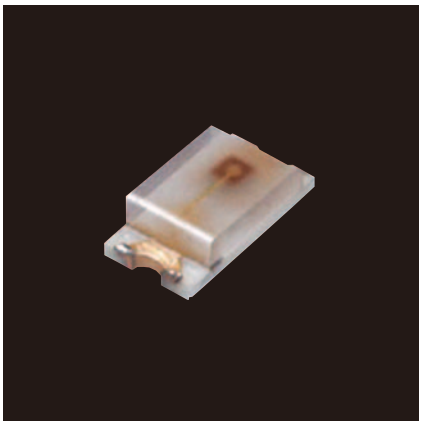


SML-E1 Series

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

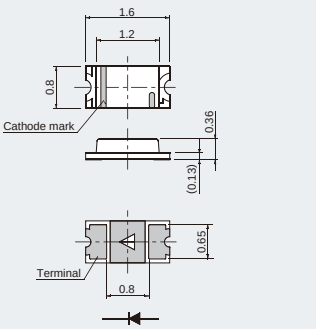
Color Type: V U D Y / M P E B

Specifications

Part No.	Chip Structure	Emitting Color	Absolute Maximum Ratings (Ta=25℃)						Electrical and Optical Characteristics (Ta=25℃)									
			Power Dissipation PD(mW)	Forward Current IF(mA)	Peak Forward Current IFP(mA)	Reverse Voltage VR(V)	Operating Temperature Topr(℃)	Storage Temperature Tstg(℃)	Forward Voltage VF Typ. (V)	VF IF(mA)	Reverse Current IR Max. (μA)	IR VR(V)	Dominant Wavelength λD Min.*3 (nm)	Typ. (nm)	Max.*3 (nm)	IF(mA)	Luminous Intensity Iv Min. (mcd)	Typ. (mcd)	IF(mA)
SML-E12V8W	AlGaInP on GaAs	Red	54	20	100*2	5	-40 to +85	-40 to +100	2.2	20	10	4	625	630	635	20	16	40	20
SML-E12UW			62	25	60*1	4	-30 to +85	-40 to +85	2.1				619	624	629		36	100	
SML-E12U8W			54	20	100*2	5	-40 to +85	-40 to +100	2.2				615	620	625		25	63	
SML-E12DW		Orange	62	25	60*1	4	-30 to +85	-40 to +85	1.9				603.5	606.5	609.5		56	200	
SML-E12D8W			54	20	100*2	5	-40 to +85	-40 to +100	2.2				602	605	608		40	100	
SML-E12Y8W		Yellow											587	590	593		25	63	
SML-E12M8W		Yellowish Green											569	572	575		10	25	
SML-E12P8W		Green											557	560	563		2.5	6.3	
SMLE13EC8T	InGaN	Bluish Green	68						3.0	5		5	520	527	535	5	56	120	5
SMLE12EC6T							-30 to +85										36	85	
SMLE13BC8T		Blue	66				-40 to +85		2.9				465	470	475		14	40	
SMLE12BC7T							-30 to +85						464		476		9	22	

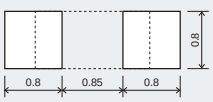
∗1:Duty1/5, 200Hz / ∗2:Duty1/10, 1kHz ∗3:Reference

Dimensions



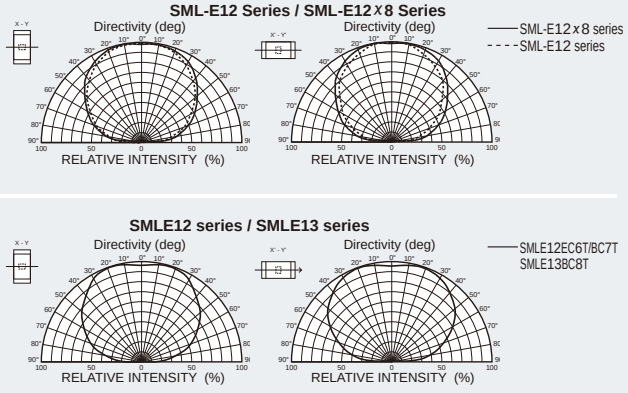
Tolerance : ±0.1
(unit : mm)

Recommended Solder Pattern



(unit : mm)

Viewing Angle

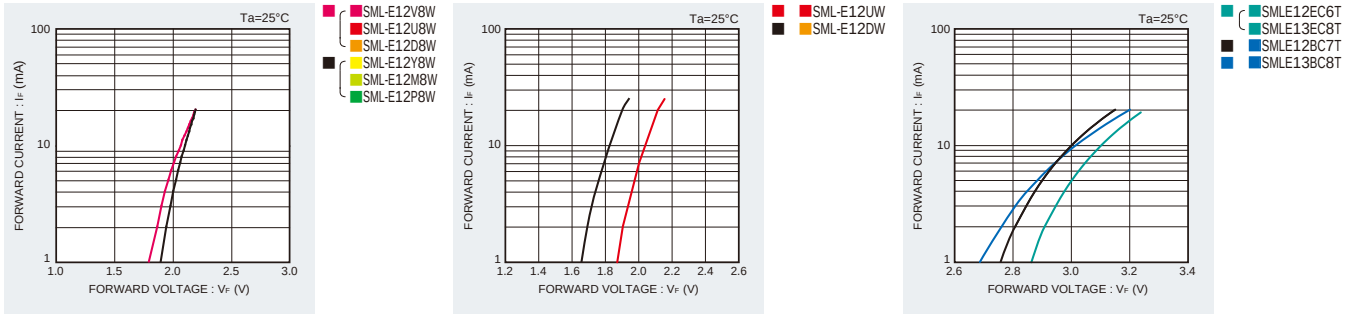


∗ EXCELED™ is ROHM's pending tradmark.

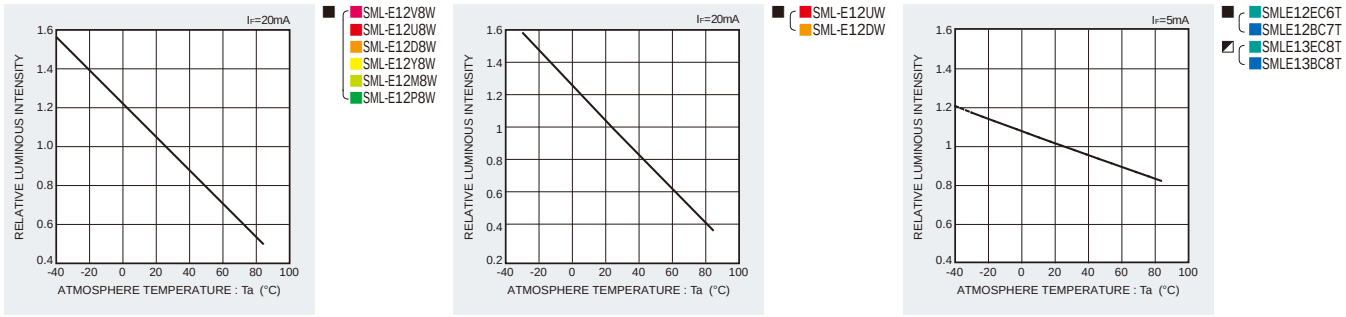
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Electrical Characteristics Curves

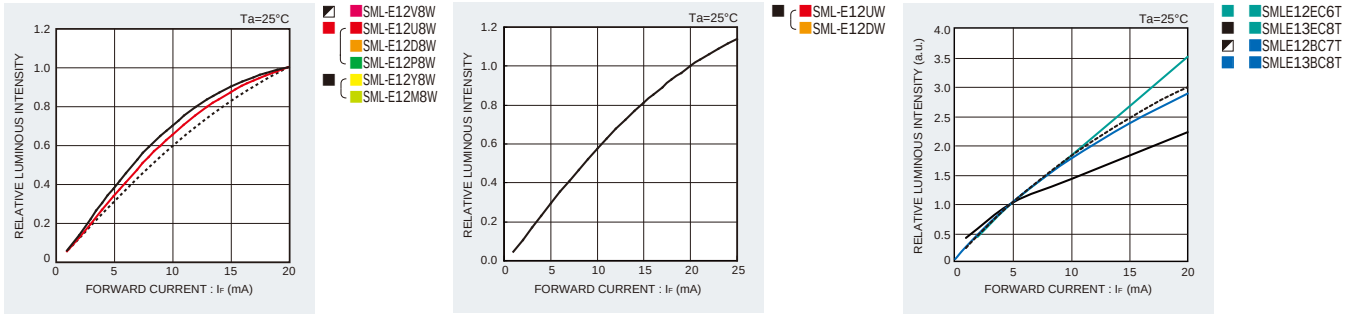
Forward Current-Forward Voltage



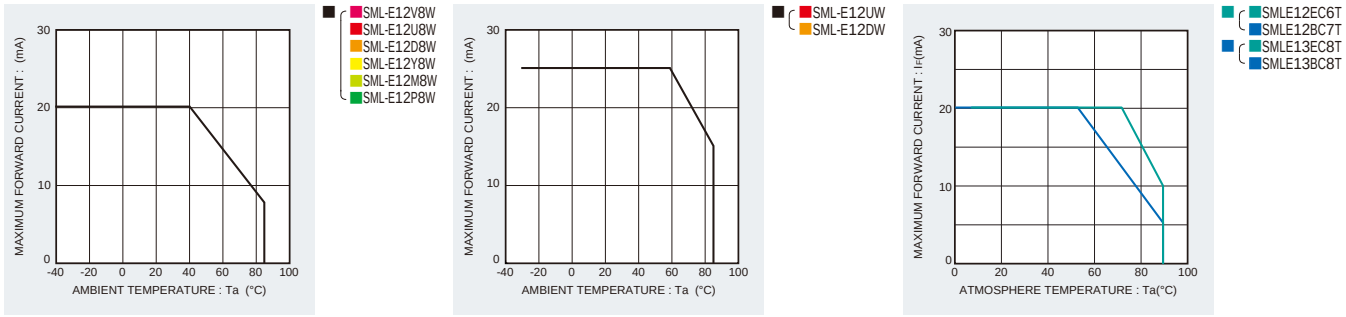
Luminous Intensity-Atmosphere Temperature



Luminous Intensity-Forward Current



Derating



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Rank Reference of Brightness

Red (V, U)

(Ta=25°C, IF=20mA)

Package size(mm)	Luminous Intensity (mcd) / Height(mm)	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)	Luminous Intensity (mcd) / Height(mm)	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)	Luminous Intensity (mcd) / Height(mm)	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)

(Ta=25°C, IF=20mA)

Package size(mm)	Luminous Intensity (mcd) / Height(mm)	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X
		0.63 to 1.0	1.0 to 1.6	1.6 to 2.5	2.5 to 4.0	4.0 to 6.3	6.3 to 10	10 to 16	16 to 25	25 to 40	40 to 63	63 to 100	100 to 160	160 to 250	250 to 400	400 to 630	630 to 1000	1000 to 1800
Mini-mold Chip LEDs	1608	0.36				SML-E12P8W												
								SML-E12M8W										

Bluish-Green (E)

(Ta=25°C, IF=5mA)

Package size(mm)	Luminous Intensity (mcd) / Height(mm)	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y	Z
		3.6 to 5.6	5.6 to 9.0	9.0 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	900 to 1400	1400 to 2200	2200 to 3600
Mini-mold Chip LEDs	1608	0.36						SMLE12EC6T								
									SMLE13EC8T							

Blue (B)

(Ta=25°C, IF=5mA)

Package size (mm)	Luminous Intensity (mcd) / Height(mm)	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y	Z
		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	900 to 1400	1400 to 2200	2200 to 3600
Mini-mold Chip LEDs	1608	0.36			SMLE12BC7T											
						SMLE13BC8T										

※Measurement tolerance ± 10%.

Part No. Explanation

＊ "–" will be taken out for emitting color B/E series.

Special Code will be applied for Emitting color B/E series.

S	M	L	–	E	1	2	M	□	T	T	8	6	P

Series name / Package name / Element Type / Emitting Color / Resin Color / Taping Specifications / Rank sign (Brightness Rank)*

2	High Brightness Type
3	

V	Red:630nm
U	Red:620nm
D	Orange:605nm
Y	Yellow:587(590)nm
M	Yellowish-Green:572nm
P	Green:560nm
E	Bluish-Green:527nm
B	Blue:470nm

T	Type Transparent Colorless
W	MilkyWhite

T86	Cathode at sprocket hole side
T87	Reverse of T86

＊ 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 distributer if necessary.

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Notes

1) The information contained herein is subject to change without notice.

2) Before you use our Products, please contact our sales representative and verify the latest specifications :

3) Although ROHM is continuously working to improve product reliability and quality, semiconductors can break down and malfunction due to various factors.
Therefore, in order to prevent personal injury or fire arising from failure, please take safety measures such as complying with the derating characteristics, implementing redundant and fire prevention designs, and utilizing backups and fail-safe procedures. ROHM shall have no responsibility for any damages arising out of the use of our Poducts beyond the rating specified by ROHM.

4) Examples of application circuits, circuit constants and any other information contained herein are provided only to illustrate the standard usage and operations of the Products. The peripheral conditions must be taken into account when designing circuits for mass production.

5) The technical information specified herein is intended only to show the typical functions of and examples of application circuits for the Products. ROHM does not grant you, explicitly or implicitly, any license to use or exercise intellectual property or other rights held by ROHM or any other parties. ROHM shall have no responsibility whatsoever for any dispute arising out of the use of such technical information.

6) The Products are intended for use in general electronic equipment (i.e. AV/OA devices, communication, consumer systems, gaming/entertainment sets) as well as the applications indicated in this document.

7) The Products specified in this document are not designed to be radiation tolerant.

8) For use of our Products in applications requiring a high degree of reliability (as exemplified below), please contact and consult with a ROHM representative : transportation equipment (i.e. cars, ships, trains), primary communication equipment, traffic lights, fire/crime prevention, safety equipment, medical systems, servers, solar cells, and power transmission systems.

9) Do not use our Products in applications requiring extremely high reliability, such as aerospace equipment, nuclear power control systems, and submarine repeaters.

10) ROHM shall have no responsibility for any damages or injury arising from non-compliance with the recommended usage conditions and specifications contained herein.

11) ROHM has used reasonable care to ensur the accuracy of the information contained in this document. However, ROHM does not warrants that such information is error-free, and ROHM shall have no responsibility for any damages arising from any inaccuracy or misprint of such information.

12) Please use the Products in accordance with any applicable environmental laws and regulations, such as the RoHS Directive. For more details, including RoHS compatibility, please contact a ROHM sales office. ROHM shall have no responsibility for any damages or losses resulting non-compliance with any applicable laws or regulations.

13) When providing our Products and technologies contained in this document to other countries, you must abide by the procedures and provisions stipulated in all applicable export laws and regulations, including without limitation the US Export Administration Regulations and the Foreign Exchange and Foreign Trade Act.

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ROHM SEMICONDUCTOR

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