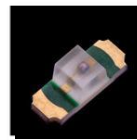
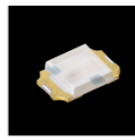
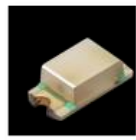


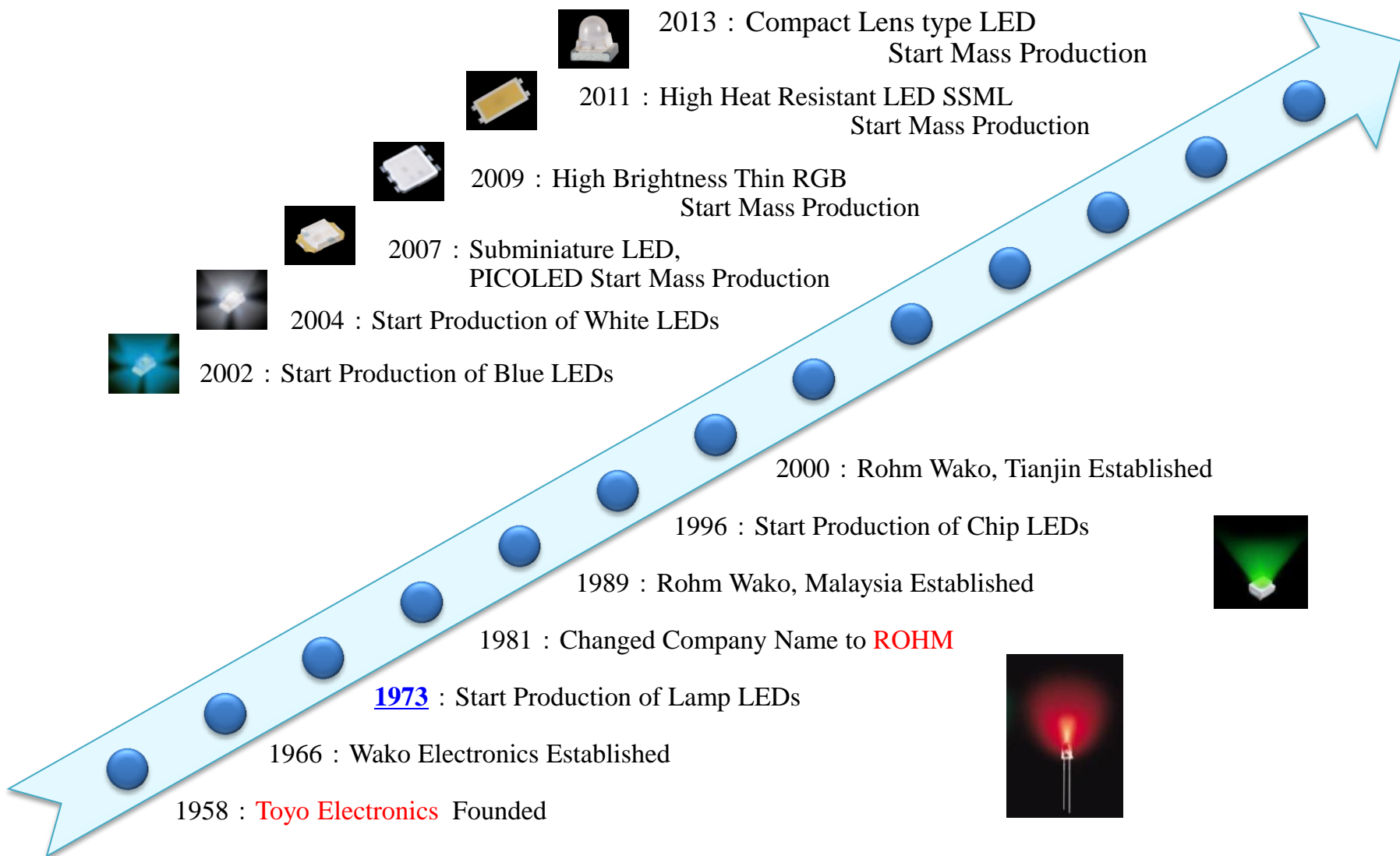
ROHM LED

Presentation



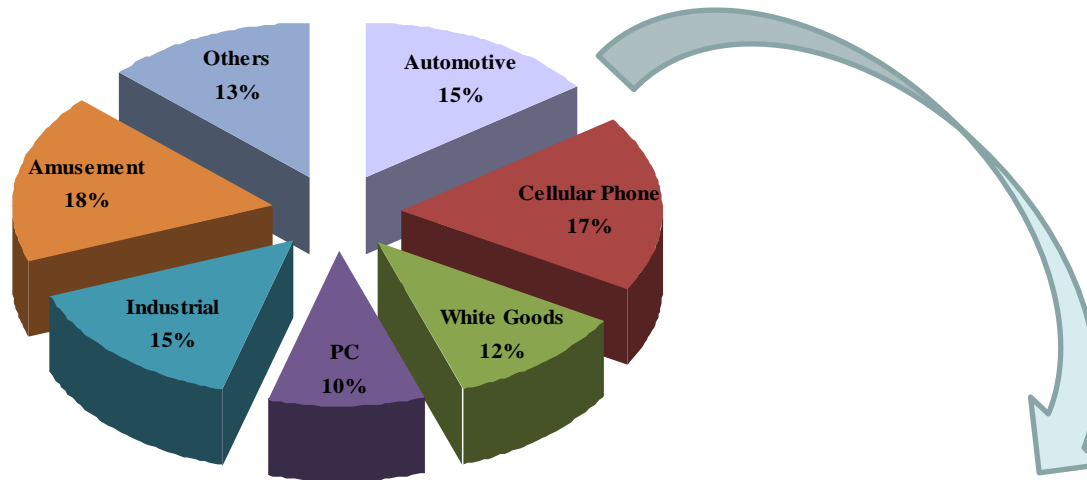
Rohm LED History



















1





Market Segment and Result



Application	Percentages	Customer
Cluster	10 %	   
Car Audio	50 %	     etc.
Car Navigation	15 %	      etc.
Switch and control	25 %	    etc.

*Data source: ROHM

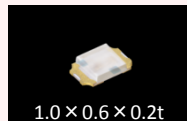
LED Package Lineup

4

Unit (mm)

Top view

PICOLED SML-P1 series



1.0 × 0.6 × 0.2t



EXCELED SML-E1 series



1.6 × 0.8 × 0.36t



EXCELED SML-D1 series



1.6 × 0.8 × 0.55t



SML-H1 series



2.0 × 1.25 × 0.8t



SML-M1 series



2.0 × 1.25 × 0.8t



PLCC SML-Z1 series



3.5 × 2.8 × 1.9t



SML-S1 series



3.2 × 1.6 × 1.85t



SML-81 series



3.4 × 1.25 × 1.1t



Higher Power (White)

PSML2 SMLK1 * series



4.5 × 2.0 × 0.6t



Side view

CSL04 series



2.8 × 1.2 × 0.8t



EXCELED SML-A1 series



1.6 × 1.15 × 0.55t



Multi color

EXCELED SML-52 series



1.3 × 1.5 × 0.6t



PICOLED-Duo SML-P24 series



1.0 × 1.0 × 0.2t



PICO-RGB SMLP34RGB



1.0 × 1.0 × 0.2t



PICO-RGB SMLP36RGB



1.5 × 1.0 × 0.2t



GC-RGB MSL0301/0401RGB



1.8 × 1.6 × 0.5t



SRGB2 SMLV56RGB



3.5 × 2.8 × 0.6t



SRGB-S MSL0101RGB

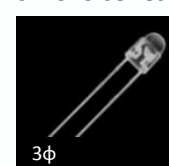


6.9 × 2.2 × 2.15t



Lamp

SLI-343 series



3φ



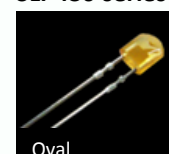
SLI-560 series



5φ



SLI-430 series

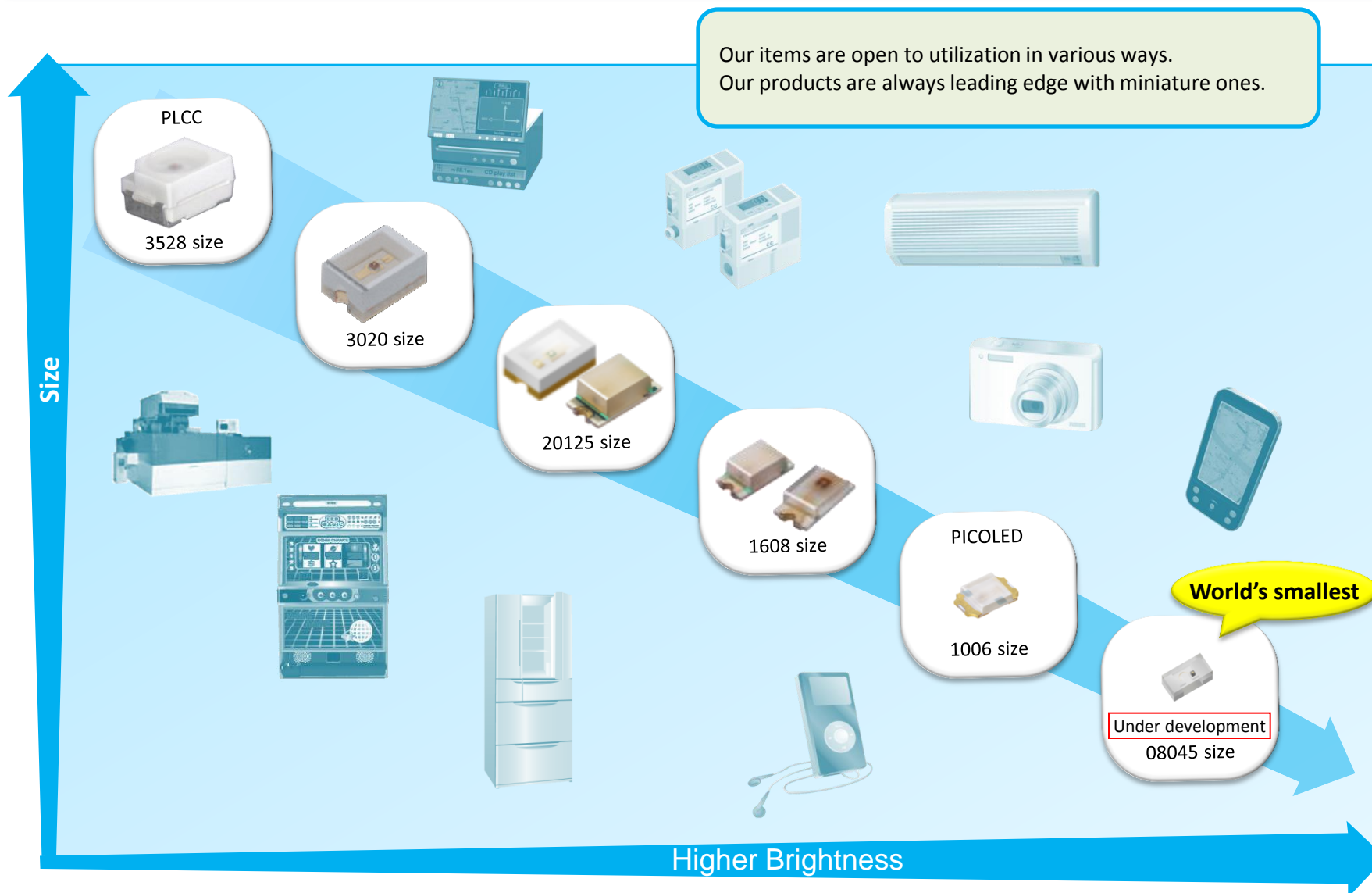


Oval



Miniaturization Package Trend

5

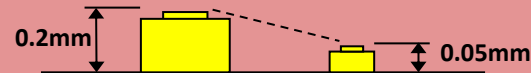


ROHM withholds both the device technology and assembly technology.

We will lead the market utilizing these technologies to develop small products.

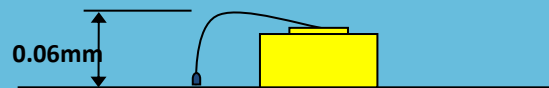
Device Technology

Miniaturization of LED dice



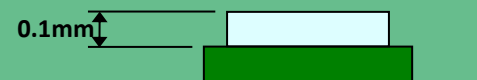
Assembly Technology

Low Profile Wire Bonding

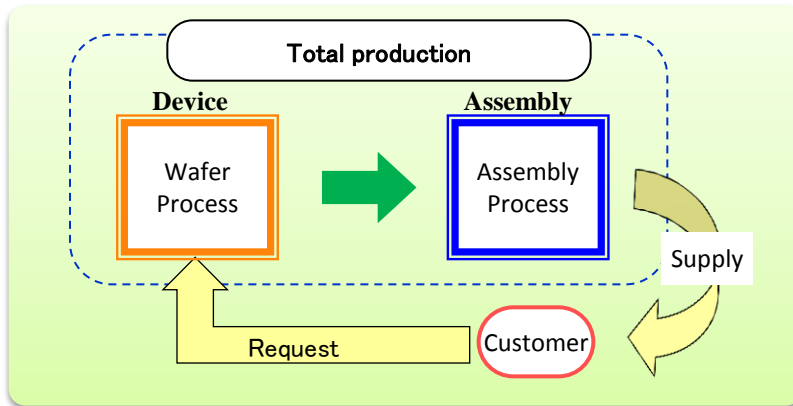


Mold Technology

Super Low Molding



■ Aiming the target color and brightness

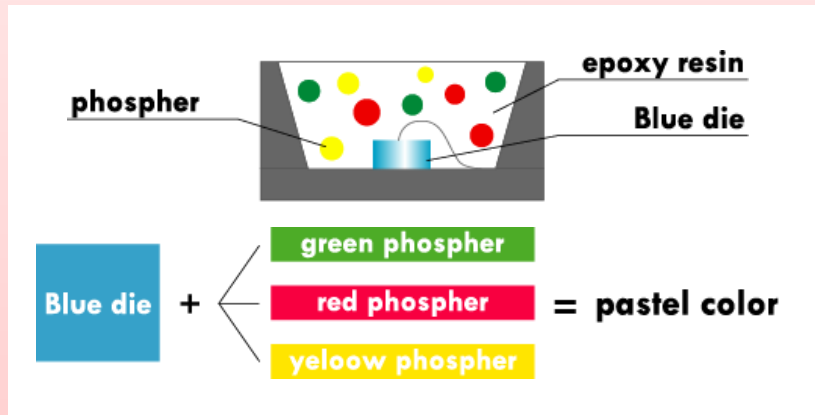


We aim the brightness and the color from the wafer process, check the results in the assembly process, then supply to our customers.

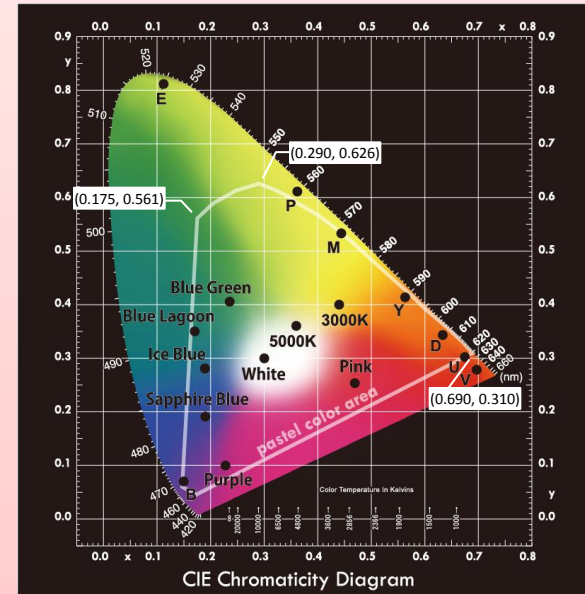


In-firm developed device made it possible to aim the wavelength at $\pm 2\text{nm}$ accuracy

■ Pastel Colors

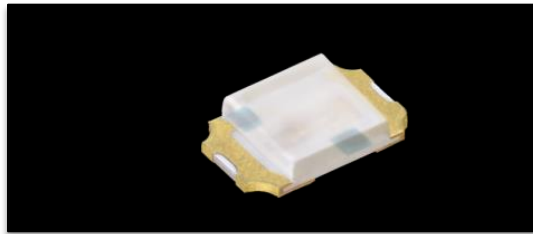


Various colors made possible by phosphor technology



Dramatically Compact and Thin!! PICOLED

8



Suitable for Mobile Equipments, Ultra compact 1006 size LED

SML-P1 series

1.0 × 0.6mm t=0.2mm

Color Line-up



Application

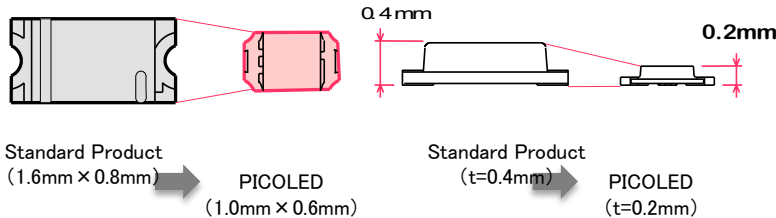
- Cellular phone
- Mobile Equipments etc



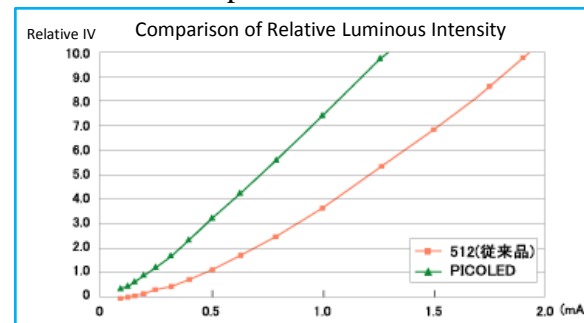
■ Ultra compact and thin! (1.0 × 0.6mm t=0.2mm)

Mount area reduced
by 53%

Height reduced
by 50%



■ Low consumption LED PICOLED-eco (SML-P11 series)



Specification guaranteed
at low current!

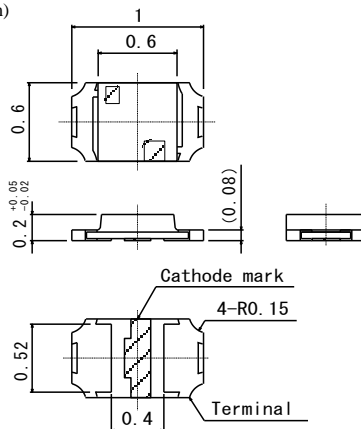
Suitable for battery driven
applications.

■ Electrical Characteristics

Part No.	Color	IF(mA)	VF(V)	λD(nm)	IV(mcd)
SML-P11VT(R)	Red	1	1.9	626	3.6
SML-P11UT(R)			1.8	621	5.5
SML-P11DT(R)	Orange	1	1.9	605	7.3
SML-P11YT(R)	Yellow			586	7.6
SML-P11MT(R)	Yellowish Green			569	2.1
SML-P12VT(R)	Red	20	2.0	630	60
SML-P12UT(R)				620	85
SML-P12DT(R)	Orange		2.1	605	100
SML-P12YT(R)	Yellow			590	130
SML-P12MT(R)	Yellowish Green		2.2	572	35
SML-P12PT(R)	Pure Green			560	13
SMLP13EC8T	Bluish Green	5	3.0	527	110
SMLP13BC8T	Blue			465	25
SCMP13WBC8W	White		2.9	(0.3, 0.3)	150

The luminous intensity is
improved drastically up
by developing high
luminance LED die.
(SMLP13 series)

■ Dimensions Unit(mm)



Surface mount LED SML-D1 series

9



Standard surface mount LED. Large production quantity, stable delivery.

SML-D1 series

1.6 × 0.8mm t=0.55mm

Color Line-up

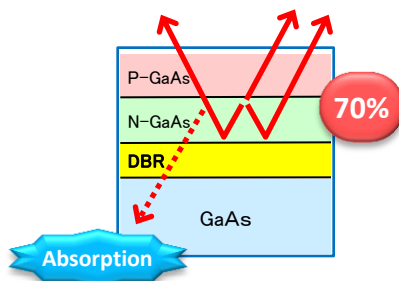


Application

- General Consumer
- Mobile
- Automotives etc



■ High Brightness EXCELED Series



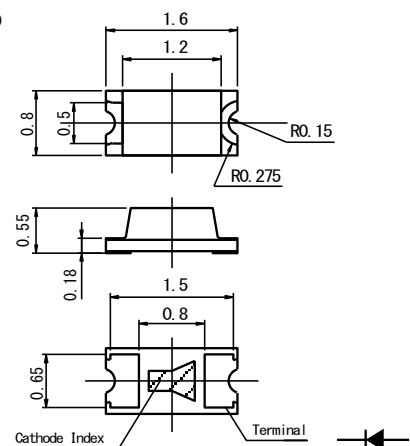
EXCELED series are loaded with reflection layer in between the base and the upper layer, which improves the light extraction efficacy to accomplish high brightness LEDs.

■ Expansion of lineups according to various color requests

Past Expansions	V-Red	M-Red	B-Orange	N-Orange	P-Orange	G-Yellow	Lemon Yellow	Greenish White	S-Green
Dominant wavelength(λ_D)	631nm	615nm	606nm	605nm	603nm	590nm	581nm	564nm	560nm

Since the 4 elements dice are developed inside the firm, we are able to aim the target emission color from the wafer process.

■ Dimensions Unit(mm)



■ Electrical Characteristics

IF=20mA

Color	Dominant Wavelength (nm)	Luminous Intensity(mcd)			
		SML-D12 * 8W	SML-D13(A)	SML-D14(A)	DML-D15(A) Developing
V	630	40 mcd	55 mcd	100 mcd	140 mcd
U	620	63 mcd	85 mcd	120 mcd	140 mcd
D	605	100 mcd	120 mcd	200 mcd	224 mcd
Y	590	63 mcd	-	200 mcd	224 mcd
M	572	25 mcd	45 mcd	60 mcd	71 mcd
P	560	6.3 mcd	-	-	22.4 mcd

* The products are under development thus the specification might change without notifications

Compact LED with Reflector SML- M1 series

10



Ultra small package 1608 size and 20125 size, 2 available packages

SML-M1 series

2.0 × 1.25mm t=0.8mm

Color Line-up



Application

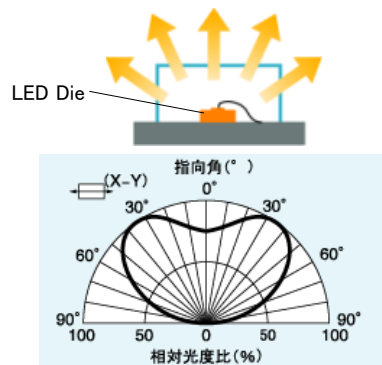
- Automotives (Car Audio)
- White Goods

etc



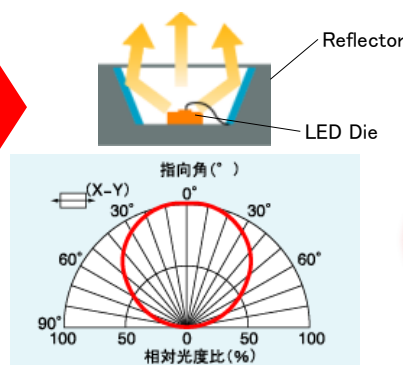
■ 1.5 Times Higher Luminance

【Mold type】



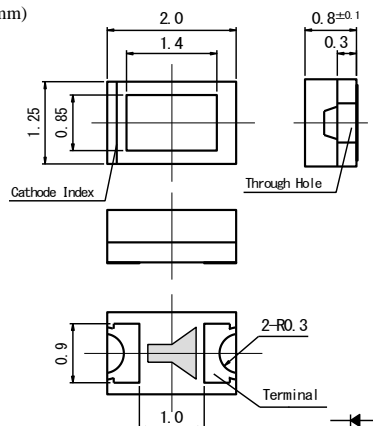
【Reflector type】

High brightness
1.5times



Same solder pattern
Higher brightness

■ Dimensions Unit(mm)

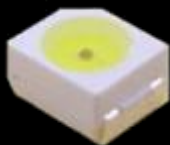


■ Electrical Characteristics

Part No.	Color	VF(V)	λD(nm)	光度(mcd)	IF(mA)
SML-M13VT	Red	2.0	630	75	20
SML-M13UT			620	120	
SML-M13DT			605	200	
SML-M13YT	Yellow	2.2	590	160	
SML-M13MT	Yellowish Green		572	45	
SML-M13PT	Pure Green		560	10	

* The products are under development thus the specification might change without notifications

SML-Z1 series (PLCC2)



High luminosity type is added to existing products in Standard PLCC package.

SMLZ1 series

3.5 × 2.8mm t=1.9mm

Color Line-up

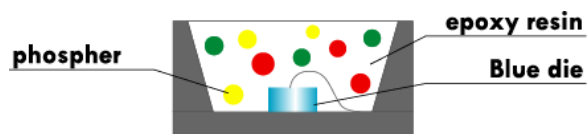


Application

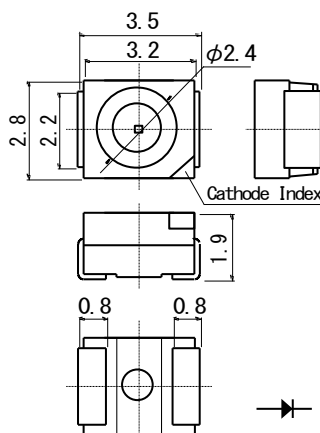
- General Consumer
- Automotive
- etc







■ Various colors made possible by phosphor technology (custom)



■ Dimensions Unit(mm)



■ Electrical Characteristics

Part No.	Color	IF(mA)	VF(V)	$\lambda_D(\text{nm})/(\bar{x}, \bar{y})$	IV(cd)
 SMLZ14EGT(A)	Bluish Green	20	3.4	528	0.11
 SMLZ14BGT(A)	Blue		3.3	470	0.28
 SMLZ14WBGCW(A)	White	20	3.3	(0.30, 0.28)	2.2
 SMLZ14WBGDW(A)				(0.34, 0.34)	1.8

☆: under development * The products are under development thus the specification might change without notifications

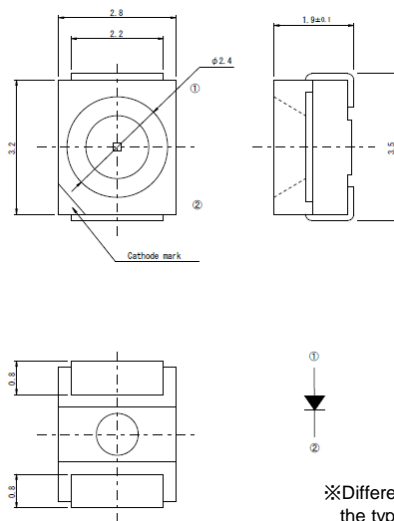
InGaN Pure Green

SML-Z1 series



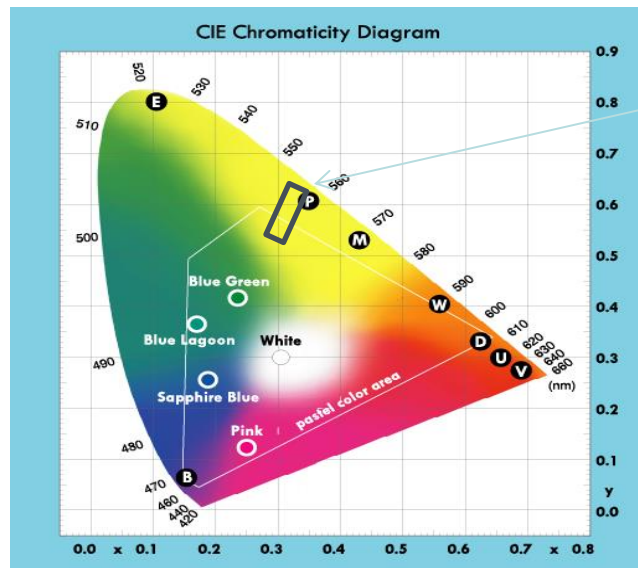
■ Dimensions

Unit(mm)



※Different according to the types of LED die.

Color is made for InGaN with Phosphors

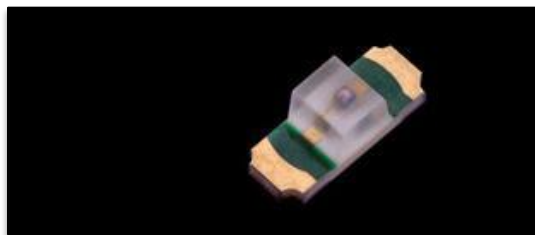


InGaN Pure Green

Part Name	IF(mA)	VF(V)	Color (x , y)	IV(mcd)
■ SMLZ12PBC8W	20	3.2	0.35, 0.57	360
■ SMLZ14PBFW			0.35, 0.57	1800

SML-Z14PT(A) AlGaInP

22.4mcd



White color appear in reverse mount available LED

SML-81 series

3.4 × 1.25mm t=1.1mm
(reverse mount available)

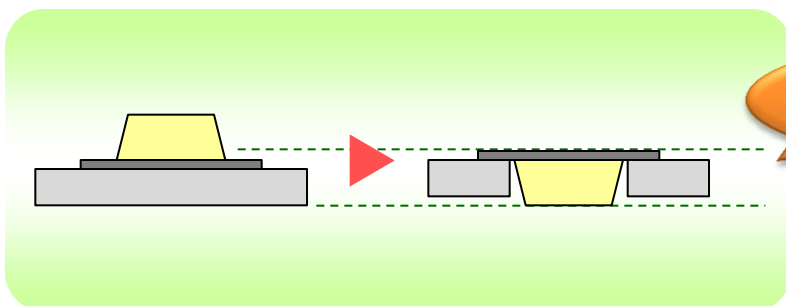
V U D Y M TR

Application

- General Consumer
- Automotives etc

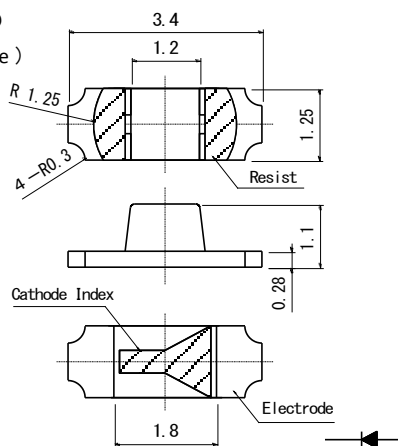


Availability of both reverse mounting and surface mounting



Contribute to save space
of mounting area

Dimensions Unit(mm) (reverse mount available)

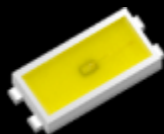


Electrical Characteristics

Part No.	Color	IF(mA)	VF(V)	λD(nm)	IV(mcd)
SML-811VT(A)	Red	10	1.95	630	22
SML-811UT(A)				620	22.4
SML-811DT(A)	Orange			605	
SML-811WT(A)	Yellow			590	28
SML-812MT	Yellowish Green	20	2.1	572	40

* The products are under development thus the specification might change without notifications

SMLK18/K28 series



(PSML2)

High current type of high heat radiation package newly added to the PSML2 lineups.

SMLK18/K28 series

 $4.5 \times 2.0\text{mm}$ $t=0.6\text{mm}$

(PSML2)

Color Line-up

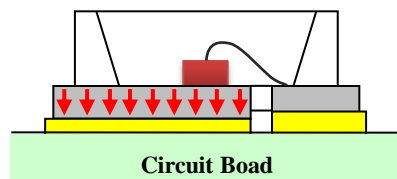
WB

Application

- Lightings
- TV, Note PC (Backlight)
- Mobile light (KA8) etc

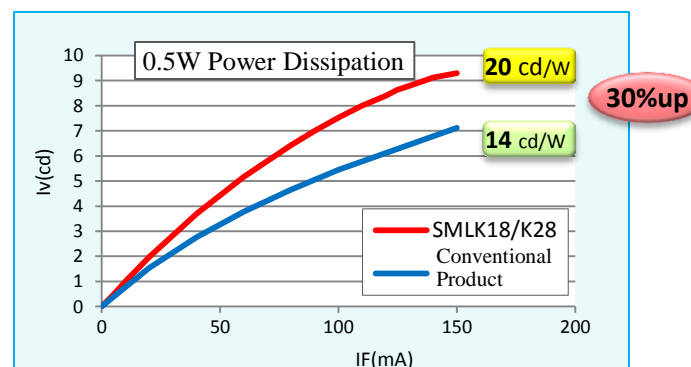


■ Rohm original high heat dissipation package



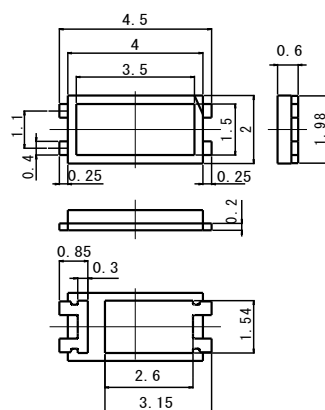
The heat originating from the LED die is dissipated directly to the circuit board by flat frame structure.

■ Luminous intensity – Forward current characteristics

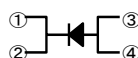


■ Dimensions Unit(mm)

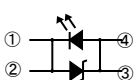
(PSML2)



SMLK18WBJCW



SMLK28WBJCW



■ Electrical Characteristics

Part No.		IF(mA)	Chromaticity (x,y)	Luminous Intensity(cd)	Luminous Flux(lm)
PSML2	SMLK18WBJAW	90	(0.345, 0.351)	4.8	17
	SMLK18WBJBW		(0.44, 0.40)	4.5	16
	SMLK18WBJCW		(0.30, 0.28)	5.9	21
	SMLK18WBJDW		(0.34, 0.34)	6.0	22
	SMLK28WBJCW*	90	(0.30, 0.28)	5.9	21

* Zener Diode built in

* The products are under development thus the specification might change without notifications



Heat radiation technology applied to side view type

CSL04 series

2.8 × 1.2 t=0.8mm

Color Line-up

WB

Application

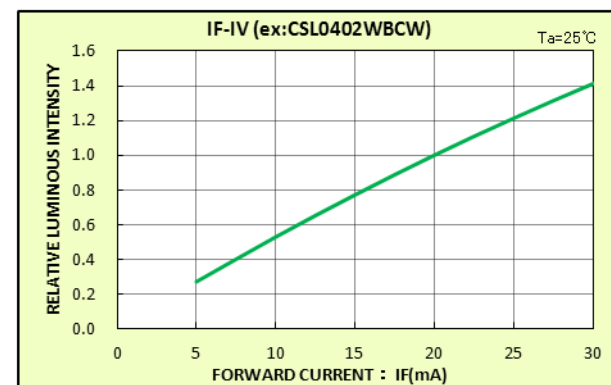
- Car Navigation
- Portable Equipments
- Scanner etc



■ Thin package of only 0.6mm



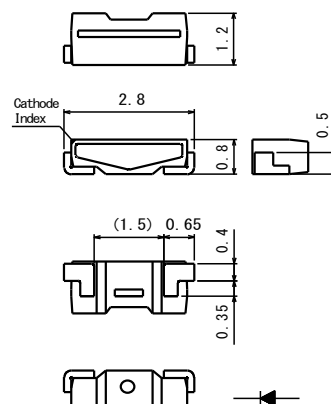
■ High Luminous Efficiency



Thinner package but high brightness

■ Dimensions Unit(mm)

CSL04 series



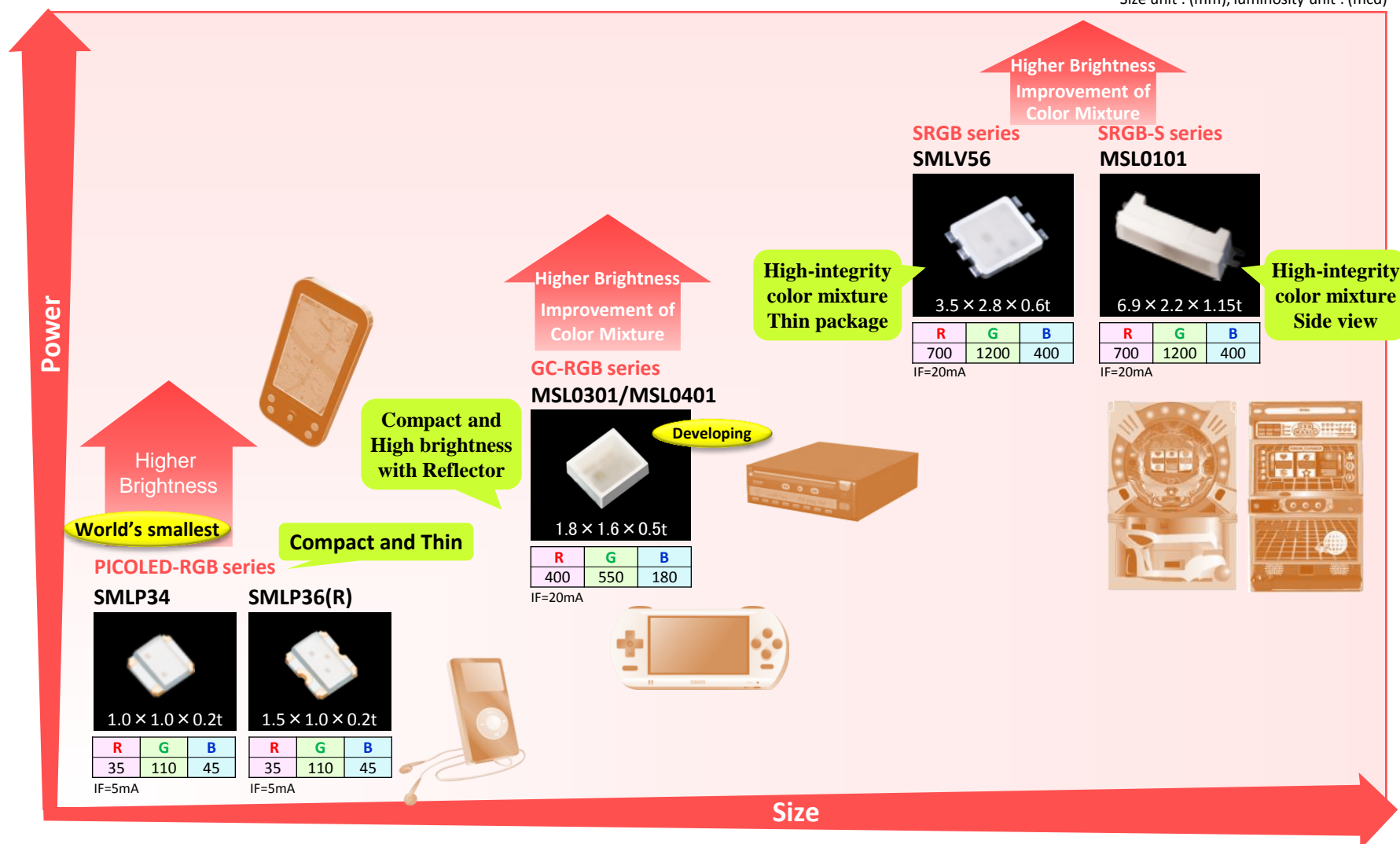
■ Electrical Characteristics

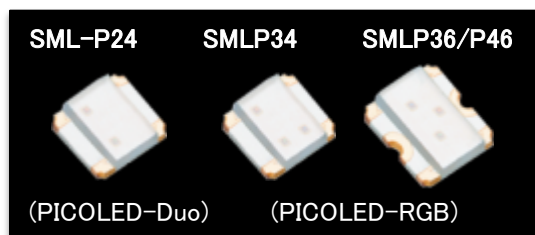
Part No.	IF(mA)	VF(V)	Luminous Intensity(cd)	Chromaticity (x,y)
CSL0406WBCW	20	3.2	2.2	(0.30, 0.28)

* The products are under development thus the specification might change without notifications

Broad package lineup available.

Size unit : (mm), luminosity unit : (mcd)





Double, triple, four color types, and high brightness types of ultra compact PICOLED series!

SML-P24

1.0 × 1.0mm
t=0.2mm
Color Line-up

M U

SMLP34

1.0 × 1.0mm
t=0.2mm

R G B

SMLP36 (R)

1.5 × 1.0mm
t=0.2mm

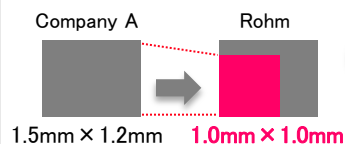
R G B

Application

- Cellular phone
- Mobile Equipments etc



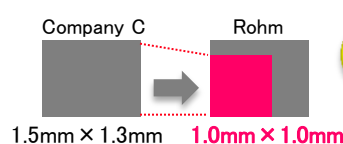
■ Smallest and thinnest double color type,
Volume is reduced 89% !



Mount area
reduced by 45%



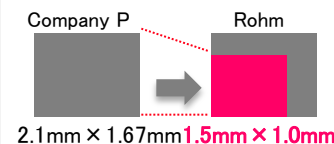
■ Smallest, thinnest 3 in 1 (4pin),
Volume is reduced 83% !



Mount area
reduced by 49%



■ Smallest, thinnest 3 in 1 (6pin),
Volume is reduced 79% !

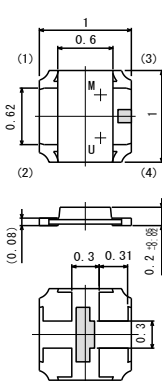


Mount area
reduced by 57%

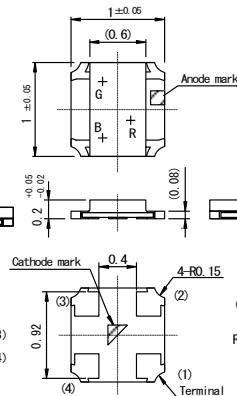


■ Dimensions Unit(mm)

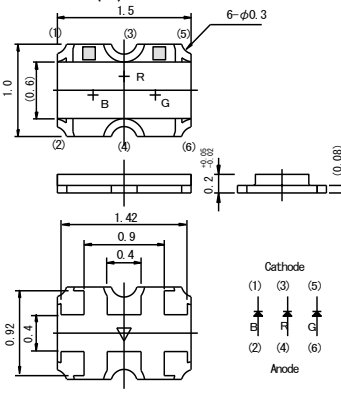
SML-P24



SMLP34



SMLP36 (R)



Four color types, and high brightness types of ultra compact PICOLED series

■ Electrical characteristics

Part No.	IF	Color		
		R(U)	G(M)	B
SML-P24MUW(R)	20mA	(52)	(21)	—
SMLP34RGB2W	5mA	35	110	45
SMLP36RGB2W(R)				

SMLV56RGB



(SRGB2)

More vivid color made possible by new package, high brightness & thin RGB LED!

SMLV56RGB1W, 1U

3.5 × 2.8mm t=0.6mm

Color Line-up

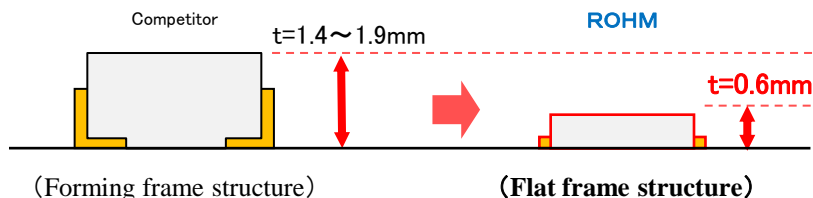


Application

- Car audio
- Amusement
- Indicator
- Outdoor message board etc



■ Thin package of only 0.6mm



■ Thin package of only 0.6mm

When distance is short

When distance is long



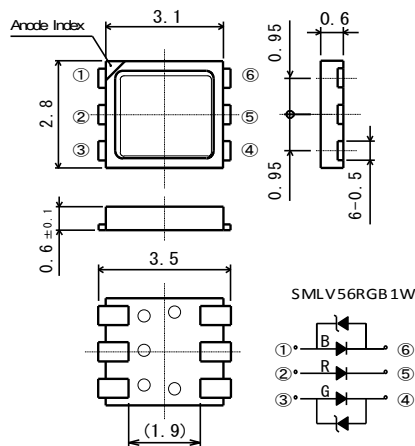
Thinner Package



- Unevenly lighted surface
- LED could be seen from outside

- Enables evenly lighted surface
- Prevents the LED from being seen from outside

■ Dimensions
Unit(mm)



■ Electrical Characteristics

Part No.	Resin	Color	IF(mA)	VF(V)	Iv(mcd)	λD(nm)
SMLV56RGB1W	Epoxy	R	20	2.1	700	624
		G		3.3	1200	527
SMLV56RGB1U	Silicon	B		3.3	400	470

* The products are under development thus the specification might change without notifications

MSL0101RGB



(SRGB-S)

High brightness side-view RGB LED

MSL0101RGB

6.9 × 2.15mm t=2.2mm

Color Line-up



Application

· Amusement etc

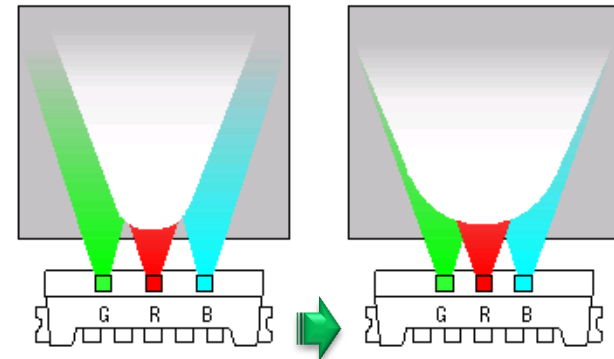


High brightness side-view RGB

Both top view, and side view type available.
Easy to match colors when used simultaneously.
suitable for applications using light guide plate.

Miniaturization Technology

Our Miniaturization technology enabled to shorten the distances between each LED die, thus improving the color mixture to express more beautiful colors.

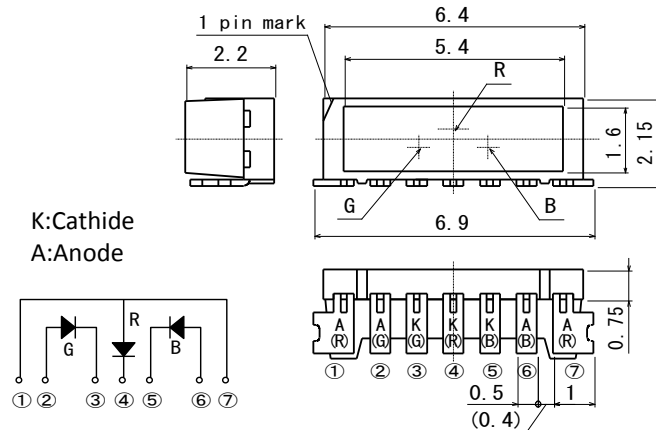


Electrical Characteristics

Part No.	Color	Luminous Intensity(mcd)	IF (mA)	VF (V)	Dominant Wavelength(nm)
MSL0101RGBU	R	700	20	2.1	624
	G	1200		3.3	527
	B	400		3.2	470

* The products are under development thus the specification might change without notifications

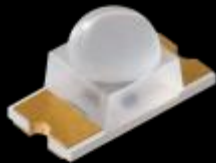
Dimensions Unit(mm)



Surface Mount Lens LED SML-S1 series

NEW

SML-S1 series



High brightness and high precision with lens

SML-S1 series

3.2 × 1.6mm t=1.85mm (reverse mount available)

Color Line-up

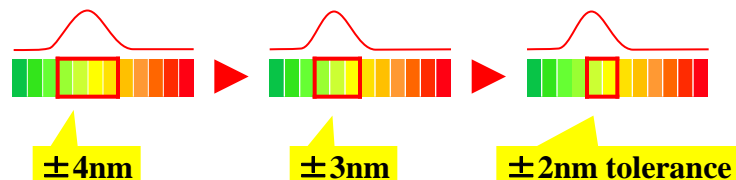


Application

- General Consumer
- Automotive
- Display etc

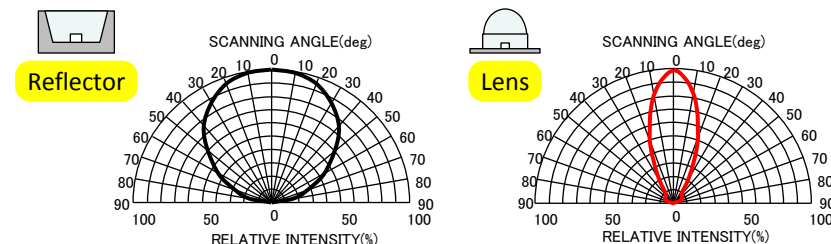


■ Improve the precision of color aiming



We can adjust your request color.

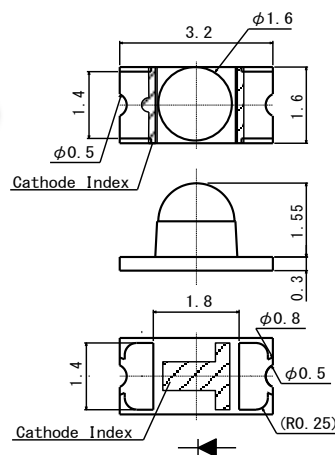
■ High Brightness by condensing lens.



High beam angle, High brightness,
higher than the reflector package.

■ Dimensions Unit(mm)

Reverse mount
available



■ Electrical Characteristics

Part No.	Color	λ_D (nm)	IF(mA)	VF(V)	Iv(mcd)
■ SML-S13VT	Red	630	20	1.9	450
■ SML-S13UT	Red	620			700
■ SML-S13DT	Orange	605			1400
■ SML-S13YT	Yellow	590		2.0	1400
■ SML-S13MT	Yellowish Green	572			400
■ SMLS14EET	Bluish Green	527		3.2	3000
■ SMLS14BET	Blue	470			800

* The products are under development thus the specification might change without notifications

SLI-343 series
SLR343 series



Pressure-release Structure
Direct mounting
(Indicator)

V U D Y M P E B WB

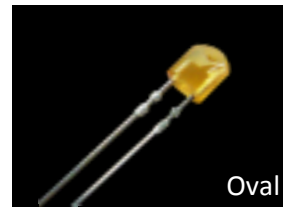
SLI-560/SLI-580 series
SLA560/SLA580 series



High brightness type
(Indicator, signal)

U D Y E B WB

SLI-430 series



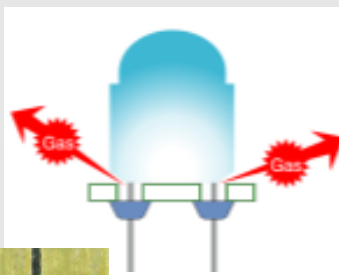
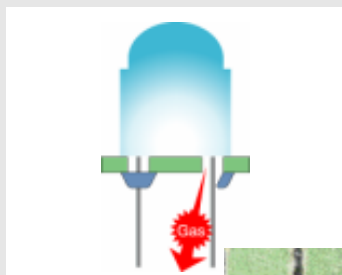
Wide viewing angle
Oval type
(Outdoor message board)

U D Y M B WB

Pressure-release Structure (SLI-343 / SLR343 series)

Rohm's Pressure-release structure

Provide the gas leak way, which avoid that
"blow-holes" is avoided and the soldering
is securely done !



"Blow-hole" take
place when the LEDs
are mounted on the
board without gap.



(From the aspect of solder)



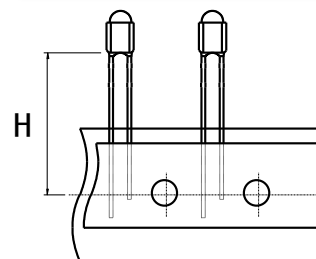
※Japanese Patent #3126210

Solving of
problem !

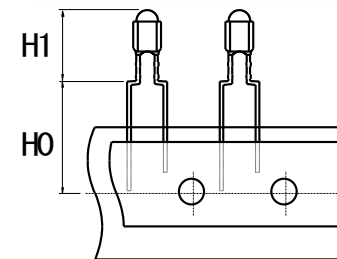
No blow-hole !!

【Taping】

Straight taping



Forming taping



Straight taping		T31	T32
H	SLI-343/SLR343	18.0	21.5
	SLI-560/SLA560	-	21.5
	SLI-580/SLA580	-	21.5
	SLI-430	-	21.5

(Unit: mm)

Forming taping		TB7	TC7	TE7	TF7	TG7	TH7	TJ7
H1	SLI-343/SLR343	9.1	10.1	12.1	13.1	14.1	15.1	16.1
	SLI-560/SLA560	11.2	-	14.2	15.2	-	-	-
	SLI-580/SLA580	12.2	-	15.2	16.2	-	-	-
	SLI-430	8.7	-	-	12.7	-	-	-
H0		16.0	16.0	16.0	16.0	16.0	16.0	16.0

* The products are under development thus the specification might change without notifications

Introduction of ROHM LED

by Applications



Illumination

PICOLED



SML-P1 (R) series
1.0 × 0.6 0.2t mm

V U D Y M P E B WB

EXCELED



SML-E1 series
1.6 × 0.8 0.36t mm

V U D Y M P E B WB

PICOLED-RGB



Triple color 4 pin
SMLP34RGB2W
1.0 × 1.0 0.2t mm



Triple color 6 pin
SMLP36RGB (R)
1.5 × 1.0 0.2t mm



GC-RGB

Developing



Triple color (4pin/6pin)
MSL0301RGB
/MSL0401RGB
1.8 × 1.6 0.5t mm



PICOLED-Duo



Dual color
SML-P24 (R) series
1.0 × 1.0 0.2t mm



Side view

Developing



CSL04 series
2.8 × 1.2 0.8t mm

WB

■ The PICOLED series of a minimum in industry class is developed in ROHM. It is the best for a portable equipment etc. The lineup like RGB and the side view, etc. is abundant.



Proximity sensors

■ The infrared LED type is developed with the PICOLED series.



SCM-013RT
3.0 × 1.5 **2.2t mm**
IR **15mW/sr**



SML-S13RT
3.2 × 1.6 **1.6t mm**
IR **2.8mW/sr**



SML-M13RT
2.0 × 1.25 **0.8t mm**
IR **1.7mW/sr**

Auto Focus Adjustment LED

■ It gets it popular as an AF-assist beam source such as digital cameras.

Developing



CSL07 series
2.9 × 2.4 3.1t mm

U D

※There is a possibility of the specification change for the product while developing in the future.



Indicator (Lamp)

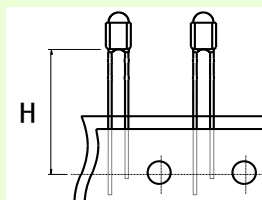


Lamp LED

SLI-343 series
SLR343 series

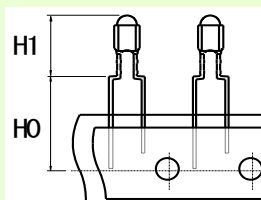
V U D Y M P E B WB

Various color, and various package available in lamp types.
Formed lead types are also available.



[Straight tapping]

	T31	T32
H	18.0	21.5



[Formed lead tapping] (SLI/SLR-343 series)

	TB7	TC7	TE7	TF7	TG7	TH7	TJ7
H1	9.1	10.1	12.1	13.1	14.1	15.1	16.1
H0	16.0	16.0	16.0	16.0	16.0	16.0	16.0

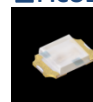
(Unit: mm)

Indicator (Surface mount)

Various package size available for industrial machines and IT machines.

[Mold type]

PICOLED



SML-P1 (R) series

1.0 × 0.6 0.2t mm

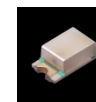
V U D Y M P E B WB



SML-E1 series

1.6 × 0.8 0.36t mm

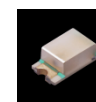
V U D Y M P E B WB



SML-D1 series

1.6 × 0.8 0.55t mm

V U D Y M P



SML-H1 series

2.0 × 1.25 0.8t mm

V U D Y M P

[Reflector Type]



SML-M1 series

2.0 × 1.25 0.8t mm

V U D Y M



SML-Z1 series

3.5 × 2.8 1.9t mm

V U D Y M P E B WB

[Side view type]

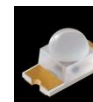


SML-A1 series

1.6 × 1.15 0.55t mm

V U D Y M E B WB

[With lens type]



SML-S1 series

3.2 × 1.6 1.85tmm

V U D Y M E B R



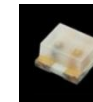
CSL07 series

2.9 × 2.4 3.1t mm

U D

Developing

[Multi color type]



SML-S2 series

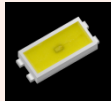
1.3 × 1.5 0.6t mm

Dual color



※There is a possibility of the specification change for the product while developing in the future.

[High luminance white LED]



SMLK18WBJCW
4.5 × 2.0 0.6t mm

WB



SMLZ14WBG CW(A)
3.5 × 2.8 1.9t mm

WB

Part No.	IF(mA)	VF(V)	Iv / φv
SMLK18WBJCW	90	3.9	5.9 cd
SMLK28WBJCW			
SMLZ14WBG CW(A)	20	3.2	2.2 cd



[Highest class in industry ultra-high luminance RGB type]



SMLV56RGB series
3.5 × 2.8 × 0.6t mm
High brightness Triple color



MSL0101RGB series
6.9 × 2.2 × 2.15t mm
High brightness Side-view Triple color



item	sign	R	G	B	unit
condition		IF=20mA			—
Forward Voltage	VF	2.1	3.3	3.2	V
Luminous Intensity	IV	700	1400	400	mcd
Dominant Wavelength	λD	624	527	470	nm

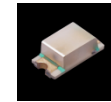
Chip LED

[Mold type]



SML-E1 series
1.6 × 0.8 0.36t mm

V U D Y M P E B WB



SML-D1 series
1.6 × 0.8 0.55t mm

V U D Y M P

[Reflector type]



SML-M1 series
2.0 × 1.25 0.8t mm

V U D Y M



SML-Z1 series
3.5 × 2.8 1.9t mm

V U D Y M P E B WB

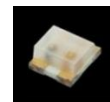
[With lens type] Developing



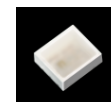
CSL07 series
2.9 × 2.4 3.1t mm

U D

[Multi color type]



SML-52 series
1.3 × 1.5 0.6t mm
Dual color



MSL0301/0401RGB
1.8 × 1.6 0.5t mm
Triple color



Lamp LED

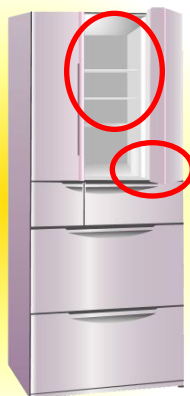


SLI-343 series
SLR343 series
φ3

V U D Y M P E B WB



※There is a possibility of the specification change for the product while developing in the future.

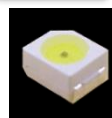


Lighting in refrigerator

LCD backlight

Lighting in refrigerator • LCD backlight

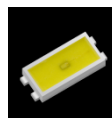
Chip LED



SMLZ14WBG CW(A)

3.5 × 2.8 1.9t mm
Color line-up (SML-Z1 series)

V U D Y M P E B WB

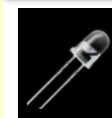


SMLK18WBJ CW

4.5 × 2.0 0.6t mm
Color line-up (SMLK1 series)

WB

Lamp LED



SLA560WBD2PT

φ5
Color line-up (SLA560/SLI-560 series)

V D Y M B WB



SLD430WBD2PT

φ4 楕円
Color line-up (SLD430/SLI-430 series)

U D Y M B WB

Indicator • 7 seg display • Mono color B/L

Chip LED

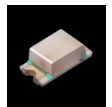
[Mold type]



SML-E1 series

1.6 × 0.8 0.36t mm

V U D Y M P E B WB



SML-D1 series

1.6 × 0.8 0.55t mm

V U D Y M P



SML-H1 series

2.0 × 1.28 0.8t mm

V U D Y M P



SML-81 series

3.4 × 1.25 1.1tmm
Reverse mount available

V U D W M

[Reflector Type]

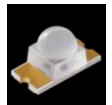


SML-M1 series

2.0 × 1.25 0.8t mm

V U D Y M

[With lens type]



SML-S1 series

3.2 × 1.6 1.85tmm
Reverse mount available

V U D Y M E B R

[Multi color type]



SMLV56RGB

3.5 × 2.8 0.6t mm
High brightness
Triple color

Developing



MSL0301/0401RGB

1.8 × 1.6 0.5t mm
Triple color

[Side view type]



SML-A1 series

1.6 × 1.15 0.55t mm

V U D Y M E B WB

Lamp LED



SLI-343 /SLR343 series

φ3

V U D Y M P E B WB



Function Indicator



※There is a possibility of the specification change for the product while developing in the future.

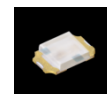
Dot matrix module.

Great contrast, visibility, and thin package.



1, 2, and 3(full color)emitting types available

■ Mono color



PICOLED

SMLP1 (R) series

1.0 × 0.6 0.2t mm

V U D Y M P E B WB

■ Dual color



PICOLED-Duo

SML-P24 (R) series

1.0 × 1.0 0.2t mm



■ Triple color



PICOLED-RGB 4 pin

SMLP34RGB2W

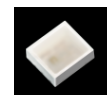
1.0 × 1.0 0.2t mm



PICOLED-RGB 6 pin

SMLP36RGB(R)

1.5 × 1.0 0.2t mm



GC-RGB 4 pin/6 pin

MSL0301/MSL0401RGBW

1.8 × 1.6 0.5t mm



SRGB2 High brightness

SMLV56RGB3U

3.5 × 2.8 0.6t mm



Developing

Suitable for a large-scale outdoor display

LED Lamps of enhanced lineups

■ 3φ



Direct Mount
SLI-343/SLR343
series(40°)

V U D Y M P E B WB

■ 5φ



Various Viewing Angles
SLI-560 series (40°)
SLA560 series (40°)
SLA580 series(10°)

V U D Y M P E B WB

■ Oval Lamp



Wide Viewing Angle
SLI-430 series
SLD430 series
(140°)

V U D Y M P E B WB

■ Surface Mount Lens LED



SML-S1 series
3.2 × 1.6 1.85tmm

V U D Y M P E B WB

Reverse mount
available



CSL07 series
2.9 × 2.5 3.1tmm

V U D

Developing

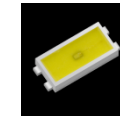
※(Viewing angle 2θ1/2)

※There is a possibility of the specification change for the product while developing in the future.



Back

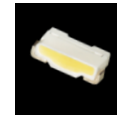
PSML series of low/middle current, higher luminous efficacy type, side view type added to the lineup.



PSML2 series

SMLK18 series

4.5 × 2.0 0.6t mm



CSL04 series

2.8 × 1.2 0.8t mm

Side view

Part No.	IF(mA)	VF(V)	Chromaticity coordinates (x, y)	Φv / Iv (lm / cd)
SMLK18WBJDW	90	3.9	(0.34, 0.34)	6.0 cd
CSL0402WBCW	20	3.2	(0.30, 0.28)	2.2 cd

Developing

Indications

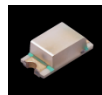
EXCELED



SML-E1 series

1.6 × 0.8 0.36t mm

V U D Y M P E B WB



SML-D1 series

1.6 × 0.8 0.55t mm

V U D Y M P

PICOLED-RGB

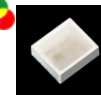


Triple color 4 pin
SMLP34RGB2W
1.0 × 1.0 0.2t mm



Triple color 6 pin
SMLP36RGB (R)
1.5 × 1.0 0.2t mm

GC-RGB



Triple color 4pin/6 pin
MSL0301RGB1
/MSL0401RGBU
1.8 × 1.6 0.5t mm

Developing

PICOLED-eco



SML-P11 (R) series

1.0 × 0.6 0.2t mm

V U D Y M P

Low power consumption
IF=1mA

PICOLED-Duo



Dual color
SML-P24 (R) series
1.0 × 1.0 0.2t mm



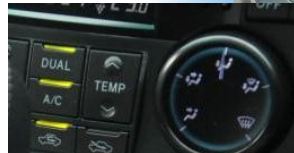
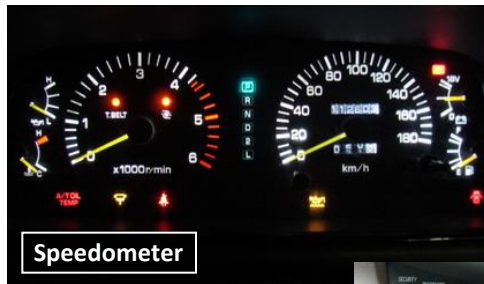
Dual color
SML-52 series
1.3 × 1.5 0.6t mm

SRGB2




High brightness Triple color
SMLV56RGB
3.5 × 2.8 0.6t mm

※There is a possibility of the specification change for the product while developing in the future.




Indicator (Red, Yellow, Yellowish green)

1.6 × 0.8 package Compact and high brightness


 1.6 × 0.8 t=0.55	SML-D14(C) series (IF=20mA) Developing	Color(nm)	630	605	590	571
		Iv (mcd)	100	200	200	60
	SML-D15(C) series (IF=20mA)	Color(nm)	630	605	590	571
		Iv (mcd)	140	224	224	71

(Blue and white)

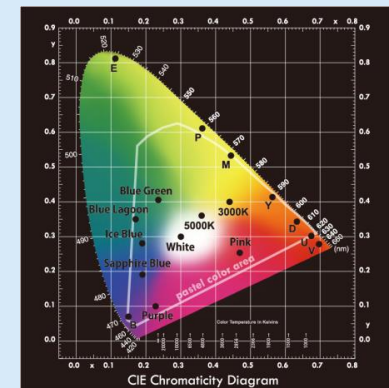
 3.5 × 2.8 t=1.9	SMLZ14 series (IF=20mA)	Color(nm)	470	White
		Iv (mcd)	280	2,200

Illumination

2.0 × 1.25 package White and pastel color available

 2.0 × 1.25 t=0.8	SML-M13 series (IF=20mA)	Color(nm)	630	605	590	571	560
		Iv (mcd)	75	200	160	45	16

* : Special color s are negotiable



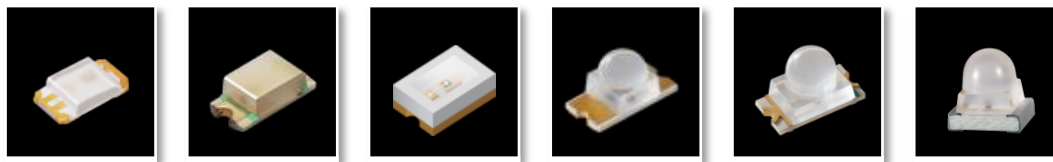
※There is a possibility of the specification change for the product while developing in the future.

Thank you very much

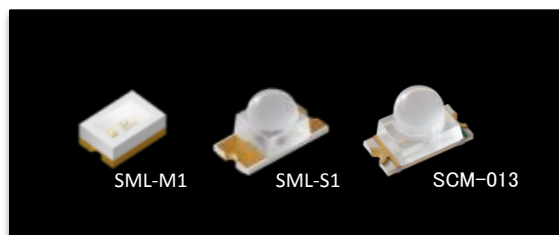


ROHM LED

Individual Products Presentation



— Infrared radiation ▪ Phototransistor —



Variety type of infrared LEDs line-up in compliance with the wishes.

SML-M1series **SML-S1series** **SCM-013series**

2.0 × 1.25mm t=0.8mm
3.2 × 1.6mm t=1.6mm (reverse mount available)
3.0 × 1.5mm t=2.2mm

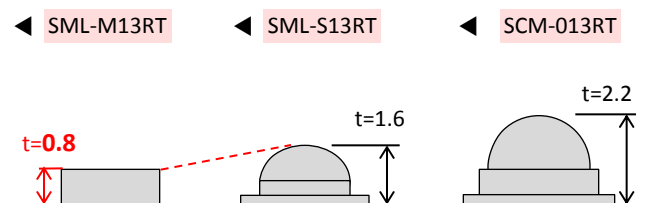
R

Application

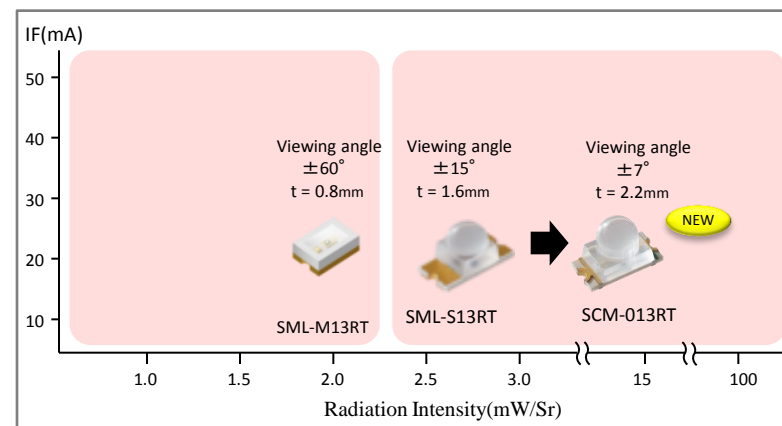
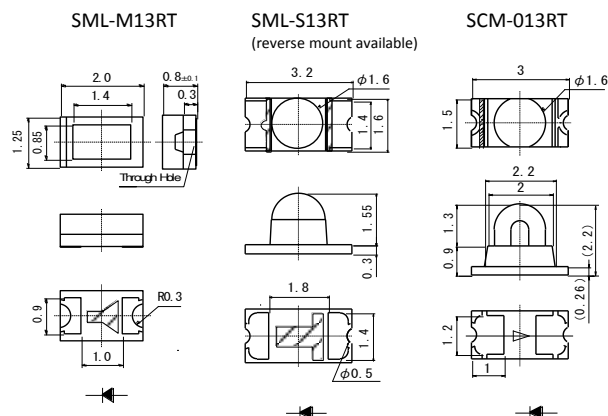
- DSC, Cellular phone
- Proximity sensor for smart phone
- Disc detector etc

Smaller and Thinner

〈Comparison of package〉



Dimensions Unit(mm)



Electrical Characteristics

Part No.	IF (mA)	VF(V)	IR max. (μA)	λP(nm)	IE(mW/sr)
SML-M13RT	20	1.4	10	870	1.7
SML-S13RT				850	2.8
SCM-013RT				850	2.0

★:Under development * The products are under development thus the specification might change without notifications

SML-810TB



Reverse Mount Available Photo-Transistor

SML-81 series

3.4 × 1.25mm t=1.1mm
(Reverse mount available)

TR

Application

- DSC
- Automotive

etc



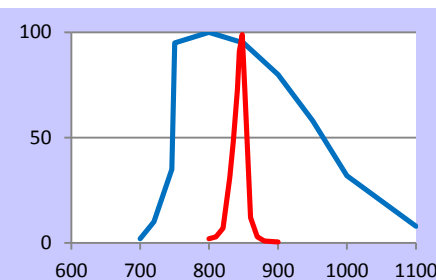
■ Usage example as sensor

Applications which require optical disc reading,
such as car audios and CD players.

etc



■ Best matching, in-firm developed dice



$\lambda P=850nm$

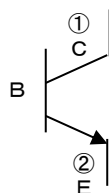
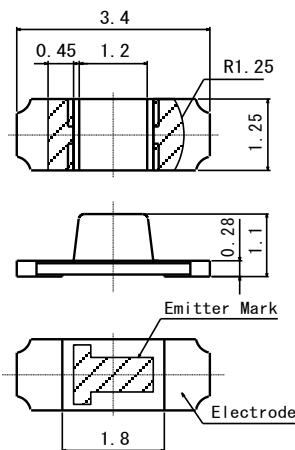


Lack of sensitivity in the visible light
range will minimize the malfunctioning
by outer light source such as sunlight.

SML-S13RT best matches the
sensitivity of SML-810TB by
peak wavelength of 850nm.

■ Dimensions Unit(mm)

Reverse mount
available



■ Electrical Characteristics

Part No.	Photo Electric Current (I _c)	Dark Current (I _{CEO})	Peak Wave Length (λ _P)	Collector-Emitter Saturation Voltage(V _{CE(sat)})
Condition	V _{CE} =5V E=500Lx	V _{CE} =10V (Dark Box)	-	I _C =0.1mA E=500Lx
SML-810TB	3mA	0.5μA (max.)	800nm	0.4V (max.)