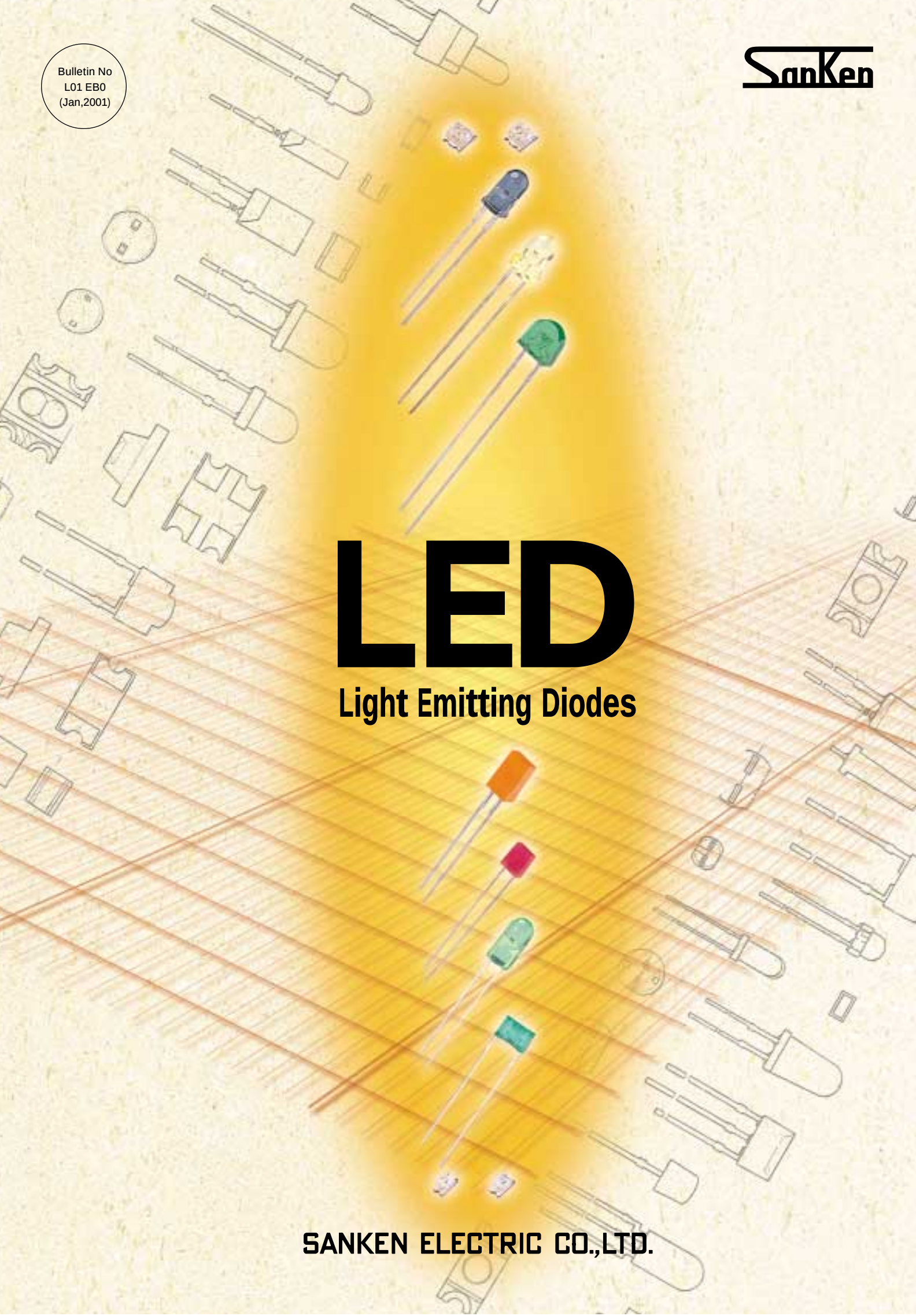
Bulletin No
L01 EB0
(Jan,2001)

SanKen



LED

Light Emitting Diodes

SANKEN ELECTRIC CO.,LTD.

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How to Order

Specify a multiple of the standard minimum package quantity when placing an order (100 diodes/package).
For the ordering quantity of taped products, see pages 61 to 63.
When ordering taped products, add a taping number (TP[ ]) to the end of the product number. (See pages 61 to 63.)

Contents

Product Designation

Single-color LED

Ex: **SEL** **1** **1** **10** **R** **TP1**

- **SEL** — Product type
  - SEL: General-purpose single-color LED
  - SELU/SELS: Ultra-high-intensity single-color LED
- **1** — Structure
  - 1: 5ϕ type
  - 2: 3ϕ type
  - 4: 4ϕ type
  - 5: 5 mm pitch lead type - Direct mount
  - 6: 3ϕ type - Direct mount
- **1** — Emitting color (See next page)
- **10** — Shape
- **R** — Lens color (See next page)
- **TP1** — Taping number (See taping list)

Bicolor LED

Ex: **SML** **1** **6** **7** **16** **W** **N** **TP4**

- **SML** — Product type
  - SML: General-purpose bicolor LED
  - SMLU/SMLS: Ultra-high-intensity bicolor LED
- **1** — Structure
  - 1: 5ϕ type
  - 7: Direct mount
- **6** **7** — Emitting color (See next page)
  - In case of single digit
  - 2: Red/green
  - 5: Deep red/pure green
  - 8: Amber/green
- **16** — Shape
- **W** — Lens color (See next page)
- **N** — Common
  - - : Common cathode
  - N: Common anode
- **TP4** — Taping number (See taping list)

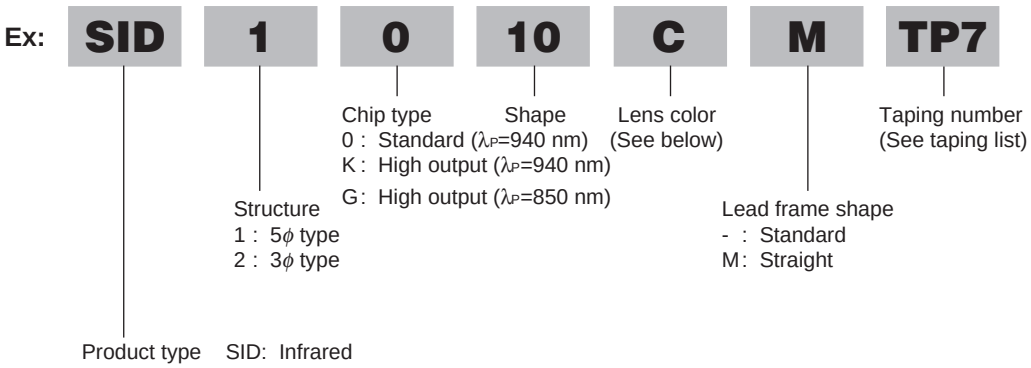
Surface Mount LEDs

Ex: **SEC** **1** **1** **0** **1** **C**

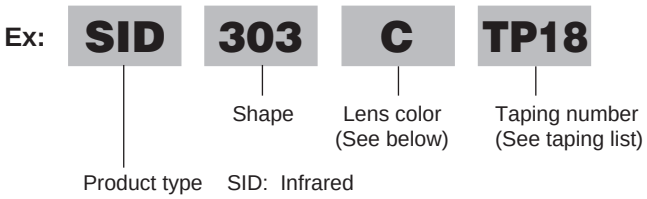
- **SEC** — Product type
  - SEC: General-purpose surface mount LED
  - SECU/SECS: Ultra-high-intensity surface mount LED
- **1** — Structure
  - 1: Single color
  - 2: Bilcolor
- **1** **0** — Emitting color (See next page)
  - (Right-hand digit 0 for single color LED)
- **1** — Shape
  - 1,2: Flat lens type
  - 3,4: Inner lens type
- **C** — Lens color (See next page)

Product Designation

Infrared LED (1)



Infrared LED (2)



Color code		Standard type			Ultra-high-intensity type		
		Emitting color	Chip material	Peak wavelength (nm)	Emitting color	Chip material	Peak wavelength (nm)
1	:	Deep red	GaP	700			
2	:	Red	GaAsP	630	Ultra-high-intensity red	AlGaInP	635
4	:	Green	GaP	560/558			
5	:	Pure green	GaP	555			
6	:	High-intensity red	GaAlAs	660			
7	:	Yellow	GaP	570	Ultra-high-intensity yellow	AlGaInP	572
8	:	Amber	GaAsP	610	Ultra-high-intensity amber	AlGaInP	615
9	:	Orange	GaAsP	587	Ultra-high-intensity orange	AlGaInP	590
B	:				Ultra-high-intensity light amber	AlGaInP	600
D	:				Ultra-high-intensity pure green	InGaN	525
E	:	Blue	GaN	430	Ultra-high-intensity blue	InGaN	470

Lens color			
R	Diffused red	K	Transparent yellow
W	Diffused white	G	Diffused green
S	Transparent red	E	Transparent green
C	Clear	B	Transparent blue
D	Diffused orange	BR	Transparent dark blue
A	Transparent orange	BP	Transparent Violet
Y	Diffused yellow	BQ	Transparent light dark blue

Selection Guide

Single-color LEDs/Single-color surface mount LEDs

Shape	Lens diameter	Feature	Direct mount	Series	Emitting color and peak wavelength																Page
					Blue	Ultra-high-intensity blue	Ultra-high-intensity pure green	Pure green	Deep green	Green	Yellow	Ultra-high-intensity yellow	Orange	Ultra-high-intensity orange	Ultra-high-intensity light amber	Amber	Ultra-high-intensity amber	Red	Ultra-high-intensity red	High-intensity red	Deep red	
				Color code⇒	E	E	D	5	4	4	7	7	9	9	B	8	8	2	2	6	1	
				Peak wavelength[nm]⇒	430	470	525	555	558	560	570	572	587	590	600	610	615	630	635	660	700	
Round	5ϕ	Standard	N	SEL1010				○		○	○		○			○		○		○	○	10
			N	SEL1010M				○		○	○		○			○		○				11
		Wide directivity	N	SEL1010XM		○	○										○		○			12
		Narrow directivity	Y	SEL1050M		○*	○*	○		○			○			○		○	○			13
			N	SEL1015																○		14
			N	SEL1011						○	○		○			○		○			○	15
	5.6×4.6ϕ	Egg-shaped	N	SEL1053M						○							○		○			16
	4ϕ	Standard	N	SEL4010				○		○	○		○			○		○			○	17
		Wide directivity	Y	SEL4014				○		○	○		○			○		○			○	18
	3ϕ	Standard	Y	SEL6010				○		○	○		○			○		○			○	19
		Wide directivity	Y	SEL6014				○	○	○	○		○		○	○		○				20
		Narrow directivity	Y	SEL6015				○		○	○		○					○				21
		Standard	N	SEL2010	○	○	○	○		○	○	○	○			○		○		○	○	22
		Narrow directivity	N	SEL2015				○		○	○		○			○		○				23
			N	SEL2011						○			○								○	24
	2ϕ		N	SEL4017						○	○		○			○					○	25
Inverted cone	5ϕ	For surface illumination	N	SEL1013				○		○	○		○			○		○				26
	3ϕ		Y	SEL6013				○		○												27
	3ϕ		N	SEL2013				○		○	○		○			○		○		○		28
Rectangular	3×5		N	SEL1021						○	○		○			○					○	30
	2.5×5		N	SEL1022						○	○		○			○		○				31
	2×5		N	SEL1020						○	○		○			○		○			○	32
	1×5		N	SEL1024				○		○	○		○			○					○	33
	2×4		N	SEL4025				○		○	○		○			○		○				34
	2×4		Y	SEL4026						○	○		○			○		○				35
Bow shaped	4ϕ		N	SEL4027						○								○				36
	3.1ϕ		N	SEL4028				○	○	○	○		○			○		○		○		37
	3.1ϕ		Y	SEL4029						○	○		○			○		○				38
	4ϕ		Y	SEL6027						○			○					○				39
5 mm pitch lead	Rectangular		Y	SEL5020		○		○		○			○			○		○		○		40
	3ϕ	Narrow directivity	Y	SEL5021				○		○	○		○			○		○				41
	Bow-shaped	Wide directivity	Y	SEL5023	○	○		○		○	○	○	○	○	○	○	○	○	○			42
	5.6×4.6ϕ		Y	SEL5055							○		○					○				43
Surface mount	Flat lens	SMD		SEC1001	○	○	○	○	○	○	○		○			○		○		○	○	50
	Inner lens	SMD		SEC1003				○	○	○	○		○	○		○	○	○	○	○		51

Y···Supported
N···Not supported
★···Not supported

Selection Guide

Bicolor LEDs/Bicolor surface mount LEDs

Shape	Lens diameter	Feature	Direct mount	Series	Emitting color and peak wavelength																	Page
					Deep red	Red	Amber	Orange	High-intensity red	Red	Ultra-high-intensity orange	Ultra-high-intensity red	Red	Ultra-high-intensity amber	Orange	Red	High-intensity red	Orange	green	Pure green	Yellow	
				Color code⇒	1	2	8	9	6	2	9	2	2	8	9	2	6	9	4	5	7	
				Peak wavelength[nm]⇒	700	630	610	587	660	630	590	635	630	615	587	630	660	587	560	555	570	
				Series	Pure green	green	green	green	Yellow	Orange	Yellow	Ultra-high-intensity yellow	Yellow	Ultra-high-intensity yellow	Red	Yellow	green	Pure green	green	Pure green	Yellow	
				Color code⇒	5	4	4	4	7	9	7	7	7	7	2	7	4	5	4	5	7	
				Peak wavelength[nm]⇒	555	560	560	560	570	587	570	572	570	572	630	570	560	555	560	555	570	
Round	5ϕ	Standard	N	SML1016/10016	○	○	○	○														44
			N	SML10016N					○													44
			N	SML10051		○																45
			N	SML10051N					○													45
	5.6×4.6ϕ	Egg-shaped	Y	SML70055				○				○	○	○	○							49
			Y	SML70055N												○						49
Rectangular	2.5×5		N	SML10060		○		○														46
			N	SML10060N					○													46
	3.3×6		Y	SML70020		○	○	○														47
	Bow-shaped		Y	SML70023		○	○	○		○	○											48
Surface mount	Flat lens	SMD		SEC2002		○		○	○								○	○	○	○		52
	Inner lens	SMD		SEC2004			○	○	○											○	○	53

Y···Supported
N···Not supported

Infrared LED lamps

Profile	Lens diameter	Direct mount	Series	High-output infrared	High-output infrared	Infrared	Page
			Chip type⇒	G	K	0	
			Peak wavelength[nm]⇒	850	940	940	
Round	5ϕ	N	SID1010		○	○	54
		Y	SID1050		○		55
		N	SID300/1003	○		○	56
	3ϕ	N	SID2010		○	○	57

Y···Supported
N···Not supported

Product Index by Part Number

Product Index by Part Number

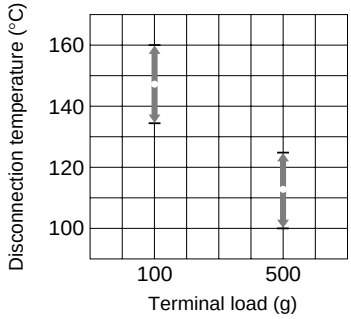
Application Notes

Sanken Electric's light emitting diodes (LEDs) are all molded in resin molds.
When using Sanken's LEDs, observe the following cautions:

■Heat resistance of mold resin

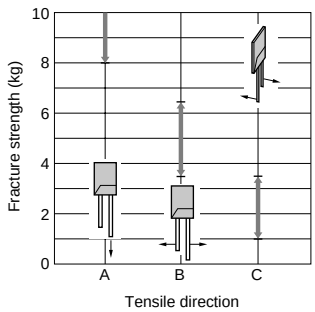
Since an LED must emit internally generated light with high efficiency, a highly transparent resin is used for molding. To ensure high transparency, the molding material must be free from the additives(silica, glass fiber, and others) that are used to improve the heat and moisture resistance of other semiconductor components(such as transistors).
Since the resin used for LEDs generally has a low heat resistance, the following cautions must be fully considered.
Never apply an external force, stress, or excess vibration to the terminals (leads) at high temperature. The glass transition point of the epoxy resin used in LEDs is about 120 to 130°C. Beyond this temperature range, the coefficient of linear thermal expansion becomes more than double that at room temperature, and the resin softens as well.
Under this condition, an external force or stress may budge the terminals, and may result in disconnection of the internal wire. Figure 1 shows reference data for the disconnection temperature and terminal load for the SEL1010 Series.

Figure 1 Disconnection temperature - Terminal load



- Do not apply heat beyond the absolute maximum rating of the storage temperature (100°C for ordinary LEDs, 90°C for chip LEDs). (For soldering, see the soldering conditions.)

Fracture strength

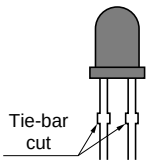


■Mechanical strength

If an excessive mechanical force is applied between the lens resin and the terminals, the lens resin or internal connections may be damaged. The previous figure shows the fracture strength of the SEL1000 Series according to the direction of the force applied to the terminals. When aligning or forming the terminals after soldering, do not bend or twist them with a force beyond the limits shown in the diagram below.

■Forming

1. Be sure to form terminals before soldering.
2. When forming the terminals, hold tightly them at a point closer to the lens resin than the forming position to prevent stress from being applied between the lens resin and the terminals.
3. Form the terminals only below the tie-bar cuts(protruding part of the terminals).
4. Make the forming pitch equal to the board hole pitch.



■Chemical resistance

For washing after soldering, the following chemicals are recommended:

- Isopropyl alcohol
- Ethyl alcohol

In addition, keep the dip time within five minutes and work at room temperature.

- Freon-substitute cleaning liquid

Depending on the constituents, the chemicals may discolor the resin. Make sure that there will be no problems before use.

■Mounting method

Do not mount the LED in such a way that there is a residual stress between the terminal and lens resin.

■Soldering

1. Mounting holes

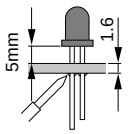
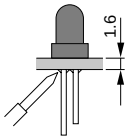
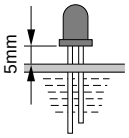
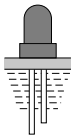
The recommended PCB hole diameters are as follows:

Lead diameter	PCB hole diameter
0.4×0.45mm	ϕ0.9 to 1.0
□0.5mm	ϕ1.0 to 1.1
□0.6mm	ϕ1.0 to 1.2

Application Notes

2. Soldering conditions

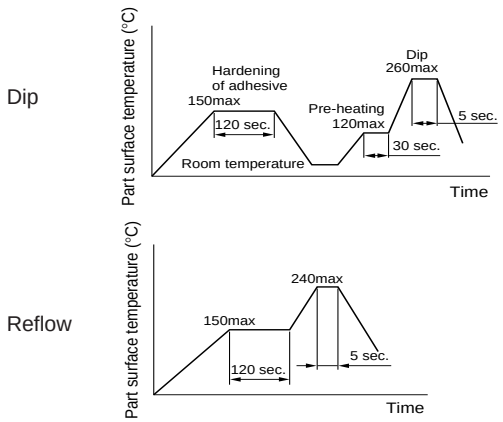
●Lamp Type

		Standard	Manual contact mount insertion	Automatic contact mount insertion	
Soldering iron	Temperature	Iron bit: 320 to 340°C	Iron bit: 320 to 340°C		
	Time	3 sec. or less	3 sec. or less		
	Position				
Dip	Temperature	Soldering Bath: 250±5°C	Soldering Bath: 250±5°C	Preheat: 90°C (back of the PCB)	Soldering Bath: 250°C
	Time	3 sec. or less	3 sec. or less	2 min. or less	3 sec. or less
	Position				

- The heat resistance of the mold-resin of the direct mount type is almost equal to that of the standard type. Be careful not to apply a load when the LED is heated.
- When thermally curing the adhesive of chip components on the same board after LED mounting, keep the temperature of the curing oven below 120°C and the curing time to less than 60 seconds. (For soldering a Surface Mount LED, see the soldering conditions.)
- When an LED is mounted by means of automatic contact mount insertion, note that soldering defects may occur depending on the conditions of insertion even under the above conditions.

●Surface Mount Type

Soldering iron Iron bit temperature: 300°C max, 3 sec max



■Overcurrent

Since an overcurrent may burn the LED, connect a protective resistor in series to prevent a current in excess of 100 mA in the case of a spontaneous pulse (excluding infrared LED).

■Contact mount LEDs

•Printed circuit board(PCB)

Single-faced PCBs are recommended. (Do not use through hole types when using double-faced PCBs.) If chip components coexist on the same board, insert the LEDs after curing the chip adhesive.

•Conditions of insertion

Keep the insertion pressure as low as possible. The T pattern of Pana-sert is recommended for cut & clinch. When using the N pattern, maximize the clinch angle on the anode side of the LED.

■Moisture-proof packaging of Surface Mount LEDs

1. Influence of moisture absorption on resin of chip LEDs

- If the resin is unusually damp, solder dipping may cause interfacial defoliation. This phenomenon, generally called "popcorn phenomenon", occurs when a drastic temperature change causes moisture in the resin to evaporate and to swell.
- Due to this defoliation, the efficiency of light emission might worsen and the luminosity could lower.

2. Moisture-proof packaging

- Surface Mount LEDs are protected by a moisture-proof packaging (baked on by Sanken) to minimize moisture absorption by the resin before use.
- Aluminum laminates with high moisture resistance are used for packaging.
- Silica gel packs are enclosed in each package to further improve moisture-proof efficiency.

3. Storage after opening

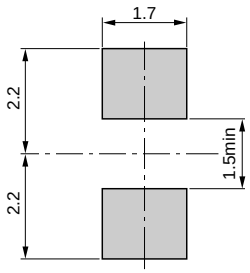
- Once the package has been opened, solder dipping should be carried out within seven days.

4. Handling of Remaining LED Chips

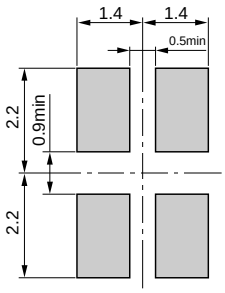
- If some Surface Mount LEDs have not been used, put them back into the moisture-proof packaging, seal the package completely and store it in a dry place.

■Reference mounting pattern for Surface Mount LED (Unit: mm)

Single-color SEC1001/1003 Series



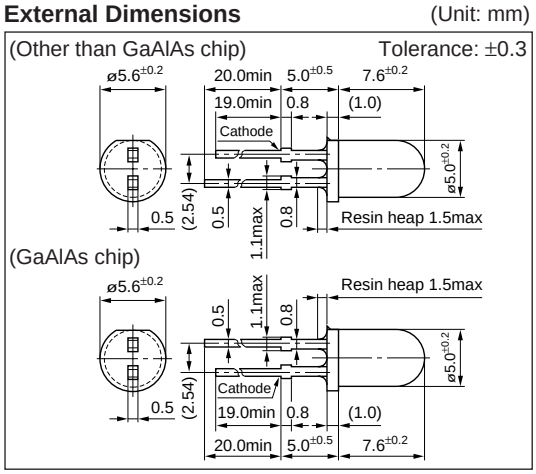
Bicolor SEC2002/2004 Series



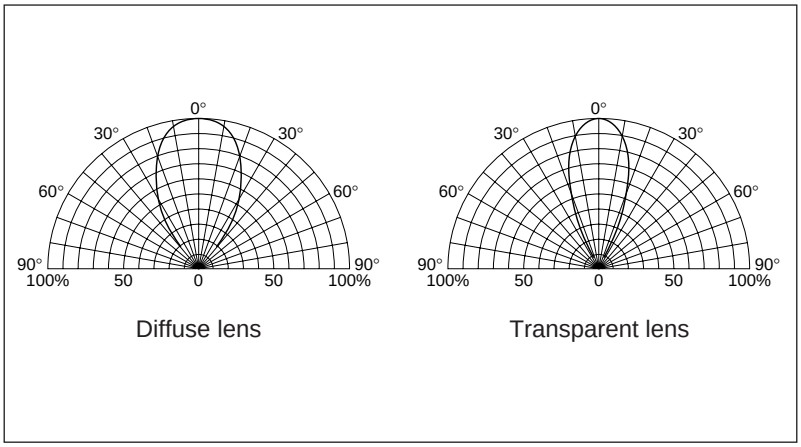
5ϕ Round Standard LED (With Stopper)

SEL1010 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

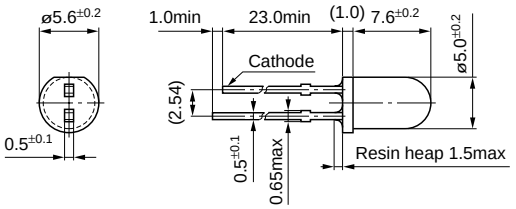
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
Deep red	SEL1110R	Diffused red	2.0	2.5	10	50	3	2.8	5	700	10	100	10	GaP
	SEL1110W	Diffused white						2.8						
	SEL1110S	Transparent red						4.5						
High-intensity red	SEL1610W	Diffused white	1.75	2.2	10	100	3	1000	20	660	10	30	10	GaAlAs
	SEL1610C	Clear						1200						
Red	SEL1210R	Diffused red	1.9	2.5	10	50	3	26	20	630	10	35	10	GaAsP
	SEL1210S	Transparent red						75						
Amber	SEL1810D	Diffused orange	1.9	2.5	10	50	3	18	10	610	10	35	10	
	SEL1810A	Transparent orange						37						
Orange	SEL1910D	Diffused orange	1.9	2.5	10	50	3	14	10	587	10	33	10	
	SEL1910A	Transparent orange						25						
Yellow	SEL1710Y	Diffused yellow	2.0	2.5	10	50	3	22	10	570	10	30	10	GaP
	SEL1710K	Transparent yellow						65						
Green	SEL1410G	Diffused green	2.0	2.5	10	50	3	32	20	560	10	20	10	
	SEL1410E	Transparent green						84						
Pure green	SEL1510C	Clear	2.0	2.5	10	50	3	50	20	555	10	20	10	

5ϕ Round Standard LED

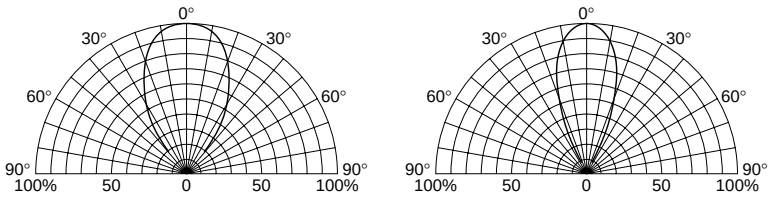
SEL1010M Series

External Dimensions (Unit: mm)



Tolerance: ±0.3

Directivity (Typical)



Diffuse lens

Transparent lens

Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

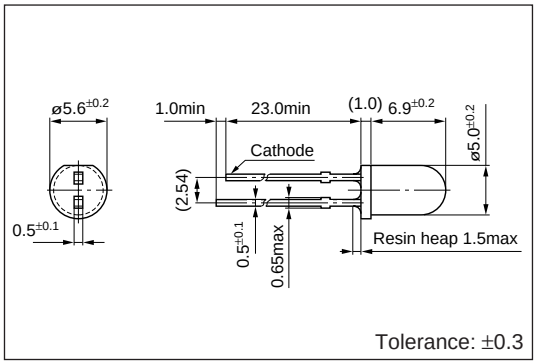
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
Red	SEL1210RM	Diffused red	1.9	2.5	10	50	3	36	20	630	10	35	10	GaAsP
	SEL1210SM	Transparent red						75						
Amber	SEL1810DM	Diffused orange	1.9	2.5	10	50	3	18	10	610	10	35	10	
	SEL1810AM	Transparent orange						37						
Orange	SEL1910DM	Diffused orange	1.9	2.5	10	50	3	19	10	587	10	33	10	
	SEL1910AM	Transparent orange						34						
Yellow	SEL1710KM	Transparent yellow	2.0	2.5	10	50	3	65	10	570	10	30	10	GaP
Green	SEL1410GM	Diffused green	2.0	2.5	10	50	3	30	20	560	10	20	10	
	SEL1410EM	Transparent green						84						
Pure green	SEL1510CM	Clear	2.0	2.5	10	50	3	50	20	555	10	20	10	

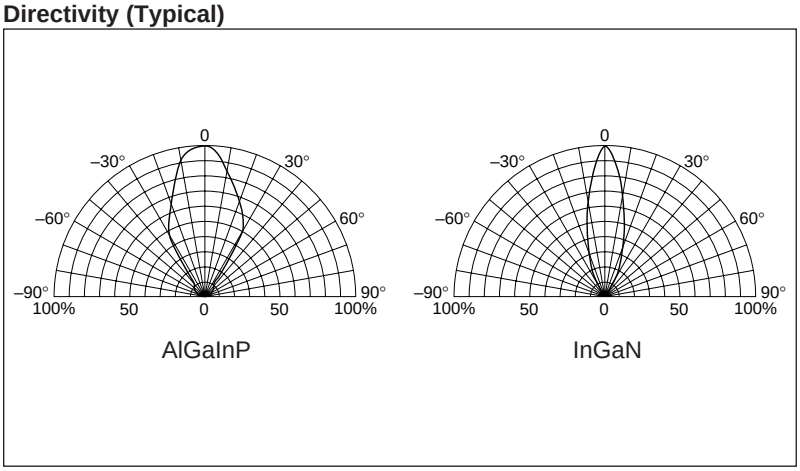
5ϕ Round Wide-directivity LED

SEL1010XM Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating		Condition
		AlGaInP	InGaN	
I_F	mA	30		
ΔI_F	mA/°C	–0.45		Above 25°C
I_{FP}	mA	100		f=1kHz, tw≤100μs
V_R	V	4	5	
Top	°C	–30 to +85	–25 to +85	
Tstg	°C	–30 to +100		

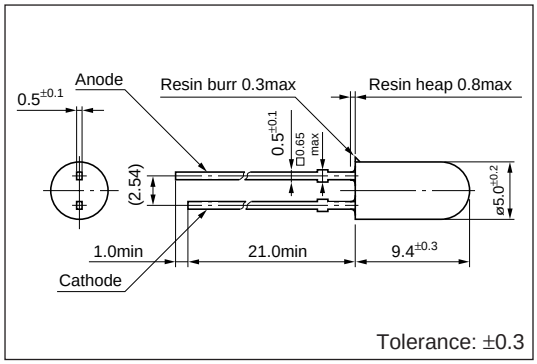
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V)		Condition I_F	Reverse current I_R (μA)	Condition V_R	Intensity I_V (mcd)	Condition I_F	Peak wavelength λP (nm)	Condition I_F	Spectrum half width Δλ (nm)	Condition I_F	Chip material
			typ	max	(mA)	max	(V)	typ	(mA)	typ	(mA)	typ	(mA)	
Ultra-high-intensity red	SELU1210CXM	Clear	2.0	2.5	10	100	4	280	20	635	10	15	10	AlGaInP
Ultra-high-intensity amber	SELU1810CXM	Clear						570	20	615	10	15	10	
Ultra-high-intensity pure green	SELU1D10CXM	Clear	3.3	4.0	20	10	5	2000	20	525	10	35	10	InGaN
Ultra-high-intensity blue	SELU1E10CXM	Clear						600	20	470	10	35	10	

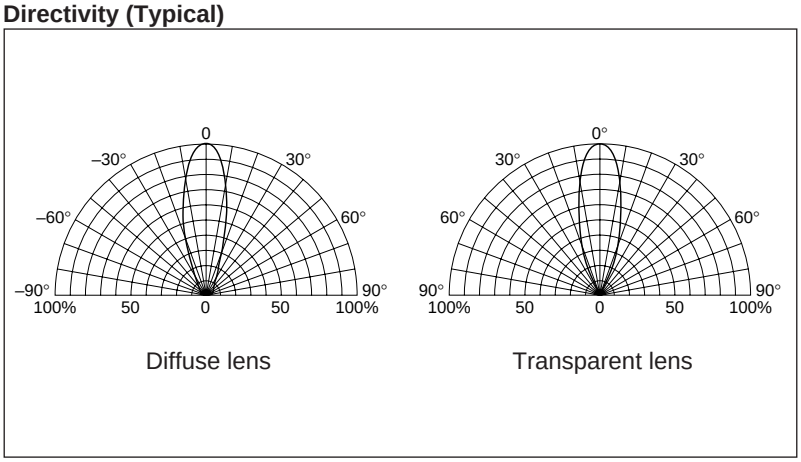
5ϕ Round Narrow-directivity LED (Direct Mount)

SEL1050M Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating			Condition
		GaP/GaAsP	AlGaInP	InGaN	
I_F	mA	30			
ΔI_F	mA/°C	–0.45			Above 25°C
I_{FP}	mA	100			f=1kHz, tw≤100μs
V_R	V	3	4	5	
Top	°C	–30 to +85		–25 to +85	
Tstg	°C	–30 to +100			

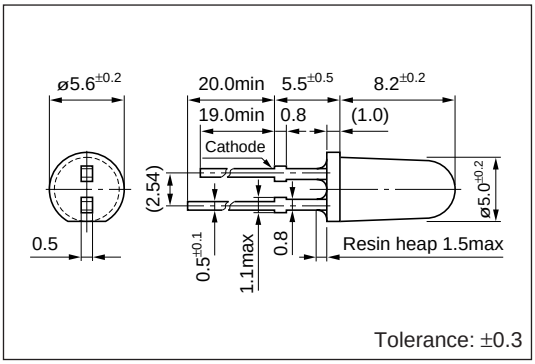
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
Ultra-high-intensity red	SELU1250CM	Clear	2.0	2.5	10	100	4	900	20	635	10	15	10	AlGaInP
Red	SEL1250SM	Transparent red	1.9	2.5	10	50	3	75	20	630	10	35	10	GaAsP
	SEL1250RM	Diffused red						48						
Amber	SEL1850AM	Transparent orange	1.9	2.5	10	50	3	90	20	610	10	35	10	GaAsP
	SEL1850DM	Diffused orange						60						
Orange	SEL1950KM	Transparent orange	1.9	2.5	10	50	3	96	20	587	10	33	10	
Green	SEL1450EKM	Transparent green	2.0	2.5	10	50	3	190	20	560	10	20	10	GaP
	SEL1450GM-YG	Diffused green						120						
Pure green	SEL1550CM	Clear	2.0	2.5	10	50	3	72	20	555	10	20	10	
Ultra-high-intensity pure green	SELU1D50CM	Clear	3.3	4.0	20	10	5	6000	20	525	10	35	10	InGaN
Ultra-high-intensity blue	SELU1E50CM	Clear	3.3	4.0	20	10	5	1850	20	470	10	35	10	

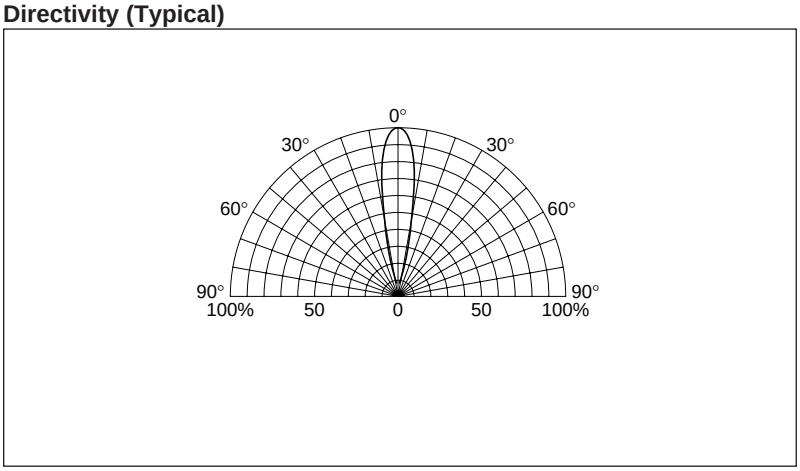
5ϕ Round Narrow-directivity LED

SEL1015 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

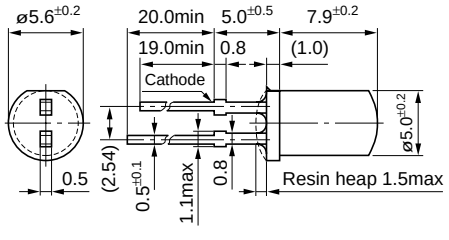
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
High-intensity red	SEL1615C	Clear	1.75	2.2	10	100	3	700	20	660	10	30	10	GaAlAs

5ϕ Cylindrical LED

SEL1011 Series

External Dimensions (Unit: mm)



Tolerance: ±0.3

Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

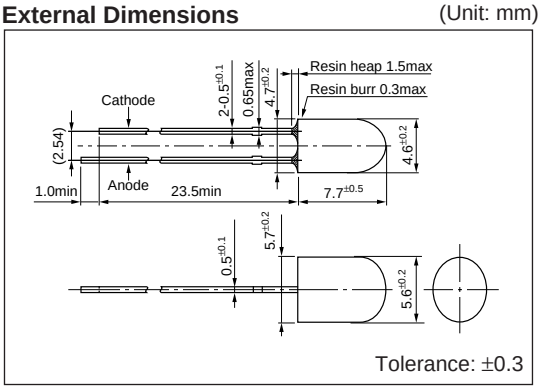
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
Deep red	SEL1111R	Diffused red	2.0	2.5	10	50	3	1.4	10	700	10	100	10	GaP
Red	SEL1211R	Diffused red	1.9	2.5	10	50	3	12	20	630	10	35	10	GaAsP
Amber	SEL1811D	Diffused orange	1.9	2.5	10	50	3	8.0	10	610	10	35	10	
Orange	SEL1911D	Diffused orange	1.9	2.5	10	50	3	8.0	10	587	10	33	10	
Yellow	SEL1711Y	Diffused yellow	2.0	2.5	10	50	3	13	10	570	10	30	10	GaP
Green	SEL1411G	Diffused green	2.0	2.5	10	50	3	30	20	560	10	20	10	

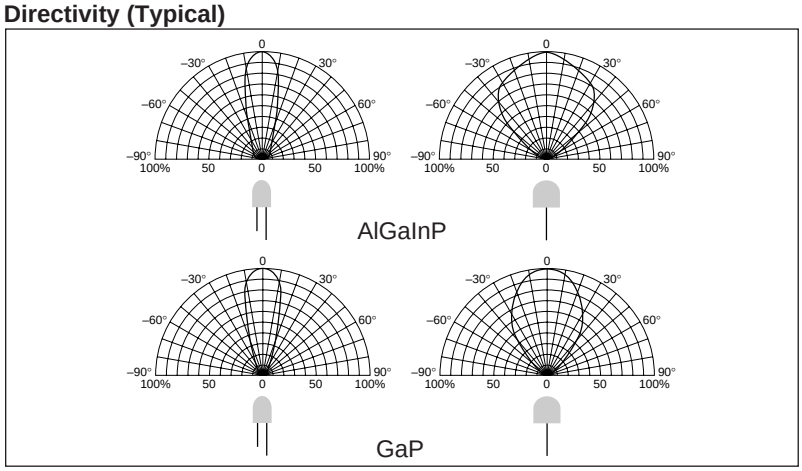
4.6×5.6ϕ Egg-shaped LED

SEL1053M Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating		Condition
		GaP	AlGaInP	
I_F	mA	30		
ΔI_F	mA/°C	–0.45		Above 25°C
I_{FP}	mA	100		f=1kHz, tw≤100μs
V_R	V	3	4	
Top	°C	–30 to +85		
Tstg	°C	–30 to +100		

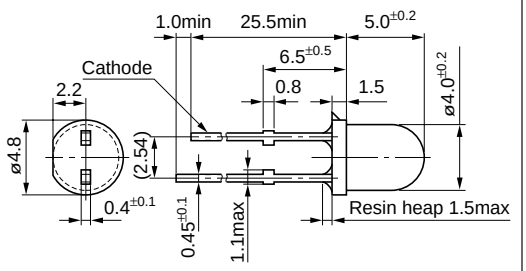
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V)		Condition I_F	Reverse current I_R	Condition V_R	Intensity I_V	Condition I_F	Peak wavelength λP	Condition I_F	Spectrum half width Δλ	Condition I_F	Chip material
			typ	max	(mA)	(μA) max	(V)	(mcd) typ	(mA)	(nm) typ	(mA)	(nm) typ	(mA)	
Ultra-high-intensity red	SELU1253CMKT	Clear	2.0	2.5	10	100	4	200	20	635	10	15	10	AlGaInP
Ultra-high-intensity amber	SELU1853CMKT	Clear	2.0	2.5	10	100	4	450	20	615	10	15	10	
Green	SEL1453CEMKT	Transparent green	2.0	2.5	10	50	3	140	20	560	10	20	10	GaP

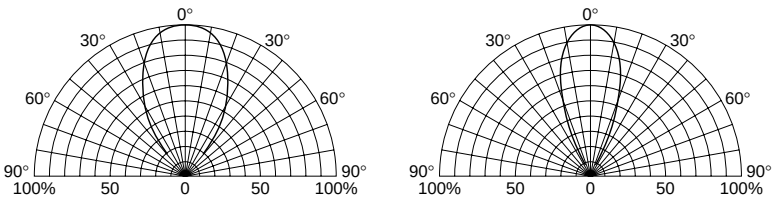
4ϕ Round Standard LED

SEL4010 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

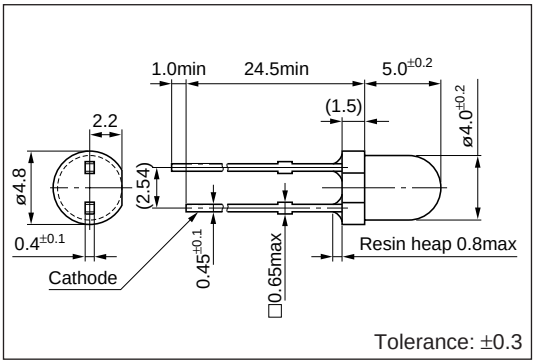
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
Deep red	SEL4110S	Transparent red	2.0	2.5	10	50	3	2.4	5	700	10	100	10	GaP
	SEL4110R	Diffused red						1.7						
Red	SEL4210S	Transparent red	1.9	2.5	10	50	3	30	20	630	10	35	10	GaAsP
	SEL4210R	Diffused red						17						
Amber	SEL4810A	Transparent orange	1.9	2.5	10	50	3	20	10	610	10	35	10	
	SEL4810D	Diffused orange						15						
Orange	SEL4910A	Transparent orange	1.9	2.5	10	50	3	26	10	587	10	33	10	
	SEL4910D	Diffused orange						16						
Yellow	SEL4710K	Transparent yellow	2.0	2.5	10	50	3	36	10	570	10	30	10	GaP
	SEL4710Y	Diffused yellow						14	10					
Green	SEL4410E	Transparent green	2.0	2.5	10	50	3	87	20	560	10	20	10	
	SEL4410G	Diffused green						34	20					
Pure green	SEL4510C	Clear	2.0	2.5	10	50	3	45	20	555	10	20	10	

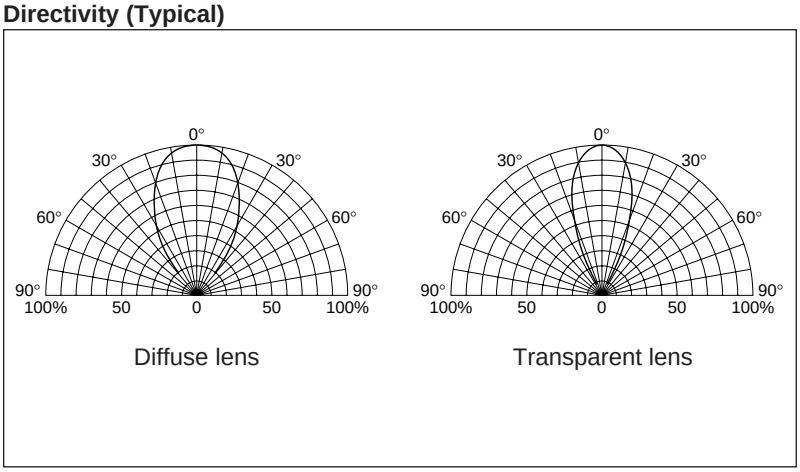
4ϕ Round Wide-directivity LED (Direct Mount)

SEL4014 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to 100	

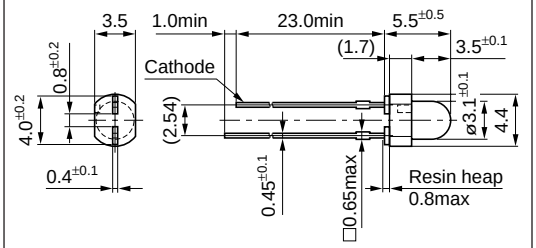
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
Deep red	SEL4114S	Transparent red	2.0	2.5	10	50	3	3.8	10	700	10	100	10	GaP
	SEL4114R	Diffused red						2.8						
Red	SEL4214S	Transparent red	1.9	2.5	10	50	3	40	20	630	10	35	10	GaAsP
	SEL4214R	Diffused red						24						
Amber	SEL4814A	Transparent orange	1.9	2.5	10	50	3	20	10	610	10	35	10	
	SEL4814D	Diffused orange						15						
Orange	SEL4914A	Transparent orange	1.9	2.5	10	50	3	26	10	587	10	33	10	
	SEL4914D	Diffused orange						11						
Yellow	SEL4714K	Transparent yellow	2.0	2.5	10	50	3	38	10	570	10	30	10	
	SEL4714Y	Diffused yellow						27						
Green	SEL4414E	Transparent green	2.0	2.5	10	50	3	69	20	560	10	20	10	GaP
	SEL4414G	Diffused green						48						
Pure green	SEL4514C	Clear	2.0	2.5	10	50	3	26	20	555	10	20	10	

3φ Round LED (Direct Mount)

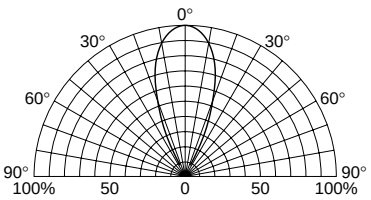
SEL6010 Series

External Dimensions (Unit: mm)

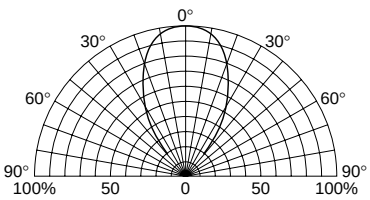


Tolerance: ±0.3

Directivity (Typical)



Diffuse lens



Transparent lens

Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

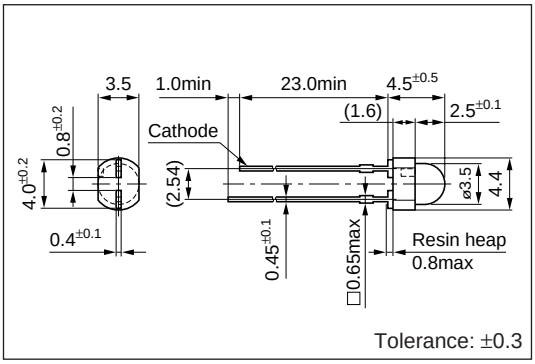
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
Deep red	SEL6110S	Transparent red	2.0	2.5	10	50	3	3.9	10	700	10	100	10	GaP
	SEL6110R	Diffused red						2.6						
Red	SEL6210S	Transparent red	1.9	2.5	10	50	3	41	20	630	10	35	10	GaAsP
	SEL6210R	Diffused red						18						
Amber	SEL6810A	Transparent orange	1.9	2.5	10	50	3	22	10	610	10	35	10	
	SEL6810D	Diffused orange						9.6						
Orange	SEL6910A	Transparent orange	1.9	2.5	10	50	3	22	10	587	10	33	10	
	SEL6910D	Diffused orange						11						
Yellow	SEL6710K	Transparent yellow	2.0	2.5	10	50	3	37	10	570	10	30	10	GaP
	SEL6710Y	Diffused yellow						11						
Green	SEL6410E	Transparent green	2.0	2.5	10	50	3	90	20	560	10	20	10	
	SEL6410G	Diffused green						30						
Pure green	SEL6510C	Clear	2.0	2.5	10	50	3	42	20	555	10	20	10	
	SEL6510G	Diffused green						9.6						

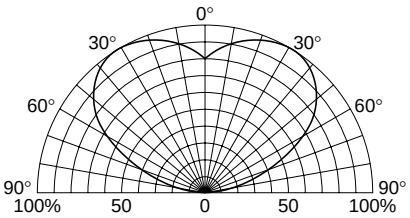
3ϕ Round Wide-directivity LED (Direct Mount)

SEL6014 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Transparent lens

Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating		Condition
		GaAsP/GaP	AlGaInP	
I_F	mA	30		
ΔI_F	mA/°C	−0.45		Above 25°C
I_{FP}	mA	100		f=1kHz, tw≤100μs
V_R	V	3	4	
Top	°C	−30 to +85		
Tstg	°C	−30 to +100		

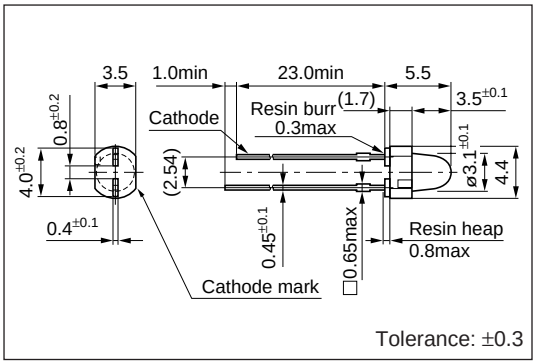
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
Red	SEL6214S	Transparent red	1.9	2.5	10	50	3	18	20	630	10	35	10	GaAsP
Amber	SEL6814A	Transparent orange	1.9	2.5	10	50	3	9.0	10	610	10	35	10	
Ultra-high-intensity light amber	SELS6B14C	Clear	2.0	2.5	10	100	4	120	20	600	10	15	10	AlGaInP
Orange	SEL6914A	Transparent orange	1.9	2.5	10	50	3	8.0	10	587	10	33	10	GaAsP
	SEL6914W	Diffused white						5.0						
Yellow	SEL6714K	Transparent yellow	2.0	2.5	10	50	3	66	20	570	10	30	10	GaP
	SEL6714W	Diffused white						30						
Green	SEL6414E	Transparent green	2.0	2.5	10	50	3	42	20	560	10	20	10	
Deep green	SEL6414E-TG	Transparent green						18		558				
Pure green	SEL6514C	Clear	2.0	2.5	10	50	3	12	20	555	10	20	10	

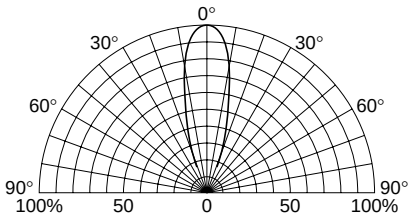
3ϕ Round Narrow-directivity LED (Direct Mount)

SEL6015 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Transparent lens

Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

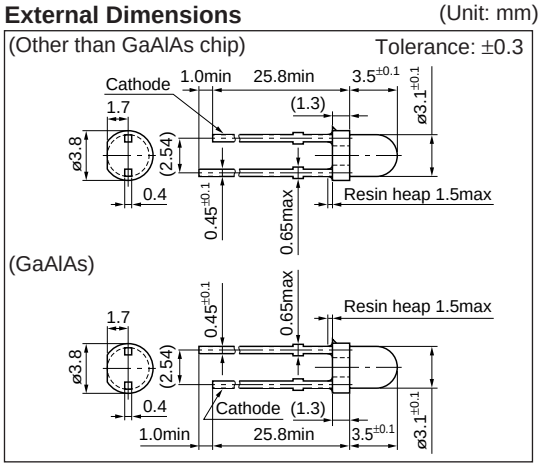
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V)		Condition I_F	Reverse current I_R	Condition V_R	Intensity I_V	Condition I_F	Peak wavelength λP	Condition I_F	Spectrum half width Δλ	Condition I_F	Chip material
			typ	max	(mA)	(μA) max	(V)	(mcd) typ	(mA)	(nm) typ	(mA)	(nm) typ	(mA)	
Red	SEL6215S	Transparent red	1.9	2.5	10	50	3	45	20	630	10	35	10	GaAsP
Orange	SEL6915A	Transparent orange	1.9	2.5	10	50	3	60	20	587	10	33	10	
Yellow	SEL6715C	Clear	2.0	2.5	10	50	3	90	20	570	10	30	10	GaP
Green	SEL6415E	Transparent green	2.0	2.5	10	50	3	81	20	560	10	20	10	
Pure green	SEL6515C	Clear	2.0	2.5	10	50	3	44	20	555	10	20	10	

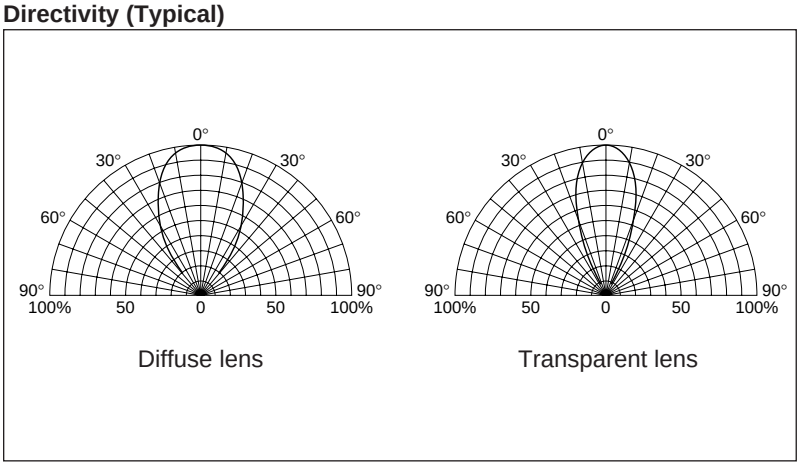
3φ Round Standard LED

SEL2010 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating						Condition
		GaP	GaAsP	GaAlAs	AlGaInP	InGaN	GaN	
I_F	mA	30						
ΔI_F	mA/°C	–0.45						Above 25°C
I_{FP}	mA	100					70	f=1kHz, tw≤100μs
V_R	V	3			4	5		
Top	°C	–30 to +85				–25 to +85		
Tstg	°C	–30 to +100						

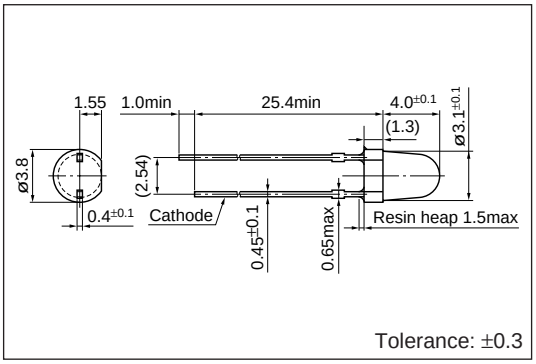
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V)		Condition I_F	Reverse current I_R	Condition V_R	Intensity I_V	Condition I_F	Peak wavelength λP	Condition I_F	Spectrum half width Δλ	Condition I_F	Chip material
			typ	max	(mA)	(μA) max	(V)	(mcd) typ	(mA)	(nm) typ	(mA)	(nm) typ	(mA)	
Deep red	SEL2110S	Transparent red	2.0	2.5	10	50	3	4.0	10	700	10	100	10	GaP
	SEL2110R	Diffused red						1.8						
	SEL2110W	Diffused white						1.8						
High-intensity red	SEL2610C	Clear	1.75	2.2	10	100	3	350	20	660	10	30	10	GaAlAs
Red	SEL2210S	Transparent red	1.9	2.5	10	50	3	40	20	630	10	35	10	GaAsP
	SEL2210R	Diffused red						15						
	SEL2210W	Diffused white						15						
Amber	SEL2810A	Transparent orange	1.9	2.5	10	50	3	22	10	610	10	35	10	
	SEL2810D	Diffused orange						9.0						
Orange	SEL2910A	Transparent orange	1.9	2.5	10	50	3	16	10	587	10	33	10	
	SEL2910D	Diffused orange						8.0						
Ultra-high-intensity yellow	SELU2710C	Clear	2.0	2.5	10	100	4	270	20	572	10	15	10	AlGaInP
Yellow	SEL2710K	Transparent yellow	2.0	2.5	10	50	3	40	10	570	10	30	10	GaP
	SEL2710Y	Diffused yellow						14						
Green	SEL2410E	Transparent green	2.0	2.5	10	50	3	77	20	560	20	20	10	
	SEL2410G	Diffused green						20						
Pure green	SEL2510C	Clear	2.0	2.5	10	50	3	43	20	555	10	20	10	
	SEL2510G	Diffused green						8.2						
Ultra-high-intensity pure green	SELU2D10C	Clear	3.3	4.0	20	10	5	1200	20	525	10	35	10	InGaN
Ultra-high-intensity blue	SELU2E10C	Clear						400	20	470	10	35	10	
Blue	SEL2E10C	Clear	3.8	4.8	20	10	5	60	20	430	10	65	10	GaN

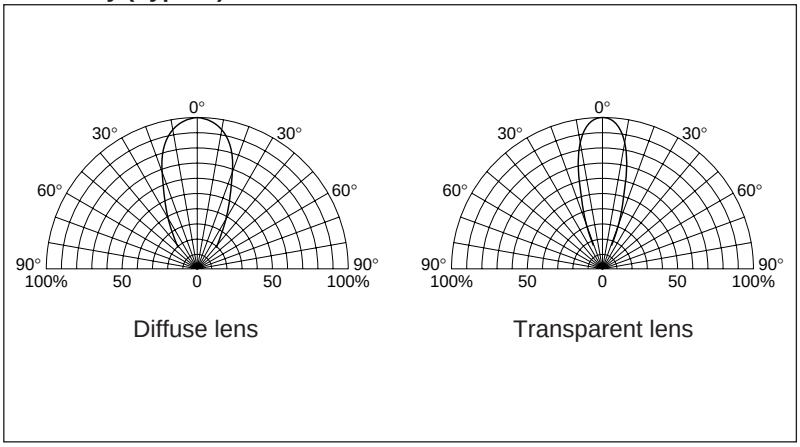
3φ Round Narrow-directivity LED

SEL2015 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	−0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	−30 to +85	
Tstg	°C	−30 to +100	

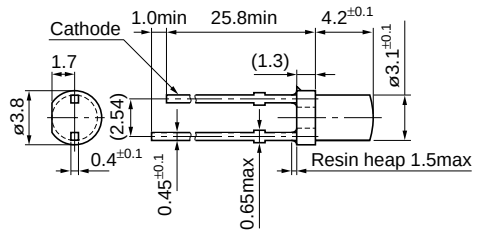
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
Red	SEL2215S	Transparent red	1.9	2.5	10	50	3	45	20	630	10	35	10	GaAsP
	SEL2215R	Diffused red						38						
Amber	SEL2815A	Transparent orange	1.9	2.5	10	50	3	80	10	610	10	35	10	
	SEL2815D	Diffused orange						60						
Orange	SEL2915A	Transparent orange	1.9	2.5	10	50	3	81	10	587	10	33	10	
	SEL2915D	Diffused orange						53						
Yellow	SEL2715K	Transparent yellow	2.0	2.5	10	50	3	130	10	570	10	30	10	GaP
	SEL2715Y	Diffused yellow						110						
Green	SEL2415E	Transparent green	2.0	2.5	10	50	3	110	20	560	10	20	10	
	SEL2415G	Diffused green						72						
Pure green	SEL2515C	Clear	2.0	2.5	10	50	3	52	20	555	10	20	10	

3φ Cylindrical LED

SEL2011 Series

External Dimensions (Unit: mm)



Tolerance: ±0.3

Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

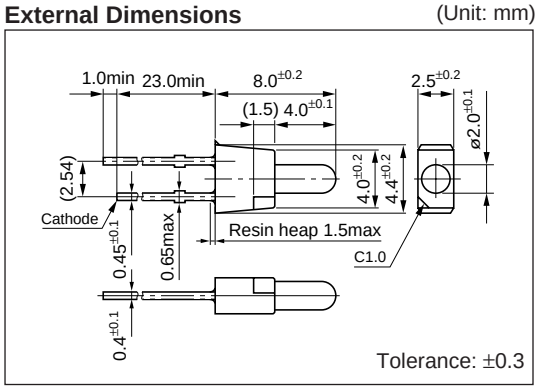
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V)		Condition I_F	Reverse current I_R (μA)	Condition V_R	Intensity I_V (mcd)	Condition I_F	Peak wavelength λP (nm)	Condition I_F	Spectrum half width Δλ (nm)	Condition I_F	Chip material
			typ	max	(mA)	max	(V)	typ	(mA)	typ	(mA)	typ	(mA)	
Deep red	SEL2111R	Diffused red	2.0	2.5	10	50	3	0.7	10	700	10	100	10	GaP
Orange	SEL2911D	Diffused orange	1.9	2.5	10	50	3	3.3	10	587	10	33	10	GaAsP
Green	SEL2411G	Diffused green	2.0	2.5	10	50	3	18	20	560	10	20	10	GaP

2ϕ Round Special-shaped LED

SEL4017 Series

External Dimensions (Unit: mm)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

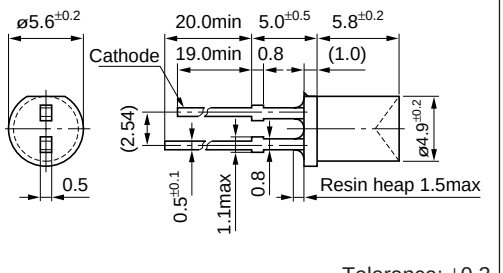
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V)		Condition I_F	Reverse current I_R (μA)	Condition V_R	Intensity I_V	Condition I_F	Peak wavelength λP	Condition I_F	Spectrum half width Δλ	Condition I_F	Chip material
			typ	max	(mA)	max	(V)	typ	(mA)	typ (nm)	(mA)	typ (nm)	(mA)	
Deep red	SEL4117R	Diffused red	2.0	2.5	10	50	3	1.1	10	700	10	100	10	GaP
Amber	SEL4817D	Diffused orange	1.9	2.5	10	50	3	7.5	10	610	10	35	10	GaAsP
Orange	SEL4917D	Diffused orange	1.9	2.5	10	50	3	7.5	10	587	10	33	10	
Yellow	SEL4717Y	Diffused yellow	2.0	2.5	10	50	3	14	20	570	10	30	10	GaP
Green	SEL4417G	Diffused green	2.0	2.5	10	50	3	16	20	560	10	20	10	

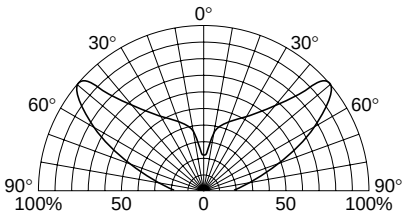
5φ Inverted-cone LED for surface illumination

SEL1013 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to 85	
Tstg	°C	–30 to 100	

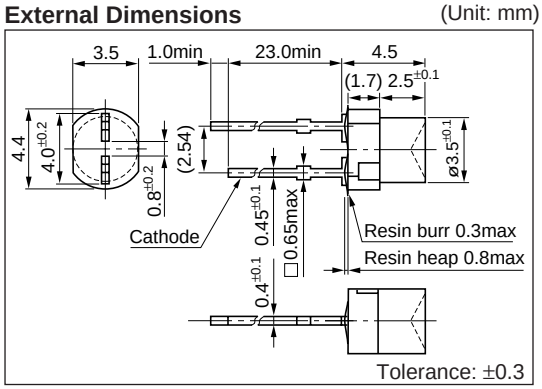
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
Red	SEL1213C	Clear	1.9	2.5	10	50	3	7.0	20	630	10	35	10	GaAsP
Amber	SEL1813A	Transparent orange	1.9	2.5	10	50	3	8.0	20	610	10	35	10	
Orange	SEL1913K	Transparent light orange	1.9	2.5	10	50	3	8.0	20	587	10	33	10	
Yellow	SEL1713K	Transparent yellow	2.0	2.5	10	50	3	15	20	570	10	30	10	GaP
Green	SEL1413E	Transparent green	2.0	2.5	10	50	3	12	20	560	10	20	10	
Pure green	SEL1513E	Transparent light green	2.0	2.5	10	50	3	5.0	20	555	10	20	10	

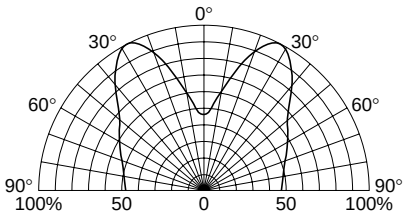
3φ Inverted-cone LED for surface illumination (Direct Mount)

SEL6013 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

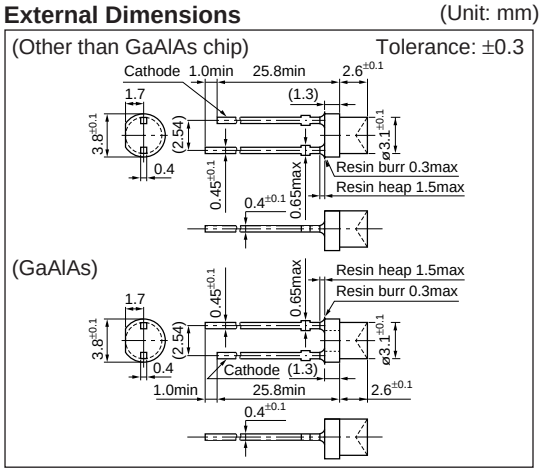
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
Green	SEL6413E	Transparent green	2.0	2.5	10	50	3	14	20	560	10	20	10	GaP
Pure green	SEL6513C	Clear	2.0	2.5	10	50	3	5.0	20	555	10	20	10	

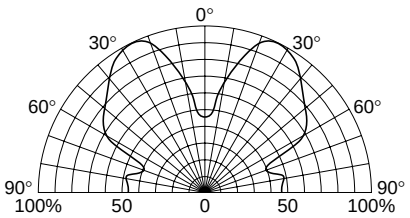
3φ Inverted-cone LED for surface illumination

SEL2013 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

Electrical Optical characteristics (Ta=25°C)

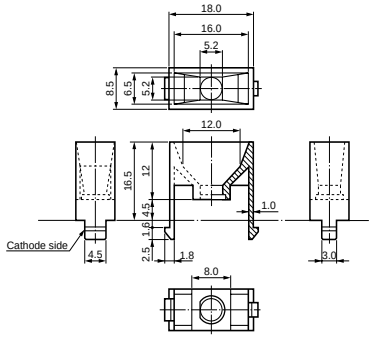
Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
High-intensity red	SEL2613CS-S	Transparent light red	1.7	2.5	10	100	3	80	20	660	10	30	10	GaAlAs
Red	SEL2213C	Clear	1.9	2.5	10	50	3	7.0	20	630	10	35	10	GaAsP
Amber	SEL2813A	Transparent orange	1.9	2.5	10	50	3	8.0	20	610	10	35	10	
Orange	SEL2913K	Transparent light yellow	1.9	2.5	10	50	3	8.0	20	587	10	33	10	
Yellow	SEL2713K	Transparent yellow	2.0	2.5	10	50	3	17	20	570	10	30	10	GaP
Green	SEL2413E	Transparent green	2.0	2.5	10	50	3	14	20	560	10	20	10	
	SEL2413G	Diffused green						12						
Pure green	SEL2513E	Transparent green	2.0	2.5	10	50	3	5.0	20	555	10	20	10	

Lamp Casings Inverted-cone LED for surface illumination

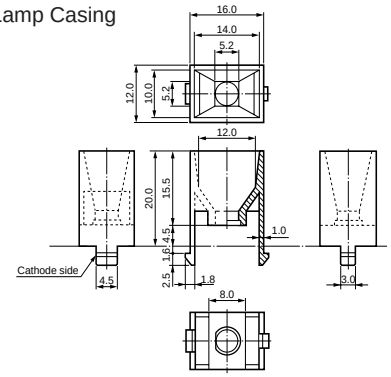
The following three types of standard lamp casings are provided for the area-illuminating LED (SEL1013 Series):
SEL9100 Casing (Illuminating area: 6.5 × 16.0)
SEL9101 Casing (Illuminating area: 10.0 × 14.0)
SEL9104 Casing (Illuminating area: 7.0 × 18.0)

These casings have tabs to assist positioning during printed wiring board mounting.

SEL9100 Lamp Casing

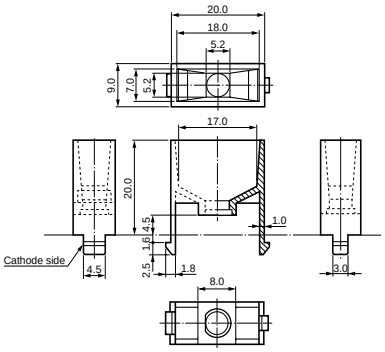


SEL9101 Lamp Casing



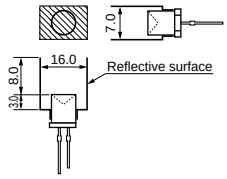
●The standard housing is designed to accept an area-illuminating LED press-fit from the rear.●

SEL9104 Lamp Casing

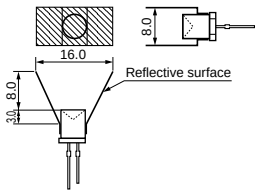


Design examples of reflective surface
(The figures below show design examples of the reflective surface of the housing.)

Example of 7 × 10 mm



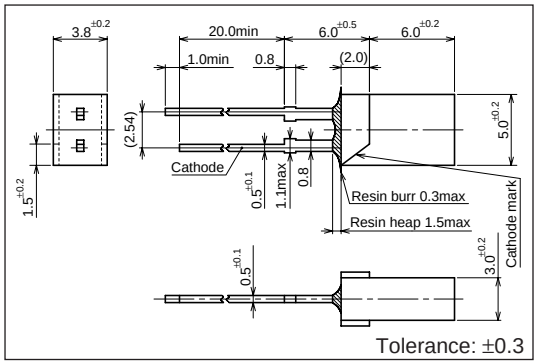
Example of 8 × 16 mm



3×5 Rectangular LED

SEL1021 Series

External Dimensions (Unit: mm)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

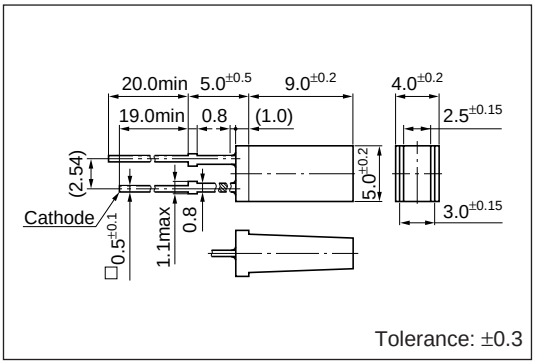
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V)		Condition I_F	Reverse current I_R (μA)	Condition V_R	Intensity I_V (mcd)	Condition I_F	Peak wavelength λP (nm)	Condition I_F	Spectrum half width Δλ (nm)	Condition I_F	Chip material
			typ	max	(mA)	max	(V)	typ	(mA)	typ	(mA)	typ	(mA)	
Deep red	SEL1121R	Diffused red	2.0	2.5	10	50	3	0.9	10	700	10	100	10	GaP
Amber	SEL1821D	Diffused orange	1.9	2.5	10	50	3	3.0	10	610	10	35	10	GaAsP
Orange	SEL1921D	Diffused orange	1.9	2.5	10	50	3	3.8	10	587	10	33	10	
Yellow	SEL1721Y	Diffused yellow	2.0	2.5	10	50	3	7.0	10	570	10	30	10	GaP
Green	SEL1421G	Diffused green	2.0	2.5	10	50	3	12	20	560	10	20	10	

2.5×5 Rectangular LED

SEL1022 Series

External Dimensions (Unit: mm)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

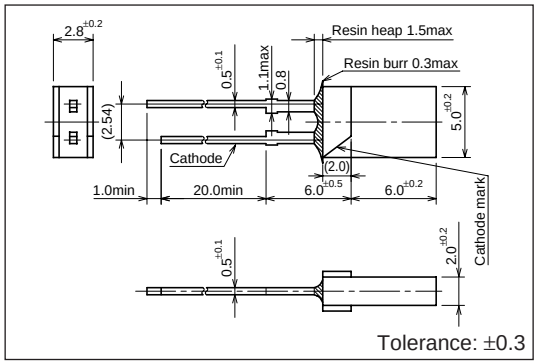
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
Red	SEL1222R	Diffused red	1.9	2.5	10	50	3	9.0	20	630	10	35	10	GaAsP
Amber	SEL1822D	Diffused orange	1.9	2.5	10	50	3	4.8	10	610	10	35	10	
Orange	SEL1922D	Diffused orange	1.9	2.5	10	50	3	4.5	10	587	10	33	10	
Yellow	SEL1722Y	Diffused yellow	2.0	2.5	10	50	3	7.8	10	570	10	30	10	GaP
	SEL1722K	Transparent yellow						12						
Green	SEL1422G	Diffused green	2.0	2.5	10	50	3	7.2	20	560	10	20	10	

2×5 Rectangular LED

SEL1020 Series

External Dimensions (Unit: mm)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

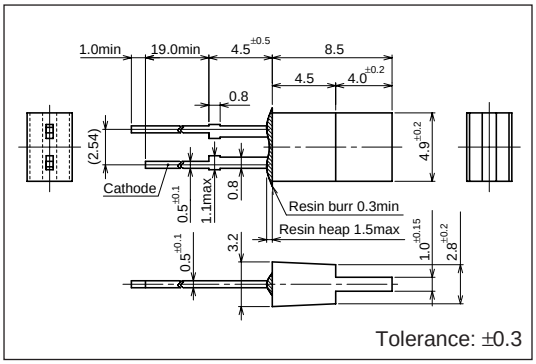
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
Deep red	SEL1120R	Diffused red	2.0	2.5	10	50	3	0.9	10	700	10	100	10	GaP
Red	SEL1220R	Diffused red	1.9	2.5	10	50	3	4.8	20	630	10	35	10	GaAsP
Amber	SEL1820D	Diffused orange	1.9	2.5	10	50	3	3.0	10	610	10	35	10	
Orange	SEL1920D	Diffused orange	1.9	2.5	10	50	3	3.8	10	587	10	33	10	
Yellow	SEL1720Y	Diffused yellow	2.0	2.5	10	50	3	7.0	10	570	10	30	10	GaP
Green	SEL1420G	Diffused green	2.0	2.5	10	50	3	11	20	560	10	20	10	

1×5 Rectangular LED

SEL1024 Series

External Dimensions (Unit: mm)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

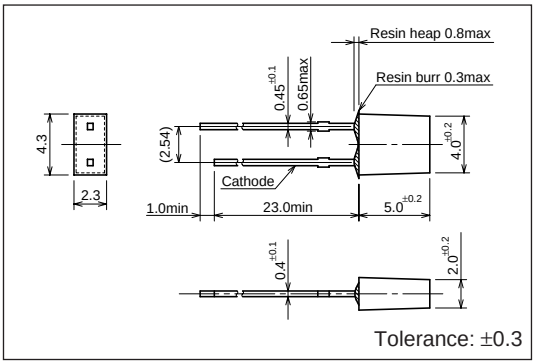
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V)		Condition I_F	Reverse current I_R	Condition V_R	Intensity I_V	Condition I_F	Peak wavelength λP	Condition I_F	Spectrum half width Δλ	Condition I_F	Chip material
			typ	max	(mA)	(μA) max	(V)	(mcd) typ	(mA)	(nm) typ	(mA)	(nm) typ	(mA)	
Deep red	SEL1124R	Diffused red	2.0	2.5	10	50	3	0.5	10	700	10	100	10	GaP
Amber	SEL1824D	Diffused orange	1.9	2.5	10	50	3	4.0	10	610	10	35	10	GaAsP
Orange	SEL1924D	Diffused orange	1.9	2.5	10	50	3	3.0	10	587	10	33	10	
Yellow	SEL1724Y	Diffused yellow	2.0	2.5	10	50	3	6.0	10	570	10	30	10	GaP
Green	SEL1424G	Diffused green	2.0	2.5	10	50	3	15	20	560	10	20	10	

2×4 Rectangular LED

SEL4025 Series

External Dimensions (Unit: mm)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

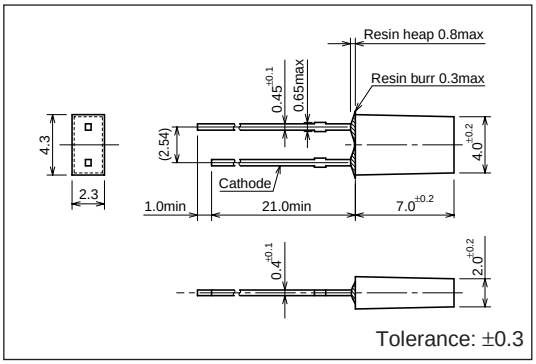
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
Red	SEL4225C	Clear	1.9	2.5	10	50	3	12	20	630	10	35	10	GaAsP
	SEL4225R	Diffused red						5.4						
Amber	SEL4825A	Transparent orange	1.9	2.5	10	50	3	5.4	10	610	10	35	10	
	SEL4825D	Diffused orange						4.0						
Orange	SEL4925A	Transparent orange	1.9	2.5	10	50	3	4.5	10	587	10	33	10	
	SEL4925D	Diffused orange						4.0						
Yellow	SEL4725K	Transparent yellow	2.0	2.5	10	50	3	13	10	570	10	30	10	GaP
	SEL4725Y	Diffused yellow						5.0						
Green	SEL4425E	Transparent green	2.0	2.5	10	50	3	20	20	560	10	20	10	
	SEL4425G	Diffused green						10						
Pure green	SEL4525C	Clear	2.0	2.5	10	50	3	6.6	20	555	10	20	10	

2×4 Rectangular LED (Direct Mount)

SEL4026 Series

External Dimensions (Unit: mm)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

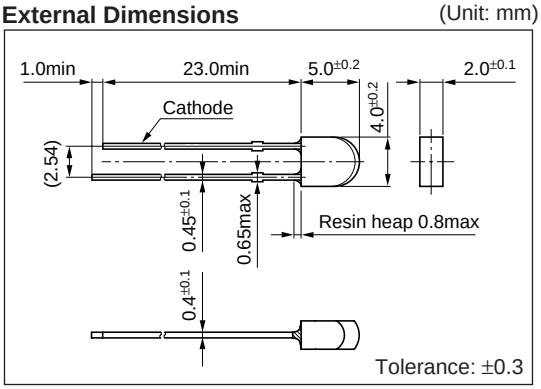
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
Red	SEL4226C	Clear	1.9	2.5	10	50	3	12	20	630	10	35	10	GaAsP
	SEL4226R	Diffused red						10						
Amber	SEL4826A	Transparent orange	1.9	2.5	10	50	3	5.4	10	610	10	35	10	
	SEL4826D	Diffused orange						4.5						
Orange	SEL4926A	Transparent orange	1.9	2.5	10	50	3	6.0	10	587	10	33	10	
	SEL4926D	Diffused orange						4.5						
Yellow	SEL4726K	Transparent yellow	2.0	2.5	10	50	3	14.0	10	570	10	30	10	GaP
	SEL4726Y	Diffused yellow						8.6						
Green	SEL4426E	Transparent green	2.0	2.5	10	50	3	20	20	560	10	20	10	
	SEL4426G	Diffused green						14						

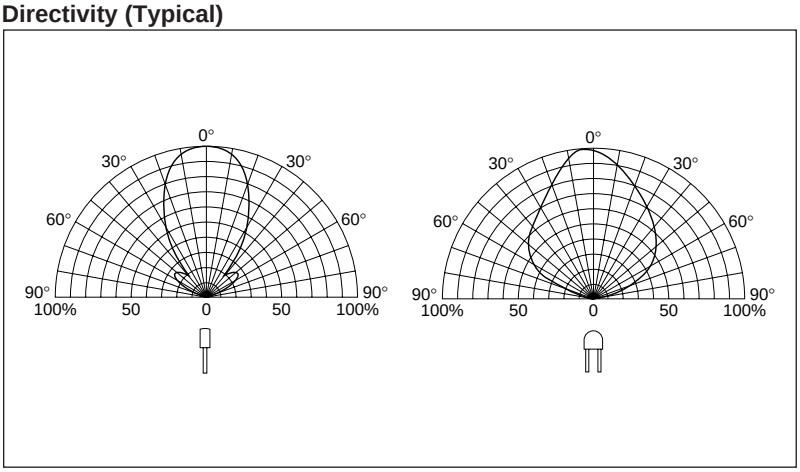
4ϕ Bow-shaped LED

SEL4027 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

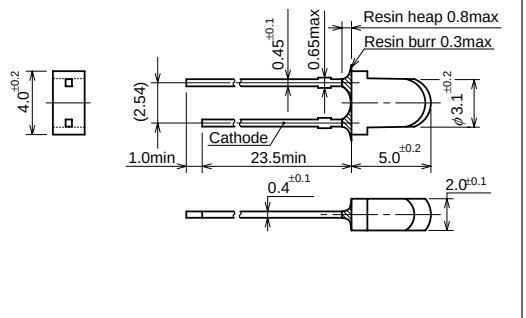
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
Red	SEL4227C	Clear	1.9	2.5	10	50	3	15	20	630	10	35	10	GaAsP
Green	SEL4427EP	Transparent green	2.0	2.5	10	50	3	19	20	560	10	20	10	GaP

3.1ϕ Bow-shaped LED

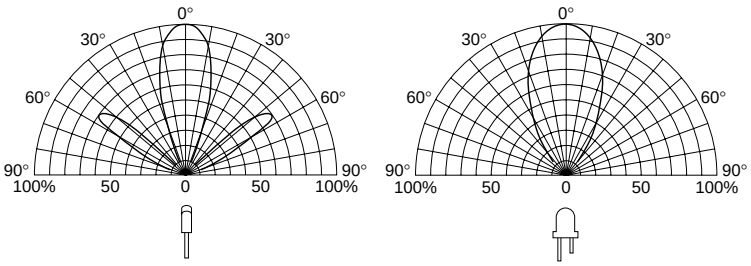
SEL4028 Series

External Dimensions (Unit: mm)



Tolerance: ±0.3

Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

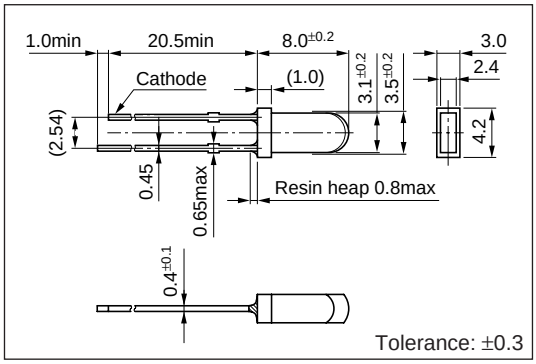
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
High-intensity red	SEL4628C-S	Clear	1.7	2.2	10	100	3	200	20	660	10	30	10	GaAlAs
Red	SEL4228C	Clear	1.9	2.5	10	50	3	27	20	630	10	35	10	GaAsP
Amber	SEL4828A	Transparent orange	1.9	2.5	10	50	3	14	10	610	10	35	10	
Orange	SEL4928A	Transparent orange	1.9	2.5	10	50	3	14	10	587	10	33	10	
Yellow	SEL4728K	Transparent yellow	2.0	2.5	10	50	3	30	10	570	10	30	10	GaP
Green	SEL4428E	Transparent green	2.0	2.5	10	50	3	63	20	560	10	20	10	
Deep green	SEL4428B-TG	Transparent dark blue	2.0	2.5	10	50	3	18	20	558	10	20	10	
Pure green	SEL4528C	Clear	2.0	2.5	10	50	3	30	20	555	10	20	10	

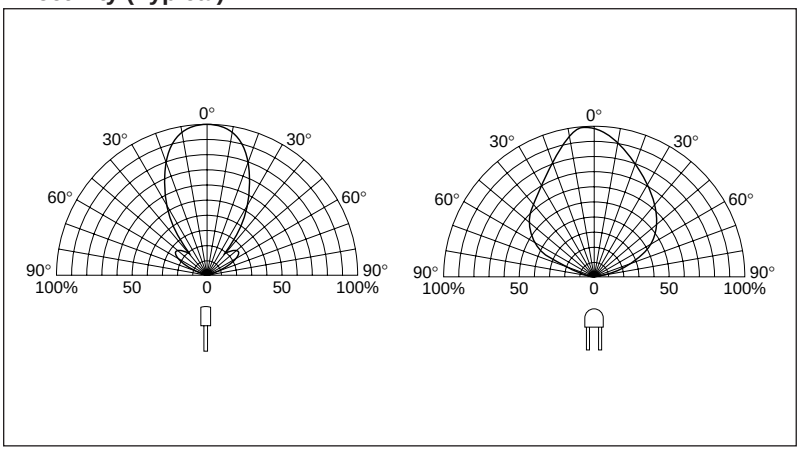
3.1ϕ Bow-shaped LED (Direct Mount)

SEL4029 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

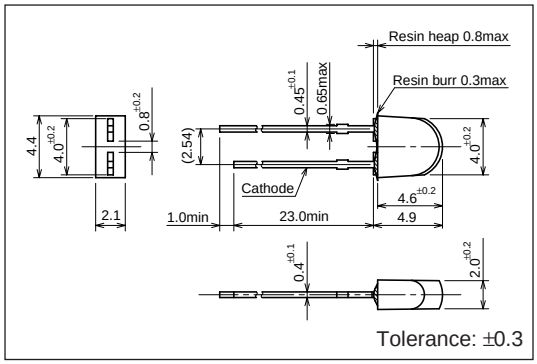
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
Red	SEL4229R	Diffused red	1.9	2.5	10	50	3	21	20	630	10	35	10	GaAsP
Amber	SEL4829A	Transparent orange	1.9	2.5	10	50	3	18	10	610	10	35	10	
Orange	SEL4929A	Transparent orange	1.9	2.5	10	50	3	18	10	587	10	33	10	
Yellow	SEL4729KH	Transparent yellow	2.0	2.5	10	50	3	60	10	570	10	30	10	GaP
Green	SEL4429E	Transparent green	2.0	2.5	10	50	3	60	20	560	10	20	10	

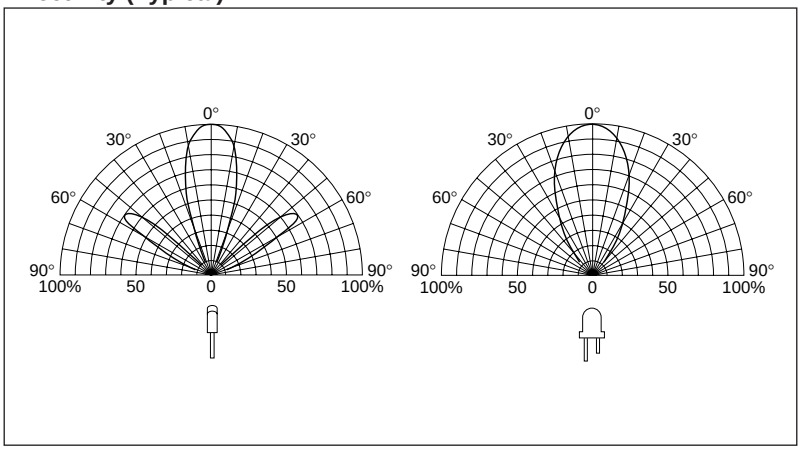
4ϕ Bow-shaped LED (Direct Mount)

SEL6027 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

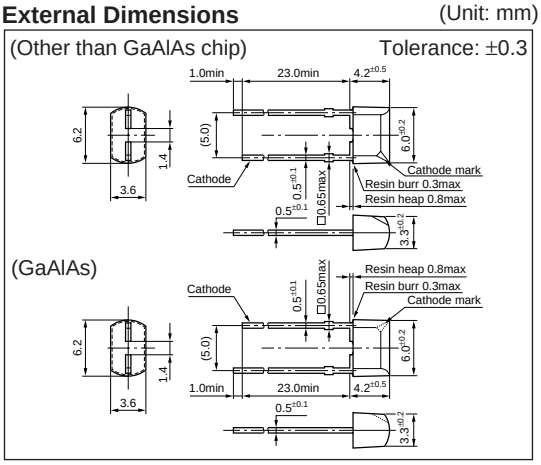
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
Red	SEL6227S	Transparent red	1.9	2.5	10	50	3	14	20	630	10	35	10	GaAsP
Orange	SEL6927A	Transparent orange	1.9	2.5	10	50	3	10	10	587	10	33	10	GaAsP
Green	SEL6427EP	Transparent green	2.0	2.5	10	50	3	26	20	560	10	20	10	GaP

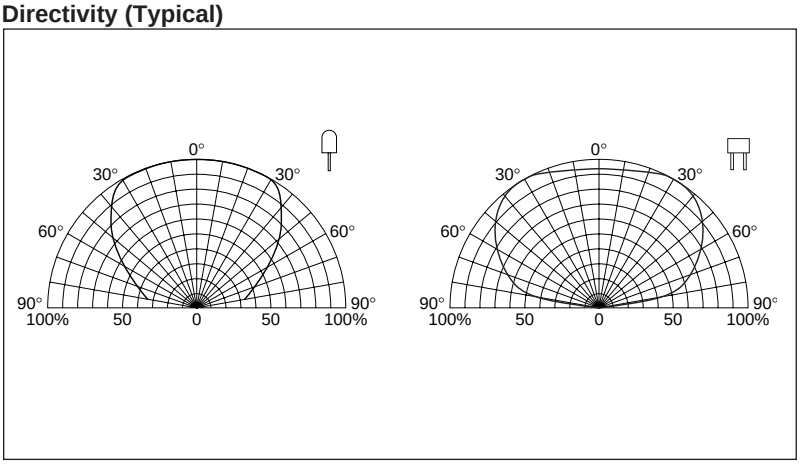
5-mm Pitch Lead Rectangular LED (Direct Mount)

SEL5020 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating		Condition
		GaP/GaAsP/GaAlAs	InGaN	
I_F	mA	30		
ΔI_F	mA/°C	–0.45		Above 25°C
I_{FP}	mA	100		f=1kHz, tw≤100μs
V_R	V	3	5	
Top	°C	–30 to +85	–25 to +80	
Tstg	°C	–30 to +100		

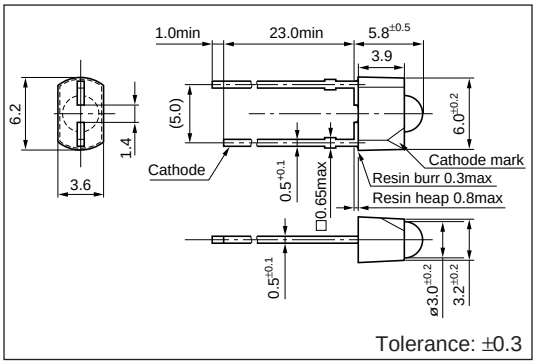
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V)		Condition I_F	Reverse current I_R	Condition V_R	Intensity I_V	Condition I_F	Peak wavelength λP	Condition I_F	Spectrum half width Δλ	Condition I_F	Chip material
			typ	max	(mA)	max (μA)	(V)	typ (mcd)	(mA)	typ (nm)	(mA)	typ (nm)	(mA)	
High-intensity red	SEL5620C	Clear	1.7	2.2	10	50	3	100	20	660	10	30	10	GaAlAs
Red	SEL5220S	Transparent red	1.9	2.5	10	50	3	20	20	630	10	35	10	GaAsP
Amber	SEL5820A	Transparent orange	1.9	2.5	10	50	3	12	20	610	10	35	10	
Orange	SEL5920A	Transparent orange	1.9	2.5	10	50	3	12	20	587	10	33	10	
Green	SEL5420E	Transparent green	2.0	2.5	10	50	3	20	20	560	10	20	10	GaP
Pure green	SEL5520C	Clear	2.0	2.5	10	50	3	6.0	20	555	10	20	10	
Ultra-high-intensity blue	SELU5E20C	Clear	3.3	4.0	10	10	5	60	10	470	10	35	10	InGaN

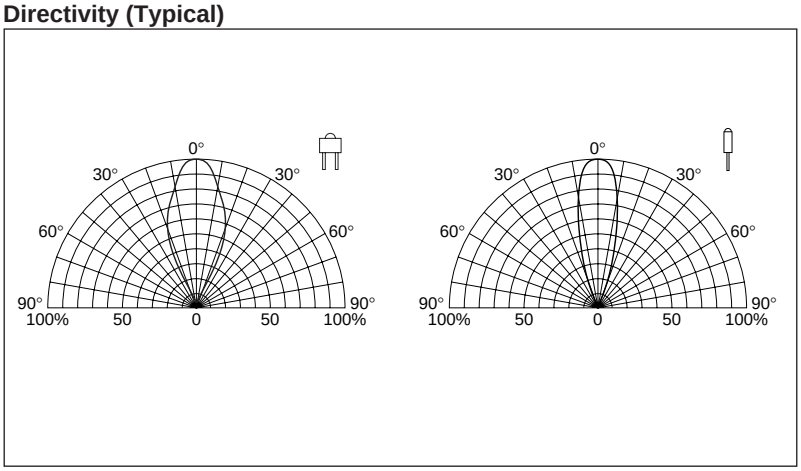
5-mm Pitch Lead 3ϕ Lens-type LED (Direct Mount)

SEL5021 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

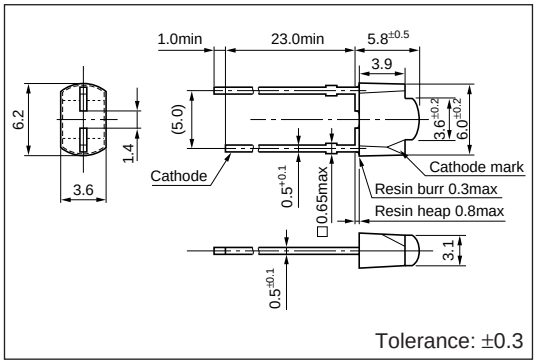
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width $\Delta\lambda$ (nm) typ	Condition I_F (mA)	Chip material
Red	SEL5221S	Transparent red	1.9	2.5	10	50	3	35	20	630	10	35	10	GaAsP
Amber	SEL5821A	Transparent orange	1.9	2.5	10	50	3	60	20	610	10	35	10	
Orange	SEL5921A	Transparent orange	1.9	2.5	10	50	3	60	20	587	10	33	10	
Yellow	SEL5721C	Clear	2.0	2.5	10	50	3	90	20	570	10	30	10	GaP
Green	SEL5421E	Transparent green	2.0	2.5	10	50	3	95	20	560	10	20	10	
Pure green	SEL5521C	Clear	2.0	2.5	10	50	3	35	20	555	10	20	10	

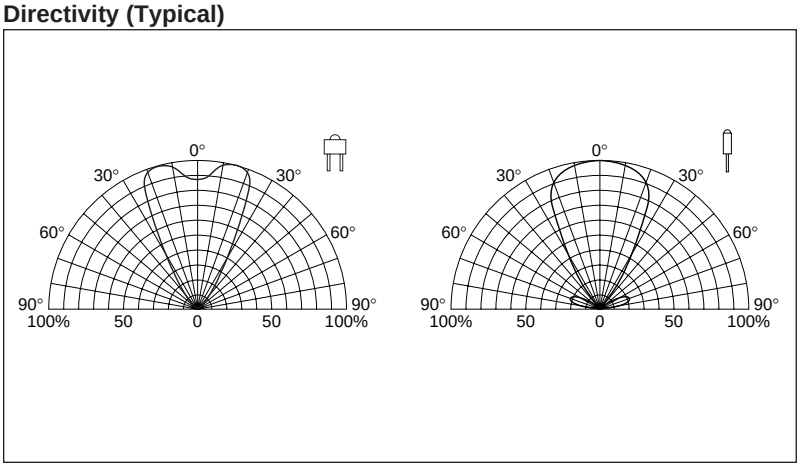
5-mm Pitch Lead Bow-shaped LED (Direct Mount)

SEL5023 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating				Condition
		GaP/GaAsP	AlGaInP	InGaN	GaN	
I_F	mA	30				
ΔI_F	mA/°C	–0.45				Above 25°C
I_{FP}	mA	100			70	f=1kHz, tw≤100μs
V_R	V	3	4	5		
Top	°C	–30 to +85		–25 to +80		
Tstg	°C	–30 to +100				

Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
Red	SEL5223S	Transparent red	1.9	2.5	10	50	3	25	20	630	10	35	10	GaAsP
Amber	SEL5823A	Transparent orange	1.9	2.5	10	50	3	35	20	610	10	35	10	
Orange	SEL5923A	Transparent orange	1.9	2.5	10	50	3	35	20	587	10	33	10	
Yellow	SEL5723C	Clear	2.0	2.5	10	50	3	60	20	570	10	30	10	GaP
Green	SEL5423E	Transparent green	2.0	2.5	10	50	3	40	20	560	10	20	10	
Pure green	SEL5523C	Clear	2.0	2.5	10	50	3	13	20	555	10	20	10	
Blue	SEL5E23C	Clear	4.0	4.8	10	10	5	20	20	430	10	65	10	GaN

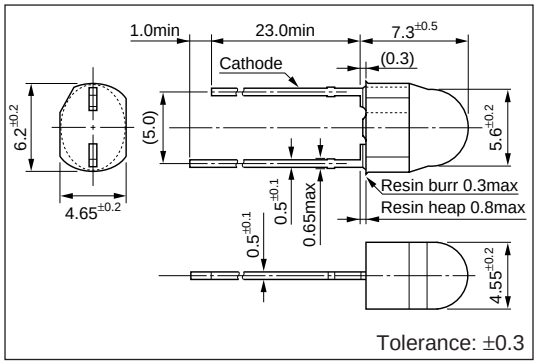
●Ultra-high-intensity series

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
Red	SELS5223C	Clear	2.0	2.5	10	100	4	100	20	635	10	15	10	AlGaInP
Amber	SELS5823C	Clear	2.0	2.5	10	100	4	130	20	615	10	15	10	
Amber	SELU5823C	Clear	2.0	2.5	10	100	4	185	20	615	10	15	10	
Light amber	SELS5B23C	Clear	2.0	2.5	10	100	4	135	20	600	10	15	10	
Orange	SELS5923C	Clear	2.0	2.5	10	100	4	145	20	590	10	15	10	
Yellow	SELU5723C	Clear	2.0	2.5	10	100	4	155	20	572	10	15	10	
Blue	SELU5E23C	Clear	3.6	4.0	10	10	5	110	10	470	10	35	10	InGaN

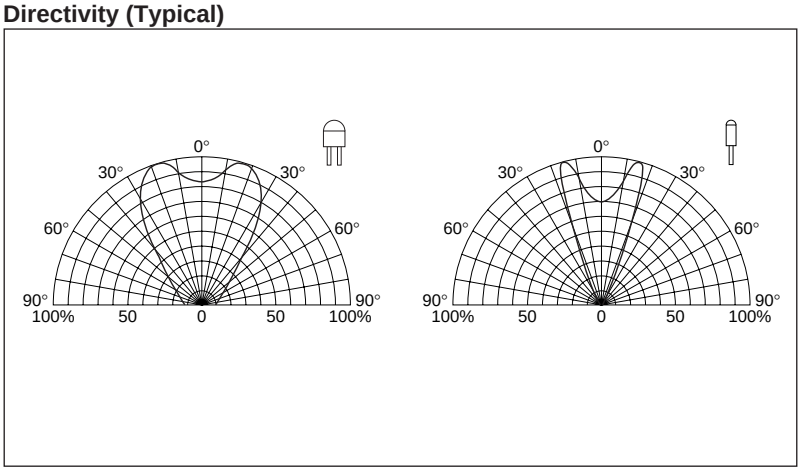
5-mm Pitch Lead Egg-shaped LED (Direct Mount)

SEL5055 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	3	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

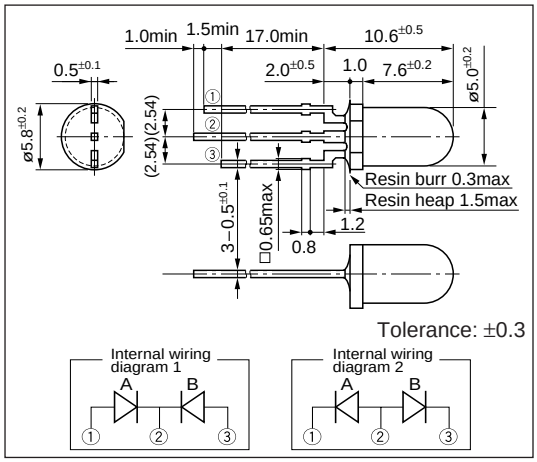
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V)		Condition I_F	Reverse current I_R (μA)	Condition V_R	Intensity I_V	Condition I_F	Peak wavelength λP	Condition I_F	Spectrum half width $\Delta\lambda$	Condition I_F	Chip material
			typ	max	(mA)	max	(V)	typ	(mA)	typ	(mA)	typ	(mA)	
Red	SEL5255S	Transparent red	1.9	2.5	10	50	3	35	20	630	10	35	10	GaAsP
Orange	SEL5955A	Transparent orange	1.9	2.5	10	50	3	25	20	587	10	33	10	
Yellow	SEL5755C	Clear	2.0	2.5	10	50	3	140	20	570	10	30	10	GaP

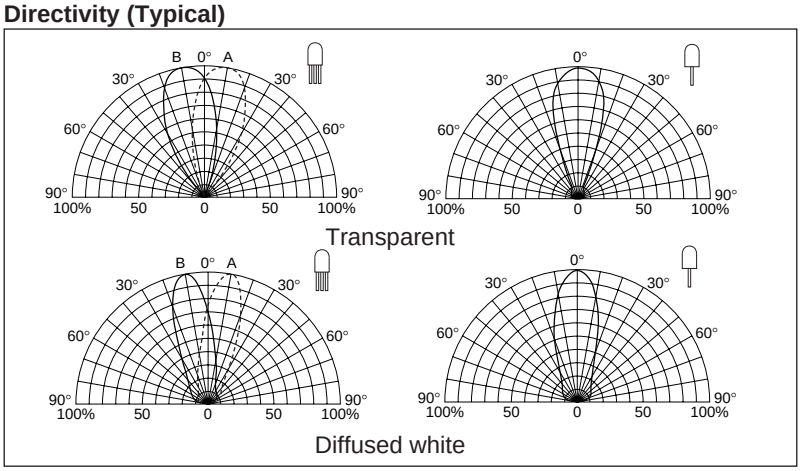
5ϕ Round Standard Bicolor LED

SML1016/10016 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	−0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	4	
Top	°C	−30 to +85	
Tstg	°C	−30 to +100	

Absolute maximum ratings (Ta=25°C)

●Common cathode (Internal wiring diagram 1)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
A Deep red	SML11516C	Clear	2.0	2.5	10	10	4	15	20	700	10	100	10	GaP
B Pure green			2.0	2.5	10	10	4	50	20	555	10	20	10	GaP
A Deep red	SML1516W	Diffused white	2.0	2.5	10	10	4	6.0	20	700	10	100	10	GaP
B Pure green			2.0	2.5	10	10	4	20	20	555	10	20	10	GaP
A Red	SML1216C	Clear	1.9	2.5	10	10	4	65	20	630	10	35	10	GaAsP
B Green			2.0	2.5	10	10	4	90	20	560	10	20	10	GaP
A Red	SML1216W	Diffused white	1.9	2.5	10	10	4	60	20	630	10	35	10	GaAsP
B Green			2.0	2.5	10	10	4	60	20	560	10	20	10	GaP
A Amber	SML1816W	Diffused white	1.9	2.5	10	10	4	50	20	610	10	35	10	GaAsP
B Green			2.0	2.5	10	10	4	60	20	560	10	20	10	GaP
A Orange	SML19416W	Diffused white	1.9	2.5	10	10	4	45	20	587	10	33	10	GaAsP
B Green			2.0	2.5	10	10	4	60	20	560	10	20	10	GaP

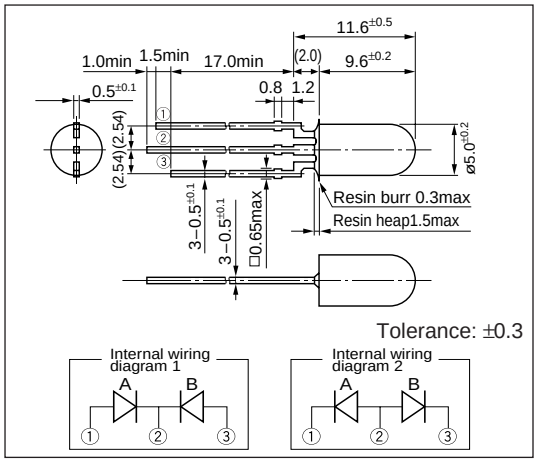
●Common anode (Internal wiring diagram 2)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
A High-intensity red	SML16716CN	Clear	1.7	2.2	10	10	4	100	20	660	10	30	10	GaAlAs
B Yellow			2.4	3.0	10	10	4	140	20	570	10	30	10	GaP
A High-intensity red	SML16716WN	Diffused white	1.7	2.2	10	10	4	50	20	660	10	30	10	GaAlAs
B Yellow			2.4	3.0	10	10	4	70	20	570	10	30	10	GaP

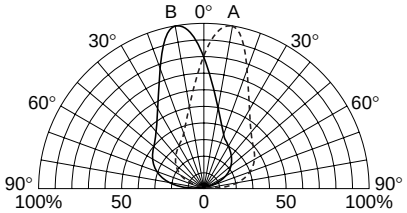
5φ Round Bicolor LED

SML10051 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	4	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

Electrical Optical characteristics (Ta=25°C)

●Common cathode (Internal wiring diagram 1)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
A Red	SML12451W	Diffused white	1.9	2.5	10	10	4	40	20	630	10	35	10	GaAsP
B Green			2.0	2.5	10	10	4	60	20	560	10	20	10	GaP

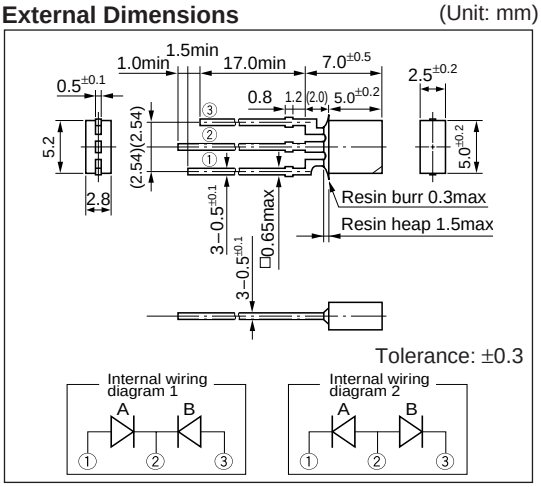
●Common anode (Internal wiring diagram 2)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
A High-intensity red	SML16751WN	Diffused white	1.7	2.2	10	10	4	50	20	660	10	30	10	GaAlAs
B Yellow			2.4	3.0	10	10	4	60	20	570	10	30	10	GaP

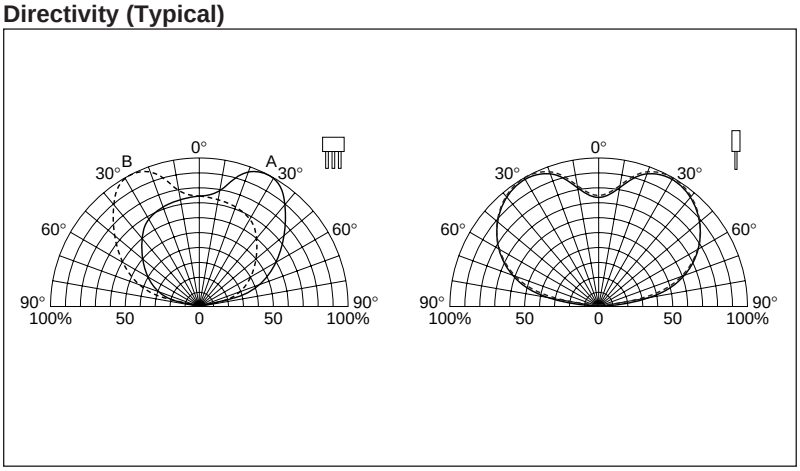
2.5×5 Rectangular Bicolor LED

SML10060 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	4	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

Electrical Optical characteristics (Ta=25°C)

●Common cathode (Internal wiring diagram 1)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
A Red	SML12460C	Clear	1.9	2.5	10	10	4	10	20	630	10	35	10	GaAsP
B Green			2.0	2.5	10	10	4	25	20	560	10	20	10	GaP
A Orange	SML19460C	Clear	1.9	2.5	10	10	4	15	20	587	10	35	10	GaAsP
B Green			2.0	2.5	10	10	4	25	20	560	10	20	10	GaP

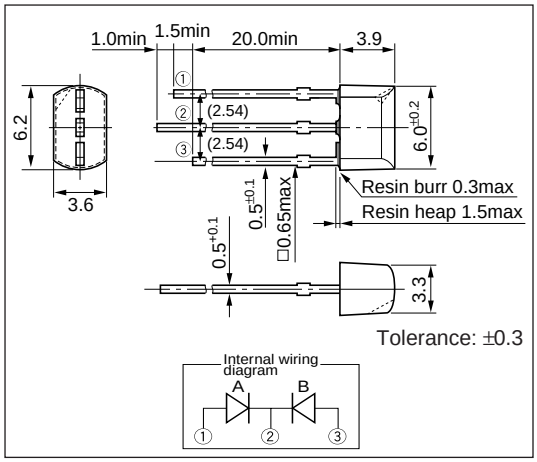
●Common anode (Internal wiring diagram 2)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
A High-intensity red	SML16760CN	Clear	1.7	2.2	10	10	4	30	20	660	10	30	10	GaAlAs
B Yellow			2.4	3.0	10	10	4	40	20	570	10	30	10	GaP

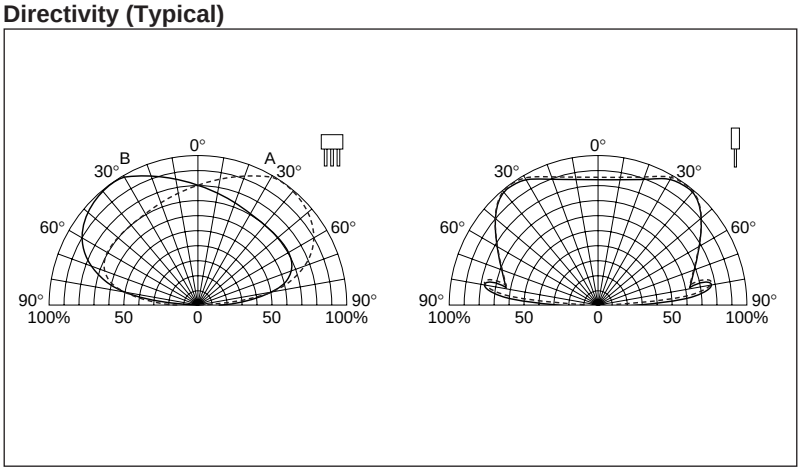
3.3×6 Rectangular Bicolor LED (Direct Mount)

SML70020 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	4	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

Electrical Optical characteristics (Ta=25°C)

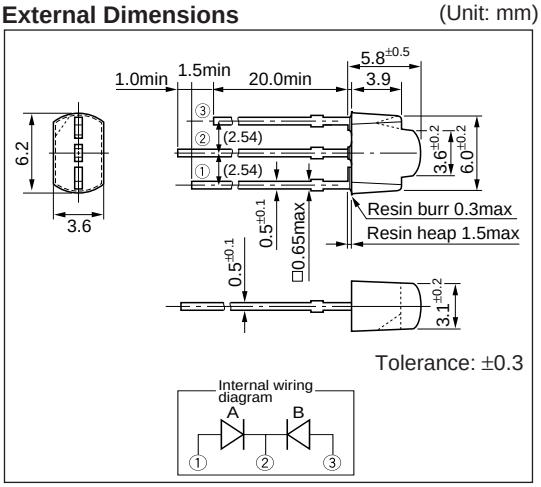
●Common cathode

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
A Red	SML72420C	Clear	1.9	2.5	10	10	4	15	20	630	10	35	10	GaAsP
B Green			2.0	2.5	10	10	4	20	20	560	10	20	10	GaP
A Amber	SML78420C	Clear	1.9	2.5	10	10	4	10	20	610	10	35	10	GaAsP
B Green			2.0	2.5	10	10	4	20	20	560	10	20	10	GaP
A Orange	SML79420C	Clear	1.9	2.5	10	10	4	10	20	587	10	33	10	GaAsP
B Green			2.0	2.5	10	10	4	20	20	560	10	20	10	GaP

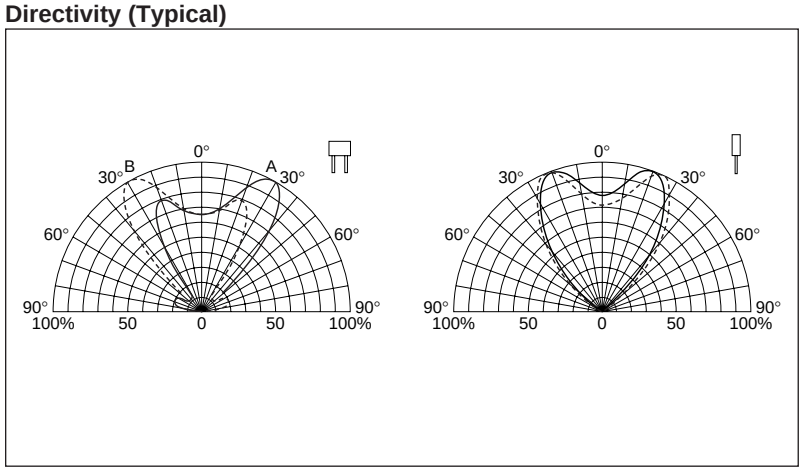
3.3×6 Bow-shaped Bicolor LED (Direct Mount)

SML70023 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	4	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

Electrical Optical characteristics (Ta=25°C)

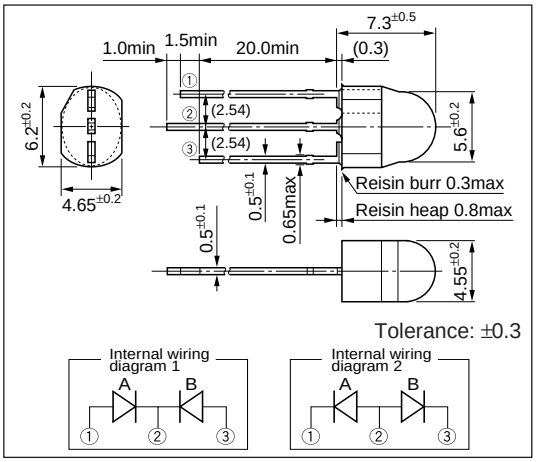
●Common cathode

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
A Red	SML72423C	Clear	1.9	2.5	10	10	4	25	20	630	10	35	10	GaAsP
B Green			2.0	2.5	10	10	4	35	20	560	10	20	10	GaP
A Red	SML72923C	Clear	1.9	2.5	10	10	4	25	20	630	10	35	10	GaAsP
B Orange			1.9	2.5	10	10	4	25	20	587	10	33	10	GaAsP
A Amber	SML78423C	Clear	1.9	2.5	10	10	4	25	20	610	10	35	10	GaAsP
B Green			2.0	2.5	10	10	4	35	20	560	10	20	10	GaP
A Ultra-high-intensity orange	SMLS79723C	Clear	2.0	2.5	10	100	4	150	20	590	10	15	10	AlGaInP
B Yellow			2.0	2.5	10	10	4	40	20	570	10	30	10	GaP
A Orange	SML79423C	Clear	1.9	2.5	10	10	4	25	20	587	10	33	10	GaAsP
B Green			2.0	2.5	10	10	4	35	20	560	10	20	10	GaP

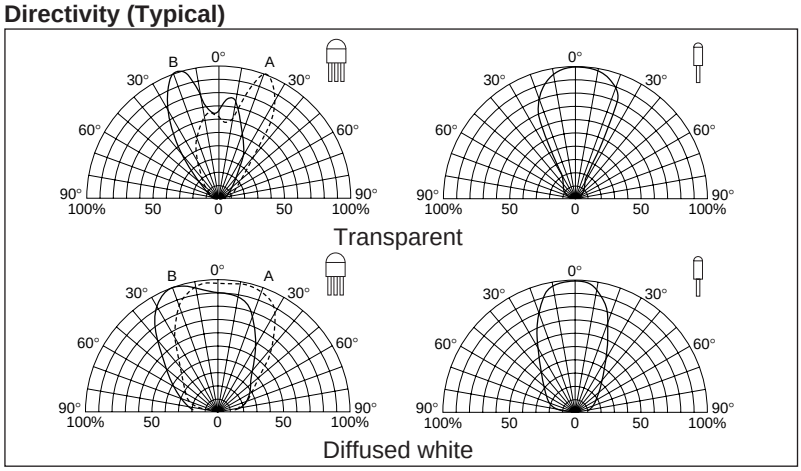
Egg-shaped Bicolor LED (Direct Mount)

SML70055 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	−0.45	Above 25°C
I_{FP}	mA	100	f=1kHz, tw≤100μs
V_R	V	4	
Top	°C	−30 to +85	
Tstg	°C	−30 to +100	

Electrical Optical characteristics (Ta=25°C)

●Common cathode (Internal wiring diagram 1)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
A Ultra-high-intensity red	SMLU72755C	Clear	2.0	2.5	10	10	4	160	20	635	10	15	10	AlGaInP
B Ultra-high-intensity yellow			2.0	2.5	10	10	4	170	20	572	10	15	10	AlGaInP
A Red	SML72755C	Clear	1.9	2.5	10	10	4	45	20	630	10	35	10	GaAsP
B Yellow			2.0	2.5	10	10	4	75	20	570	10	30	10	GaP
A Ultra-high-intensity amber	SMLU78755C	Clear	2.0	2.5	10	10	4	280	20	615	10	15	10	AlGaInP
B Ultra-high-intensity yellow			2.0	2.5	10	10	4	170	20	572	10	15	10	AlGaInP
A Orange	SML79255C	Clear	1.9	2.5	10	10	4	40	20	587	10	33	10	GaAsP
B Red			2.0	2.5	10	10	4	45	20	630	10	35	10	GaAsP
A Orange	SML79455C	Clear	1.9	2.5	10	10	4	45	20	587	10	33	10	GaAsP
B Green			2.0	2.5	10	10	4	75	20	560	10	20	10	GaP

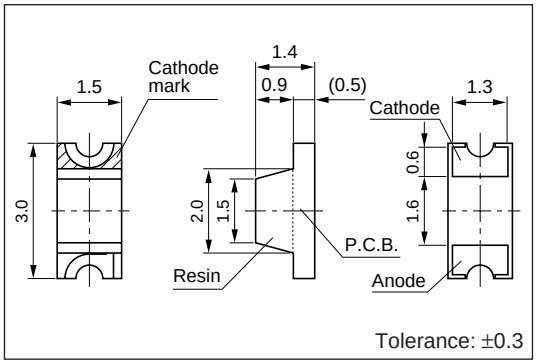
●Common anode (Internal wiring diagram 2)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
A High-intensity red	SML76755WN	Diffused white	1.7	2.2	10	10	4	50	20	660	10	30	10	GaAlAs
B Yellow			2.4	3.0	10	10	4	50	20	570	10	30	10	GaP

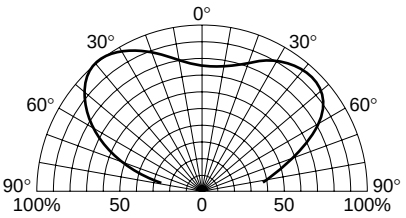
3×1.5 Surface Mount LED (Flat Lens)

SEC1001 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating		Condition
		GaP/GaAsP/GaAlAs	GaN/InGaN	
I_F	mA	30		
ΔI_F	mA/°C	–0.45		Above 25°C
I_{FP}	mA	70		f=1kHz, tw≤100μs
V_R	V	4	5	
Top	°C	–30 to +85	–25 to +80	
Tstg	°C	–30 to +100		

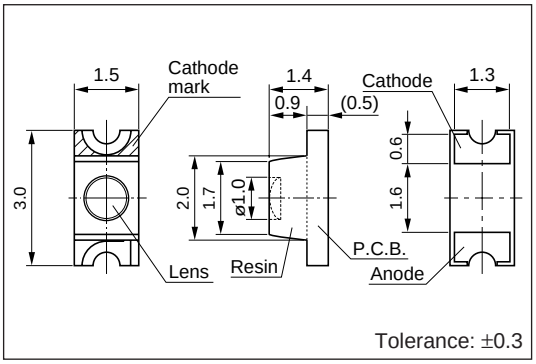
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V)		Condition I_F	Reverse current I_R (μA)	Condition V_R	Intensity I_V (mcd)	Condition I_F	Peak wavelength λP (nm)	Condition I_F	Spectrum half width Δλ (nm)	Condition I_F	Chip material
			typ	max	(mA)	max	(V)	typ	(mA)	typ	(mA)	typ	(mA)	
Deep red	SEC1101C	Clear	2.0	2.5	10	100	4	1.5	20	700	10	100	10	GaP
High-intensity red	SEC1601C	Clear	1.7	2.2	10	100	4	100	20	660	10	30	10	GaAlAs
Red	SEC1201C	Clear	1.9	2.5	10	100	4	10	20	630	10	35	10	GaAsP
Amber	SEC1801C	Clear	1.9	2.5	10	100	4	16	20	610	10	35	10	
Orange	SEC1901C	Clear	1.9	2.5	10	100	4	13	20	587	10	33	10	
Yellow	SEC1701C-YG	Clear	2.0	2.5	10	100	4	25	20	570	10	30	10	GaP
Green	SEC1401C	Clear	2.0	2.5	10	100	4	22	20	560	10	20	10	
Deep green	SEC1401E-TG	Transparent green	2.0	2.5	10	100	4	11	20	558	10	20	10	
Pure green	SEC1501C	Clear	2.0	2.5	10	100	4	8.0	20	555	10	20	10	
Ultra-high-intensity pure green	SECU1D01C	Clear	3.3	4.0	20	10	5	150	20	525	20	35	20	InGaN
Ultra-high-intensity blue	SECU1E01C	Clear	3.3	4.0	20	10	5	50	20	470	20	35	20	
Blue	SEC1E01C	Clear	3.9	4.8	20	10	5	6.0	20	430	20	65	20	GaN

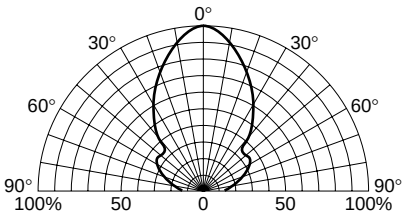
3×1.5 Surface Mount LED (Inner Lens)

SEC1003 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	70	f=1kHz, tw≤100μs
V_R	V	4	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

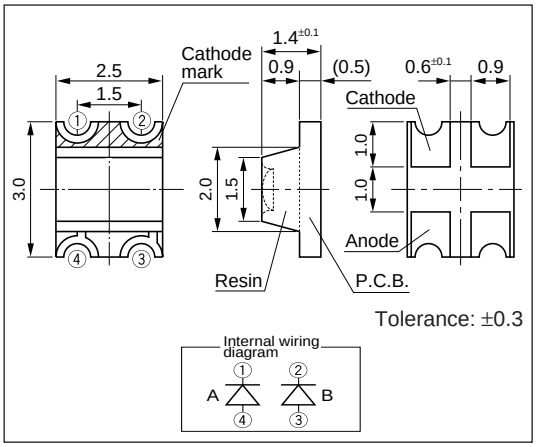
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
High-intensity red	SEC1603C	Clear	1.7	2.2	10	100	4	150	20	660	10	30	10	GaAlAs
Ultra-high-intensity red	SECS1203C	Clear	1.9	2.5	20	100	4	100	20	635	20	35	20	AlGaInP
Red	SEC1203C	Clear	1.9	2.5	10	100	4	15	20	630	10	35	10	GaAsP
Ultra-high-intensity amber	SECS1803C	Clear	1.9	2.5	3	10	4	10	3	615	3	35	3	AlGaInP
Amber	SEC1803C	Clear	1.9	2.5	10	100	4	20	20	610	10	35	10	GaAsP
Ultra-high-intensity orange	SECS1903C	Clear	1.9	2.5	3	10	4	10	3	590	3	35	3	AlGaInP
Orange	SEC1903C	Clear	1.9	2.5	10	100	4	15	20	587	10	33	10	GaAsP
Yellow	SEC1703C	Clear	2.0	2.5	10	100	4	35	20	570	10	30	10	GaP
Green	SEC1403C	Clear	2.0	2.5	10	100	4	33	20	560	10	20	10	
Deep green	SEC1403E-TG	Transparent green	2.0	2.5	10	100	4	15	20	558	10	20	10	
Pure green	SEC1503C	Clear	2.0	2.5	10	100	4	10	20	555	10	20	10	

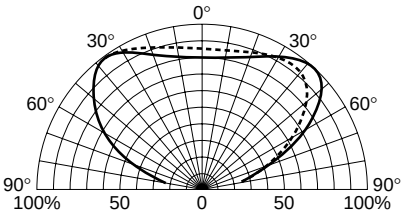
3×2.5 Bicolor Surface Mount LED (Flat Lens)

SEC2002 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	70	f=1kHz, tw≤100μs
V_R	V	4	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

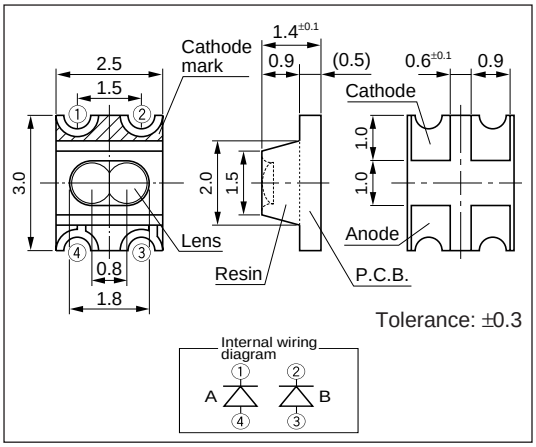
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
A Yellow	SEC2762C-YG	Clear	2.0	2.5	10	100	4	20	20	570	10	30	10	GaP
B High-intensity red			1.7	2.2	10	100	4	20	20	660	10	30	10	GaAlAs
A Green	SEC2462C	Clear	2.0	2.5	10	100	4	20	20	560	10	20	10	GaP
B High-intensity red			1.7	2.2	10	100	4	20	20	660	10	30	10	GaAlAs
A Green	SEC2422C	Clear	2.0	2.5	10	100	4	20	20	560	10	20	10	GaP
B Red			1.9	2.5	10	100	4	10	20	630	10	35	10	GaAsP
A Green	SEC2492C	Clear	2.0	2.5	10	100	4	20	20	560	10	20	10	GaP
B Orange			1.9	2.5	10	100	4	10	20	587	10	33	10	GaAsP
A Pure green	SEC2592C	Clear	2.0	2.5	10	100	4	5.0	20	555	10	20	10	GaP
B Orange			1.9	2.5	10	100	4	10	20	587	10	33	10	GaAsP
A Green	SEC2442C	Clear	2.0	2.5	10	100	4	20	20	560	10	20	10	GaP
B Green			2.0	2.5	10	100	4	20	20	560	10	20	10	GaP
A Pure green	SEC2552C	Clear	2.0	2.5	10	100	4	5.0	20	555	10	20	10	GaP
B Pure green			2.0	2.5	10	100	4	5.0	20	555	10	20	10	GaP

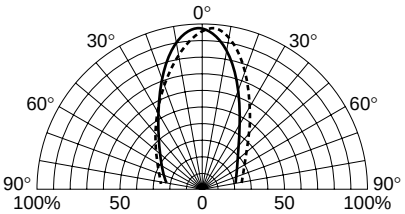
3×2.5 Bicolor Surface Mount LED (Inner Lens)

SEC2004 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	30	
ΔI_F	mA/°C	–0.45	Above 25°C
I_{FP}	mA	70	f=1kHz, tw≤100μs
V_R	V	4	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

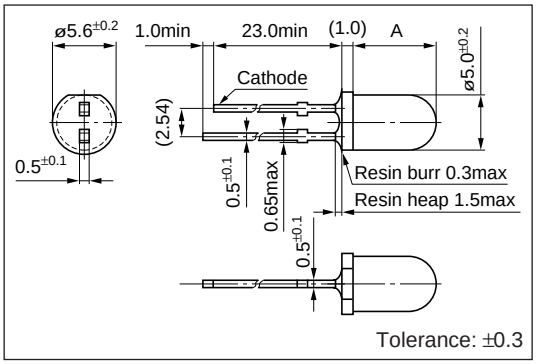
Electrical Optical characteristics (Ta=25°C)

Emitting color	Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Intensity I_V (mcd) typ	Condition I_F (mA)	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
A Yellow	SEC2764C	Clear	2.0	2.5	10	100	4	50	20	570	10	30	10	GaP
B High-intensity red			1.7	2.2	10	100	4	50	20	660	10	30	10	GaAlAs
A Green	SEC2484C	Clear	2.0	2.5	10	100	4	30	20	560	10	20	10	GaP
B Amber			1.9	2.5	10	100	4	20	20	610	10	35	10	GaAsP
A Green	SEC2494C	Clear	2.0	2.5	10	100	4	30	20	560	10	20	10	GaP
B Orange			1.9	2.5	10	100	4	20	20	587	10	33	10	GaAsP
A Yellow	SEC2774C	Clear	2.0	2.5	10	100	4	50	20	570	10	30	10	GaP
B Yellow			2.0	2.5	10	100	4	50	20	570	10	30	10	GaP
A Pure green	SEC2554C	Clear	2.0	2.5	10	100	4	10	20	555	10	20	10	GaP
B Pure green			2.0	2.5	10	100	4	10	20	555	10	20	10	GaP

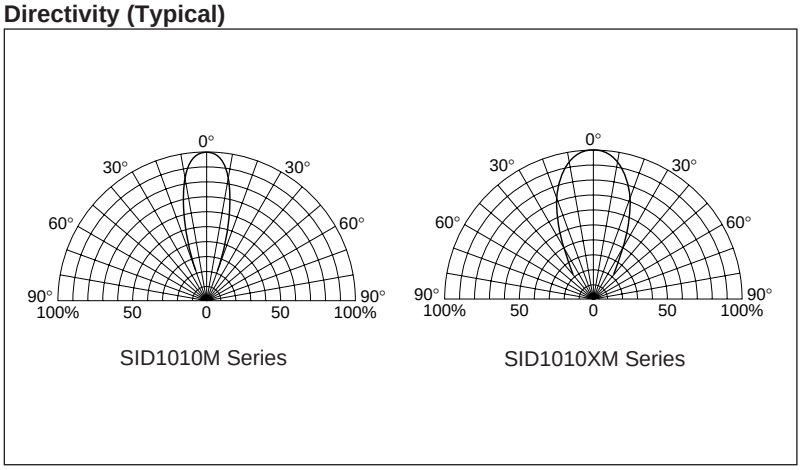
5ϕ Round Infrared LED

SID1010M Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	150	
ΔI_F	mA/°C	–1.33	Above 25°C
I_{FP}	mA	1000	f=1kHz, tw≤10μs
V_R	V	5	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

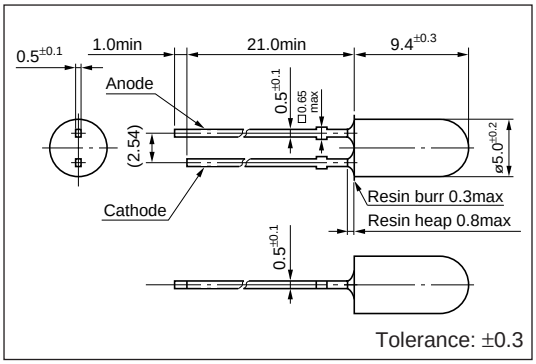
Electrical Optical characteristics (Ta=25°C)

Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Optical Power I_e (mW/sr) typ	Condition	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material	Dimension A (mm)
SID1010CM	Clear	1.3	1.5	50	10	5	130	(Constant	940	50	50	50	GaAs	7.6 ±0.2
SID1K10CM	Clear	1.3	1.5	50	10	5	200	voltage)	940	50	50	50		
SID1010CXM	Clear	1.3	1.5	50	10	5	60	V_{CC}=3V	940	50	50	50		6.9 ±0.2
SID1K10CXM	Clear	1.3	1.5	50	10	5	110	R=2.2Ω	940	50	50	50		

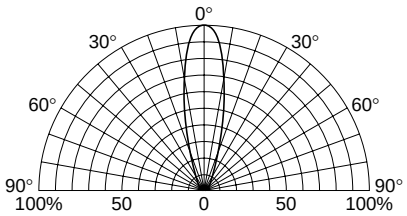
5φ Round Infrared LED (Direct Mount)

SID1050M Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	150	
ΔI_F	mA/°C	–1.33	Above 25°C
I_{FP}	mA	1000	f=1kHz, tw≤10μs
V_R	V	5	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

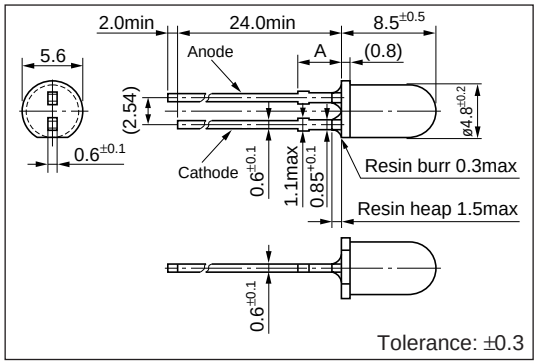
Electrical Optical characteristics (Ta=25°C)

Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Optical Power I_e (mW/sr) typ	Optical Power Condition	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
SID1050CM	Clear	1.3	1.5	50	10	5	250	(Constant voltage) V_{CC}=3V, R=2.2Ω	940	50	50	50	GaAs

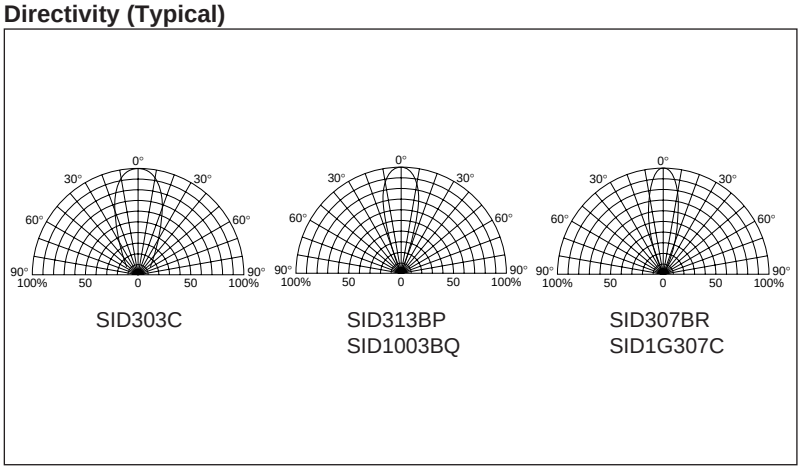
5φ Round Infrared LED

SID300/1003 Series

External Dimensions (Unit: mm)



Directivity (Typical)



SID303C

SID313BP
SID1003BQ

SID307BR
SID1G307C

Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	150	
ΔI_F	mA/°C	–1.33	Above 25°C
I_{FP}	mA	1000	f=1kHz, tw≤10μs
V_R	V	5	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

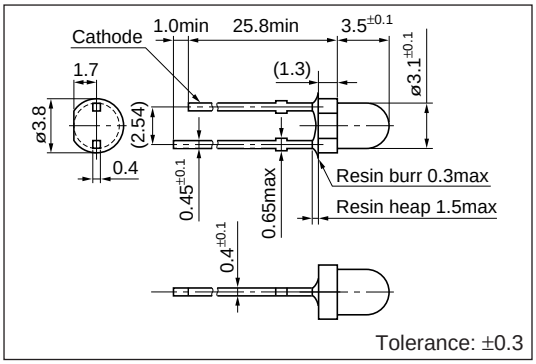
Electrical Optical characteristics (Ta=25°C)

Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Optical Power I_e (mW/sr) typ	Condition	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material	Dimension A (mm)
SID303C	Clear	1.3	1.5	50	10	5	80	(Constant	940	50	50	50	GaAs	$3.0^{\pm0.5}$
SID313BP	Transparent light purple	1.3	1.5	50	10	5	130	voltage)	940	50	50	50		$3.6^{\pm0.5}$
SID1003BQ	Transparent light navy blue	1.3	1.5	50	10	5	180	V_{CC}=3V	940	50	50	50		
SID307BR	Transparent dark navy blue	1.3	1.5	50	10	5	200	R=2.2Ω	940	50	50	50		$4.2^{\pm0.5}$
SID1G307C	Clear	1.5	1.8	50	10	5	50	I_F=50mA	850	50	40	50		

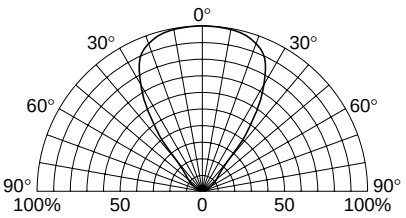
3φ Round Infrared LED

SID2010 Series

External Dimensions (Unit: mm)



Directivity (Typical)



Absolute maximum ratings (Ta=25°C)

Symbol	Unit	Rating	Condition
I_F	mA	150	
ΔI_F	mA/°C	–1.33	Above 25°C
I_{FP}	mA	1000	f=1kHz, tw≤10μs
V_R	V	5	
Top	°C	–30 to +85	
Tstg	°C	–30 to +100	

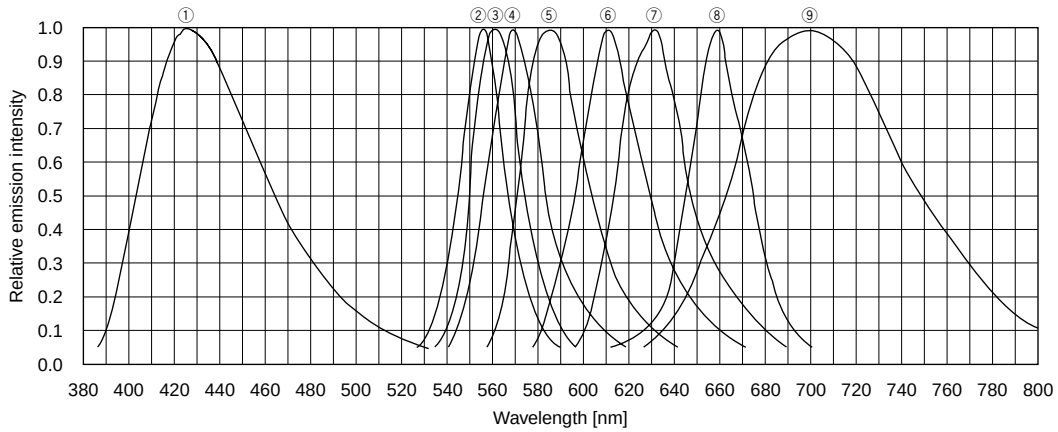
Electrical Optical characteristics (Ta=25°C)

Part Number	Lens color	Forward voltage V_F (V) typ	Forward voltage V_F (V) max	Condition I_F (mA)	Reverse current I_R (μA) max	Condition V_R (V)	Optical Power I_e (mW/sr) typ	Condition	Peak wavelength λP (nm) typ	Condition I_F (mA)	Spectrum half width Δλ (nm) typ	Condition I_F (mA)	Chip material
SID2010C	Clear	1.3	1.5	50	10	5	7.0	I_F=50mA	940	50	50	50	GaAs
SID2K10C	Clear	1.3	1.5	50	10	5	14	I_F=50mA	940	50	50	50	GaAs

Characteristic Curves

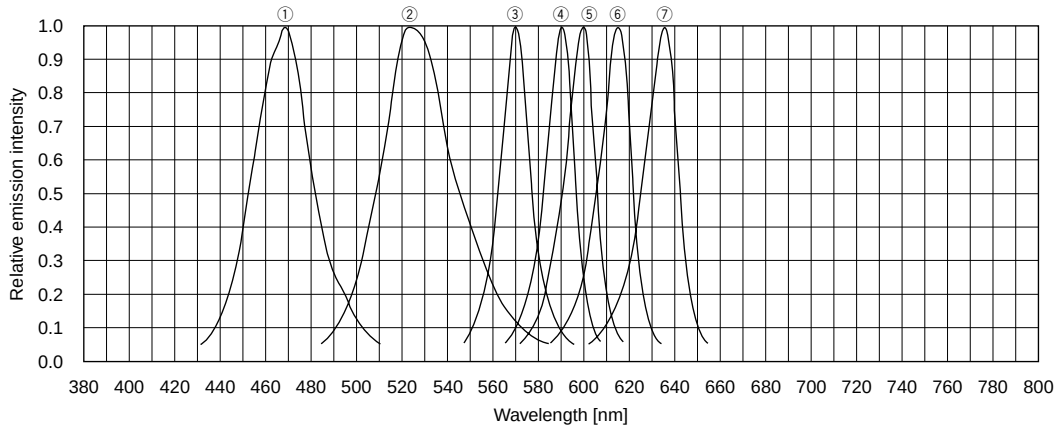
Spectral distribution

●Standard type



	Light color	Chip material	Peak Wavelength(nm)
①	Blue	GaN	430
②	Pure green	GaP	555
③	Green/deep green	GaP	560/558
④	Yellow	GaP	570
⑤	Orange	GaAsP	587
⑥	Amber	GaAsP	610
⑦	Red	GaAsP	630
⑧	High-intensity red	GaAlAs	660
⑨	Deep red	GaP	700

●Ultra-high-intensity type

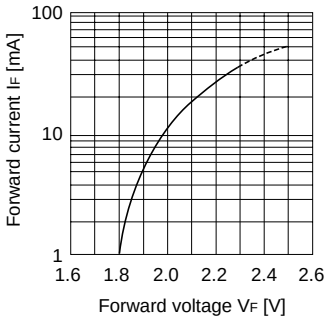


	Light color	Chip material	Peak Wavelength(nm)
①	Ultra-high-intensity blue	InGaN	470
②	Ultra-high-intensity pure green	InGaN	525
③	Ultra-high-intensity yellow	AlGaInP	572
④	Ultra-high-intensity orange	AlGaInP	590
⑤	Ultra-high-intensity light amber	AlGaInP	600
⑥	Ultra-high-intensity amber	AlGaInP	615
⑦	Ultra-high-intensity red	AlGaInP	635

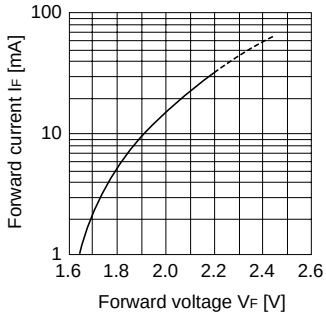
Characteristic Curves

■ IF - VF characteristic

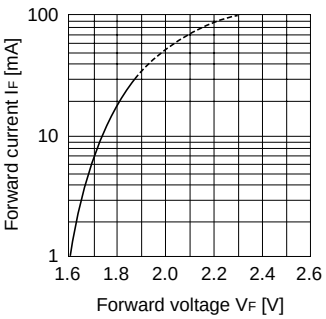
GaP



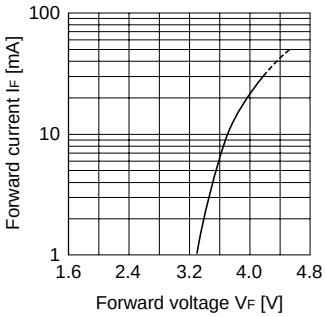
GaAsP



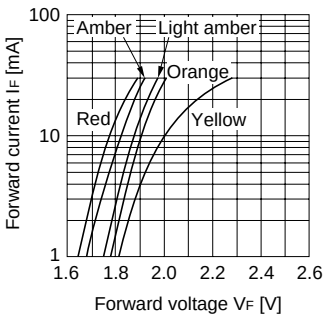
GaAlAs



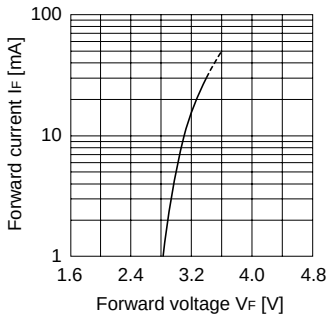
GaN



AlGaInP

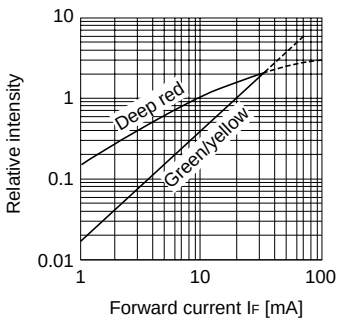


InGaN

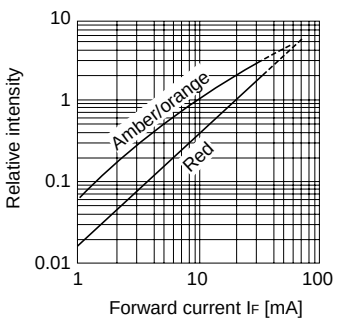


■ Relative intensity - IF characteristic

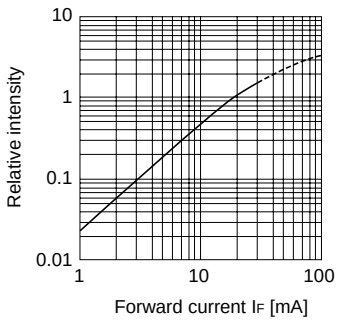
GaP



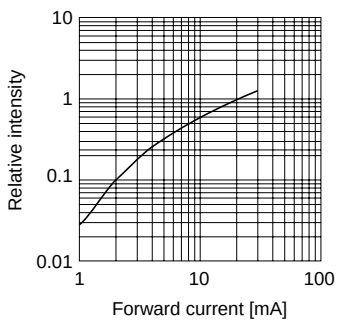
GaAsP



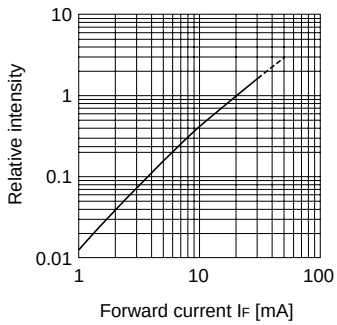
GaAlAs



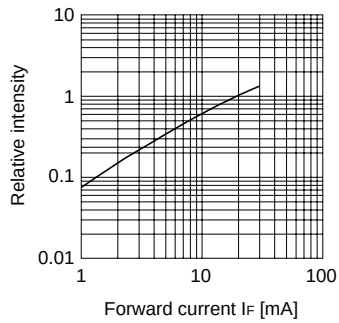
GaN



AlGaInP



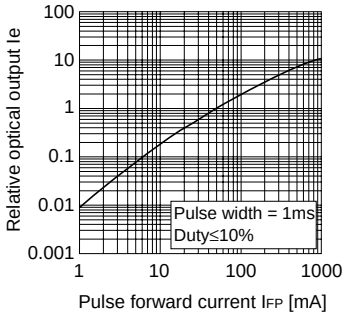
InGaN



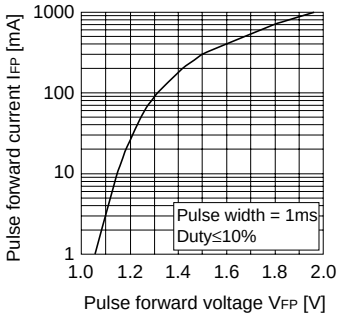
Characteristic Curves

■ Infrared LED

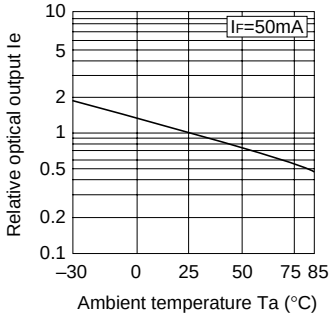
I_{FP} - Ie characteristic



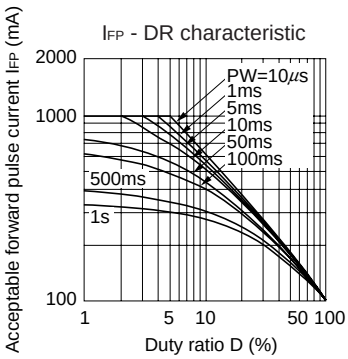
V_{FP} - IFP characteristic



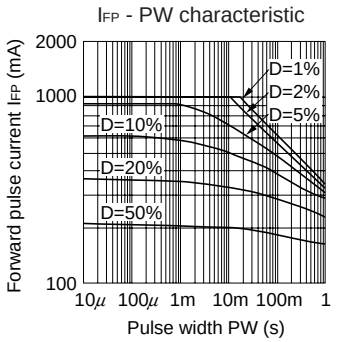
Ie - Ta characteristic



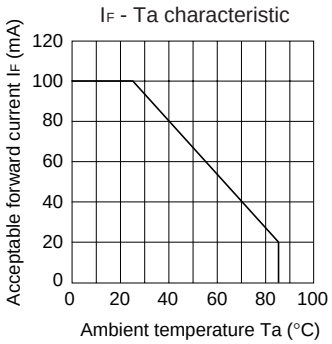
I_{FP} - DR characteristic



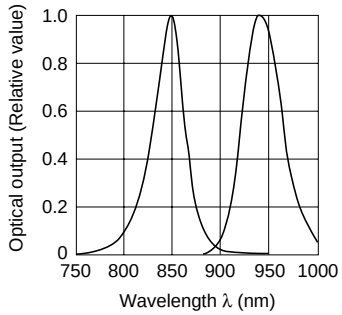
I_{FP} - PW characteristic



I_F - Ta characteristic



Spectral distribution

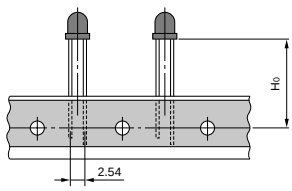


Taping Specifications

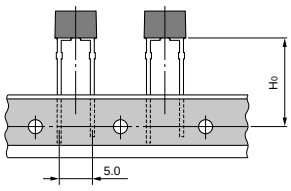
Lamp Types

1.Straight type

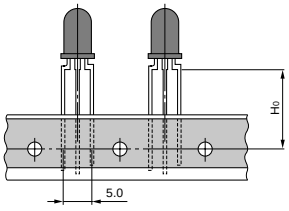
2. Forming (5 mm pitch) type



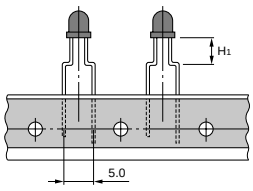
Straight standard shape



Straight standard shape
(5 mm pitch lead)



Bicolor straight standard shape



Forming standard shape

Taping shape (unit: mm)

Taping compatibility table

Series name	Forming (5 mm pitch) type							Straight type						With holder*			Package contents	Page
Taping No.⇒	TP1	TP2	TP3	TP6	TP7	TP8	TP19	TP4	TP5	TP15	TP16	TP17	TP18	TH8F	TH10D	TH12E		
H1 or H0 dimension⇒	4.5	7.5	6.0	3.5	5.0	9.0	7.4	17.0	20.5	20.5	19.0	23.5	25.0					
SEL1010		○	○		○	○											2500	10
SEL1010M	○	○	○	○	○	○											2500	11
SEL1010XM	○	○	○	○	○	○											2500	12
SEL1050M	○	○	○	○	○	○			○								2500	13
SEL1015		○	○		○	○											2500	14
SEL1011		○	○		○	○											2500	15
SEL1053M																	2500	16
SEL4010		○	○		○	○											3000	17
SEL4014	○	○	○	○	○	○			○								3000	18
SEL6010	Use SEL2010								○						○	○	4000	19
SEL6014		○	○		○	○			○								4000	20
SEL6015	Use SEL2015								○								4000	21
SEL2010	○	○	○	○	○	○											4000	22
SEL2015	○	○	○	○	○	○											4000	23
SEL2011	○	○	○	○	○	○											4000	24
SEL4017	○	○	○	○	○	○											4000	25
SEL1013		○	○		○	○											2500	26
SEL6013	Use SEL2013								○								4000	27
SEL2013	○	○	○	○	○	○											4000	28
SEL1021		○	○		○	○											2500	30
SEL1022		○	○		○	○											2500	31
SEL1020		○	○		○	○											3000	32
SEL1024		○	○		○	○											3000	33
SEL4025	○	○	○	○	○	○											6000	34
SEL4026	○	○	○	○	○	○		○									6000	35
SEL4027	○	○	○	○	○	○											6000	36
SEL4028	○	○	○	○	○	○											6000	37
SEL4029	○	○	○	○	○	○											6000	38
SEL6027	Use SEL4027								○								6000	39
SEL5020										○				○			4000	40
SEL5021										○							4000	41
SEL5023										○							4000	42
SEL5055										○							4000	43
SML1016/10016								○									2500	44
SML10051								○									2500	45
SML10060								○									6000	46
SML70020										○							4000	47
SML70023										○							4000	48
SML70055										○							3000	49
SID1010	○	○	○	○	○	○											2500	54
SID1050	○	○	○	○	○	○			○								2500	55
SID300/1003											○	○	○				2000	56
SID2010																	3000	57

* The package contents for taping with holder are 1200.

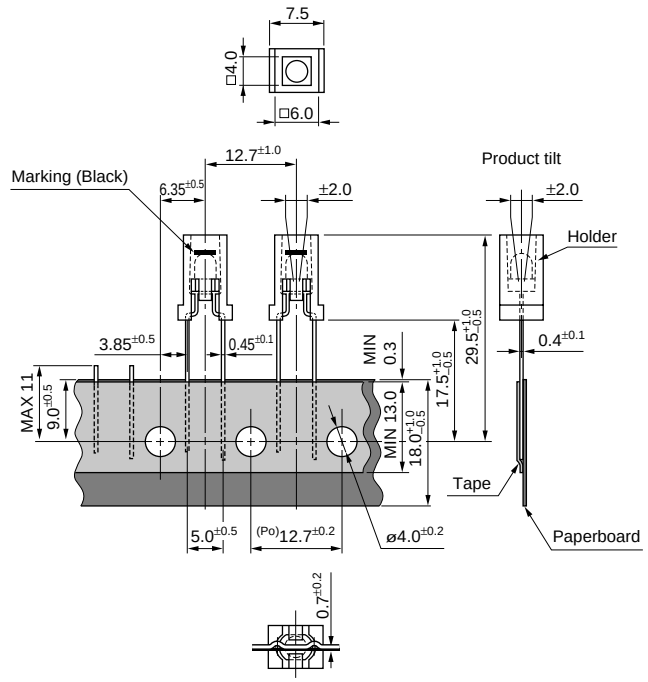
Taping Specifications

Taping with holder

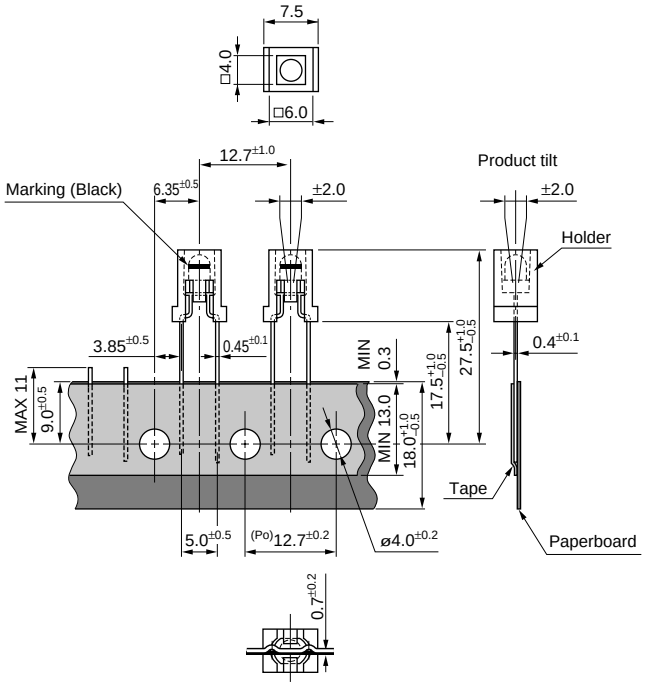
Features

- This taping format saves the customer the trouble of attaching a holder.
- Any available inserter can be used with the 5 mm lead pitch radial taping.

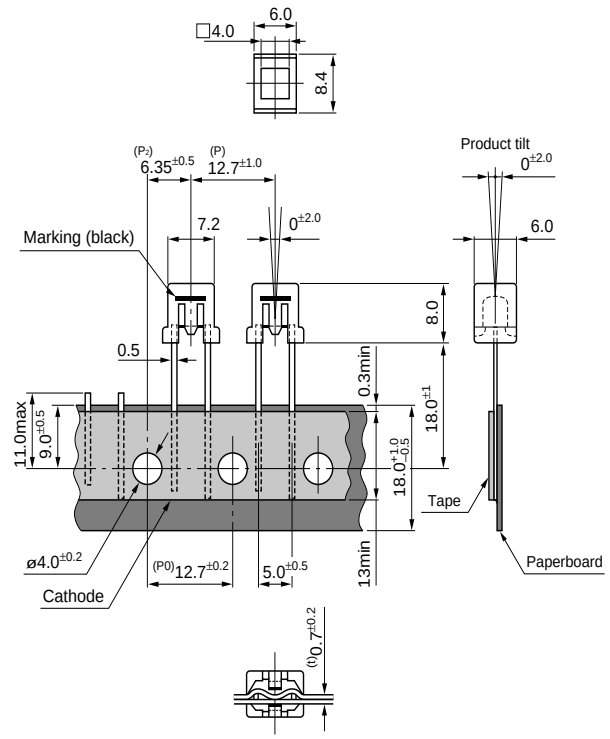
TH12E



TH10D



TH8F



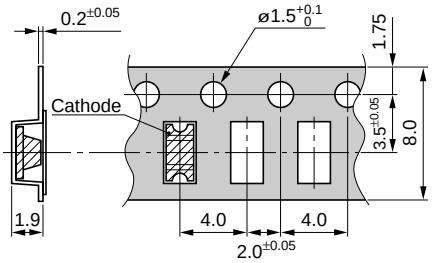
Po: The cumulative pitch error is ±1.0 mm per 20.
Dimensional tolerance: ±0.3
Unit: mm

See the previous page for the product names and package contents (standard per box).

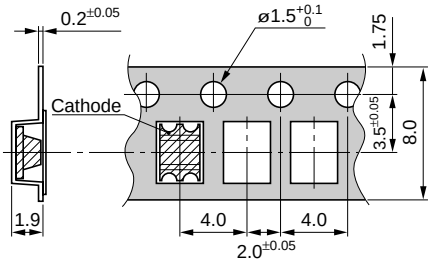
Taping Specifications

Chip type

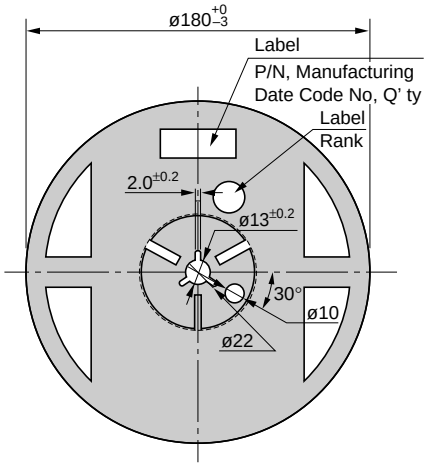
Single-color SEC1001/1003 Series

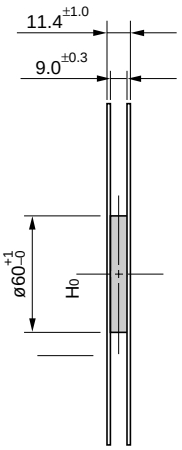


Bicolor SEC2002/2004 Series



Reel specifications





General tolerance: ±0.2

Package contents: 3000

List of Discontinued Products

Part Number	Substitute
SEL1112R	SEL4117R
SEL1120RKT	SEL1120R
SEL1123R	SEL1124R
SEL1131R	–
SEL1132R	–
SEL1134R	–
SEL1142R	–
SEL1213CM	SEL1213C
SEL1215R	–
SEL1310E	SEL1410E
SEL1310G	SEL1410G
SEL1311G	SEL1411G
SEL1312G	SEL4417G
SEL1320G	SEL1420G
SEL1321G	SEL1421G
SEL1323G	SEL1424G
SEL1324G	SEL1424G
SEL1331G	–
SEL1332G	–
SEL1334G	–
SEL1342G	–
SEL1420GW	–
SEL152R	–
SEL1650CM	–
SEL1723Y	SEL1724Y
SEL1731Y	–
SEL1742Y	–
SEL1820W	–
SEL1823D	SEL1824D
SEL1842D	–
SEL1915C	–
SEL1923D	SEL1924D
SEL1942D	–
SEL1E10CM	SELU1E10CXM/SELU1E50CM
SEL2111W	–
SEL2111W	–
SEL2215RM	SEL2215R
SEL2310E	SEL2410E
SEL2310G	SEL2410G
SEL2311G	SEL2411G
SEL2710E	–
SEL2915DM	SEL2915D
SEL3110R	SEL2110R/SEL6210R
SEL3110S	SEL2110S/SEL6210S
SEL3210R	SEL2210R/SEL6210R
SEL3210S	SEL2210S/SEL6210S
SEL3213C	SEL2213C
SEL3410E	SEL2410E/SEL6410E
SEL3410G	SEL2410G
SEL3413E	SEL2413E

Part Number	Substitute
SEL3510C	SEL2510C/SEL6510C
SEL3510G	SEL2510G/SEL6510G
SEL352G	–
SEL3710K	SEL2710K/SEL6710K
SEL3710Y	SEL2710Y/SEL6710Y
SEL3713K	SEL2713K
SEL3810A	SEL2910A/SEL6810A
SEL3810D	SEL2910D/SEL6810D
SEL3813A	SEL2813A
SEL3910A	SEL2910A/SEL6910A
SEL3910D	SEL2910D/SEL6910D
SEL3913K	SEL2913K
SEL3E10C	SELU2E10C
SEL4110RT	SEL4110R
SEL4210RT	SEL4210R
SEL4225RM	SEL4225R
SEL4310E	SEL4410E
SEL4310G	SEL4410G
SEL4425GM	SEL4425G
SEL4427E	SEL4427EP
SEL4725CM	–
SEL4814W	–
SEL550ST	–
SEL650ST	–
SEL8301A	–
SEL8302A	–
SEL8701Y	–
SEL8701YB	–
SID1010BXM	–
SID1010CM2	–
SID1H10CXM	–
SID1K10CM2	–
SID1K10CM2	–
SLH30	–
SLH50	–
SLS34	–
SLS36	–
SLS54	–

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PRINTED in JAPAN H1-L01EB0-0101040ND