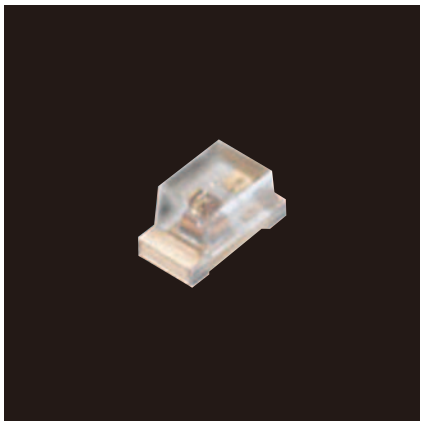


SML-31 series

1608(0603)
1.6×0.8mm(t=0.8mm)

Features

・1608 standard size(1.6×0.8mm, t=0.8mm)
・Abundant color variations with diverse luminous intensity types

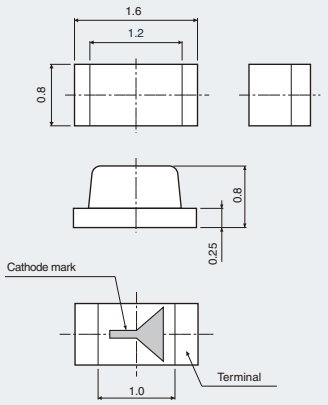
Color Type				
	V	U	D	Y
W	M	P	E	B

Product Specifications

Part No.	LED chip	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)	Forward voltage VF IF(mA)	Reverse current IR Max. (μA)	Reverse current IR VR(V)	Dominont wavelength λD Min. (nm)	Dominont wavelength λD Typ. (nm)	Dominont wavelength λD Max. (nm)	Dominont wavelength λD IF(mA)	Luminous intensity Iv Min. (mcd)	Luminous intensity Iv Typ. (mcd)	Luminous intensity Iv IF(mA)
SML-310VT	GaAsP on GaP	Red	55						2	20			625	630	635	20	1.4	4	20
SML-311UT	AlGaInP on GaAs	Red	44						1.8	2			615	620	625	2	0.9	2.5	2
SML-311DT	AlGaInP on GaAs	Orange											602	605	608		1.6	3.15	
SML-310DT	GaAsP on GaP	Orange	55						2	20						20	2.2	6.3	20
SML-311WT	AlGaInP on GaAs	Yellow	44		60※1	4		-40 to +85	1.8	2		4	587	590	593	2	0.9	2.5	2
SML-311YT	AlGaInP on GaAs	Yellow											584	587	590				
SML-310YT	GaAsP on GaP	Yellow		20			-30 to +85		2.1		100						2.2	6.3	
SML-310MT	GaP	Yellowish Green	55						2.2				567	570	573		3.6	16	
SML-310PT	GaP	Green											557	560	563		1.4	4	
SML312ECT	InGaN	Bluish Green	84		100※2	5		-40 to +100	3.3	20		5	520	527	535	20	90	200	20
SML312EC4T	InGaN	Bluish Green							3.2					525			36	90	
SML312BCT	InGaN	Blue							3.3				464	470	476		22	63	
SML312BC4T	InGaN	Blue							3.2									46	

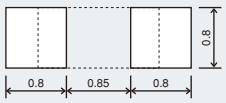
※1:Duty1/5, 200Hz / ※2:Duty1/10, 1kHz

Dimensions



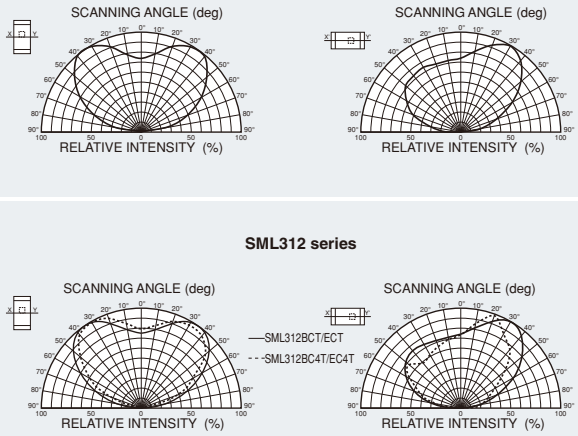
Tolerance : ±0.1
(unit : mm)

Recommended Solder Pattern



(unit : mm)

Viewing Angle



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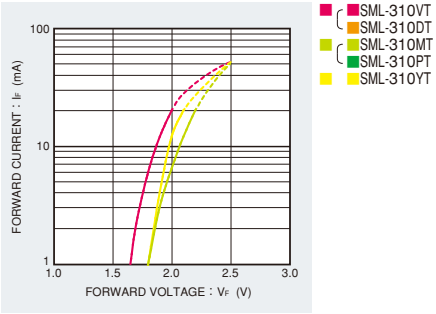
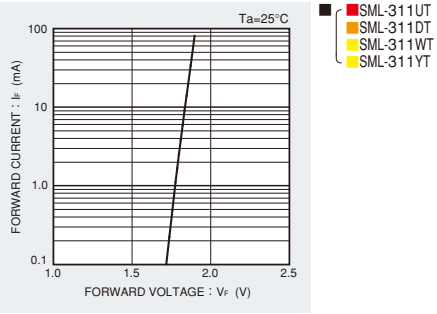
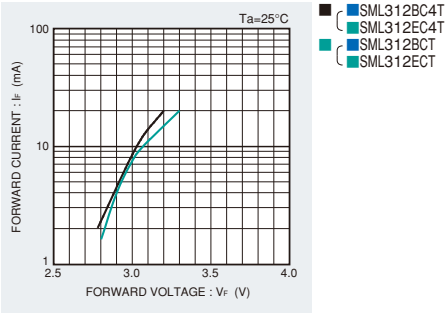
Electrical Characteristics Curves

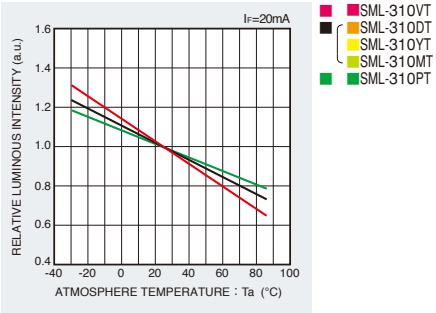
Forward Current-Forward Voltage

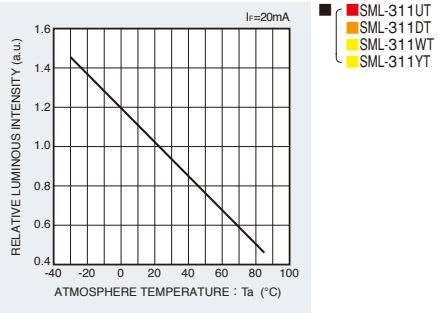


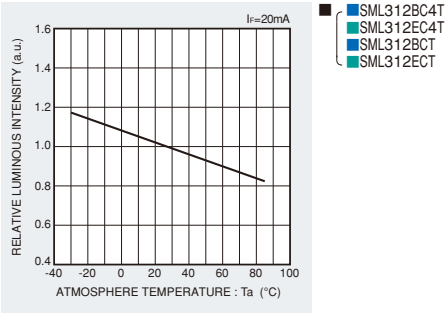




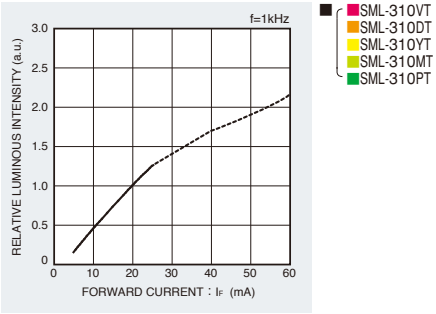
Luminous Intensity-Atmosphere Temperature

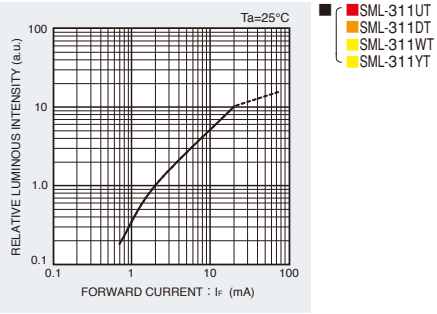


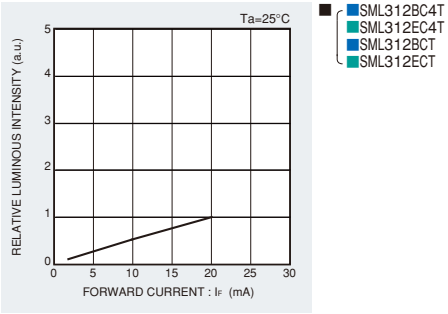




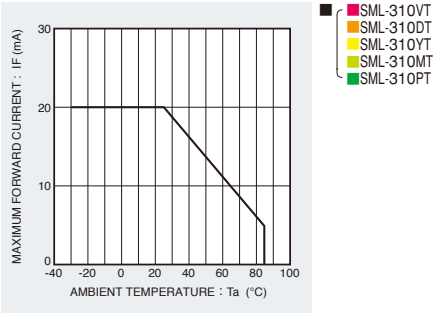
Luminous Intensity-Forward Current

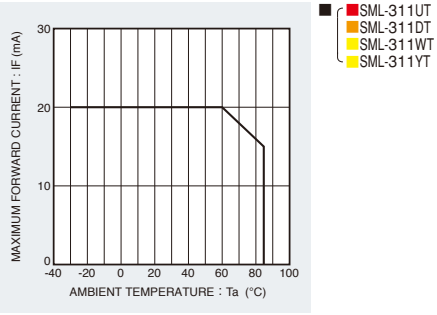


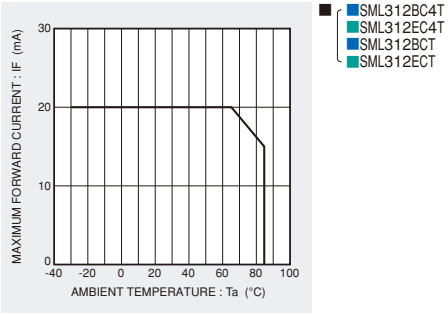




Deratings







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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	0.8	SML-311UT※/※1															
				SML-310VT※														

Orange (D)

(Ta=25˚C, IF=2mA)

	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	0.8		SML-311DT														

Yellow (Y, W)

(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	0.8	SML-311YT※/※1															
			SML-311WT※/※1															
					SML-310YT※													

Green (M, P, E)

(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	0.8					SML-310MT※							SML312ECT※					
					SML-310PT※							SML312EC4T※							

Blue (B)

(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
			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	0.8								SML312BC4T							
										SML312BCT							

※Brightness on specification sheet include tolerance of within ±10%. ※1：IF=2mA

Part No. Construction

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

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

S M L – 3 1 0 D [ ] T T 8 6 K

Series name | Package type | Chip Type | Emitting Color | Resin Color | Taping Specifications | Rank sign (Brightness Rank)＊

0	Standard Type
1	Low Current Type
2	High Brightness Type

V	Red:630nm
U	Red:620nm
D	Orange:605nm
W	Yellow:590nm
Y	Yellow:587(590)nm
M	Yellowish-Green:572nm
P	Green:560nm
E	Bluish-Green:527nm
B	Blue:470(466)nm

T	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.

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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