

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_F=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 Pd (mW) | Forward Current I _F (mA) | Peak Forward Current I _{FP} (mA) | Reverse Voltage V _R (V) | Operating Temperature Topr (°C) | Storage Temperature Tstg (°C) | Forward Voltage V _F (V) | Reverse Current I _R (μA) | Dominant Wavelength λ _D (nm) | Luminous Intensity I _v (mcd) | λ D | Min. I _F (mA) | Typ. I _F (mA) | Max. I _F (mA) | |
| SML-P11VT | AlGaInP on GaAs | Red | 50 | 20 | 100 ^{*1} | 5 | -40 to +85 | -40 to +100 | 1.8 | 1 | 10 | 4 | 621 | 626 | 631 | 1 | 3.6 |
| SML-P11UT | | | | | | | | | | | | | 616 | 621 | 626 | | |
| SML-P11DT | AlGaInP on GaAs | Orange | 52 | 20 | 100 ^{*1} | 5 | -40 to +85 | -40 to +100 | 1.9 | 1 | 10 | 4 | 602 | 605 | 608 | 1 | 7.3 |
| SML-P11YT | | | | | | | | | | | | | 583 | 586 | 589 | | |
| SML-P11MT | | Yellowish Green | 54 | | | | | | | | | | 566 | 569 | 572 | 0.63 | 2.1 |

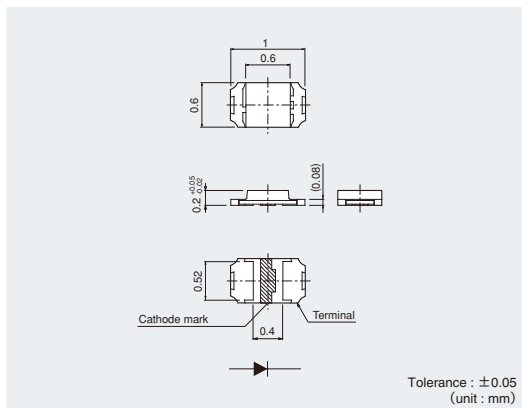
* 1:Duty 1/10, 1kHz * 2:Reference

PICOLED™

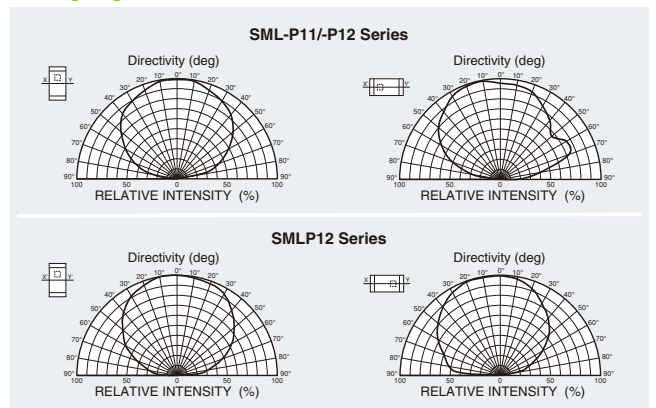
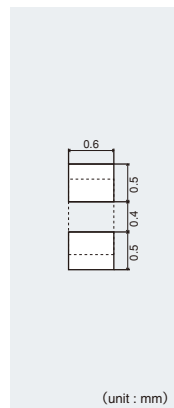
| Part No. | Chip Structure | Emitting Color | Absolute Maximum Ratings (Ta=25°C) | | | | | Electrical and Optical Characteristics (Ta=25°C) | | | | | | | | | |
|--------------------|-----------------|-----------------|------------------------------------|-------------------------------------|---|------------------------------------|---------------------------------|--|------------------------------------|-------------------------------------|---|---|---------------------|--------------------------|--------------------------|--------------------------|-----|
| | | | Power Dissipation Pd (mW) | Forward Current I _F (mA) | Peak Forward Current I _{FP} (mA) | Reverse Voltage V _R (V) | Operating Temperature Topr (°C) | Storage Temperature Tstg (°C) | Forward Voltage V _F (V) | Reverse Current I _R (μA) | Dominant Wavelength λ _D (nm) | Luminous Intensity I _v (mcd) | λ D | Min. I _F (mA) | Typ. I _F (mA) | Max. I _F (mA) | |
| SML-P12VT | AlGaInP on GaAs | Red | 50 | 20 | 100 ^{*1} | 5 | -40 to +85 | -40 to +100 | 2.0 | 20 | 100 | 4 | 625 | 630 | 635 | 20 | 60 |
| SML-P12UT | | | | | | | | | | | | | 615 | 620 | 625 | | |
| SML-P12DT | AlGaInP on GaAs | Orange | 52 | 20 | 100 ^{*1} | 5 | -40 to +85 | -40 to +100 | 2.1 | 20 | 100 | 4 | 602 | 605 | 608 | 20 | 100 |
| SML-P12YT | | | | | | | | | | | | | 587 | 590 | 593 | | |
| SML-P12MT | | Yellowish Green | 54 | | | | | | 2.2 | | | | 569 | 572 | 575 | 10 | 35 |
| SML-P12PT | | Green | | | | | | | | | | | 557 | 560 | 563 | 4.0 | 13 |
| SMLP12BC7T | InGaN | Blue | 66 | 20 | 100 ^{*1} | 5 | -40 to +85 | -40 to +100 | 2.9 | 5 | 10 | 5 | 465 | 470 | 475 | 5 | 17 |
| SMLP12WBC7W | | | | | | | | | | | | | White | (x, y) (0.30, 0.30) | 36 | | |
| SMLP12HBC7W | | Pink | 74 | | | | | | | | | | (x, y) (0.23, 0.10) | 14 | 22 | | |

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

Dimensions



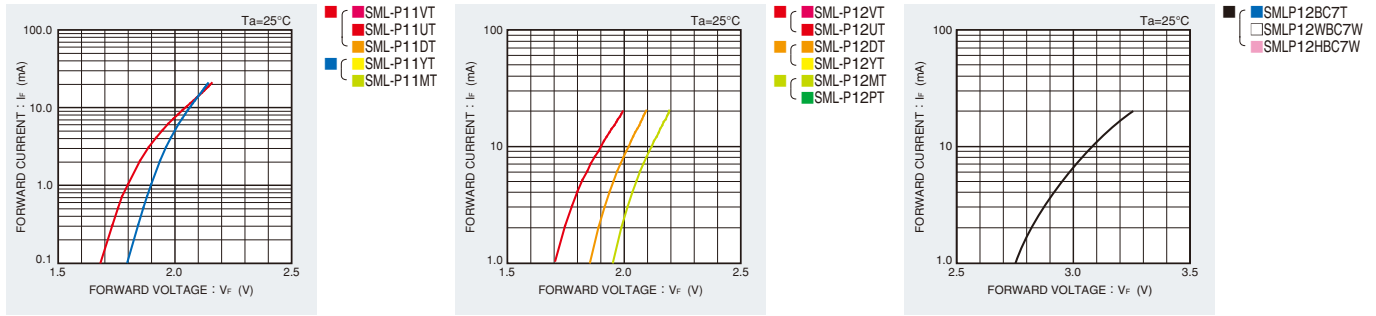
Recommended Solder Pattern Viewing Angle



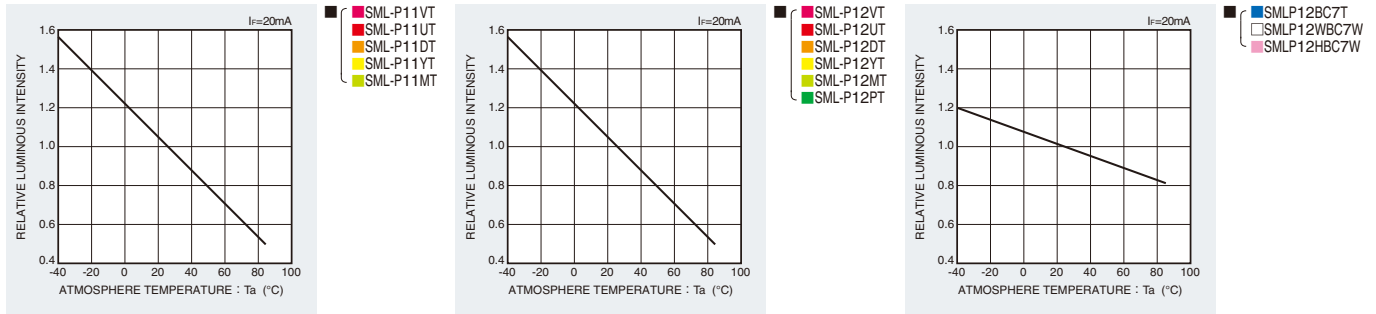
* PICOLED™ is ROHM's pending trademark.

Electrical Characteristics Curves

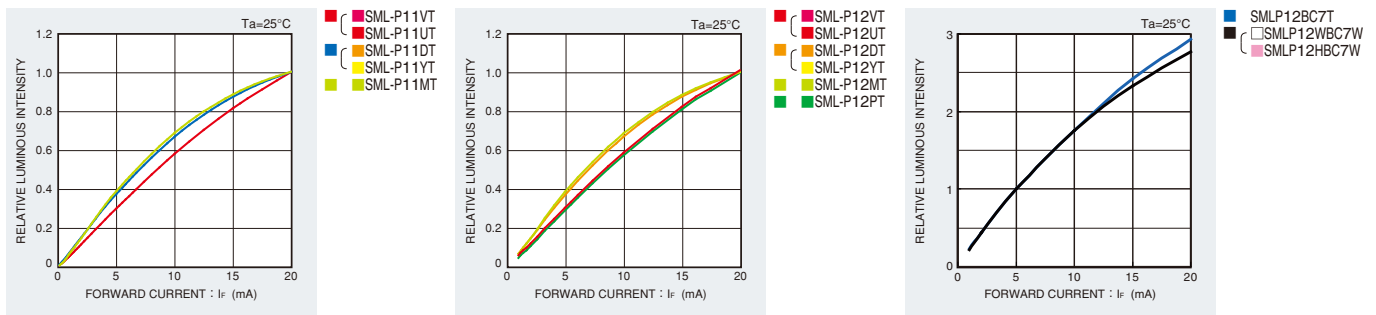
Forward Current-Forward Voltage



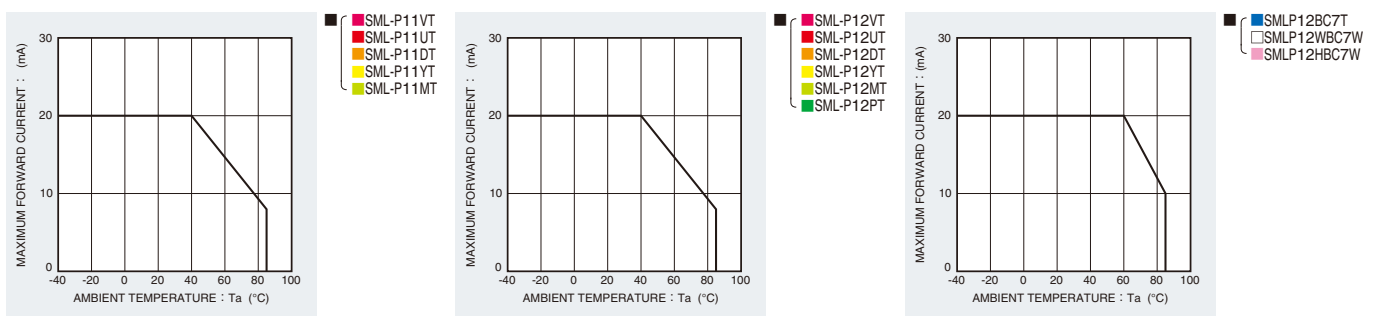
Luminous Intensity-Atmosphere Temperature



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-P11UT* | | | | | 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 | | | | | | | | | | |

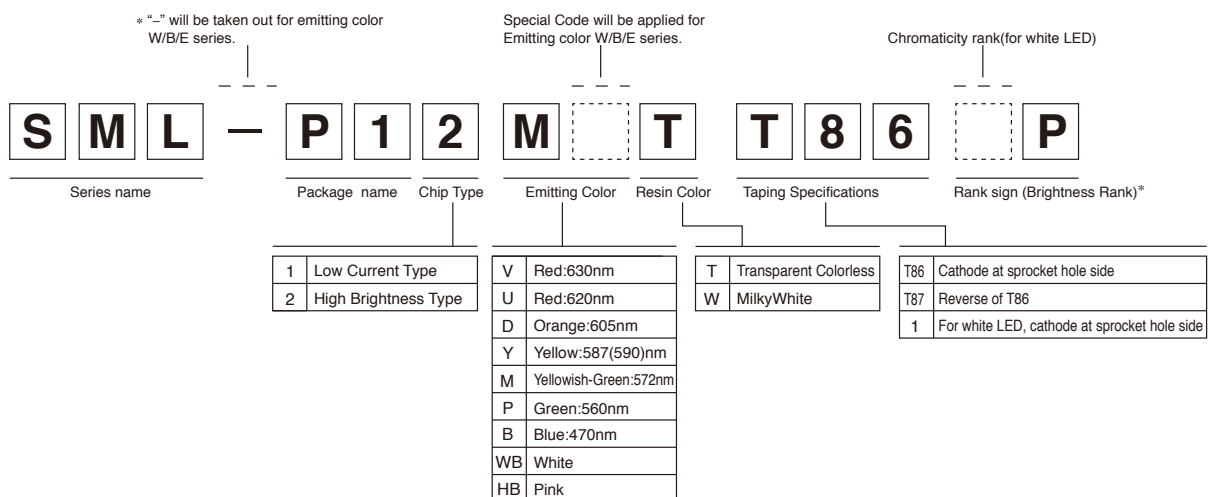
Pink (HB)

(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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