X030E
1W Power LED
Technical Datasheet

Features

☆High Flux per LED

☆Very long operating life(up to 100k hours)

☆Available in White, Warm White, Green, Blue, Amber, Red-Orangeand Red

☆Lambertian or Collimated Radiation Pattern

☆More Energy Efficient than Incandescent and most Halogen lamps

☆Low Voltage DC operated

☆Cool beam, safe to the touch

☆Instant light (less than 100ns)

☆No UV

☆Superior ESD protection

☆Soldering methods: IR reflow soldering and Hand soldering

Typical Applications

☆Reading lights (car, bus, aircraft)

☆Portable (flashlight, bicycle)

☆Decorative

☆Appliance

☆Sign and Channel Letter

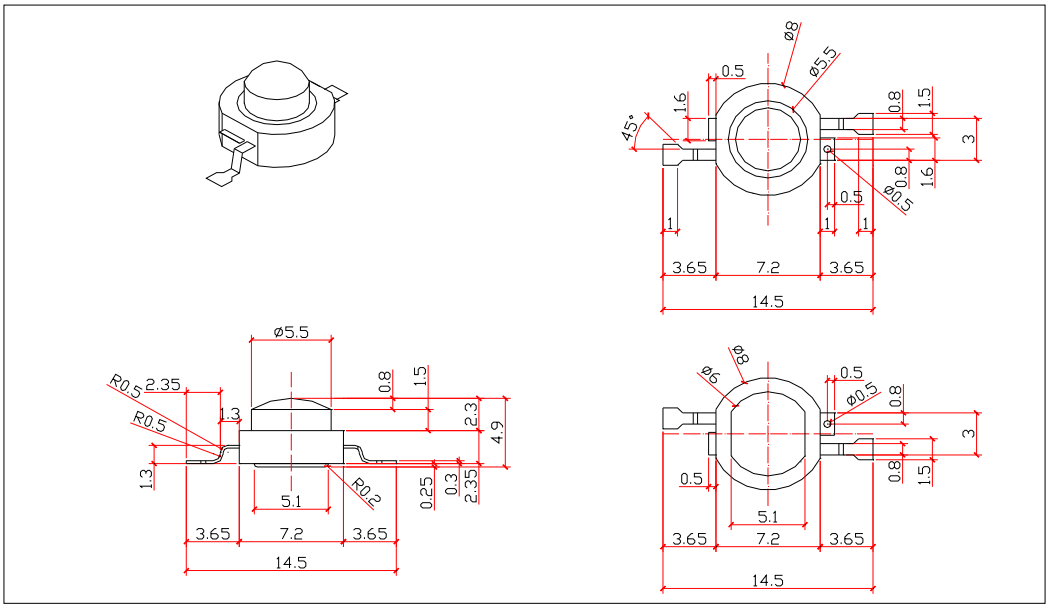
☆Architectural Detail

☆Cove Lighting

☆Automotive Exterior (Stop-Tail-Turn, CHMSL, Mirror Side Repeat)

☆LCD backlight

Mechanical Dimensions



Notes:
1. Slots in aluminum-core PCB for M3 or #4 mounting screw.
2. Electrical interconnection pads labeled on the aluminum-core PCB with "+" and "-" to denote positive and negative, respectively. All positive pads are interconnected, as are all negative pads, allowing for flexibility in array interconnection.
3. Drawing not to scale.
4. All dimensions are in millimeters.

Part Number Matrix

Color	Emitter	STAR	Beam Pattern
White	W030E	W030F	
Warm White	WW030E	WW030F	
Green	G030E	G030F	
Blue	B030E	B030F	Bat Wing
Yellow	Y030E	Y030F	
Red	R030E	R030F	

Flux Characteristics at 350mA, Junction Temperature, Tj=25℃

Color	Minimum Luminous Flux (lm)	Typical Luminous Flux (lm)	Beam Pattern
White	60	95	
Warm White	54	65	
Green	50	70	
Blue	13	23	Bat Wing
Yellow	25	35	
Red	40	60	

Optical Characteristics at 350mA, Junction Temperature, Tj=25℃

Color	Dominant Wavelength λD / Peak Wavelength λp / Color Temperature(CCT) Min.	Typ.	Max.	Spectral Half-width (nm) Δλ1 /2	Temperature Coefficient or Dominant Wavelength ΔλD/ΔTj (n m / ℃)
White	4500K	5500K	10000K	---	---
Warm White	2880K	3300K	3800K	---	---
Green	520nm	530nm	550nm	35	0.04
Blue	460nm	470nm	490nm	25	0.04
Yellow	590nm	592nm	594nm	20	0.05
Red	620.5nm	625nm	645nm	20	0.05

Optical Characteristics at 350Ma, Junction Temperature, Tj=25℃ (Continued)

Color	Beam Pattern	Total Included Angle θ0.9v (degree)	Viewing Angle 2θ1/2 (degree)	Typical Candela on Axis (cd)
White	Bat Wing	130	120	
Warm White		130	120	
Green		130	120	
Blue		130	120	
Yellow		130	120	
Red		130	120	

Electrical Characteristics at 350mA, Junction Temperature, Tj=25℃

Color	Forward Voltage Vf(V) Min.	Typ.	Max.	Dynamic Resistance(~)	Temperature Coefficient of Vf(mV/) ΔVf/ΔTj	Thermal Resistance Junction to Board(℃/W)
White	2.79	3.55	3.99	1.0	-2	15
Warm White	2.79	3.55	3.99	1.0	-2	15
Green	2.79	3.55	3.99	1.0	-2	15
Blue	2.79	3.55	3.99	1.0	-2	15
Yellow	1.90	2.20	3.10	2.4	-2	15
Red	1.90	2.20	3.10	2.4	-2	15

Absolute Maximum Ratings

Parameter	White/Warm White/Green/Blue	Amber/Red-Orange/Red
DC Forward Current (mA)	350	385
Peak Pulsed Forward Current (mA)	500	550
Average Forward Current (mA)	350	350
ESD Sensitivity	±16000V HBM	
LED Junction Temperature (℃)	135	120
Aluminum-core PCB Temperature(℃)	105	105
Storage & Operating Temperature(℃)	-40 to +105	-40 to +105
Soldering Temperature(℃)	260 for 5 seconds Max.	

Wavelength Characteristics, Tj=25℃

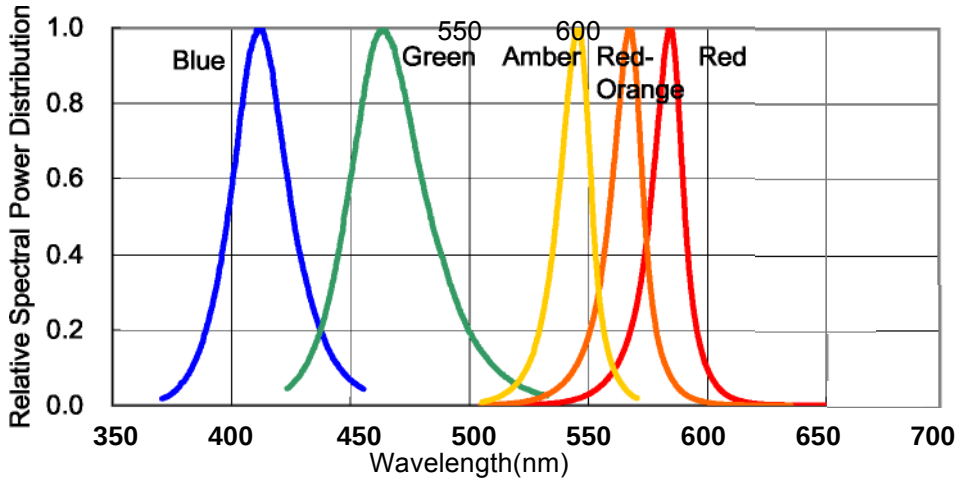


Figure 1a. Relative Intensity vs. Wavelength

White Color Spectrum

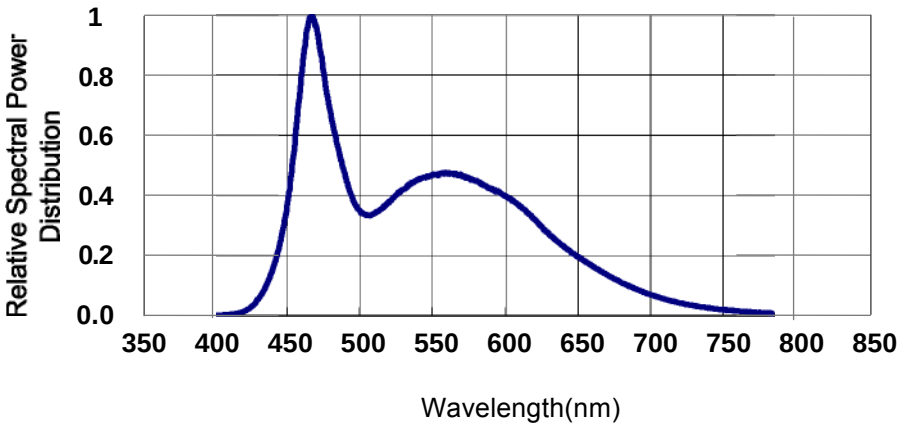


Figure 1 b. White Color Spectrum of Typical 5500K Part.

Light Output Characteristics

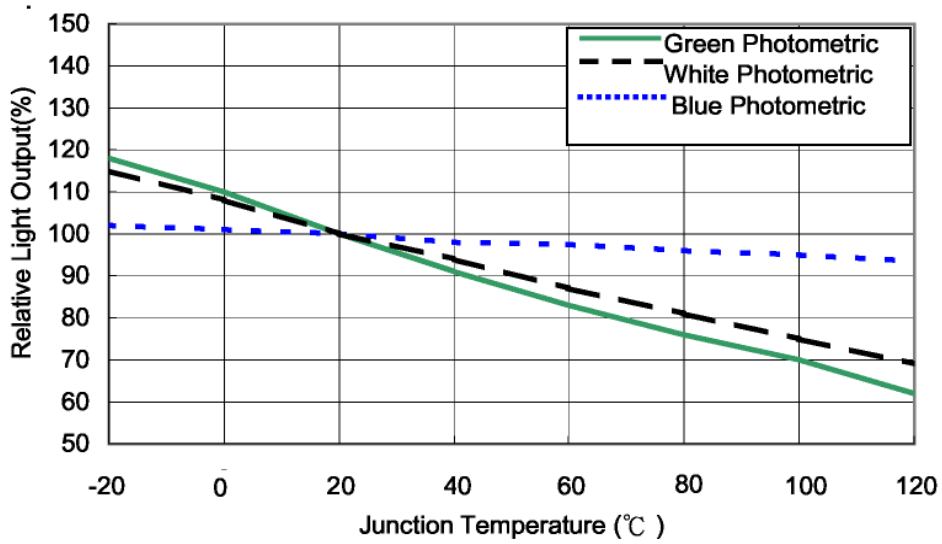


Figure 2a. Relative Light Output vs. Junction Temperature

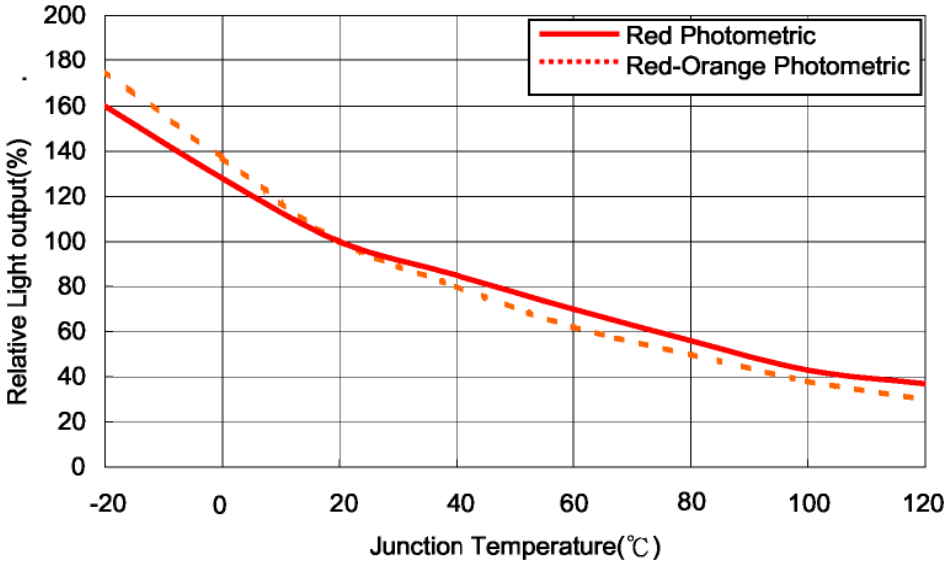


Figure 2b. Relative Light Output vs. Junction Temperature

Forward Current Characteristics, Tj=25℃

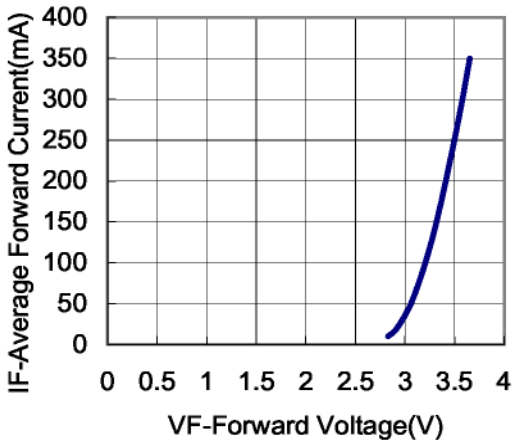


Fig 3a. Forward Voltage(V) Forward Voltage for White, Blue and Green.

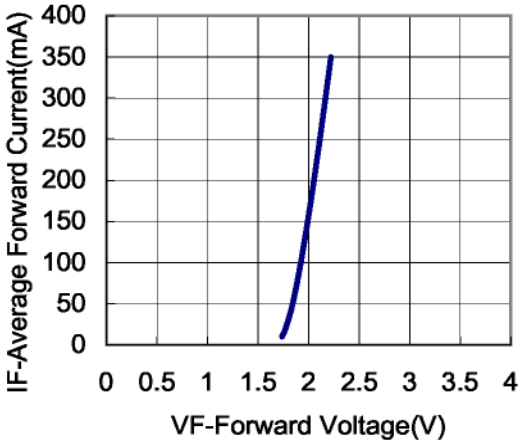


Fig 3b. Forward Current vs. Forward Voltage for Yellow and Red.

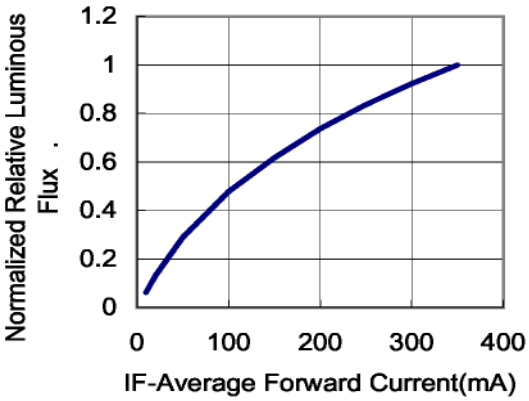


Fig 4a. Relative Luminous Flux vs. Forward Current for White, Blue and Green at Tj=25℃ maintained.

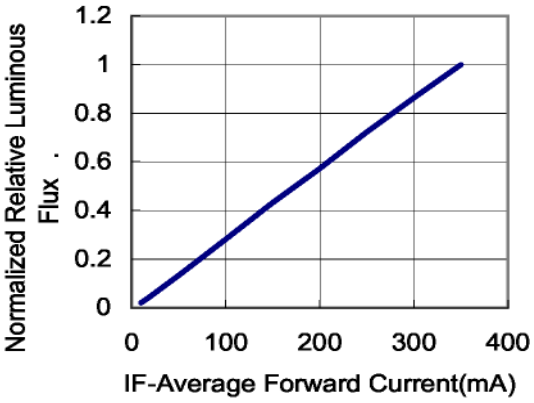


Fig 4b. Relative Luminous Flux vs. Forward Current for Yellow and Red at Tj=25℃ maintained.

Current Derating Curves

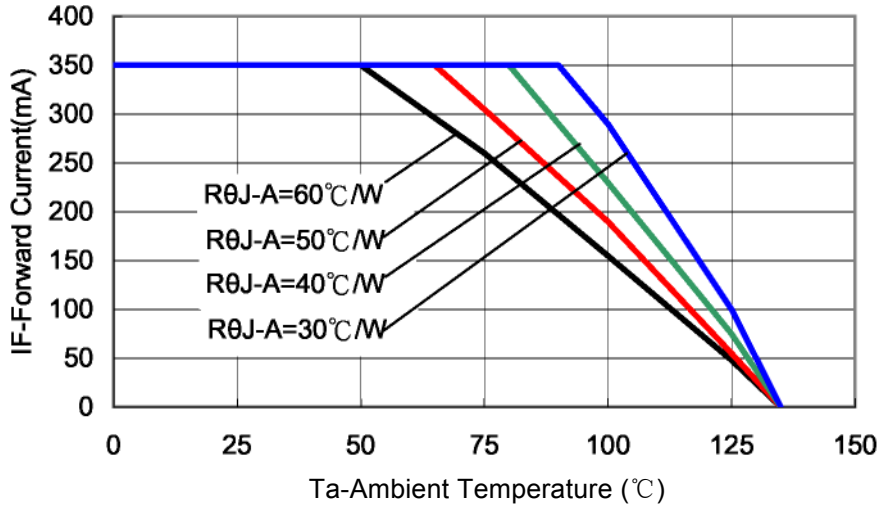


Fig 5a. Maximum Forward Current vs. Ambient Temperature. Derating based on TjMAX=135 for White, Blue and Green.

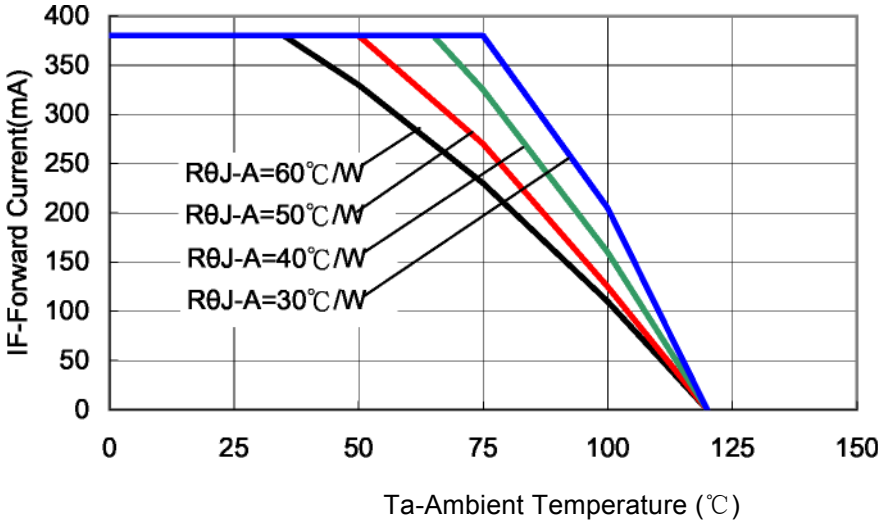


Fig 5b. Maximum Forward Current vs. Ambient Temperature. Derating based on TjMAX=120 for Yellow and Red.

Typical Representative Spatial Radiation Pattern

Lambertian Radiation Pattern

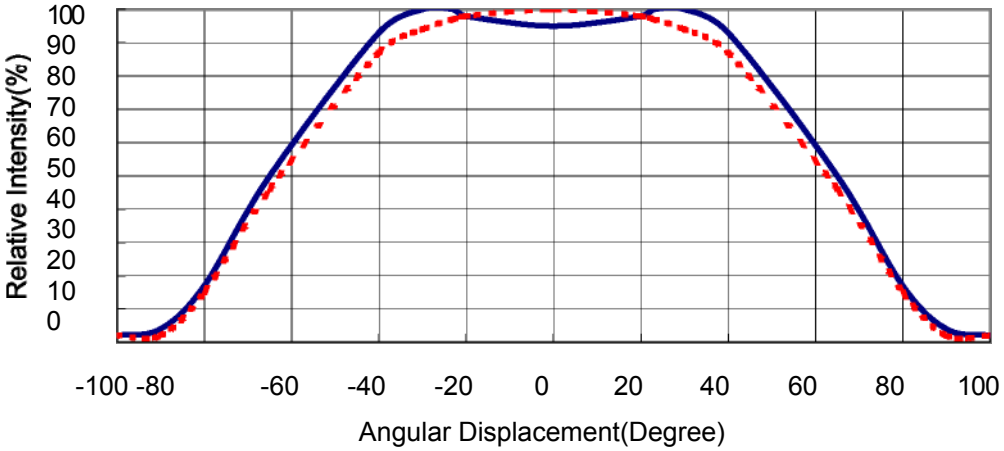


Fig 6. Typical Representative Spatial Radiation Pattern for White, Blue, Green, Yellow and Red.