

# SML-E1 Series

1608 (0603)  
1.6×0.8mm (t=0.36mm)

### Features

- EXCELED™ series
- Compact, Thin size (1.6×0.8mm, t=0.36mm)
- LED die consists of 4 elements
- Original device technology enables high brightness and high reliability

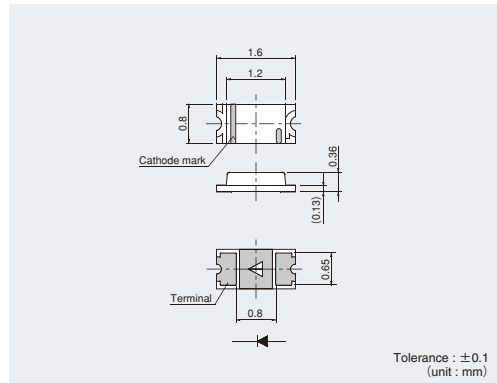


### Specifications

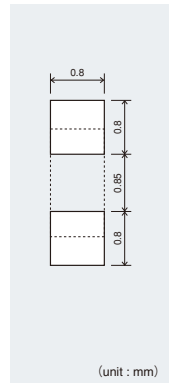
Part No.	Chip Structure	Emitting Color	Absolute Maximum Ratings (Ta=25°C)					Electrical and Optical Characteristics (Ta=25°C)										
			Power Dissipation Pd(mW)	Forward Current If(mA)	Peak Forward Current Ifp(mA)	Reverse Voltage Vr(V)	Operating Temperature Topr(°C)	Storage Temperature Tstg(°C)	Forward Voltage Vf Typ.(V)	Reverse Current Ir Max.(μA)	Reverse Current Ir Vr(V)	Dominant Wavelength λD Min.(nm)	Typ.(nm)	Max.(nm)	Luminous Intensity Iv Min.(mcd)	Typ.(mcd)	Iv Ir(mA)	
<b>SML-E12V8W</b>	AlGaInP on GaAs	Red	54	20	100 <sup>*2</sup>	5	-40 to +85	-40 to +100	2.2	20	4	625	630	635	20	16	40	20
<b>SML-E12UW</b>			62	25	60 <sup>*1</sup>	4	-30 to +85	-40 to +85	2.1			619	624	629		36	100	
<b>SML-E12U8W</b>			54	20	100 <sup>*2</sup>	5	-40 to +85	-40 to +100	2.2			615	620	625		25	63	
<b>SML-E12DW</b>	AlGaInP on GaAs	Orange	62	25	60 <sup>*1</sup>	4	-30 to +85	-40 to +85	1.9	10	4	603.5	606.5	609.5	20	56	200	20
<b>SML-E12D8W</b>			62	25	60 <sup>*1</sup>	4	-30 to +85	-40 to +85	2.2			602	605	608		40	100	
<b>SML-E12Y8W</b>			54	20	100 <sup>*2</sup>	5	-40 to +85	-40 to +100	2.2			587	590	593		25	63	
<b>SML-E12M8W</b>	InGaInP on GaAs	Yellowish Green	62	25	60 <sup>*1</sup>	4	-30 to +85	-40 to +85	2.2	10	4	569	572	575	20	10	25	20
<b>SML-E12P8W</b>			62	25	60 <sup>*1</sup>	4	-30 to +85	-40 to +100	2.2			557	560	563		2.5	6.3	
<b>SMLE12EC6T</b>			68	25	60 <sup>*1</sup>	4	-30 to +85	-40 to +100	3.0			520	527	535		36	85	
<b>SMLE12BC7T</b>	InGaN on SiC	Blue	66	25	60 <sup>*1</sup>	4	-30 to +85	-40 to +100	2.9	5	5	464	470	476	5	9	22	5
<b>SMLE12WBC7W</b>			66	25	60 <sup>*1</sup>	4	-30 to +85	-40 to +100	2.9			100	(x, y) (0.30, 0.30)	22		71		

\* 1:Duty 1/5, 200Hz / \* 2:Duty 1/10, 1kHz \* 3:Reference

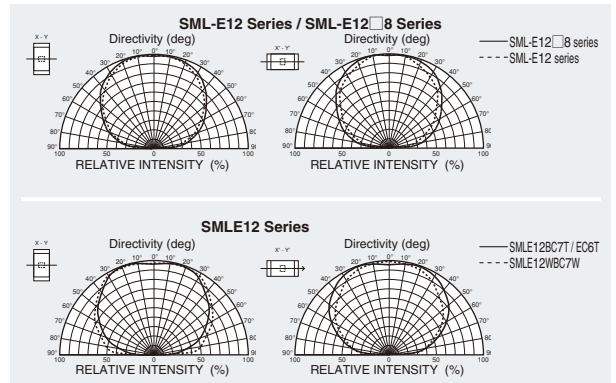
### Dimensions



### Recommended Solder Pattern



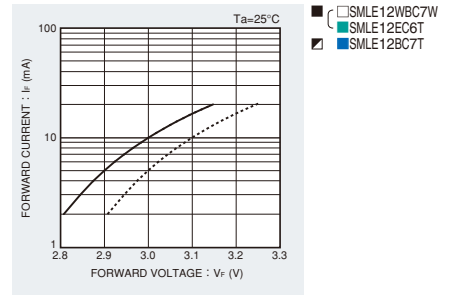
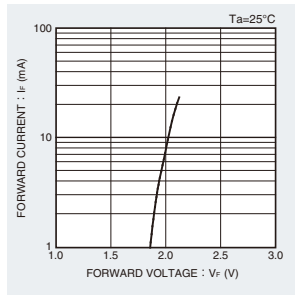
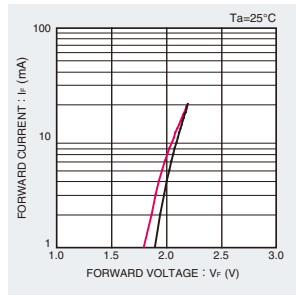
### Viewing Angle



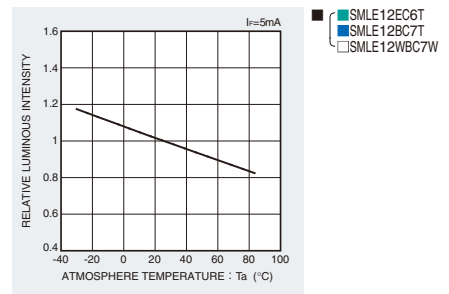
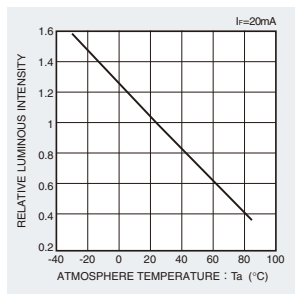
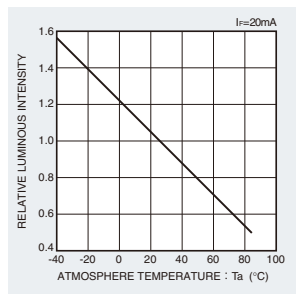
\* EXCELED™ is ROHM's pending trademark.

## Electrical Characteristics Curves

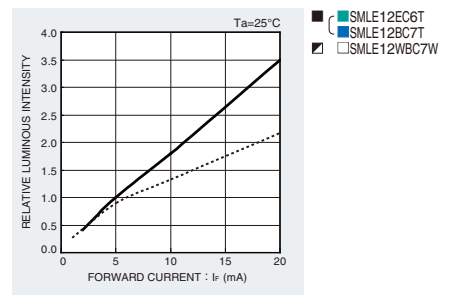
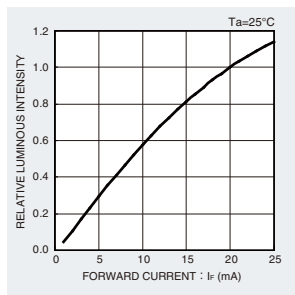
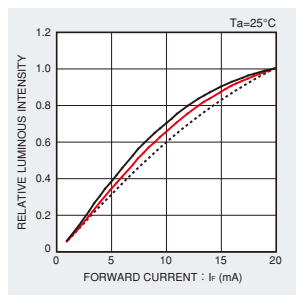
### Forward Current-Forward Voltage



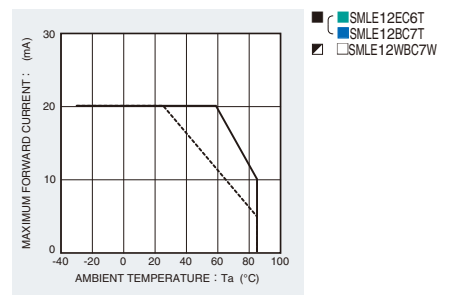
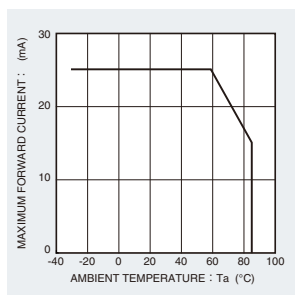
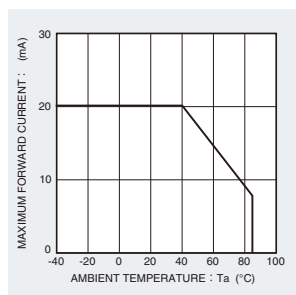
### Luminous Intensity-Atmosphere Temperature



### Luminous Intensity-Forward Current



### Derating



# SML-E1 Series

## Rank Reference of Brightness

### Red (V, U)

(Ta=25°C, If=20mA)

Package size(mm)	Height(mm)	Luminous Intensity (mcd)	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X
			1.0 to 1.6	1.6 to 2.5	2.5 to 4.0	4.0 to 6.3	6.3 to 10	10 to 16	16 to 25	25 to 40	40 to 63	63 to 100	100 to 160	160 to 250	250 to 400	400 to 630	630 to 1000	1000 to 1600
Mini-mold Chip LEDs	1608	0.36									SML-E12V8W							
											SML-E12U8W							
											SML-E12UW*							

### Orange (D)

(Ta=25°C, If=20mA)

Package size(mm)	Height(mm)	Luminous Intensity (mcd)	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X
			1.0 to 1.6	1.6 to 2.5	2.5 to 4.0	4.0 to 6.3	6.3 to 10	10 to 16	16 to 25	25 to 40	40 to 63	63 to 100	100 to 160	160 to 250	250 to 400	400 to 630	630 to 1000	1000 to 1600
Mini-mold Chip LEDs	1608	0.36											SML-E12DW*					
											SML-E12D8W							

### Yellow (Y)

(Ta=25°C, If=20mA)

Package size(mm)	Height(mm)	Luminous Intensity (mcd)	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X
			1.0 to 1.6	1.6 to 2.5	2.5 to 4.0	4.0 to 6.3	6.3 to 10	10 to 16	16 to 25	25 to 40	40 to 63	63 to 100	100 to 160	160 to 250	250 to 400	400 to 630	630 to 1000	1000 to 1600
Mini-mold Chip LEDs	1608	0.36									SML-E12Y8W							

### Green (M, P, E)

(Ta=25°C, If=20mA)

Package size(mm)	Height(mm)	Luminous Intensity (mcd)	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X
			0.63 to 1.0	1.0 to 1.6	1.6 to 2.5	2.5 to 4.0	4.0 to 6.3	6.3 to 10	10 to 16	16 to 25	25 to 40	40 to 63	63 to 100	100 to 160	160 to 250	250 to 400	400 to 630	630 to 1000	1000 to 1600
Mini-mold Chip LEDs	1608	0.36							SML-E12P8W				SMLE12EC6T*						
									SML-E12M8W										

### Blue (B)

(Ta=25°C, If=5mA)

Package size(mm)	Height(mm)	Luminous Intensity (mcd)	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W
			0.9 to 1.4	1.4 to 2.2	2.2 to 3.6	3.6 to 5.6	5.6 to 9.0	9 to 14	14 to 22	22 to 36	36 to 56	56 to 90	90 to 140	140 to 220	220 to 360	360 to 560	560 to 900
Mini-mold Chip LEDs	1608	0.36						SMLE12BC7T									

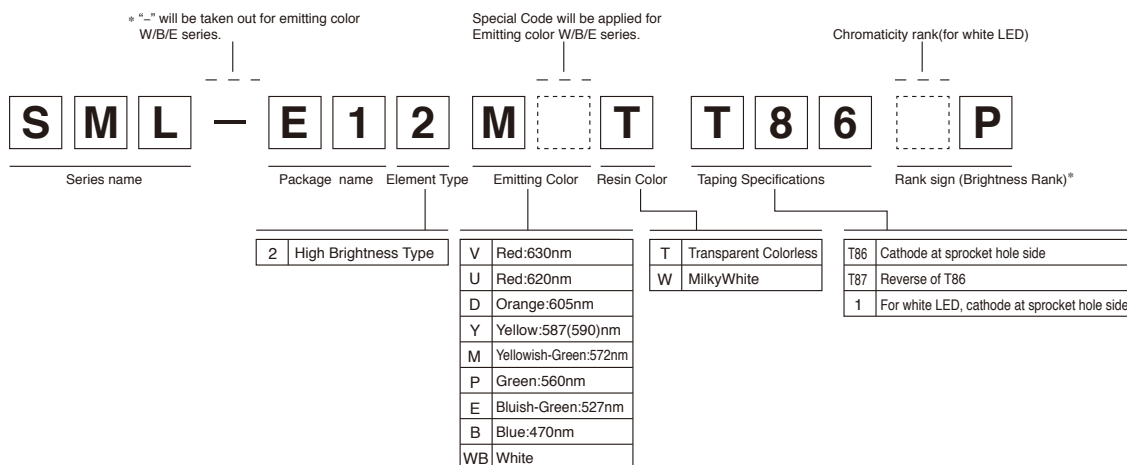
### White (WB)

(Ta=25°C, If=5mA)

Package size(mm)	Height(mm)	Luminous Intensity (mcd)	P	Q	R	S	T	U	V	W	X1	X2	Y1	Y2	Z1
			25 to 36	36 to 56	56 to 90	90 to 140	140 to 220	220 to 360	360 to 560	560 to 900	900 to 1100	1100 to 1400	1400 to 1800	1800 to 2200	2200 to 2800
Mini-mold Chip LEDs	1608	0.36	SMLE12WBC7W												

\*Brightness on specification sheet include tolerance of within ± 10%.

## Part No. Explanation



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

## Packing Specification

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

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