

## High Power LED lamp

BL-HP20ExxxS

### Features:

- 1W and 3W, 5W LEDs suitable for illumination lamps and decorative lighting
- Longer service and less luminosity loss, 50,000hours
- Different emitting colors are available
- Working current: 200-350mA, 700mA, 1050mA
- With or without heat sink are both available
- Lambertian, batwing and side emitting are all available
- Light output from 20 to 170 lumens

### ■ Applications:

Commercial lighting  
Residential lighting  
Decorative lighting

**1Watt Side Emitting**

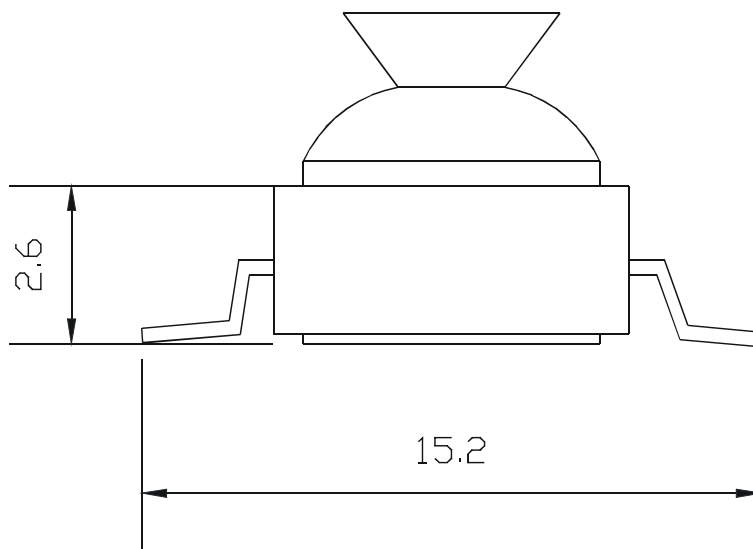
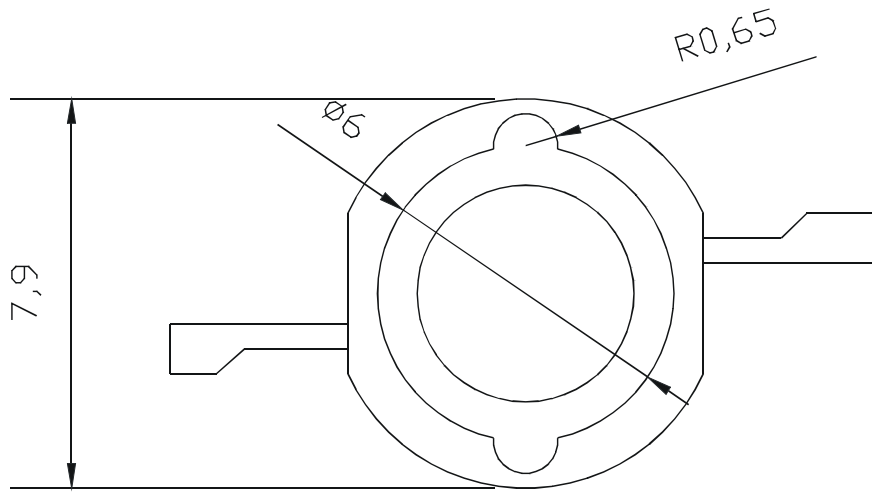
### ■ Electrical-optical characteristics: (Ta=25°C) (Test Condition: IF=350mA)

| 1W Side emitting Emitter                                                                              | Chip             |                               | Lens Type   | Forward Voltage(VF)<br>Unit:V |      | Flux<br>Unit:lm<br>@350mA |      | Viewing Angle<br>2θ1/2 (deg) |
|-------------------------------------------------------------------------------------------------------|------------------|-------------------------------|-------------|-------------------------------|------|---------------------------|------|------------------------------|
|                                                                                                       | Emitted Color    | λ <sub>p</sub><br>(nm) or CTT |             | Typ                           | Max  | Min.                      | Typ. |                              |
| <br><br>Part Number | Ultra Orange     | 630                           | Water Clear | 2.2                           | 2.75 | 35                        | 45   | 80                           |
|                                                                                                       | Ultra Yellow     | 590                           |             | 2.2                           | 2.75 | 35                        | 45   |                              |
|                                                                                                       | Ultra Pure Green | 525                           |             | 3.2                           | 3.8  | 50                        | 60   |                              |
|                                                                                                       | Ultra Blue       | 470                           |             | 3.2                           | 3.8  | 30                        | 40   |                              |
|                                                                                                       | Ultra White      | 6000k                         |             | 3.2                           | 3.8  | 70                        | 90   |                              |

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### ■ Package configuration & Internal circuit diagram



#### Notes:

1. All dimensions are in millimeters (inches)
2. Tolerance is  $\pm 0.25(0.01)$  unless otherwise noted.
3. Specifications are subject to change without notice.

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### SELECTION CODE FOR SUPER BRIGHT LEDS

| Group | brightness (LM) |     | Group | brightness (LM) |     |
|-------|-----------------|-----|-------|-----------------|-----|
|       | min             | max |       | min             | max |
| C0    | 20              | 30  | D3    | 160             | 180 |
| C1    | 30              | 40  | D4    | 180             | 200 |
| C2    | 40              | 50  | E0    | 200             | 230 |
| C3    | 50              | 60  | E1    | 230             | 260 |
| C4    | 60              | 70  | E2    | 260             | 300 |
| C5    | 70              | 80  | F0    | 300             | 350 |
| C6    | 80              | 90  | F1    | 350             | 400 |
| C7    | 90              | 100 | F2    | 400             | 450 |
| D0    | 100             | 120 | F3    | 450             | 500 |
| D1    | 120             | 140 | F4    | 500             | 550 |
| D2    | 140             | 160 | F5    | 550             | 600 |

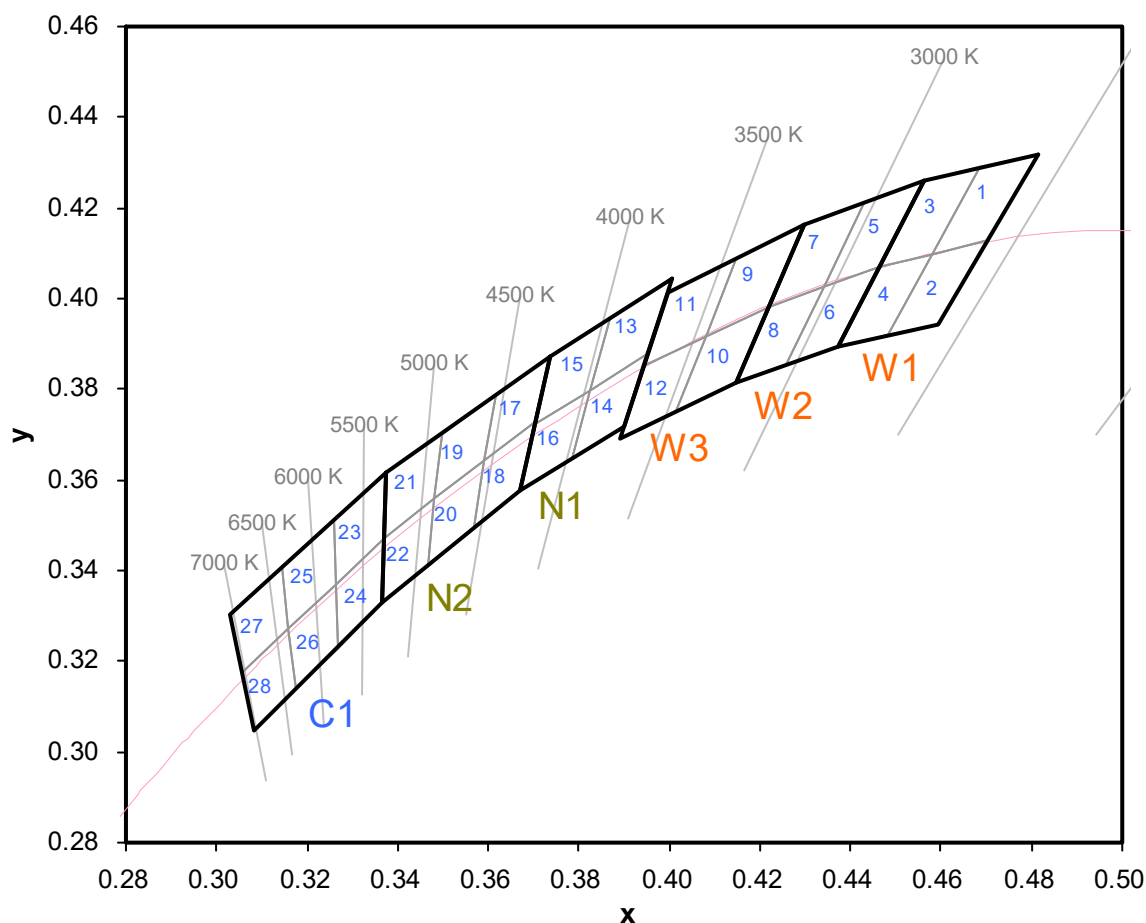
### forward voltage Ranks

| Group | Voltage (V) |     | Group | Voltage (V) |     |
|-------|-------------|-----|-------|-------------|-----|
|       | min         | max |       | min         | max |
| A     | 1.7         | 1.9 | K     | 3.6         | 3.8 |
| B     | 1.9         | 2.1 | L     | 3.8         | 4   |
| C     | 2.1         | 2.3 | M     | 4           | 4.2 |
| D     | 2.3         | 2.5 | N     | 4.2         | 4.4 |
| E     | 2.5         | 2.8 | P     | 4.4         | 4.6 |
| F     | 2.8         | 3   | Q     | 4.6         | 4.8 |
| G     | 3           | 3.2 | R     | 4.8         | 5   |
| H     | 3.2         | 3.4 | S     | 5           | 5.2 |
| J     | 3.4         | 3.6 | T     | 5.2         | 5.4 |

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## Color Temperature Bin



| CODE | x      | y      |
|------|--------|--------|
| W1   | 0.4373 | 0.3893 |
|      | 0.4562 | 0.4260 |
|      | 0.4813 | 0.4319 |
|      | 0.4593 | 0.3944 |
|      |        |        |
|      | X      | Y      |
| W2   | 0.4147 | 0.3814 |
|      | 0.4299 | 0.4165 |
|      | 0.4562 | 0.4260 |
|      | 0.4373 | 0.3893 |
|      |        |        |
|      | X      | Y      |
| W3   | 0.3889 | 0.3690 |
|      | 0.3996 | 0.4015 |
|      | 0.4299 | 0.4165 |
|      | 0.4147 | 0.3814 |

| CODE | X      | Y      |
|------|--------|--------|
| N1   | 0.3670 | 0.3578 |
|      | 0.3736 | 0.3874 |
|      | 0.4006 | 0.4044 |
|      | 0.3898 | 0.3716 |
|      |        |        |
|      | X      | Y      |
| N2   | 0.3481 | 0.3557 |
|      | 0.3376 | 0.3616 |
|      | 0.3592 | 0.3641 |
|      | 0.3670 | 0.3578 |
|      |        |        |
|      | X      | Y      |
| C1   | 0.3160 | 0.3274 |
|      | 0.3028 | 0.3304 |
|      | 0.3265 | 0.3371 |
|      | 0.3364 | 0.3328 |

## High Power LED lamp

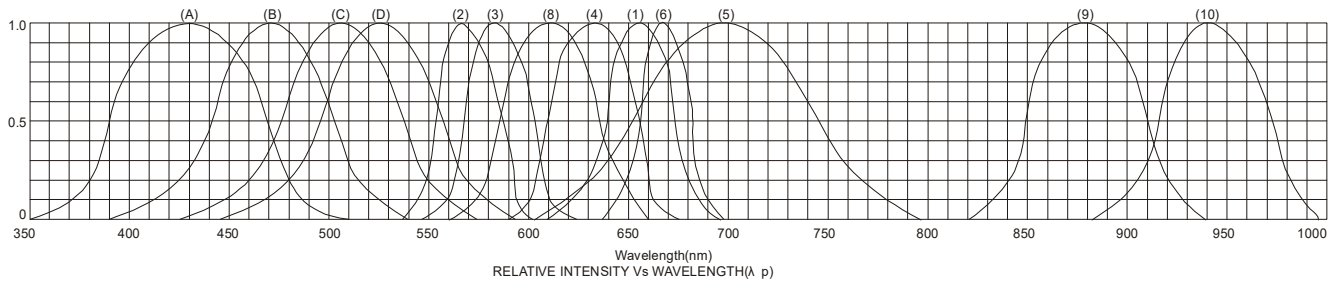
BL-HP20ExxxS

| CODE | x      | y      | CODE | x      | y      | CODE | x      | y      | CODE | x      | y      |
|------|--------|--------|------|--------|--------|------|--------|--------|------|--------|--------|
| 1    | 0.4582 | 0.4099 | 8    | 0.4147 | 0.3814 | 15   | 0.3702 | 0.3722 | 22   | 0.3481 | 0.3557 |
|      | 0.4687 | 0.4289 |      | 0.4221 | 0.3984 |      | 0.3736 | 0.3874 |      | 0.3370 | 0.3472 |
|      | 0.4813 | 0.4319 |      | 0.4342 | 0.4028 |      | 0.3869 | 0.3958 |      | 0.3364 | 0.3328 |
|      | 0.4700 | 0.4126 |      | 0.4259 | 0.3853 |      | 0.3825 | 0.3798 |      | 0.3466 | 0.3411 |
| 2    | 0.4483 | 0.3919 | 9    | 0.4080 | 0.3916 | 16   | 0.3670 | 0.3578 | 23   | 0.3376 | 0.3616 |
|      | 0.4582 | 0.4099 |      | 0.4146 | 0.4089 |      | 0.3702 | 0.3722 |      | 0.3260 | 0.3512 |
|      | 0.4700 | 0.4126 |      | 0.4299 | 0.4165 |      | 0.3825 | 0.3798 |      | 0.3265 | 0.3371 |
|      | 0.4593 | 0.3944 |      | 0.4221 | 0.3984 |      | 0.3783 | 0.3646 |      | 0.3370 | 0.3472 |
| 3    | 0.4465 | 0.4071 | 10   | 0.4017 | 0.3751 | 17   | 0.3736 | 0.3874 | 24   | 0.3370 | 0.3472 |
|      | 0.4562 | 0.4260 |      | 0.4080 | 0.3916 |      | 0.3616 | 0.3788 |      | 0.3265 | 0.3371 |
|      | 0.4687 | 0.4289 |      | 0.4221 | 0.3984 |      | 0.3592 | 0.3641 |      | 0.3270 | 0.3230 |
|      | 0.4582 | 0.4099 |      | 0.4147 | 0.3814 |      | 0.3703 | 0.3726 |      | 0.3364 | 0.3328 |
| 4    | 0.4373 | 0.3893 | 11   | 0.3941 | 0.3848 | 18   | 0.3703 | 0.3726 | 25   | 0.3260 | 0.3512 |
|      | 0.4465 | 0.4071 |      | 0.3996 | 0.4015 |      | 0.3592 | 0.3641 |      | 0.3144 | 0.3408 |
|      | 0.4582 | 0.4099 |      | 0.4146 | 0.4089 |      | 0.3568 | 0.3495 |      | 0.3160 | 0.3274 |
|      | 0.4483 | 0.3919 |      | 0.4080 | 0.3916 |      | 0.3670 | 0.3578 |      | 0.3265 | 0.3371 |
| 5    | 0.4342 | 0.4028 | 12   | 0.3889 | 0.3690 | 19   | 0.3616 | 0.3788 | 26   | 0.3265 | 0.3371 |
|      | 0.4430 | 0.4212 |      | 0.3941 | 0.3848 |      | 0.3496 | 0.3702 |      | 0.3160 | 0.3274 |
|      | 0.4562 | 0.4260 |      | 0.4080 | 0.3916 |      | 0.3481 | 0.3557 |      | 0.3175 | 0.3139 |
|      | 0.4465 | 0.4071 |      | 0.4017 | 0.3751 |      | 0.3592 | 0.3641 |      | 0.3270 | 0.3230 |
| 6    | 0.4259 | 0.3853 | 13   | 0.3825 | 0.3798 | 20   | 0.3592 | 0.3641 | 27   | 0.3144 | 0.3408 |
|      | 0.4342 | 0.4028 |      | 0.3869 | 0.3958 |      | 0.3481 | 0.3557 |      | 0.3028 | 0.3304 |
|      | 0.4465 | 0.4071 |      | 0.4006 | 0.4044 |      | 0.3466 | 0.3411 |      | 0.3055 | 0.3177 |
|      | 0.4373 | 0.3893 |      | 0.3950 | 0.3875 |      | 0.3568 | 0.3495 |      | 0.3160 | 0.3274 |
| 7    | 0.4221 | 0.3984 | 14   | 0.3783 | 0.3646 | 21   | 0.3496 | 0.3702 | 28   | 0.3160 | 0.3274 |
|      | 0.4299 | 0.4165 |      | 0.3825 | 0.3798 |      | 0.3376 | 0.3616 |      | 0.3055 | 0.3177 |
|      | 0.4430 | 0.4212 |      | 0.3950 | 0.3875 |      | 0.3370 | 0.3472 |      | 0.3081 | 0.3049 |
|      | 0.4342 | 0.4028 |      | 0.3898 | 0.3716 |      | 0.3481 | 0.3557 |      | 0.3175 | 0.3139 |

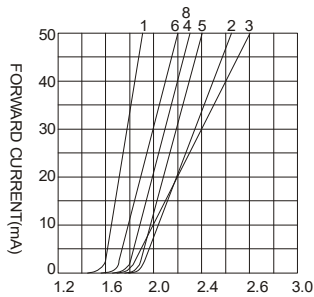
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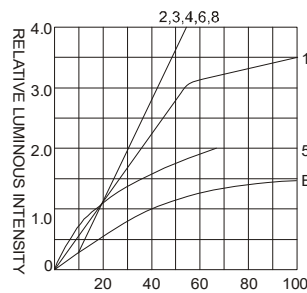
### Typical electrical-optical characteristics curves:



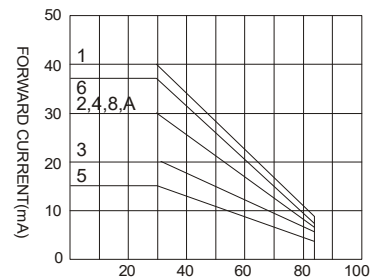
- |                                           |                                      |
|-------------------------------------------|--------------------------------------|
| (1) - GaAsP/GaAs 655nm/Red                | (9) - GaAlAs 880nm                   |
| (2) - GaP 570nm/Yellow Green              | (10) - GaAs/GaAs & GaAlAs/GaAs 940nm |
| (3) - GaAsP/GaP 585nm/Yellow              | (A) - GaN/SiC 430nm/Blue             |
| (4) - GaAsP/GaP 635nm/Orange & Hi-Eff Red | (B) - InGaN/SiC 470nm/Blue           |
| (5) - GaP 700nm/Bright Red                | (C) - InGaN/SiC 505nm/Ultra Green    |
| (6) - GaAlAs/GaAs 660nm/Super Red         | (D) - InGaAl/SiC 525nm/Ultra Green   |
| (8) - GaAsP/GaP 610nm/Super Red           |                                      |



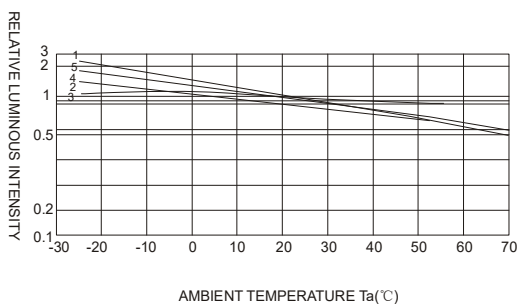
FORWARD VOLTAGE (Vf)  
FORWARD CURRENT VS.  
FORWARD VOLTAGE



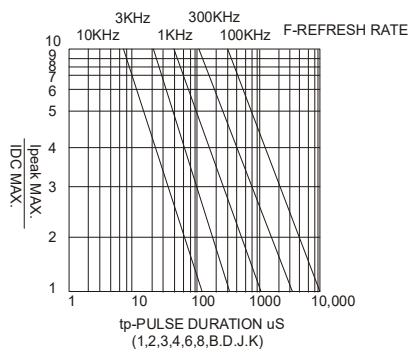
FORWARD CURRENT (mA)  
RELATIVE LUMINOUS  
INTENSITY VS. FORWARD  
CURRENT



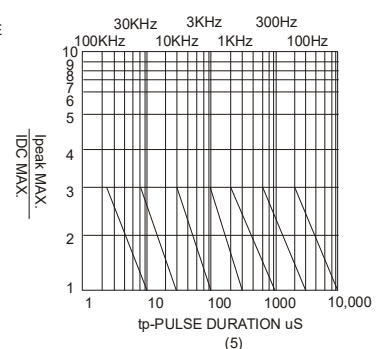
AMBIENT TEMPERATURE  $T_a(^{\circ}\text{C})$   
FORWARD CURRENT VS. AMBIENT  
TEMPERATURE



AMBIENT TEMPERATURE  $T_a(^{\circ}\text{C})$



tp-PULSE DURATION  $\mu\text{s}$   
(1,2,3,4,6,8,B,D,J,K)



NOTE: 25 $^{\circ}\text{C}$  free air temperature unless otherwise specified

## High Power LED lamp

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### ■ Packing and weighting

