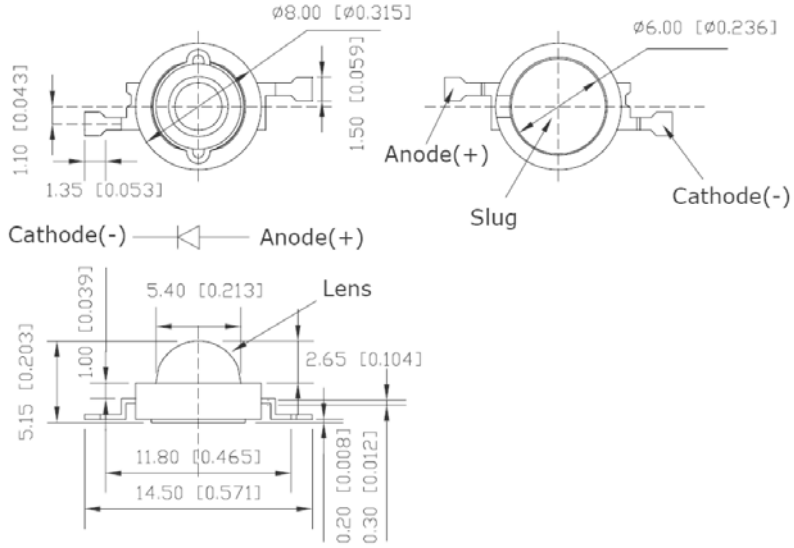
American Opto Plus
PU-5WLBX

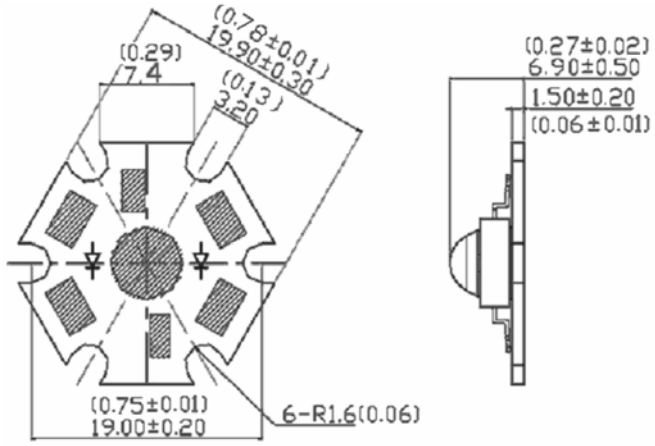
High Power LED – Blue

- **High Flux Per LED**
- **Very Long Operating Life**
- **Lambertian or Collimated Radiation Pattern**

Emitter Package: PU-5WLBE



Star Package: PU-5WLBS



Notes:

1. Drawing not to scale
2. All dimensions are in millimeters
3. Tolerance is ± 0.25mm (0.010”) unless otherwise noted.
4. All dimensions without tolerances are for reference only.
5. Specifications are subject to change without notice.

SELECTION GUIDE

Emitting Color	Material	Lens Type	Luminous Flux I_F=1000mA (lm)	Wavelength λd
Blue	InGaN	Water Clear	25	460nm

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ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Parameter	Symbol	Max Rating	Unit
Forward Current	I_F	1000	mA
Peak Pulse Current (tp ≤ 100μs,Duty cycle = 0.25)	I_{pulse}	1500	mA
Reverse Voltage	V_R	5	V
LED Junction Temperature	T_J	125	°C
Operating Temperature Range	T_{OPR}	-40~+80	°C
Storage Temperature Range	T_{STG}	-40~+100	°C
Soldering Time at 260°C (Max)	T_{sol}	5	Seconds

Notes:

1.Proper current derating must be observed to maintain junction temperature below the minimum.

2.LEDs are not designed to be driven in reverse bias.

ELECTRICAL OPTICAL CHARACTERISTICS (Ta=25°C)

Parameter	Symbol	Min	Typ	Max	Unit	Unit
Viewing Angle [1]	2θ1/2	-	120	-	Deg	I_F =1000mA
Forward Voltage [2]	V_F	2.8	3.5	4.0	V	I_F =1000mA
Reverse Current	I_R	-	-	10	μA	V_R = 5V
Peak Emission Wavelength	λ_p	-	455	-	nm	I_F = 1000mA
Dominant Wavelength	λ_D	-	460	-	nm	I_F = 1000mA
Spectrum Radiation Bandwidth	Δλ	-	20	-	nm	I_F = 1000mA
Luminous Flux	ΦV	20	25	-	lm	I_F = 1000mA

Notes:

1. 2. θ1/2 is the off axis angle at which the luminous intensity is half the axial luminous intensity.

2. Forward Voltage measurement tolerance : ± 0.1V

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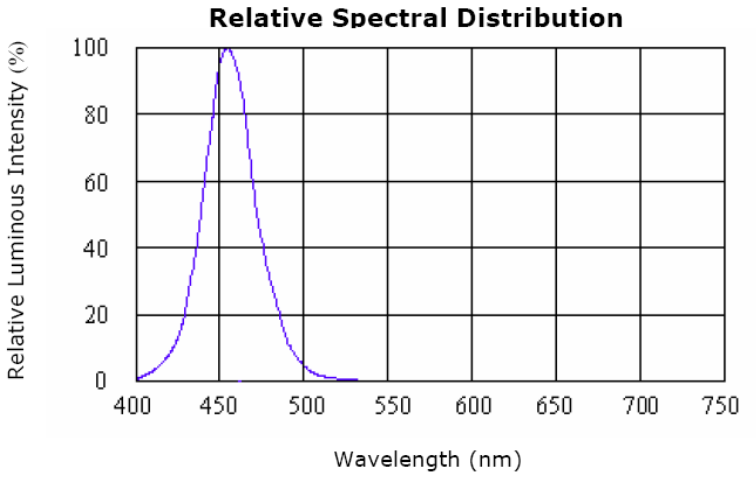
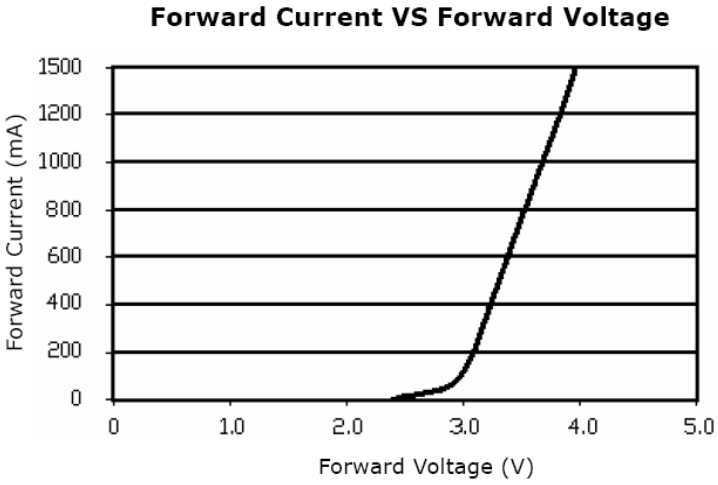
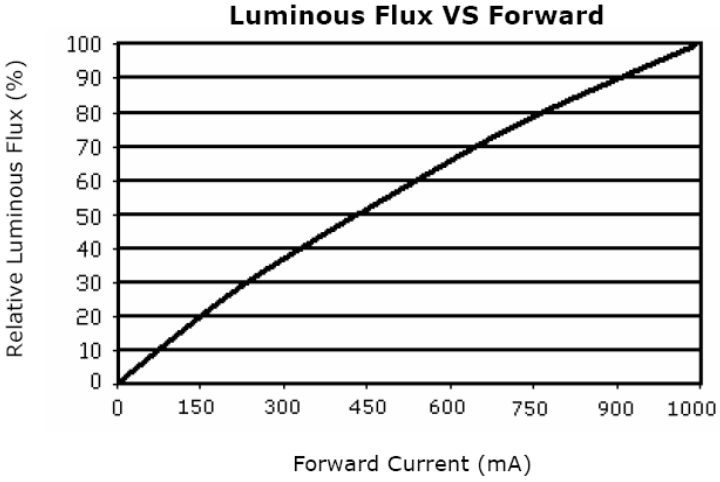
Typical Electrical-Optical Characteristics Curves
(25°C Ambient Temperature Unless Otherwise Noted)







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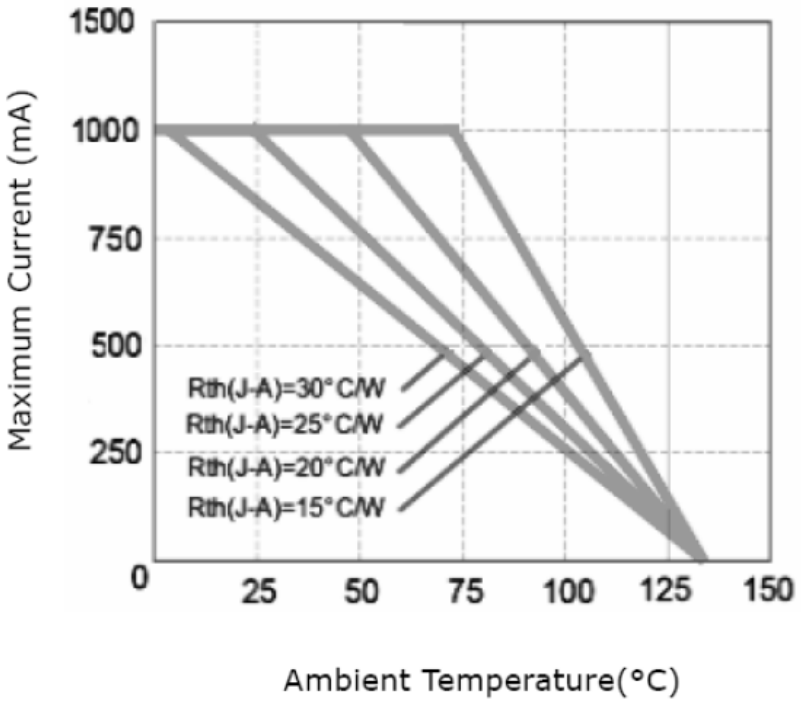
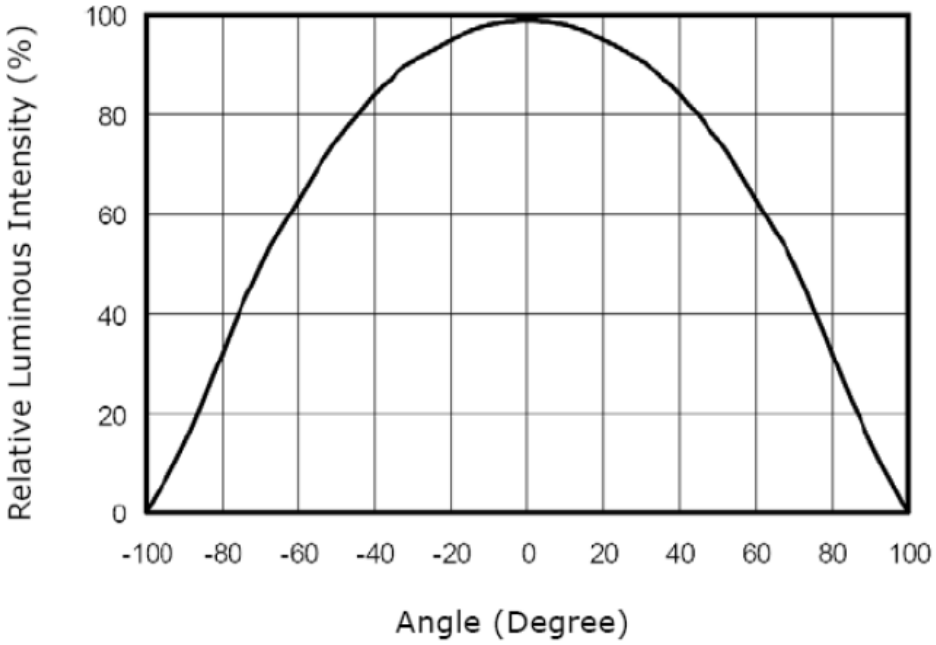
Typical Electrical-Optical Characteristics Curves



Typical Spatial Radiation Pattern



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PRECAUTIONS FOR USE

1.Over-Current-Proof
Though this part has conducted ESD protection mechanism, customer must not use the devise in reverse and should apply resistors for extra protection. Otherwise slight voltage shift may cause enormous current change and burn out failure would happen.

2.Storage
-Do not open moisture proof bag before the products are ready to use.
-Before opening the package, theLEDs should be kept at 30°C or less and 90% RH or less.
-The LEDs should be used within a year.
-After opening the package, the LEDs should be kept at 30°C or less and 70% RH or less.
-The LEDs should be used within 168 hours(7days) after opening the package.
-If the moisture absorbent material(silicone gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.
-Pre-curing treatment : 60±5°C for 24 hours

3.Thermal Management
-Because this part is a high power dissipation device, special and sufficient consideration in thermal management design must be made to optimize the thermal performance.
-Heat sink design is implemented in the device for an additional thermal connection. Since the device is capable for SMT process, tin must be spread both heat sink and solder pads areas to dissipate the heat.
-A high thermal conductivity substrate, such as Aluminum or copper plate ect, must be applied for external thermal management. It is strongly recommended that the outer heat sink or PCB dimensions per LED cannot be less than 25 x 25x 1 (L x W x H) mm. The materials for outer heat sink can be FR4 on Aluminum, MCPCB, or FPC on Aluminum.
-Special thermal design are also recommended to take in outer heat sink design, such as FR4 PCB on Aluminum with thermal vias or FPC on Aluminum with thermal conductivity, etc.
-Sufficient thermal management must be conducted, or the die junction temperature will be over the limit under large electronic driving and LED lifetime will decrease critically.

4.Soldering Condition
-Soldering should not be done more than two times.
-While soldering, do not put stress on the LEDs during heating.
-After soldering, do not warp the circuit board.

5.Soldering Iron
-For prototype building or small series production runs it is possible to place and solder the LED by hand.
-It is recommended to hand solder the leads with a solder tip temperature of 280°C for less than 3 seconds within once in less than the soldering iron capacity 25W.Leave two seconds and more intervals, and do soldering of each terminal.
-Be careful because the damage of the product is often started at the time of the hand solder.

6.Handling Indications
-During processing, mechanical stress on the surface should be minimized as much as possible. Sharp objects of all types should not be used to pierce the sealing compound.