

# 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> Min.*2 (nm)	Typ. (nm)	Max.*2 (nm)	I <sub>F</sub> (mA)	Luminous Intensity I <sub>v</sub> Min. (mcd)	Typ. (mcd)	I <sub>F</sub> (mA)
■ 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	1	3.6	
■ SML-P11UT													616	621	626		1.6	5.5	
■ SML-P11DT	AlGaInP on GaAs	Orange	52	20	100 <sup>*1</sup>	5	-40 to +85	-40 to +100	1.9	1	10	4	602	605	608	1	2.5	7.3	1
■ SML-P11YT		Yellow											583	586	589		7.6		
■ SML-P11MT		Yellowish Green											566	569	572		0.63	2.1	

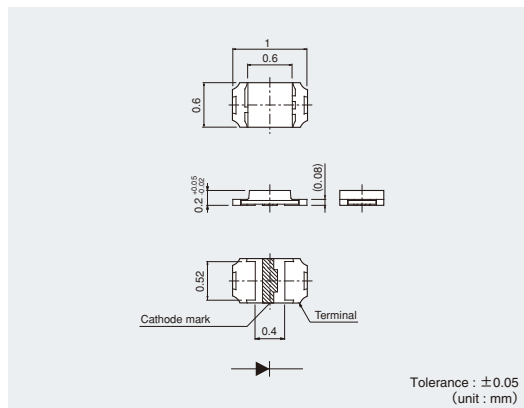
\*1:Duty1/10, 1kHz \*2:Reference

#### PICOLED™

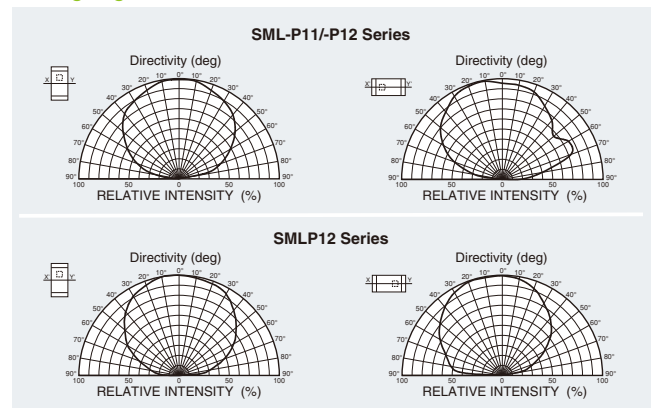
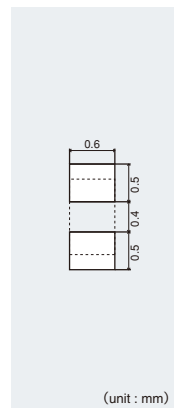
Part No.	Chip Structure	Emitting Color	Absolute Maximum Ratings (Ta=25°C)					Electrical and Optical Characteristics (Ta=25°C)											
			Power Dissipation P <sub>D</sub> (mW)	Forward Current I <sub>F</sub> (mA)	Peak Forward Current I <sub>FP</sub> (mA)	Reverse Voltage V <sub>R</sub> (V)	Operating 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> Min.*2 (nm)	Typ. (nm)	Max.*2 (nm)	I <sub>F</sub> (mA)	Luminous Intensity I <sub>v</sub> Min. (mcd)	Typ. (mcd)	I <sub>F</sub> (mA)
■ 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	25	60	
■ SML-P12UT													615	620	625		85		
■ SML-P12DT	AlGaInP on GaAs	Orange	52	20	100 <sup>*1</sup>	5	-40 to +85	-40 to +100	2.1	20	100	4	602	605	608	20	40	100	20
■ SML-P12YT		Yellow											587	590	593		130		
■ SML-P12MT		Yellowish Green											569	572	575		10	35	
■ SML-P12PT		Green	54	20	100 <sup>*1</sup>	5	-40 to +85	-40 to +100	2.2				557	560	563		4.0	13	
■ SMLP12BC7T	InGaN	Blue	66	20	100 <sup>*1</sup>	5	-40 to +85	-40 to +100	2.9	5	10	5	465	470	475	5	5.6	17	
□ SMLP12WBC7W		White											(x, y) (0.30, 0.30)	36	71		5		
■ SMLP12HBC7W		Pink											(x, y) (0.23, 0.10)	14	22				

\*1:Duty1/10, 1kHz \*2:Reference

### Dimensions



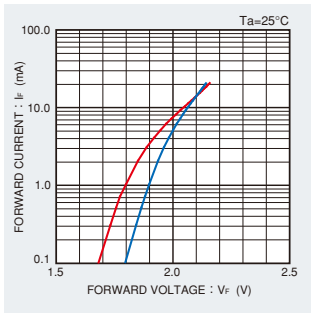
### Recommended Solder Pattern Viewing Angle



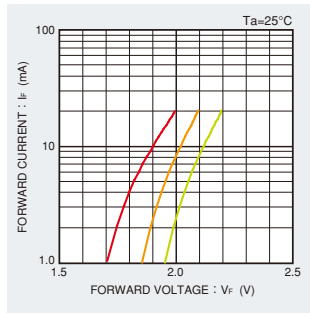
\* PICOLED™ is ROHM's pending trademark.

Electrical Characteristics Curves

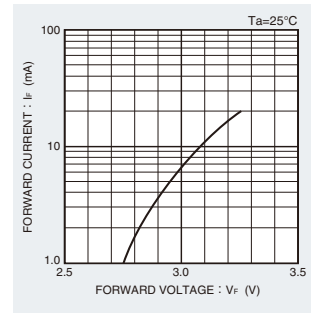
Forward Current-Forward Voltage



- SML-P11VT
- SML-P11UT
- SML-P11DT
- SML-P11YT
- SML-P11MT

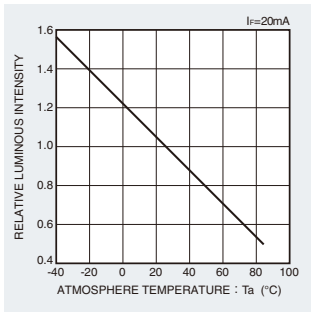


- SML-P12VT
- SML-P12UT
- SML-P12DT
- SML-P12YT
- SML-P12MT
- SML-P12PT

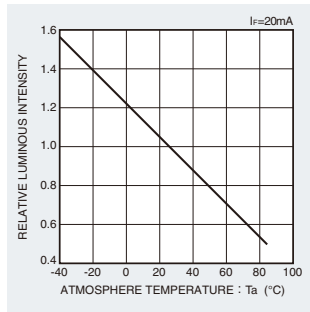


- SMLP12BC7T
- SMLP12WBC7W
- SMLP12HBC7W

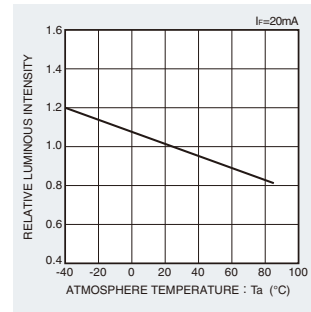
Luminous Intensity-Atmosphere Temperature



- SML-P11VT
- SML-P11UT
- SML-P11DT
- SML-P11YT
- SML-P11MT

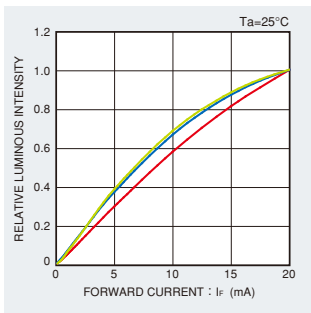


- SML-P12VT
- SML-P12UT
- SML-P12DT
- SML-P12YT
- SML-P12MT
- SML-P12PT

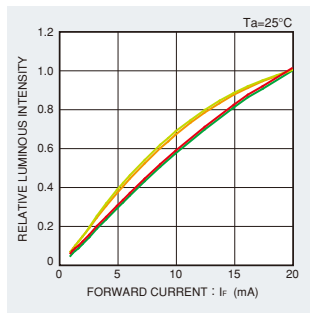


- SMLP12BC7T
- SMLP12WBC7W
- SMLP12HBC7W

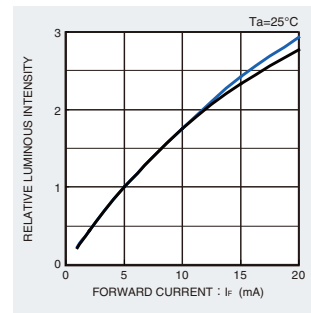
Luminous Intensity-Forward Current



- SML-P11VT
- SML-P11UT
- SML-P11DT
- SML-P11YT
- SML-P11MT

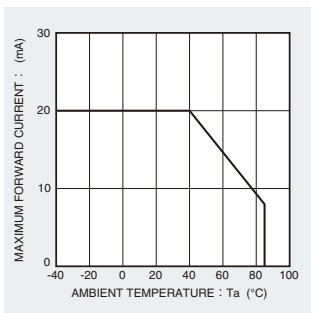


- SML-P12VT
- SML-P12UT
- SML-P12DT
- SML-P12YT
- SML-P12MT
- SML-P12PT

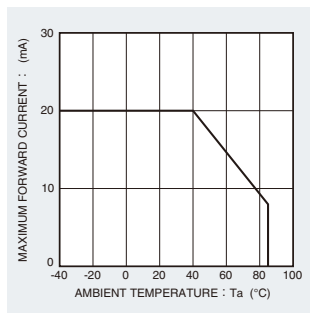


- SMLP12BC7T
- SMLP12WBC7W
- SMLP12HBC7W

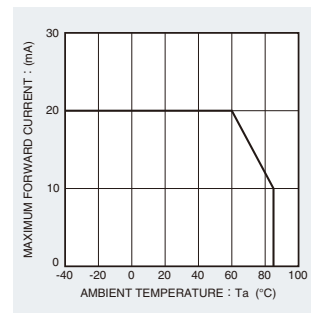
Derating



- SML-P11VT
- SML-P11UT
- SML-P11DT
- SML-P11YT
- SML-P11MT



- SML-P12VT
- SML-P12UT
- SML-P12DT
- SML-P12YT
- SML-P12MT
- SML-P12PT



- SMLP12BC7T
- SMLP12WBC7W
- SMLP12HBC7W

# 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					
			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										

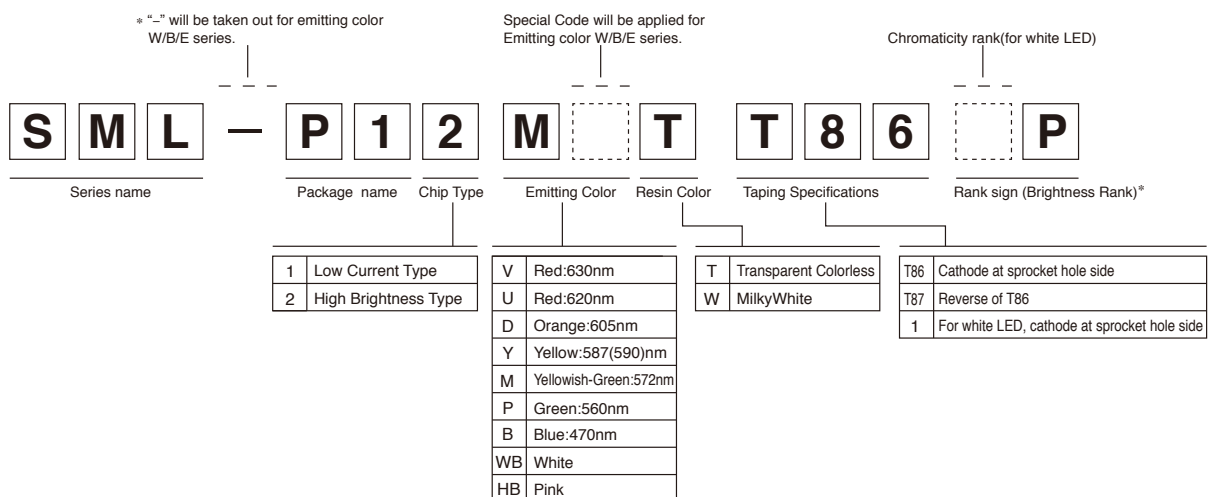
### Pink (HB)

(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.

## Notes

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