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# 5050 SMD LED

## **Applications**

- Signal & Symbol Indicators.
- Illuminations(illuminated advertising & general lighting).
- Amusement Machines.
- LCD Backlighting.
- Indoor & Outdoor Displays.
- Automobile Interior Lighting.

# 1. RED 5050 SMD LED

| PART NO     | Chip     |               | Lens Color  |
|-------------|----------|---------------|-------------|
|             | Material | Emitted Color |             |
| LED-5050RVC | AlGaInP  | Red ■         | WATER CLEAR |

## Absolute Maximum Ratings (Ta = 25°C)

| Items                  | Symbol | Absolute maximum Rating                                    | Unit |
|------------------------|--------|--|------|
| Power Dissipation      | PD     | 300  | mW   |
| Forward Current(DC)    | IF     | 150  | mA   |
| Peak Forward Current * | IFP    | 300  | mA   |
| Reverse Voltage        | VR     | 5  | V    |
| Operation Temperature  | Topr   | -40 ~ +95  | °C   |
| Storage Temperature    | Tstg   | -40 ~ +100   | °C   |
| Soldering Temperature  | Tsol   | Reflow Soldering:240°C/10sec<br>Hand Soldering: 350°C/3sec |      |

\*Pulse width ≤ 0.1msec duty ≤ 1/10

## Typical Electrical & Optical Characteristics ( Ta = 25°C )

| Items               | Symbol | Condition | Min. | Typ. | Max. | Unit |
|---------------------|--------|-----------|------|------|------|------|
| Forward Voltage     | VF     | IF = 60mA | 1.7  |      | 2.4  | V    |
| Reverse Current     | IR     | VR = 5V   |      |      | 10   | μA   |
| Dominant Wavelength | WLD    | IF = 60mA | 620  |      | 630  | nm   |
| Luminous Intensity  | IV     | IF = 60mA | 1200 |      | 3500 | mcd  |
| 50% Power Angle     | 2θ½    | IF = 60mA |      | 120  |      | Deg  |

## Typical Electrical/Optical Characteristics Curves (Ta=25° Unless Otherwise Noted)

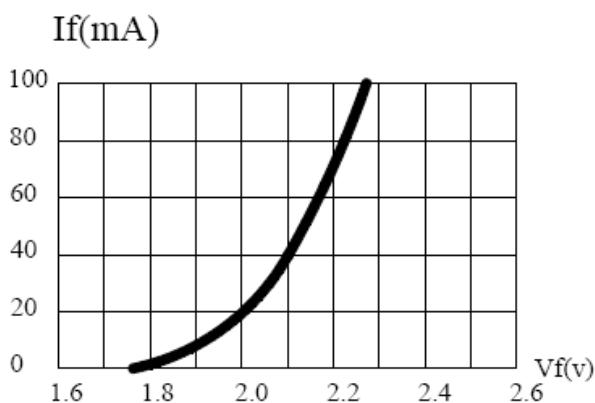


Fig. 1 Forward Current vs Forward Voltage

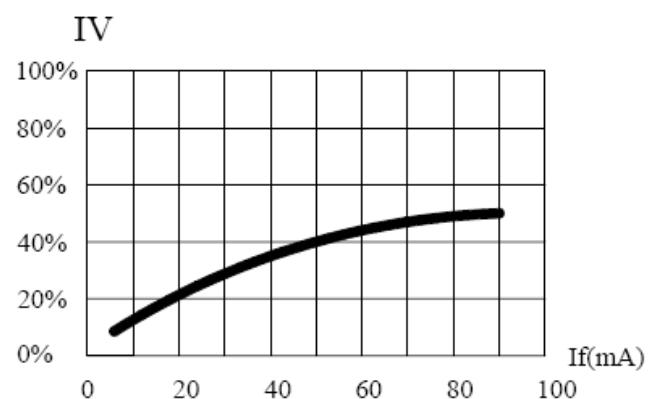


Fig. 2 Relative Luminous Flux vs Forward Current

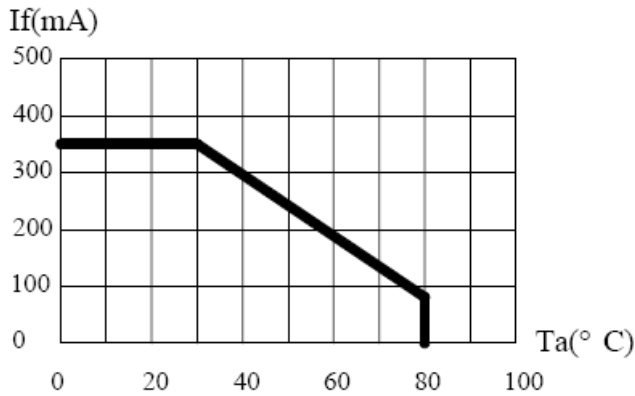


Fig. 3 Maximum Forward Current vs Ambient Temperature

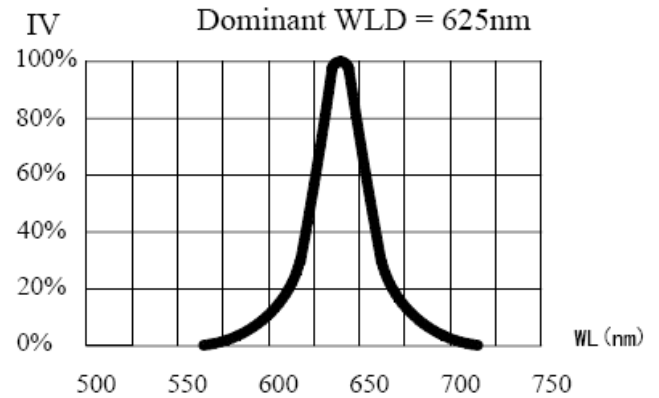


Fig. 4 Relative Luminous Flux vs Wavelength

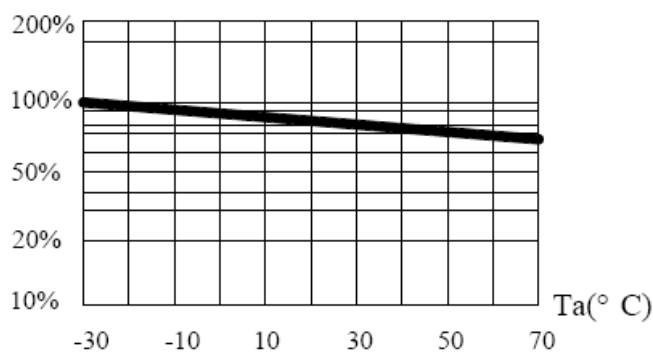


Fig. 5 Relative Luminous Flux vs Ambient Temperature

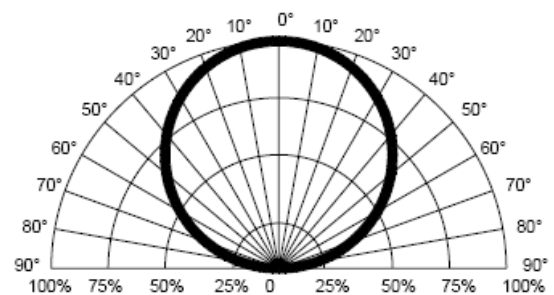


Fig. 6 Relative Luminous Flux vs Radiation Angle

## 2. YELLOW 5050 SMD LED

| PART NO     | Chip     |  | Lens Color  |
|-------------|----------|--|-------------|
|             | Material | Emitted Color                                |             |
| LED-5050YVC | AlGaInP  | Yellow <span style="color: yellow;">■</span> | WATER CLEAR |

### Absolute Maximum Ratings (Ta = 25°C)

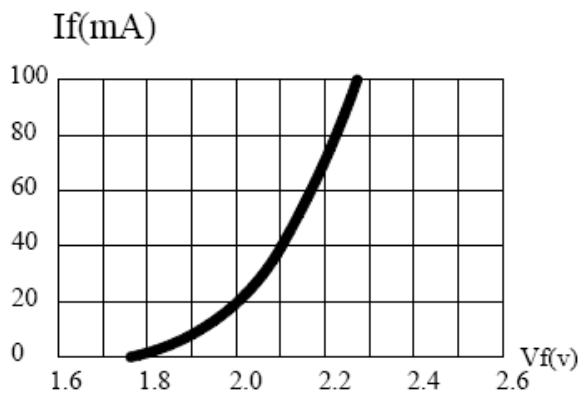
| Items                  | Symbol | Absolute maximum Rating                                     | Unit |
|------------------------|--------|---|------|
| Power Dissipation      | PD     | 450   | mW   |
| Forward Current(DC)    | IF     | 150   | mA   |
| Peak Forward Current * | IFP    | 300   | mA   |
| Reverse Voltage        | VR     | 5   | V    |
| Operation Temperature  | Topr   | -40 ~ +95   | °C   |
| Storage Temperature    | Tstg   | -40 ~ +100  | °C   |
| Soldering Temperature  | Tsol   | Reflow Soldering: 240°C/10sec<br>Hand Soldering: 350°C/3sec |      |

\*Pulse width  $\leq$  0.1msec duty  $\leq$  1/10

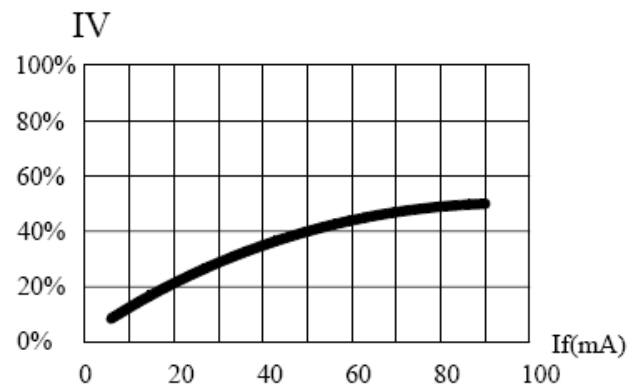
**Typical Electrical & Optical Characteristics ( Ta = 25°C)**

| Items               | Symbol | Condition | Min. | Typ. | Max. | Unit |
|---------------------|--------|-----------|------|------|------|------|
| Forward Voltage     | VF     | IF = 60mA | 1.7  |      | 2.4  | V    |
| Reverse Current     | IR     | VR = 5V   |      |      | 10   | μA   |
| Dominant Wavelength | WLD    | IF = 60mA | 580  |      | 595  | nm   |
| Luminous Intensity  | IV     | IF = 60mA | 1200 |      | 3500 | mcd  |
| 50% Power Angle     | 2θ½    | IF = 60mA |      | 120  |      | Deg  |

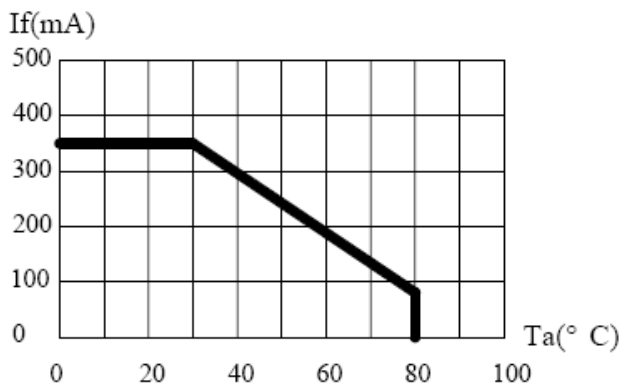
**Typical Electrical/Optical Characteristics Curves (Ta=25° Unless Otherwise Noted)**



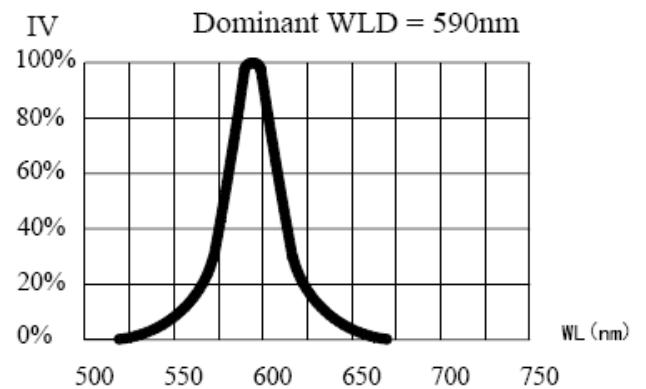
**Fig. 1 Forward Current vs Forward Voltage**



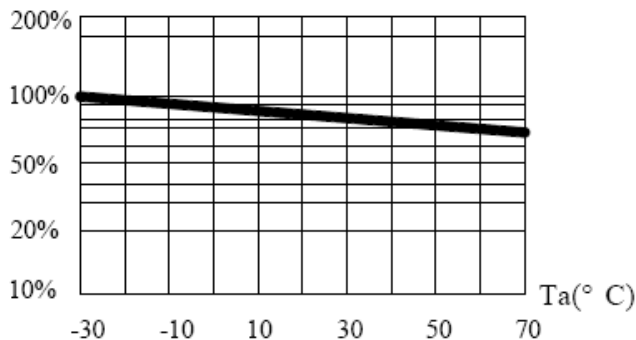
**Fig. 2 Relative Luminous Flux vs Forward Current**



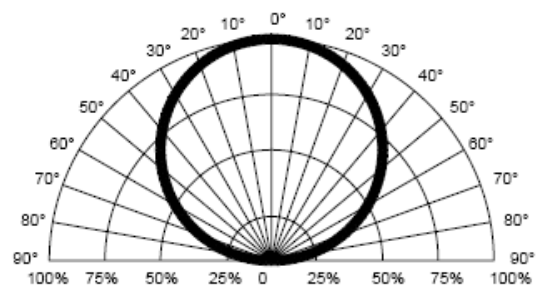
**Fig. 3 Maximum Forward Current vs Ambient Temperature**



**Fig. 4 Relative Luminous Flux vs Wavelength**



**Fig. 5 Relative Luminous Flux vs Ambient Temperature**



**Fig. 6 Relative Luminous Flux vs Radiation Angle**

### 3. GREEN 5050 SMD LED

| PART NO     | Chip     |  | Lens Color  |
|-------------|----------|--|-------------|
|             | Material | Emitted Color                              |             |
| LED-5050GVC | InGaN    | Green <span style="color: green;">■</span> | WATER CLEAR |

#### Absolute Maximum Ratings (Ta = 25°C)

| Items                  | Symbol | Absolute maximum Rating                                    | Unit |
|------------------------|--------|--|------|
| Power Dissipation      | PD     | 450  | mW   |
| Forward Current(DC)    | IF     | 150  | mA   |
| Peak Forward Current * | IFP    | 300  | mA   |
| Reverse Voltage        | VR     | 5  | V    |
| Operation Temperature  | Topr   | -40 ~ +95  | °C   |
| Storage Temperature    | Tstg   | -40 ~ +100   | °C   |
| Soldering Temperature  | Tsol   | Reflow Soldering:240°C/10sec<br>Hand Soldering: 350°C/3sec |      |

\*Pulse width  $\leq$  0.1msec duty  $\leq$  1/10

#### Typical Electrical & Optical Characteristics ( Ta = 25°C)

| Items               | Symbol                   | Condition | Min. | Typ. | Max. | Unit    |
|---------------------|--------------------------|-----------|------|------|------|---------|
| Forward Voltage     | VF                       | IF = 60mA | 2.8  |      | 3.6  | V       |
| Reverse Current     | IR                       | VR = 5V   |      |      | 10   | $\mu$ A |
| Dominant Wavelength | WLD                      | IF = 60mA | 515  |      | 535  | nm      |
| Luminous Intensity  | IV                       | IF = 60mA | 2500 |      | 5500 | mcd     |
| 50% Power Angle     | 2 $\theta$ $\frac{1}{2}$ | IF = 60mA |      | 120  |      | Deg     |

#### Typical Electrical/Optical Characteristics Curves (Ta=25° Unless Otherwise Noted)

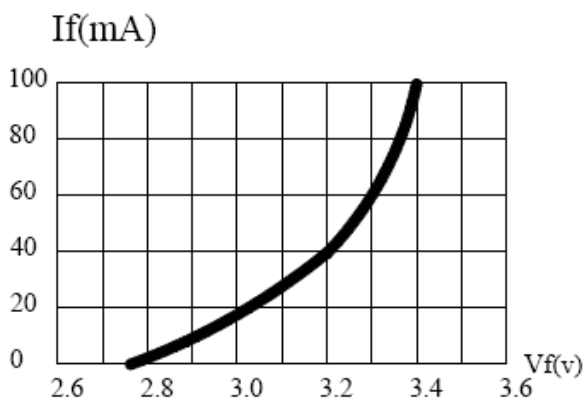


Fig. 1 Forward Current vs Forward Voltage

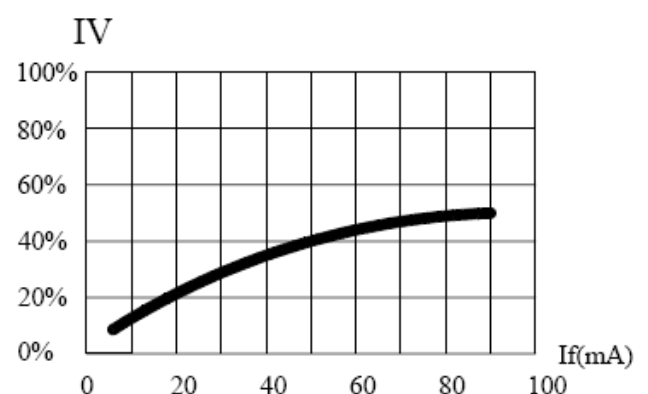
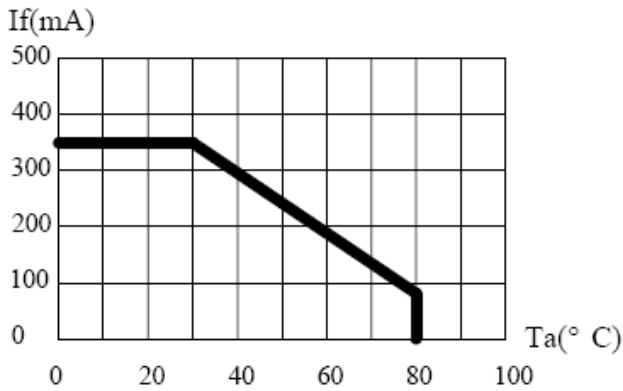
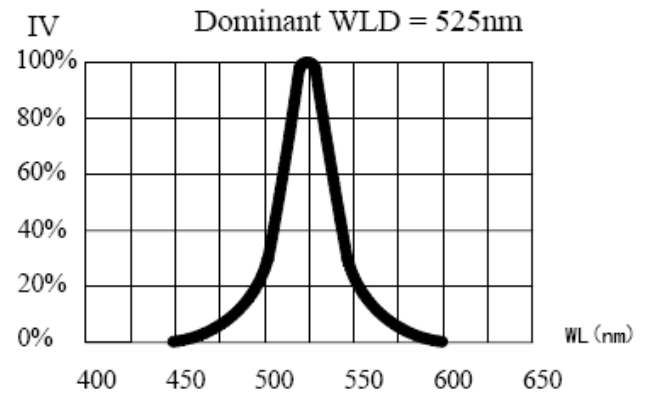


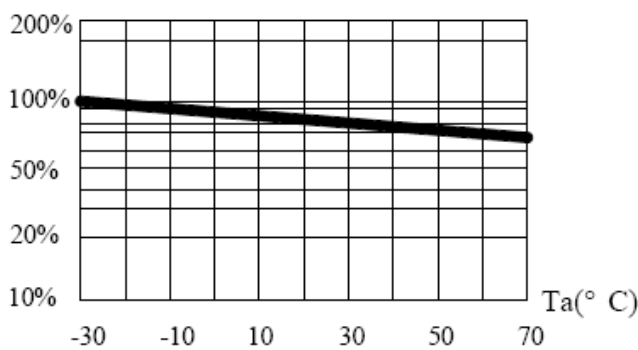
Fig. 2 Relative Luminous Flux vs Forward Current



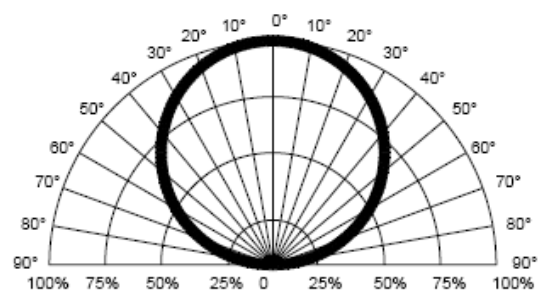
**Fig. 6 Maximum Forward Current vs Ambient Temperature**



**Fig. 4 Relative Luminous Flux vs Wavelength**



**Fig. 5 Relative Luminous Flux vs Ambient Temperature**



**Fig. 6 Relative Luminous Flux vs Radiation Angle**

## 4. BLUE 5050 SMD LED

| PART NO     | Chip     |               | Lens Color  |
|-------------|----------|---------------|-------------|
|             | Material | Emitted Color |             |
| LED-5050BVC | InGaN    | Blue ■        | WATER CLEAR |

### Absolute Maximum Ratings (Ta = 25°C)

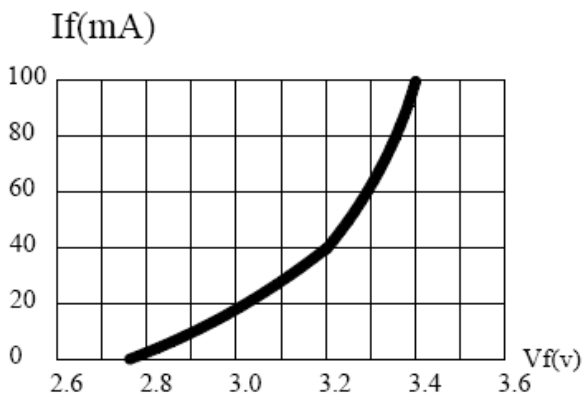
| Items                  | Symbol | Absolute maximum Rating                                    | Unit |
|------------------------|--------|--|------|
| Power Dissipation      | PD     | 450  | mW   |
| Forward Current(DC)    | IF     | 150  | mA   |
| Peak Forward Current * | IFP    | 300  | mA   |
| Reverse Voltage        | VR     | 5  | V    |
| Operation Temperature  | Topr   | -40 ~ +95  | °C   |
| Storage Temperature    | Tstg   | -40 ~ +100   | °C   |
| Soldering Temperature  | Tsol   | Reflow Soldering:240°C/10sec<br>Hand Soldering: 350°C/3sec |      |

\*Pulse width ≤ 0.1msec duty ≤ 1/10

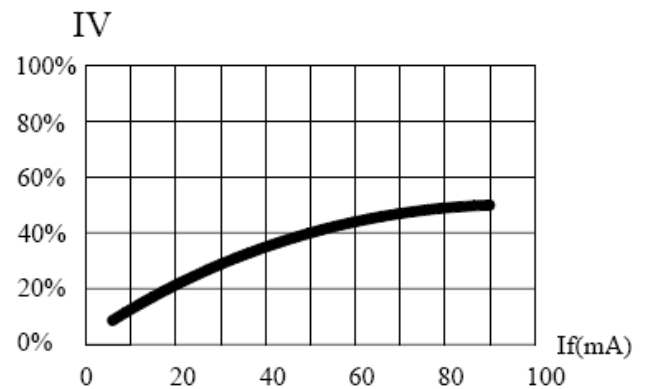
**Typical Electrical & Optical Characteristics ( Ta = 25°C)**

| Items               | Symbol | Condition | Min. | Typ. | Max. | Unit |
|---------------------|--------|-----------|------|------|------|------|
| Forward Voltage     | VF     | IF = 60mA | 2.8  |      | 3.6  | V    |
| Reverse Current     | IR     | VR = 5V   |      |      | 10   | μA   |
| Dominant Wavelength | WLD    | IF = 60mA | 460  |      | 475  | nm   |
| Luminous Intensity  | IV     | IF = 60mA | 1000 |      | 3500 | mcd  |
| 50% Power Angle     | 2θ½    | IF = 60mA |      | 120  |      | Deg  |

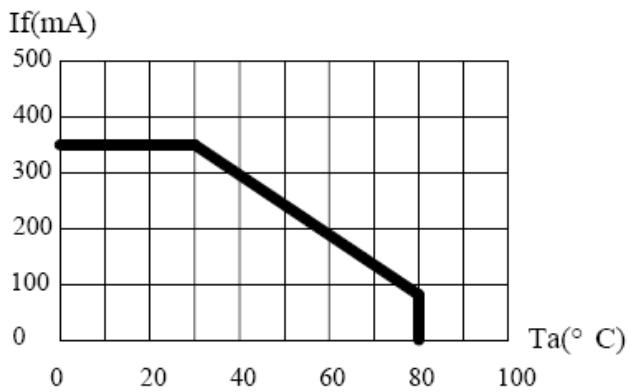
**Typical Electrical/Optical Characteristics Curves (Ta=25° Unless Otherwise Noted)**



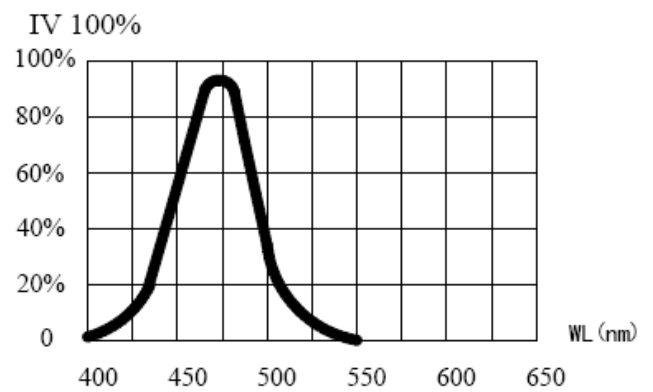
**Fig. 1 Forward Current vs Forward Voltage**



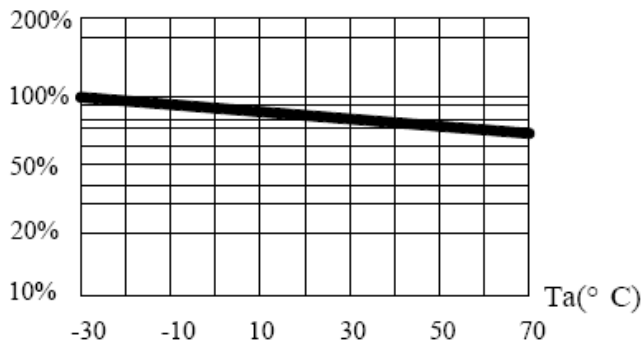
**Fig. 2 Relative Luminous Flux vs Forward Current**



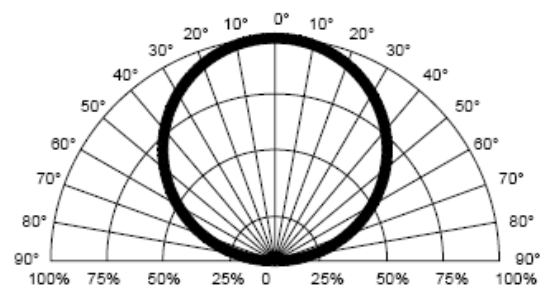
**Fig. 6 Maximum Forward Current vs Ambient Temperature**



**Fig. 4 Relative Luminous Flux vs Wavelength**



**Fig. 5 Relative Luminous Flux vs Ambient Temperature**



**Fig. 6 Relative Luminous Flux vs Radiation Angle**

## 5. WHITE 5050 SMD LED

| PART NO     | Chip     |               | Lens Color  |
|-------------|----------|---------------|-------------|
|             | Material | Emitted Color |             |
| LED-5050WVC | InGaN    | White □       | WATER CLEAR |

### Absolute Maximum Ratings (Ta = 25°C)

| Items                  | Symbol | Absolute maximum Rating                                    | Unit |
|------------------------|--------|--|------|
| Power Dissipation      | PD     | 450  | mW   |
| Forward Current(DC)    | IF     | 150  | mA   |
| Peak Forward Current * | IFP    | 300  | mA   |
| Reverse Voltage        | VR     | 5  | V    |
| Operation Temperature  | Topr   | -40 ~ +95  | °C   |
| Storage Temperature    | Tstg   | -40 ~ +100   | °C   |
| Soldering Temperature  | Tsol   | Reflow Soldering:240°C/10sec<br>Hand Soldering: 350°C/3sec |      |

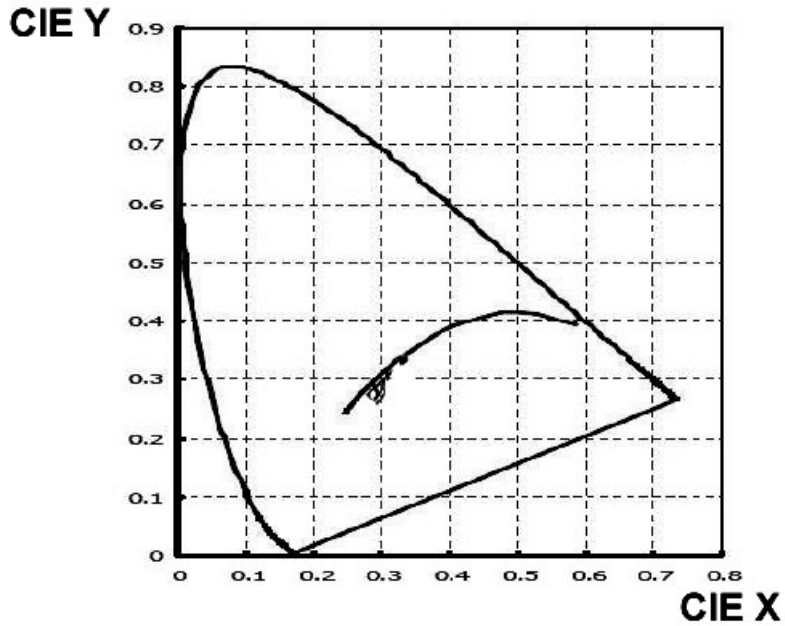
\*Pulse width  $\leq$  0.1msec duty  $\leq$  1/10

### Typical Electrical & Optical Characteristics ( Ta = 25°C)

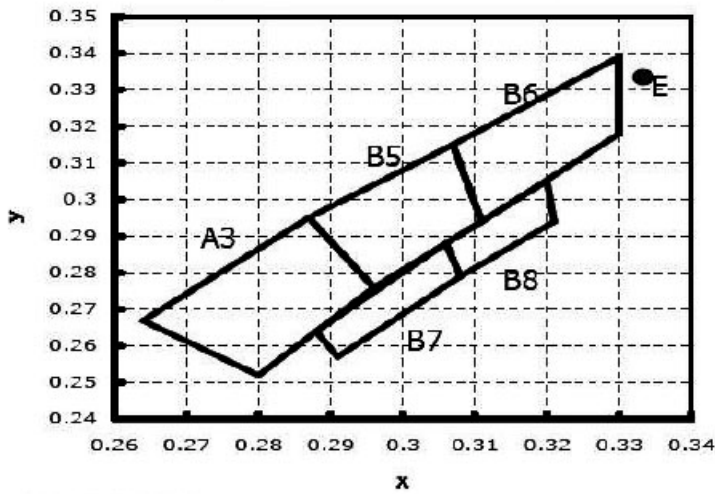
| Items                 | Symbol       | Condition | Min. | Typ. | Max.        | Unit    |
|-----------------------|--------------|-----------|------|------|-------------|---------|
| Forward Voltage       | VF           | IF = 60mA | 2.8  |      | 3.6         | V       |
| Reverse Current       | IR           | VR = 5V   |      |      | 10          | $\mu$ A |
| Chromatic Coordinates | (X,Y)        | IF =60mA  |      |      | (0.30,0.30) | nm      |
| Luminous Intensity    | IV           | IF = 60mA | 5000 |      | 6000        | mcd     |
|                       |              |           | 14   |      | 16          | LM      |
| 50% Power Angle       | 2 $\theta$ ½ | IF = 60mA |      | 120  |             | Deg     |



**CIE Chromaticity Chart**



**Color Coordinate**



**Color Ranks**

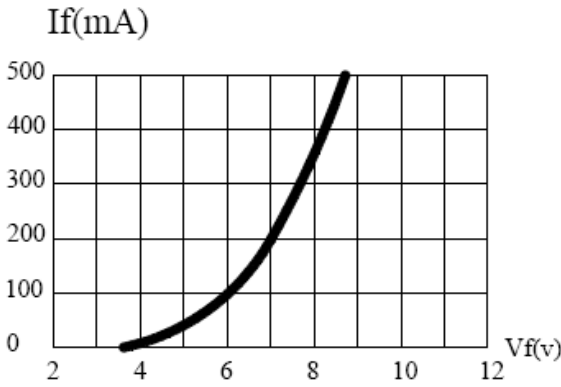
| Rank A3 |       |       |       | Rank B5 |   |       |       | Rank B7 |       |   |       |       |       |       |
|---------|-------|-------|-------|---------|---|-------|-------|---------|-------|---|-------|-------|-------|-------|
| x       | 0.280 | 0.264 | 0.287 | 0.296   | x | 0.296 | 0.287 | 0.307   | 0.311 | x | 0.291 | 0.288 | 0.306 | 0.308 |
| y       | 0.252 | 0.267 | 0.295 | 0.276   | y | 0.276 | 0.295 | 0.315   | 0.294 | y | 0.257 | 0.264 | 0.288 | 0.279 |

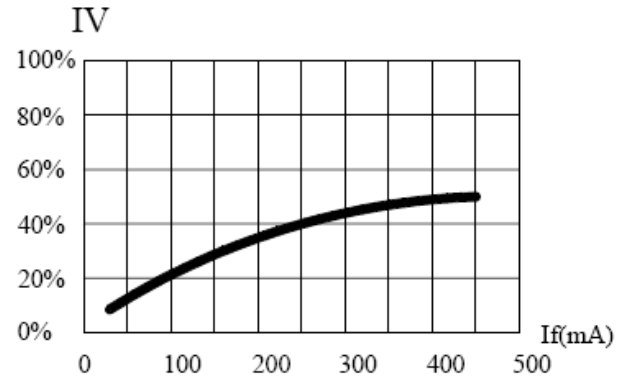
| Rank B6 |       |       |       | Rank B8 |   |       |       |       |       |
|---------|-------|-------|-------|---------|---|-------|-------|-------|-------|
| x       | 0.311 | 0.307 | 0.330 | 0.330   | x | 0.308 | 0.288 | 0.32  | 0.321 |
| y       | 0.294 | 0.315 | 0.339 | 0.318   | y | 0.279 | 0.264 | 0.305 | 0.294 |

\* Color coordinates measurement allowance is  $\pm 0.01$

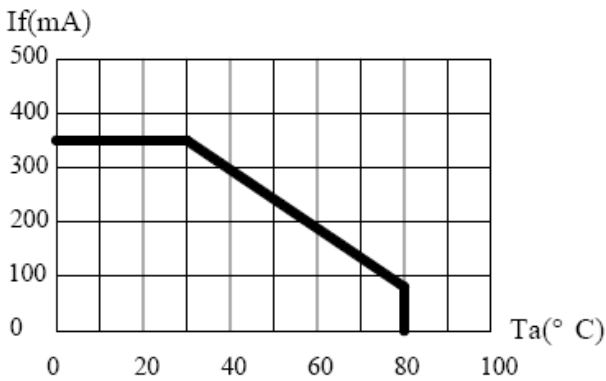
**Typical Electrical/Optical Characteristics Curves (Ta=25° Unless Otherwise Noted)**



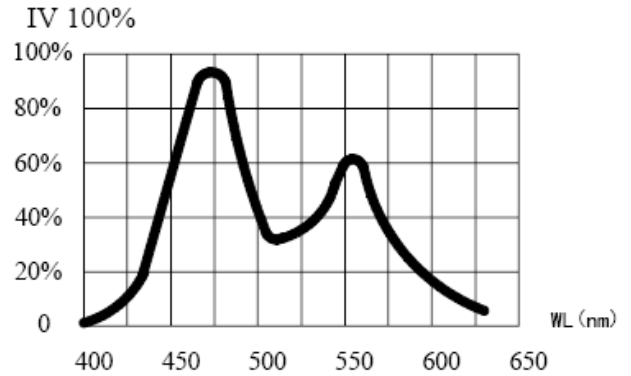
**Fig. 1 Forward Current vs Forward Voltage**



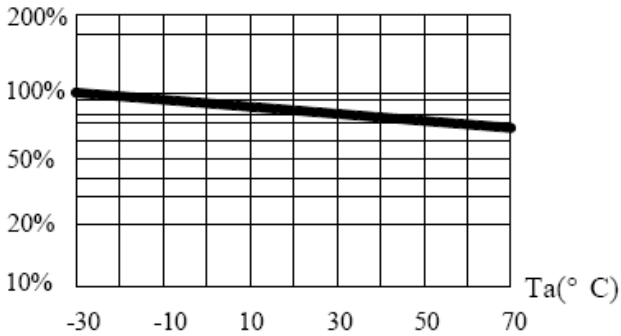
**Fig. 2 Relative Luminous Flux vs Forward Current**



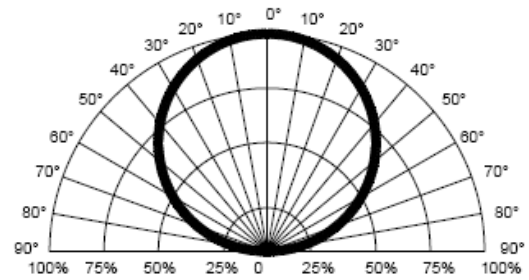
**Fig. 3 Maximum Forward Current vs Ambient Temperature**



**Fig. 4 Relative Luminous Flux vs Wavelength**



**Fig. 5 Relative Luminous Flux vs Ambient Temperature**



**Fig. 6 Relative Luminous Flux vs Radiation Angle**