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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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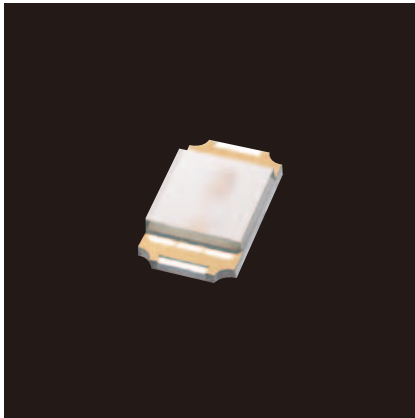
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## SML-P1 Series PICOLED™-eco/PICOLED™

1006 (0402)  
1.0×0.6mm (t=0.2mm)

### Features

- Ultra compact, thin size 1.0×0.6mm
- Thinnest size in the world\* t=0.2mm
- Original device technology enables high brightness and high reliability
- Accomplishes low power consuming application
- Specification assured at I<sub>F</sub>=1mA (PICOLED™-eco)



\* Investigated Aug. 2009

### Specifications

#### PICOLED™-eco

| Part No.    | Chip Structure  | Emitting Color  | Absolute Maximum Ratings (Ta=25°C)    |                                     |   |                                    |                                | Electrical and Optical Characteristics (Ta=25°C) |   |                     |  |                    |   |     |     |   |     |     |     |
|-------------|-----------------|-----------------|---------------------------------------|-------------------------------------|---|------------------------------------|--------------------------------|--|---|---------------------|--|--------------------|---|-----|-----|---|-----|-----|-----|
|             |                 |                 | Power Dissipation P <sub>D</sub> (mW) | Forward Current I <sub>F</sub> (mA) | Peak Forward Current I <sub>FP</sub> (mA) | Reverse Voltage V <sub>R</sub> (V) | Operating Temperature Topr(°C) | Storage Temperature Tstg(°C)                     | Forward Voltage V <sub>F</sub> Typ. (V) | I <sub>F</sub> (mA) | Reverse Current I <sub>R</sub> Max. (μA) | V <sub>R</sub> (V) | Dominant Wavelength λ <sub>D</sub> (nm) |     |     | Luminous Intensity I <sub>v</sub> (mcd) |     |     |     |
| ■ SML-P11VT | AlGaInP on GaAs | Red             | 50                                    | 20                                  | 100 <sup>*1</sup>                         | 5                                  | -40 to +85                     | -40 to +100                                      | 1.8                                     | 1                   | 10                                       | 4                  | 621                                     | 626 | 631 | 1                                       | 3.6 | 1.6 | 5.5 |
| ■ SML-P11UT |                 |                 |                                       |                                     |   |                                    |                                |  |   |                     |  |                    | 616                                     | 621 | 626 |   | 2.5 |     | 7.6 |
| ■ SML-P11DT |                 | Orange          | 52                                    | 602                                 | 605                                       | 608                                | 1                              | 7.3  | 1                                       |                     |  |                    |   |     |     |   |     |     |     |
| ■ SML-P11YT |                 | Yellow          | 583                                   | 586                                 | 589                                       | 2.1                                | 2.1                            |  |   |                     |  |                    |   |     |     |   |     |     |     |
| ■ SML-P11MT |                 | Yellowish Green | 54                                    | 566                                 | 569                                       | 572                                | 0.63                           | 2.1  |   |                     |  |                    |   |     |     |   |     |     |     |

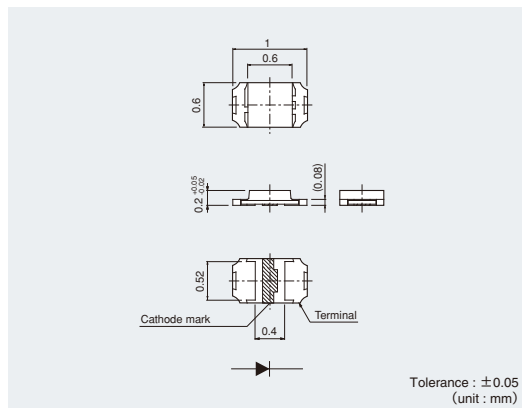
\* 1:Duty 1/10, 1kHz \* 2:Reference

#### PICOLED™

| Part No.      | Chip Structure  | Emitting Color  | Absolute Maximum Ratings (Ta=25°C)    |                                     |   |                                    |                                | Electrical and Optical Characteristics (Ta=25°C) |   |                     |  |                    |   |     |     |   |     |    |     |
|---------------|-----------------|-----------------|---------------------------------------|-------------------------------------|---|------------------------------------|--------------------------------|--|---|---------------------|--|--------------------|---|-----|-----|---|-----|----|-----|
|               |                 |                 | Power Dissipation P <sub>D</sub> (mW) | Forward Current I <sub>F</sub> (mA) | Peak Forward Current I <sub>FP</sub> (mA) | Reverse Voltage V <sub>R</sub> (V) | Operating Temperature Topr(°C) | Storage Temperature Tstg(°C)                     | Forward Voltage V <sub>F</sub> Typ. (V) | I <sub>F</sub> (mA) | Reverse Current I <sub>R</sub> Max. (μA) | V <sub>R</sub> (V) | Dominant Wavelength λ <sub>D</sub> (nm) |     |     | Luminous Intensity I <sub>v</sub> (mcd) |     |    |     |
| ■ SML-P12VT   | AlGaInP on GaAs | Red             | 50                                    | 20                                  | 100 <sup>*1</sup>                         | 5                                  | -40 to +85                     | -40 to +100                                      | 2.0                                     | 20                  | 100                                      | 4                  | 625                                     | 630 | 635 | 20                                      | 60  | 40 | 85  |
| ■ SML-P12UT   |                 |                 |                                       |                                     |   |                                    |                                |  |   |                     |  |                    | 615                                     | 620 | 625 |   | 100 |    | 130 |
| ■ SML-P12DT   |                 | Orange          | 52                                    | 602                                 | 605                                       | 608                                | 40                             | 100  | 20                                      |                     |  |                    |   |     |     |   |     |    |     |
| ■ SML-P12YT   |                 | Yellow          | 587                                   | 590                                 | 593                                       | 10                                 | 35                             |  |   |                     |  |                    |   |     |     |   |     |    |     |
| ■ SML-P12MT   |                 | Yellowish Green | 54                                    | 569                                 | 572                                       | 575                                | 4.0                            | 13   |   |                     |  |                    |   |     |     |   |     |    |     |
| ■ SML-P12PT   | Green           | 557             | 560                                   | 563                                 | 5.6                                       | 17                                 |                                |  |   |                     |  |                    |   |     |     |   |     |    |     |
| ■ SMLP12BC7T  | InGaN           | Blue            | 66                                    | 465                                 | 470                                       | 475                                | 5.6                            | 17   |   |                     |  |                    |   |     |     |   |     |    |     |
| □ SMLP12WBC7W |                 | White           | 2.9                                   | 5                                   | 5   | (x, y) (0.30, 0.30)                | 5                              | 36   | 71                                      | 5                   |  |                    |   |     |     |   |     |    |     |
| ■ SMLP12HBC7W |                 | Pink            | 74                                    | (x, y) (0.23, 0.10)                 | 14  | 22                                 |                                |  |   |                     |  |                    |   |     |     |   |     |    |     |

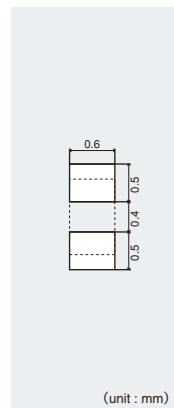
\* 1:Duty 1/10, 1kHz \* 2:Reference

### Dimensions

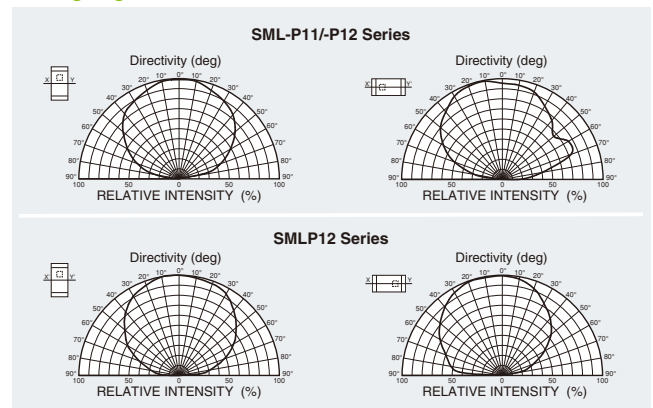


Tolerance : ±0.05  
(unit : mm)

### Recommended Solder Pattern Viewing Angle



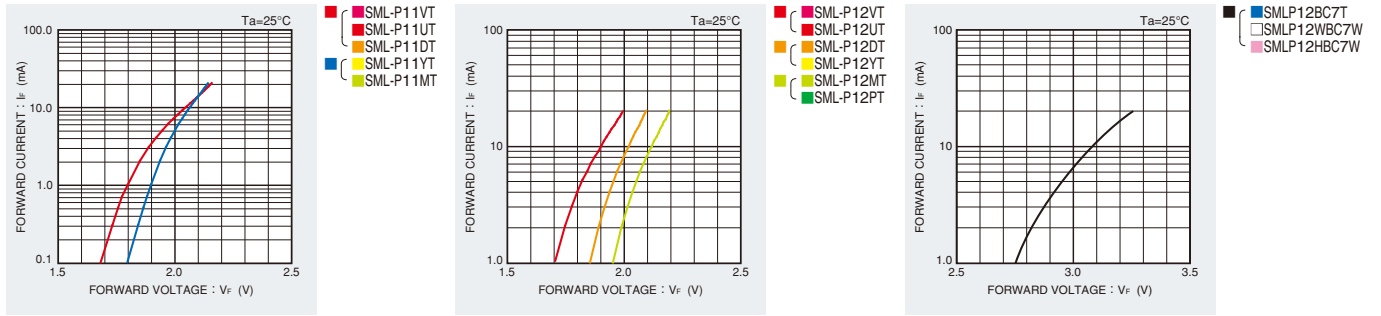
(unit : mm)



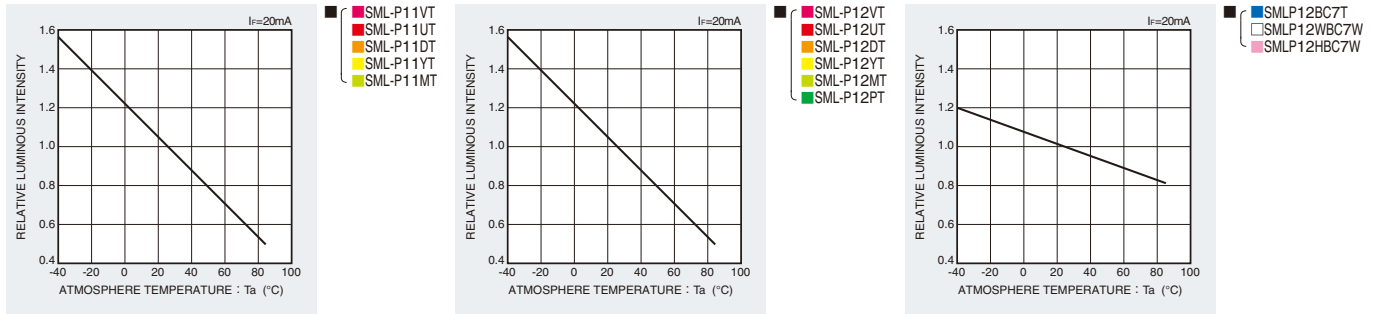
\* PICOLED™ is ROHM's pending trademark.

## Electrical Characteristics Curves

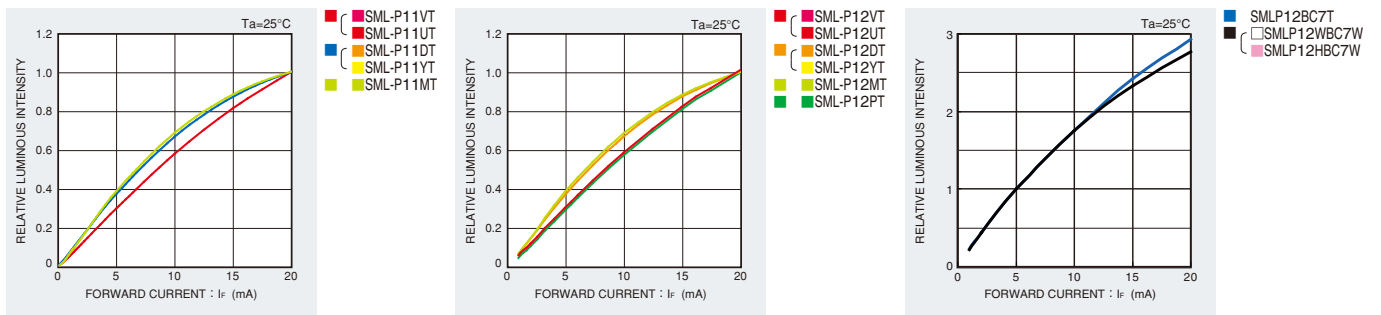
### Forward Current-Forward Voltage



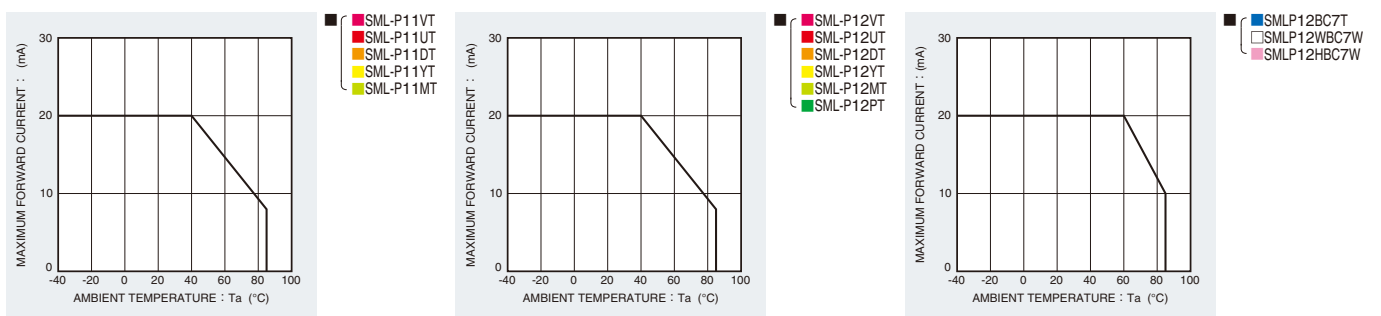
### Luminous Intensity-Atmosphere Temperature



### Luminous Intensity-Forward Current



### Derating



# SML-P1 series

## Rank Reference of Brightness

### Red (V, U)

(Ta=25°C, If=20mA)

| Package size(mm)    | Height(mm) | Luminous Intensity (mcd) | G          | H          | J          | K          | L         | M         | N        | P        | Q        | R         | S          | T          | U          | V          | W           | X            |
|---------------------|------------|--------------------------|------------|------------|------------|------------|-----------|-----------|----------|----------|----------|-----------|------------|------------|------------|------------|-------------|--------------|
|                     |            |                          | 1.0 to 1.6 | 1.6 to 2.5 | 2.5 to 4.0 | 4.0 to 6.3 | 6.3 to 10 | 10 to 16  | 16 to 25 | 25 to 40 | 40 to 63 | 63 to 100 | 100 to 160 | 160 to 250 | 250 to 400 | 400 to 630 | 630 to 1000 | 1000 to 1600 |
| Mini-mold Chip LEDs | 1006       | 0.2                      | SML-P11VT* |            |            |            |           | SML-P12VT |          |          |          |           | SML-P12UT  |            |            |            |             |              |

### Orange (D)

(Ta=25°C, If=20mA)

| Package size(mm)    | Height(mm) | Luminous Intensity (mcd) | G          | H          | J          | K          | L         | M         | N        | P        | Q        | R         | S          | T          | U          | V          | W           | X            |
|---------------------|------------|--------------------------|------------|------------|------------|------------|-----------|-----------|----------|----------|----------|-----------|------------|------------|------------|------------|-------------|--------------|
|                     |            |                          | 1.0 to 1.6 | 1.6 to 2.5 | 2.5 to 4.0 | 4.0 to 6.3 | 6.3 to 10 | 10 to 16  | 16 to 25 | 25 to 40 | 40 to 63 | 63 to 100 | 100 to 160 | 160 to 250 | 250 to 400 | 400 to 630 | 630 to 1000 | 1000 to 1600 |
| Mini-mold Chip LEDs | 1006       | 0.2                      | SML-P11DT* |            |            |            |           | SML-P12DT |          |          |          |           |            |            |            |            |             |              |

### Yellow (Y)

(Ta=25°C, If=20mA)

| Package size(mm)    | Height(mm) | Luminous Intensity (mcd) | G          | H          | J          | K          | L         | M         | N        | P        | Q        | R         | S          | T          | U          | V          | W           | X            |
|---------------------|------------|--------------------------|------------|------------|------------|------------|-----------|-----------|----------|----------|----------|-----------|------------|------------|------------|------------|-------------|--------------|
|                     |            |                          | 1.0 to 1.6 | 1.6 to 2.5 | 2.5 to 4.0 | 4.0 to 6.3 | 6.3 to 10 | 10 to 16  | 16 to 25 | 25 to 40 | 40 to 63 | 63 to 100 | 100 to 160 | 160 to 250 | 250 to 400 | 400 to 630 | 630 to 1000 | 1000 to 1600 |
| Mini-mold Chip LEDs | 1006       | 0.2                      | SML-P11YT* |            |            |            |           | SML-P12YT |          |          |          |           |            |            |            |            |             |              |

### Green (M, P)

(Ta=25°C, If=20mA)

| Package size(mm)    | Height(mm) | Luminous Intensity (mcd) | F           | G          | H          | J          | K          | L         | M        | N        | P        | Q        | R         | S          | T          | U          | V          | W           | X            |
|---------------------|------------|--------------------------|-------------|------------|------------|------------|------------|-----------|----------|----------|----------|----------|-----------|------------|------------|------------|------------|-------------|--------------|
|                     |            |                          | 0.63 to 1.0 | 1.0 to 1.6 | 1.6 to 2.5 | 2.5 to 4.0 | 4.0 to 6.3 | 6.3 to 10 | 10 to 16 | 16 to 25 | 25 to 40 | 40 to 63 | 63 to 100 | 100 to 160 | 160 to 250 | 250 to 400 | 400 to 630 | 630 to 1000 | 1000 to 1800 |
| Mini-mold Chip LEDs | 1006       | 0.2                      | SML-P11MT*  |            |            |            |            | SML-P12MT |          |          |          |          | SML-P12PT |            |            |            |            |             |              |

### Blue (B)

(Ta=25°C, If=5mA)

| Package size(mm)    | Height(mm) | Luminous Intensity (mcd) | G          | H          | J          | K          | L          | M       | N        | P        | Q        | R        | S         | T          | U          | V          | W          |
|---------------------|------------|--------------------------|------------|------------|------------|------------|------------|---------|----------|----------|----------|----------|-----------|------------|------------|------------|------------|
|                     |            |                          | 0.9 to 1.4 | 1.4 to 2.2 | 2.2 to 3.6 | 3.6 to 5.6 | 5.6 to 9.0 | 9 to 14 | 14 to 22 | 22 to 36 | 36 to 56 | 56 to 90 | 90 to 140 | 140 to 220 | 220 to 360 | 360 to 560 | 560 to 900 |
| Mini-mold Chip LEDs | 1006       | 0.2                      | SMLP12BC7T |            |            |            |            |         |          |          |          |          |           |            |            |            |            |

### White (WB)

(Ta=25°C, If=5mA)

| Package size(mm)    | Height(mm) | Luminous Intensity (mcd) | N           | P        | Q        | R        | S         | T          | U          | V          | W          |  |  |
|---------------------|------------|--------------------------|-------------|----------|----------|----------|-----------|------------|------------|------------|------------|--|--|
|                     |            |                          | 14 to 25    | 25 to 36 | 36 to 56 | 56 to 90 | 90 to 140 | 140 to 220 | 220 to 360 | 360 to 560 | 560 to 900 |  |  |
| Mini-mold Chip LEDs | 1006       | 0.2                      | SMLP12WBC7W |          |          |          |           |            |            |            |            |  |  |

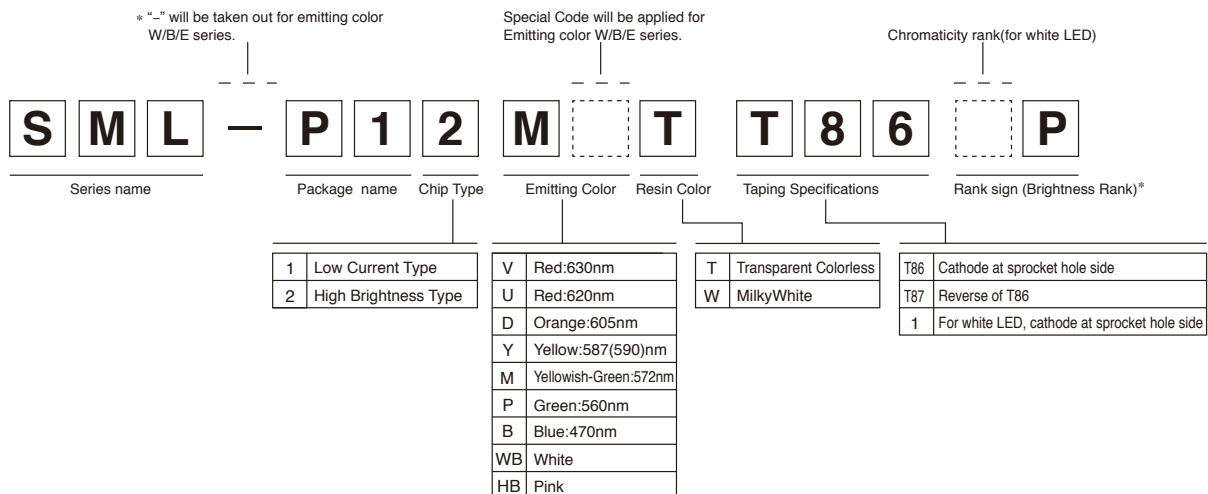
### Pink (HB)

(Ta=25°C, If=5mA)

| Package size(mm)    | Height(mm) | Luminous Intensity (mcd) | N           | P        | Q        | R        | S         | T          | U          | V          | W          |  |  |
|---------------------|------------|--------------------------|-------------|----------|----------|----------|-----------|------------|------------|------------|------------|--|--|
|                     |            |                          | 14 to 25    | 25 to 36 | 36 to 56 | 56 to 90 | 90 to 140 | 140 to 220 | 220 to 360 | 360 to 560 | 560 to 900 |  |  |
| Mini-mold Chip LEDs | 1006       | 0.2                      | SMLP12HBC7W |          |          |          |           |            |            |            |            |  |  |

※:If=1mA

## Part No. Construction



- \* Concerning the Brightness rank
- Please refer to the rank chart above for luminous intensity classification.
- Part name is individual for each rank.
- When shipped as sample, the part name will be a representative part name.
- General products are free of ranks. Please contact sales if rank appointment is needed.

## Packing Specification

ROHM LED products are being shipped with desiccant (silica gel) concluded in moisture-proof bags. Pasting the moisture sensitive label on the outer surface of the moisture-proof bags or enclosing the humidity indication card inside the bag is available upon request. Please contact the nearest sales office or distributor if necessary.

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