



G□□3801C

φ3 Flush Mount Type LED

Features

Package	φ3 Flush Mount Type. Water clear resin	
Product features	• Outer Dimension φ3 Flush Mount Type. • Low power consumption type • Operation temperature range - Storage Temperature - Operating Temperature • Lead-free soldering compatible • RoHs compliant	
Chromaticity coordinates	x = 0.31TYP., y = 0.32TYP. (GSW, GLW)	
Dominant wavelength	Blue	: 470nm(GSB)
	Green	: 530nm(GSG)
Spatial distribution	GSW	: 40deg.
	GLW	: 45deg.
	GSB	: 18deg.
	GSG	: 18deg.
Die materials	InGaN	
Rank grouping parameter	Sorted by luminous intensity rank and chromaticity rank (GSW, GLW) Sorted by luminous intensity rank (GSB, GLG)	
Soldering methods	TTW (Through The Wave) soldering and manual soldering	
ESD-withstand voltage	Up to 1kV (HBM)	
Packing	Bulk : 200pcs(MIN.)	

Recommended Applications

Amusement Equipment, OA/FA, Other General Applications



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Color and Luminous Intensity

(Ta=25°C)

Part No.	Material	Emitted Color	Lens Color	Chromaticity Coordinates x,y		Dominant Wavelength λd (nm)		Luminous Intensity Iv (mcd)		
				TYP.	IF (mA)	TYP.	IF (mA)	MIN.	TYP.	IF (mA)
GSW3801C	InGaN	White	Water Clear	0.31,0.32	5	—	—	800	1,600	5
GLW3801C		White		0.31,0.32	5	—	—	135	310	5
GSB3801C		Blue		—	—	470	5	600	1,200	5
GSG3801C		Green		—	—	530	5	1,400	2,800	5

Absolute Maximum Ratings

(Ta=25°C)

Item	Symbol	Absolute Maximum Ratings				Unit
		GSW	GLW	GSB	GSG	
Power Dissipation	P _d	36	120	36	38	mW
Forward Current	I _F	10	30	10	10	mA
Pulse Forward Current ※1	I _{FRM}	20	100	20	20	mA
Derating (Ta=25°C or higher)	ΔI _F	0.130	0.400	0.130	0.130	mA/°C
	ΔI _{FRM}	0.267	1.333	0.267	0.267	mA/°C
Reverse Voltage	V _R	5				V
Operating Temperature	T _{opr}	-40~+85				°C
Storage Temperature	T _{stg}	-40~+100				°C

 ※1 I_{FRM} Measurement condition : Pulse Width 1ms., Duty 1/20.

Electro-Optical Characteristics

(Ta=25°C)

Item	Condition	Symbol	Characteristics					Unit
				GSW	GLW	GSB	GSG	
Forward Voltage	I _F =5mA	V _F	TYP.	2.9	2.9	2.9	3.0	V
			MAX.	3.3	3.2	3.5	3.5	
Reverse Current	V _R =5V	I _R	MAX.	100	100	100	100	μA
Chromaticity Coordinates	I _F =5mA	x	TYP.	0.31	0.31	-	-	-
		y	TYP.	0.32	0.32	-	-	-
Peak Wavelength	I _F =5mA	λ _p	TYP.	-	-	465	524	nm
Dominant Wavelength	I _F =5mA	λ _d	TYP.	-	-	470	530	nm
Spectral Line Half Width	I _F =5mA	Δλ	TYP.	-	-	25	40	nm
Half Intensity Angle	I _F =5mA	2θ _{1/2}	TYP.	40	45	18	18	deg.

Luminous Intensity Rank

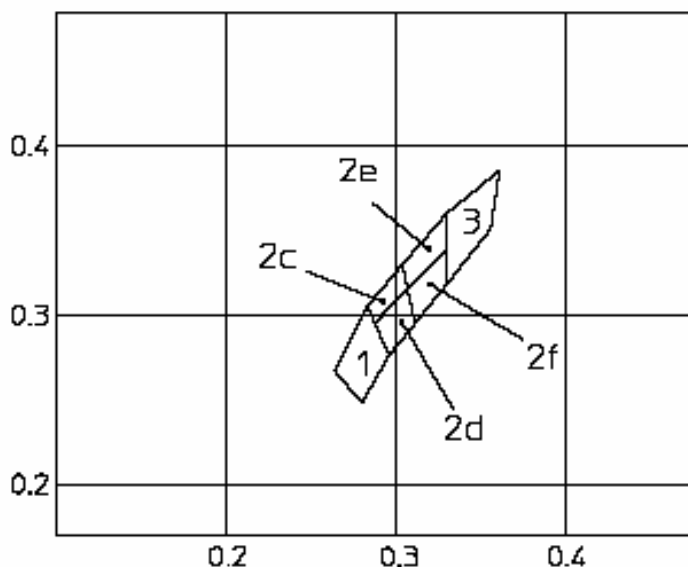
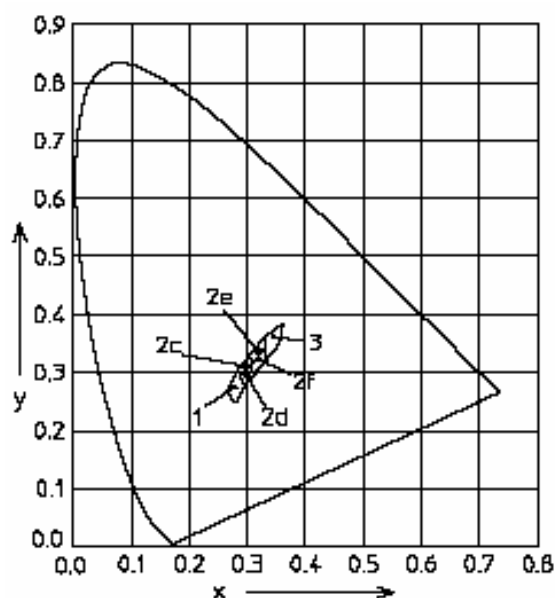
(Ta=25°C)

Rank	I _v (mcd)							
	GSW		GLW		GSB		GSG	
	I _F =5mA		I _F =5mA		I _F =5mA		I _F =5mA	
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
A	800	1,600	135	270	600	1,200	1,400	2,800
B	1,120	2,240	190	380	840	1,680	2,000	4,000
C	1,600	3,200	270	540	1,200	2,400	2,800	5,600
D	2,240	4,480	380	760	1,680	3,340	4,000	8,000
E	3,200	-	540	-	2,400	-	5,600	-

※Please contact our sales staff concerning rank designation.

Sorting Chart for Chromaticity Coordinates (GSW, GLW)

(Ta=25°C)



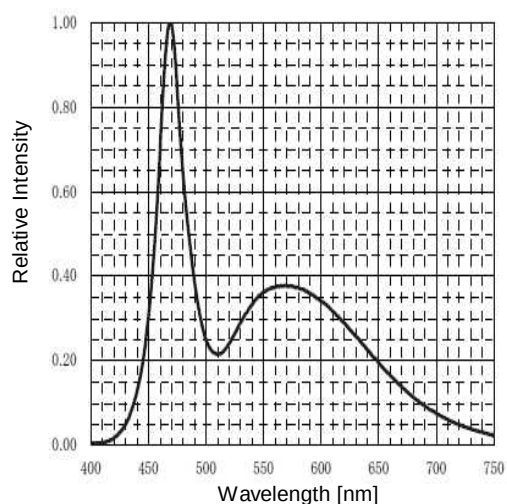
	LEFT DOWN point		LEFT UP point		RIGHT UP point		RIGHT UP point		Condtions
Rank	x	y	x	y	x	y	x	y	
1	0.280	0.248	0.264	0.267	0.283	0.305	0.296	0.276	I _F =5mA
2c	0.287	0.295	0.283	0.305	0.304	0.330	0.307	0.315	
2d	0.296	0.276	0.287	0.295	0.307	0.315	0.311	0.294	
2e	0.307	0.315	0.304	0.330	0.330	0.360	0.330	0.339	
2f	0.311	0.294	0.307	0.315	0.330	0.339	0.330	0.318	
3	0.330	0.318	0.330	0.360	0.361	0.385	0.356	0.351	

Chromaticity Coordinates Tolerance Each Rank : +/-0.02

※Please contact our sales staff concerning rank designation.

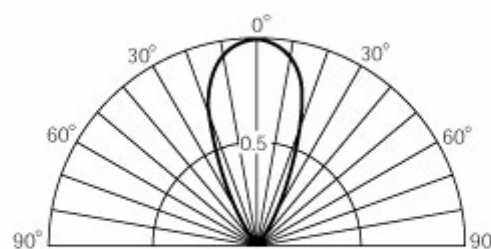
Technical Data (GLW)

Spectral Distribution
 Relative Intensity vs. Wavelength
 Condition : $T_a = 25^{\circ}\text{C}$, $I_F = 5\text{mA}$

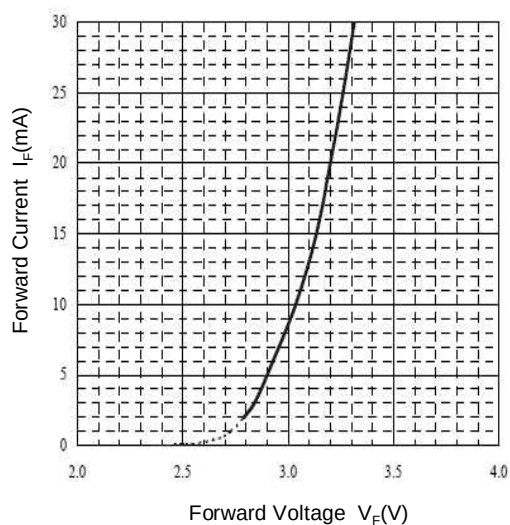


Spatial Distribution Example

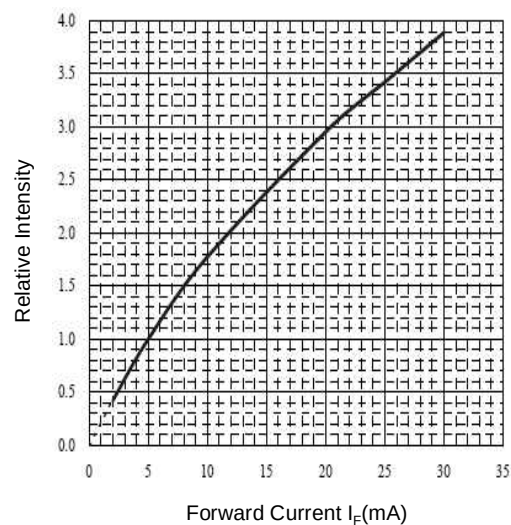
Condition : $T_a = 25^{\circ}\text{C}$, $I_F = 5\text{mA}$



Forward Voltage vs. Forward Current
 Condition : $T_a = 25^{\circ}\text{C}$



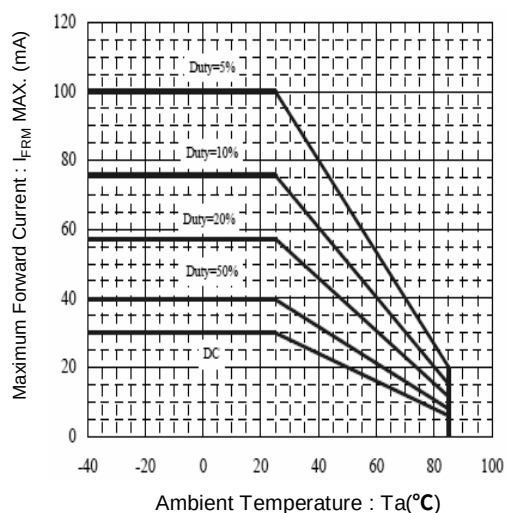
Forward Current vs. Relative Intensity
 Condition : $T_a = 25^{\circ}\text{C}$



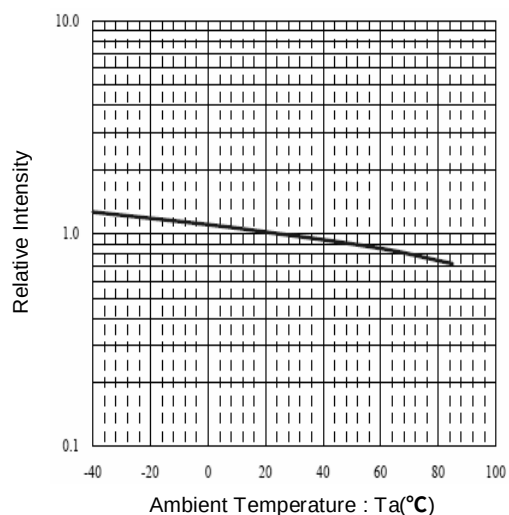
Technical Data (GLW)

Derating

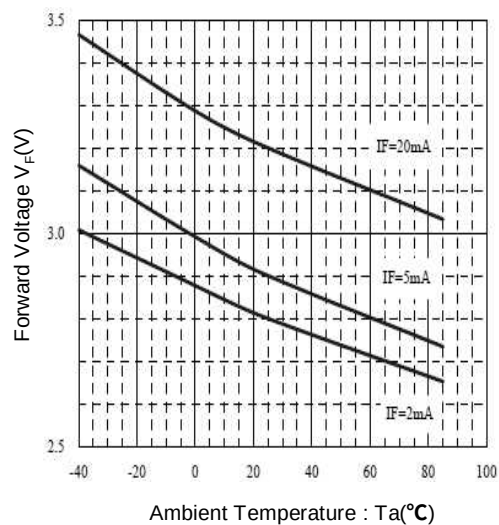
Ambient Temperature vs. Maximum Forward Current
 Repetition Frequency : $f \geq 50\text{Hz}$



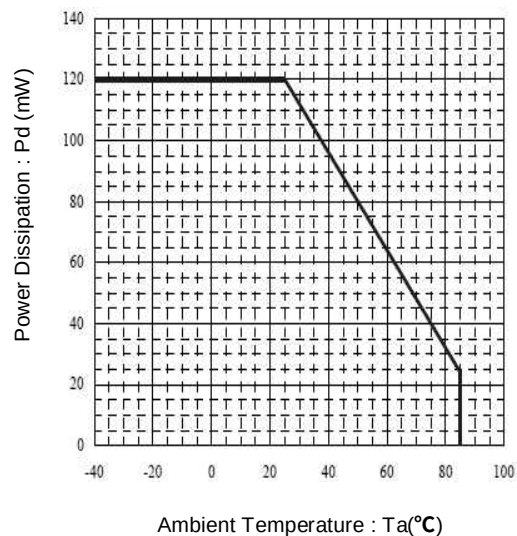
Ambient Temperature vs. Relative Intensity



Ambient Temperature vs. Forward Voltage

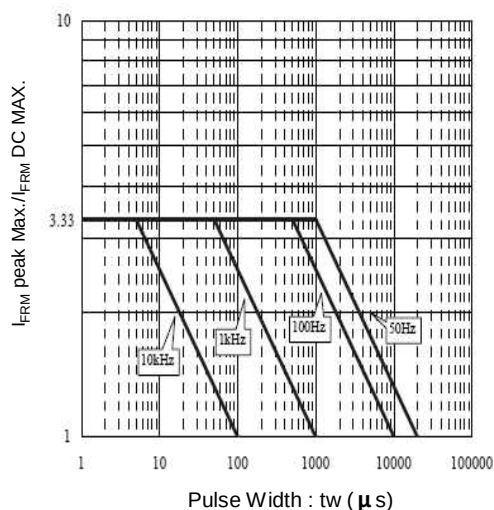


Power Dissipation vs. Ambient Temperature

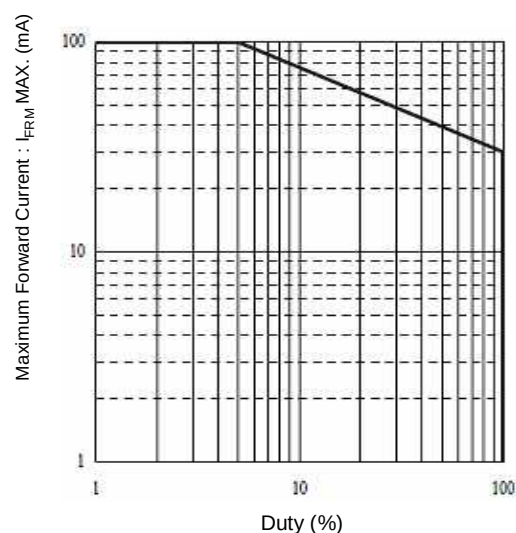


Technical Data (GLW)

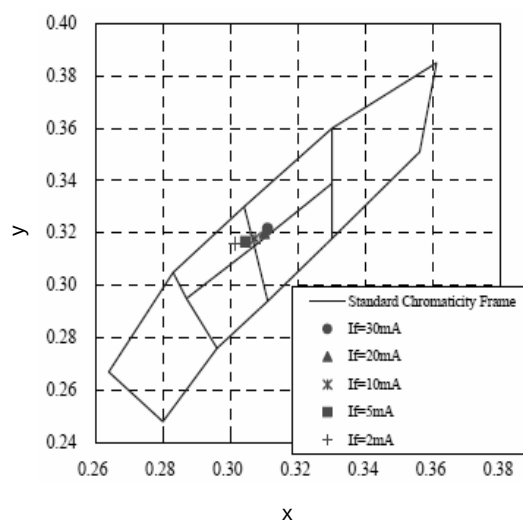
Pulse Width vs. Maximum Tolerable Peak Current
 Condition : $T_a = 25^\circ\text{C}$



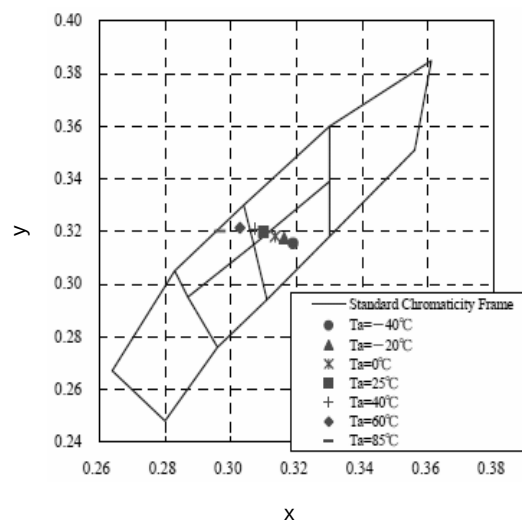
Dynamic Drive Rating
 Duty cycle vs. Maximum Forward Current



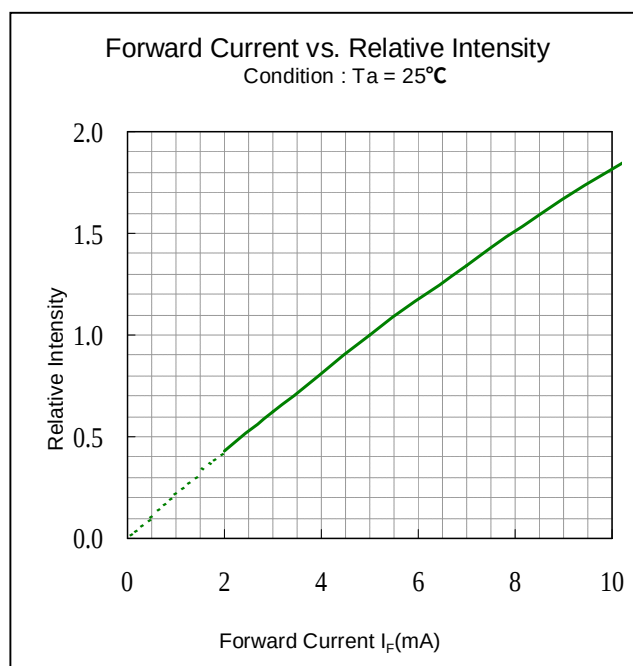
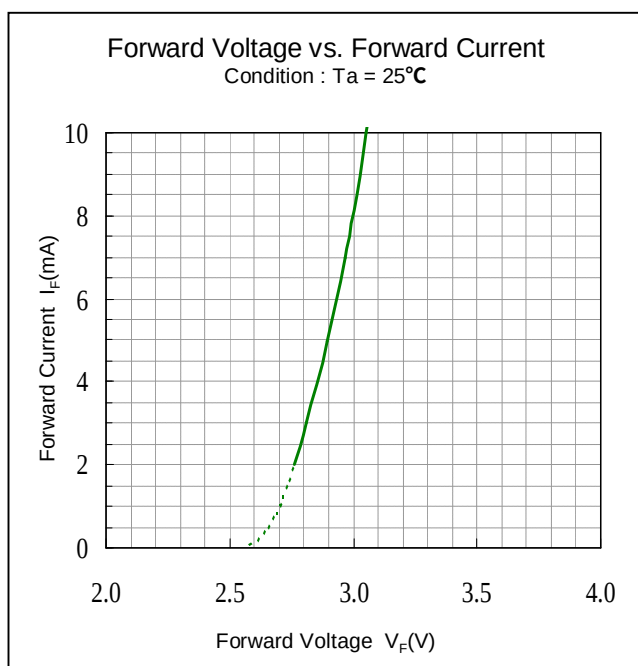
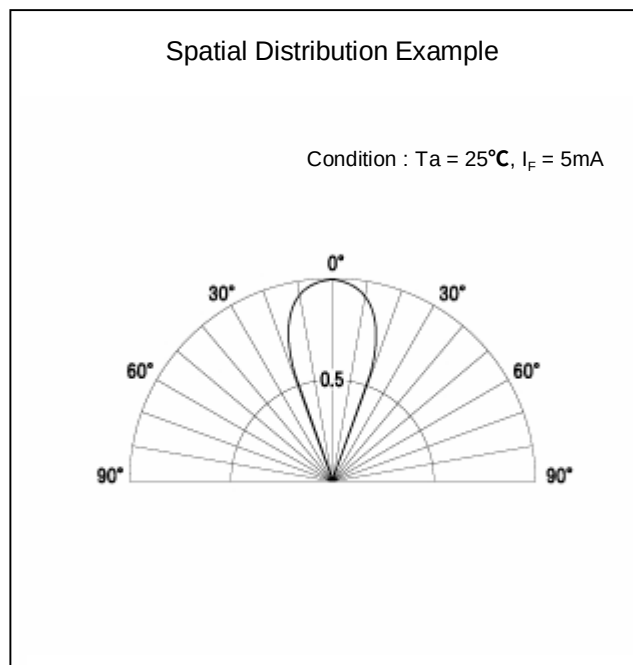
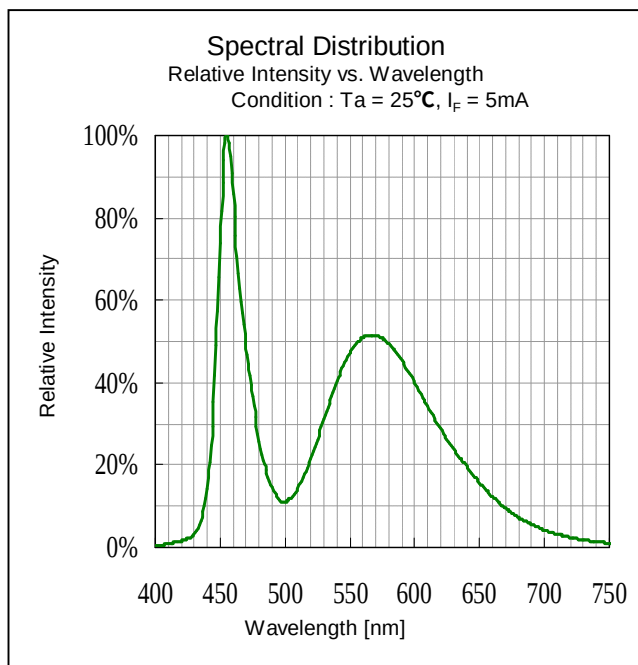
Forward Current vs. Chromaticity (typ. value)
 Condition : $T_a = 25^\circ\text{C}$



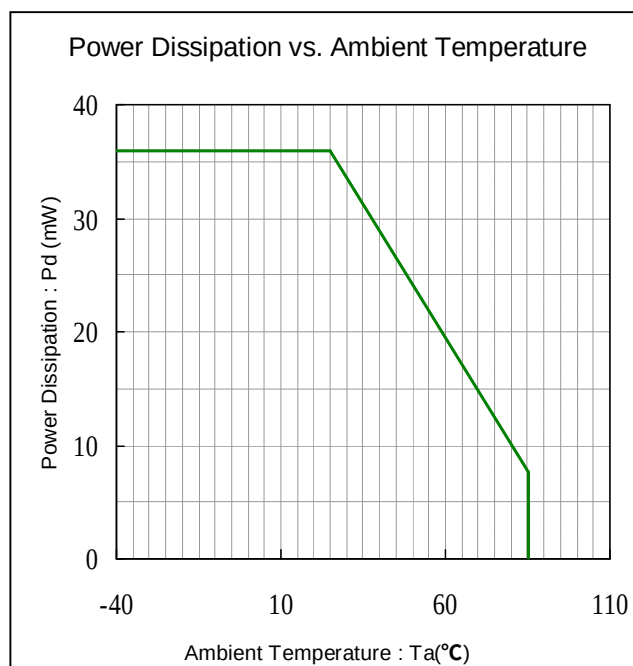
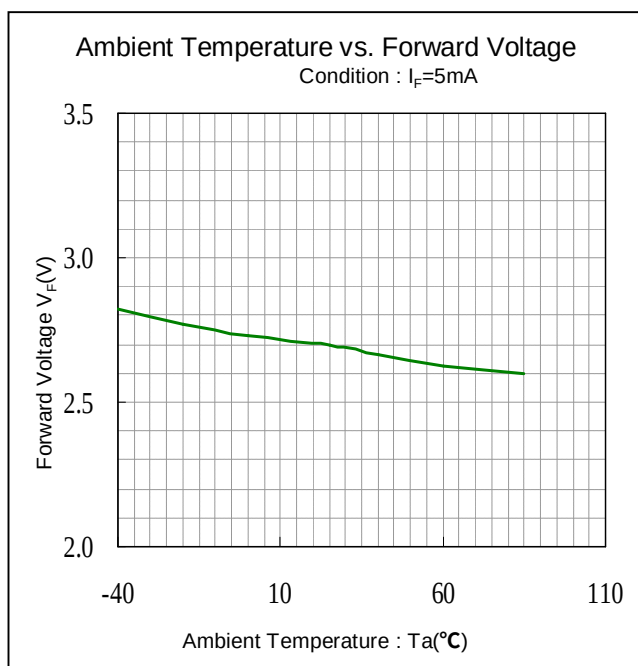
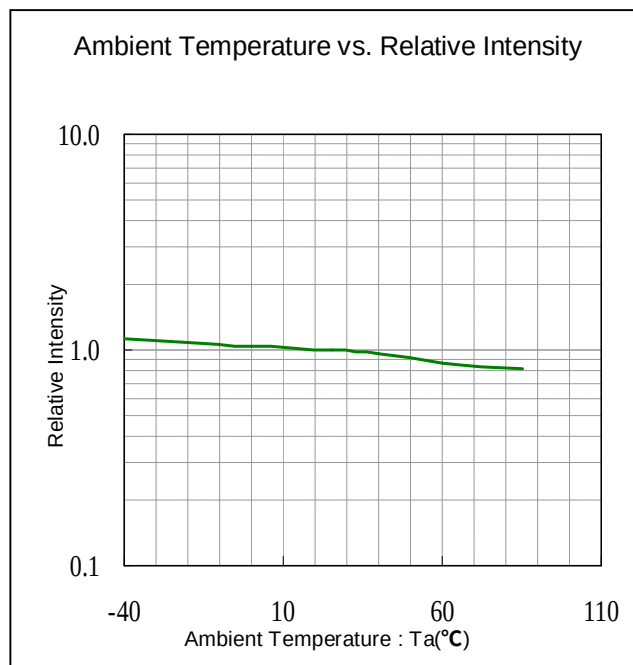
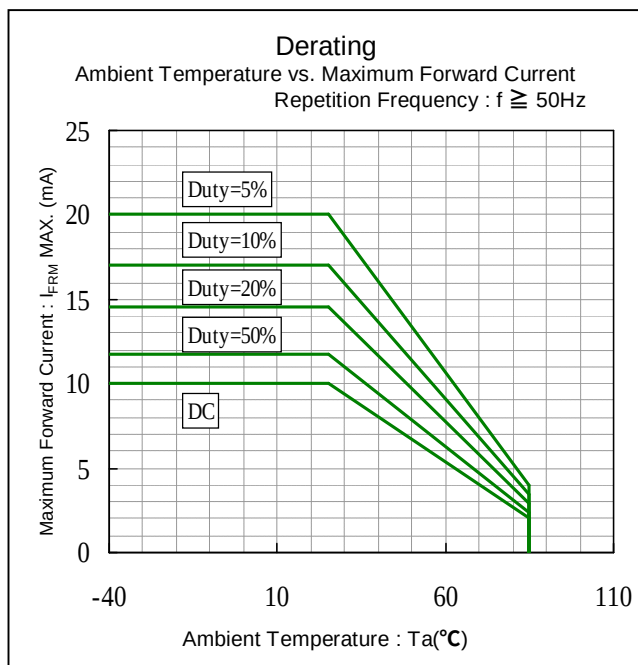
Ambient Temperature vs. Chromaticity (typ. value)
 Condition : $I_f = 5\text{mA}$



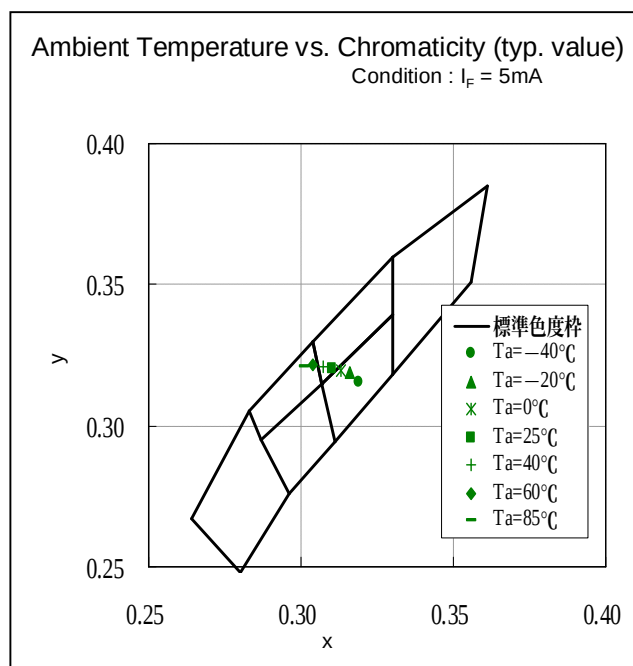
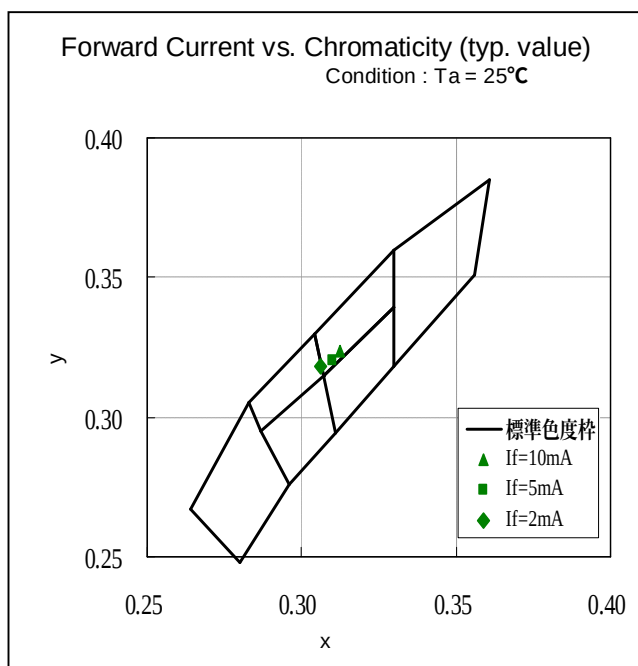
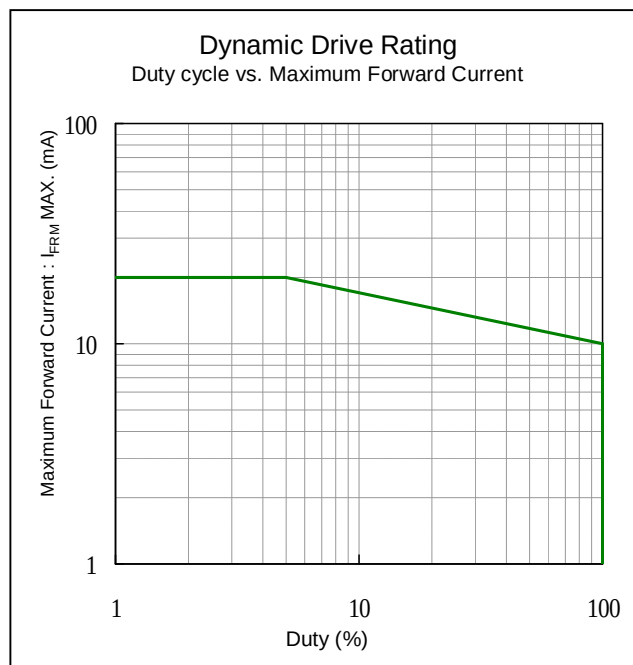
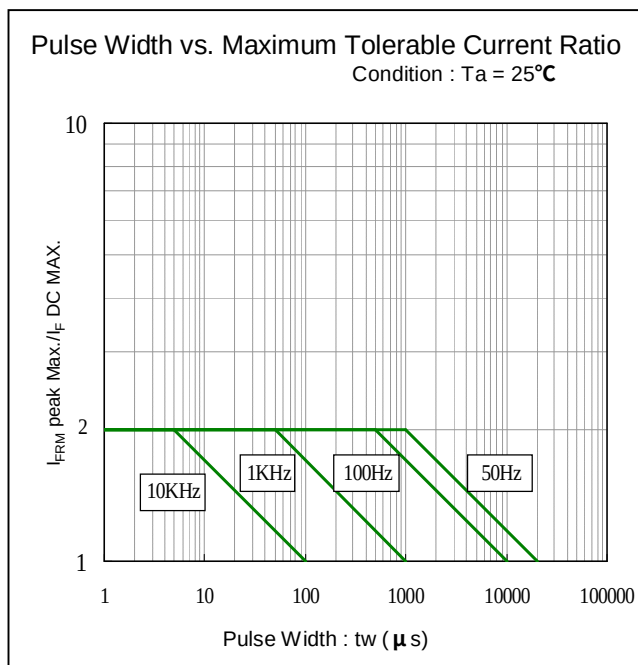
Technical Data (GSW)



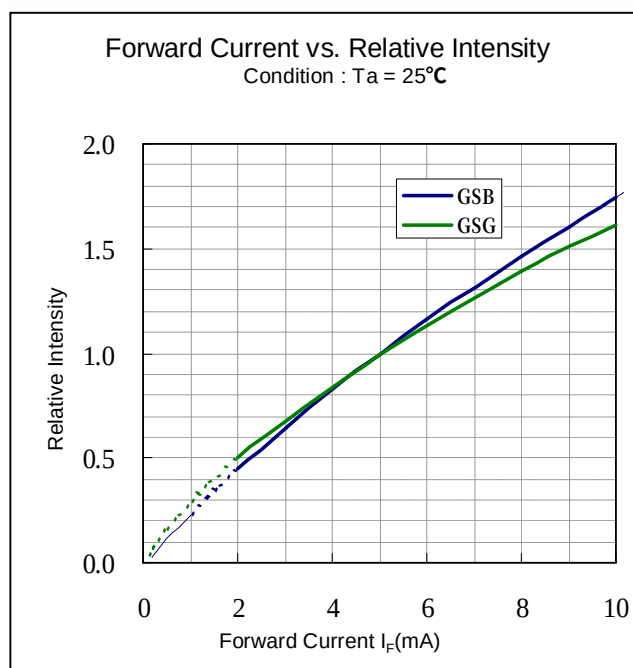
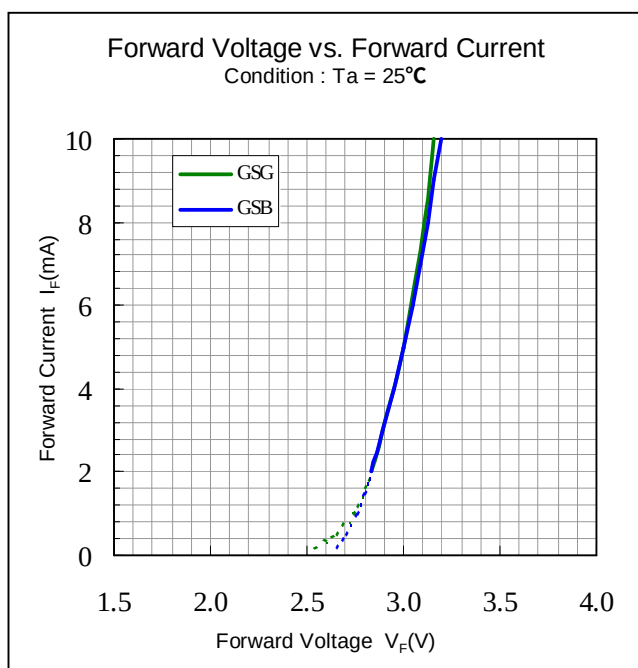
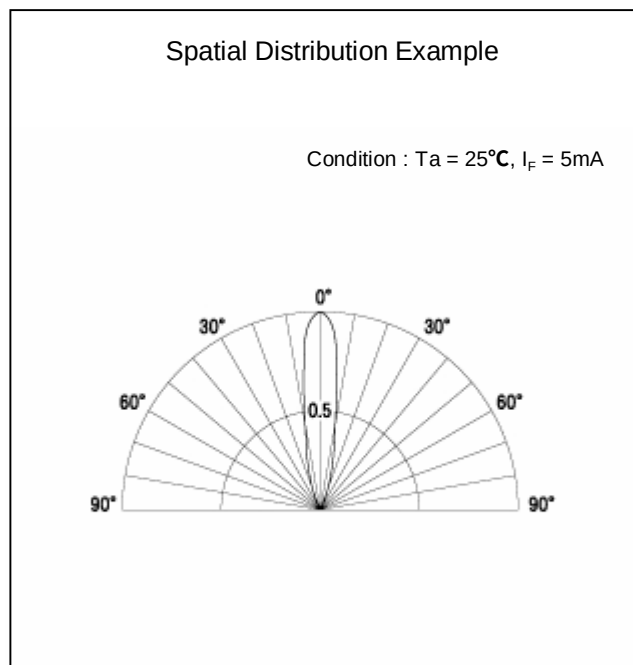
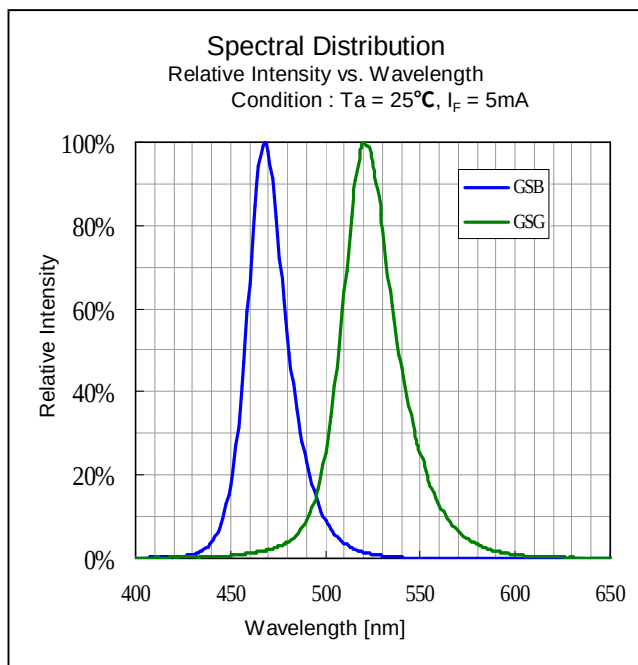
Technical Data (GSW)



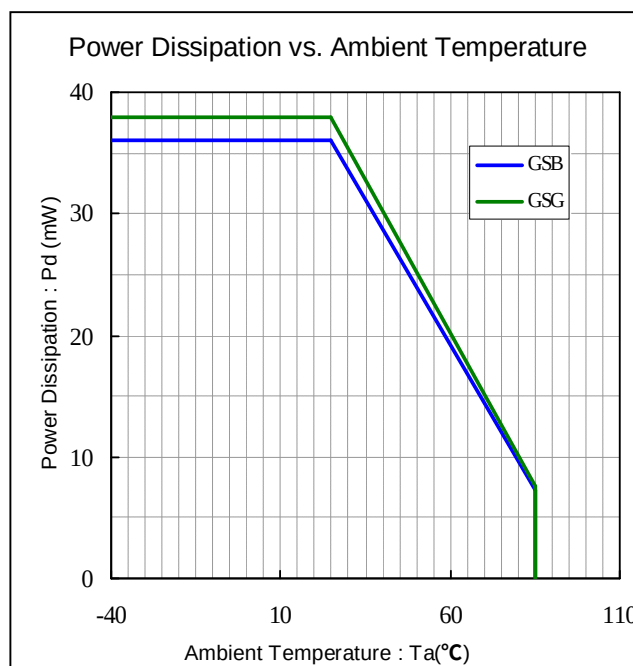
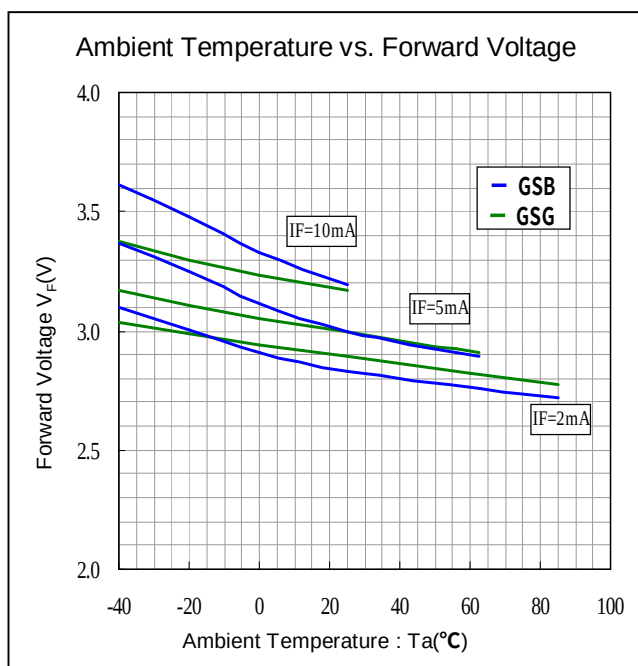
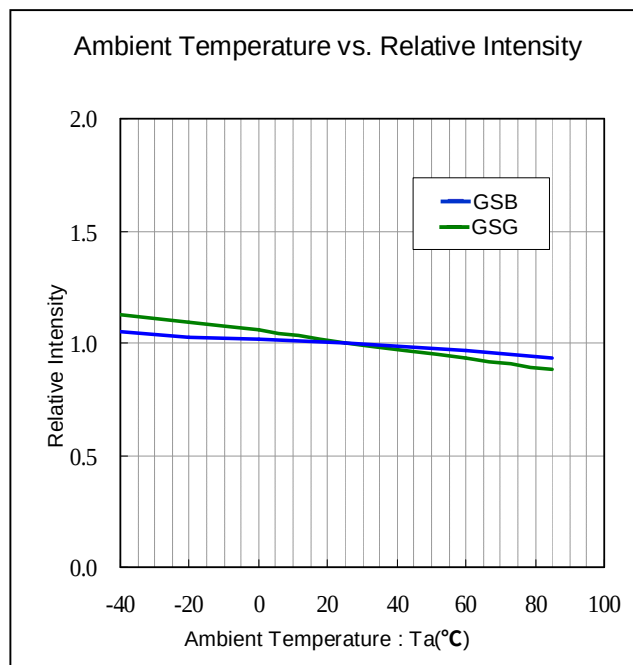
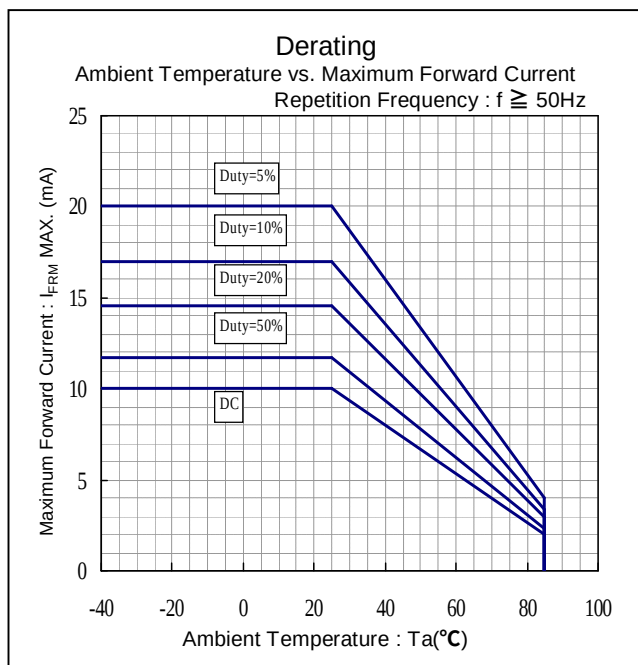
Technical Data (GSW)



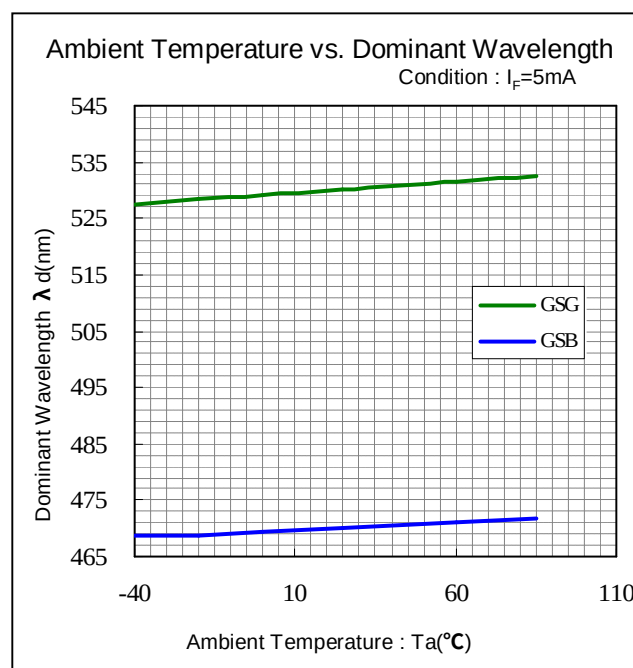
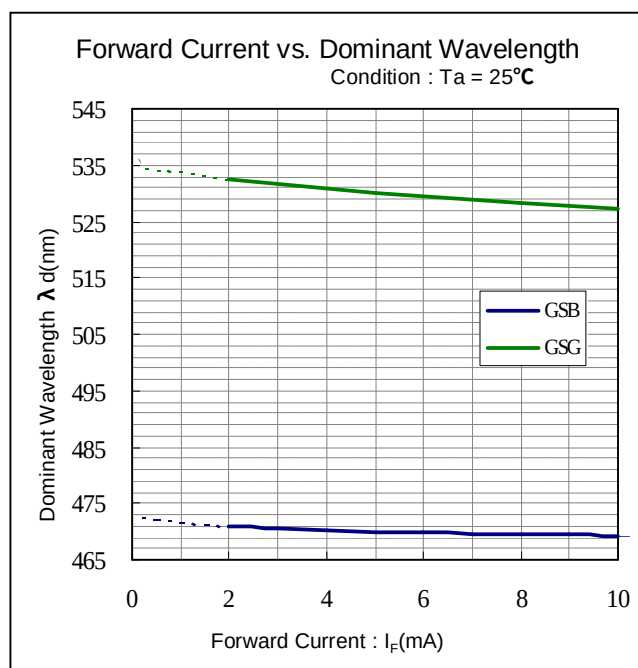
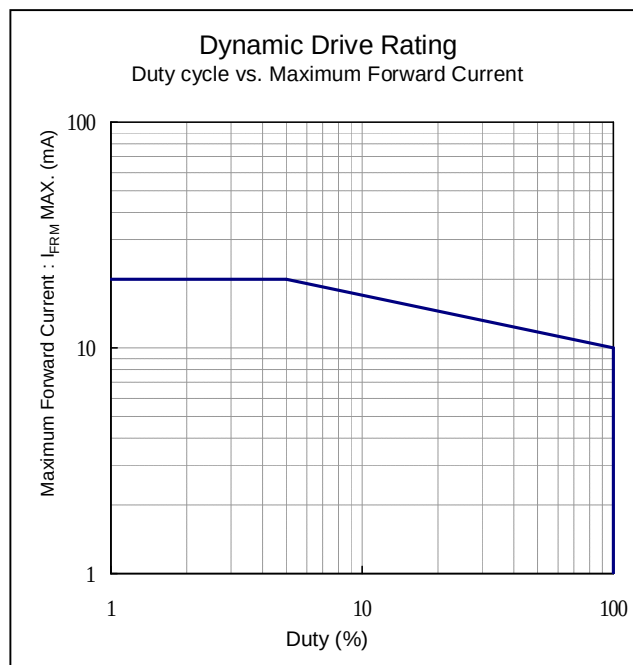
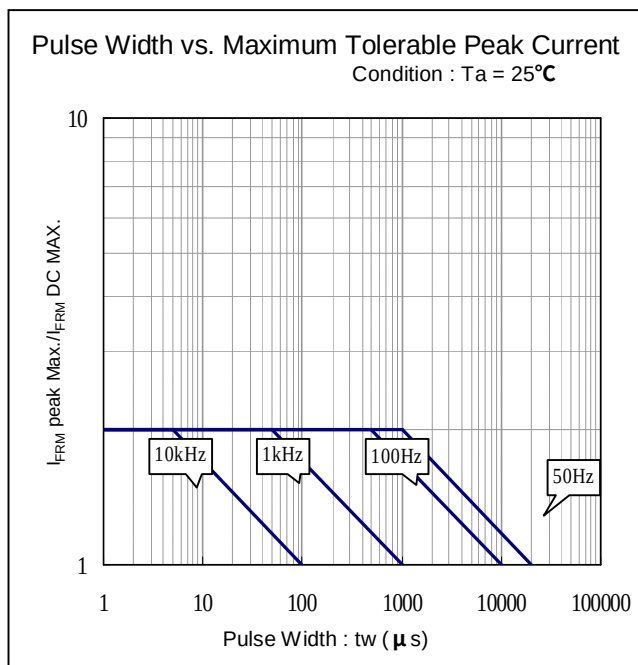
Technical Data (GSB,GSG)



Technical Data (GSB,GSG)



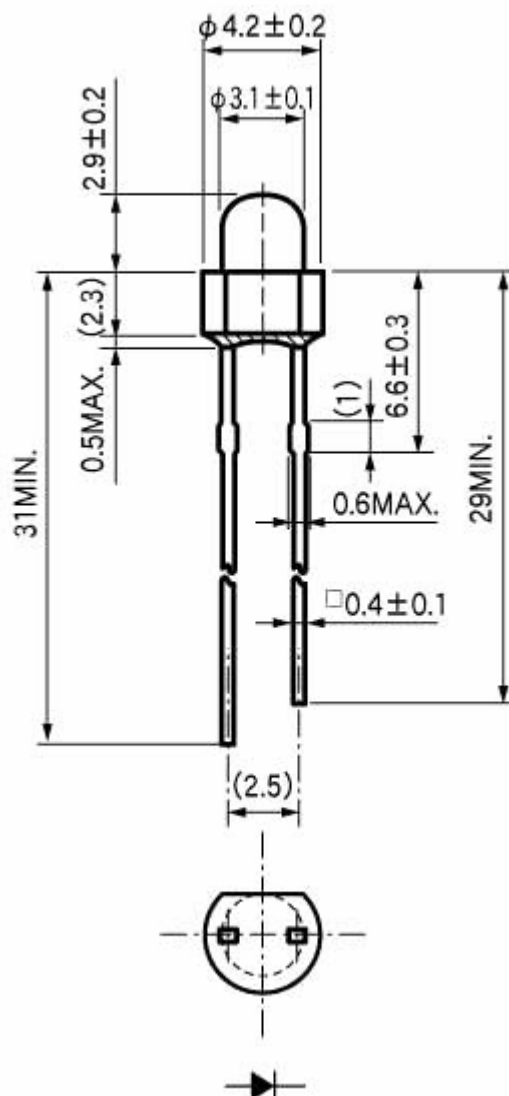
Technical Data (GSB,GSG)



Package Dimensions

(Unit: mm)

Weight: (0.16)g



TTW (Through The Wave) soldering Conditions

Pre-heating	100 °C	(MAX.)
Solder Bath Temp.	265°C	(MAX.)
Dipping Time	5 s	(MAX.)

- 1) The dip soldering process shall be 2 times maximum.
- 2) The product shall be cooled to room temp. before the second dipping process.

※The detail is described to LED and Photodetector handling precautions of home page:
 "Mounting through-hole Type Devices" and "Soldering", and use it after the confirmation, please.

Manual Soldering Conditions

Iron tip temp.	400°C	(MAX.)
Soldering time and frequency	3 s	(MAX.)
	2 times	(MAX.)

※The detail is described to LED and Photodetector handling precautions of home page:
 "Mounting through-hole Type Devices" and "Soldering", and use it after the confirmation, please.

Reliability Testing Result

Reliability Testing Result	Applicable Standard	Testing Conditions	Duration	Failure
Room Temp. Operating Life	BAJED-4701/100(101)	Ta = 25°C, If = Maximum Rated Current	1,000 h	0/25
Resistance to Soldering Heat	BAJED-4701/300(302)	260±5°C, 1.6mm from package base	10s	0/25
Temperature Cycling	BAJED-4701/100(105)	Minimum Rated Storage Temperature(30min) ~Normal Temperature(15min) ~Maximum Rated Storage Temperature(30min) ~Normal Temperature(15min)	5 cycles	0/25
Wet High Temp. Storage Life	BAJED-4701/100(103)	Ta = 60±2°C, RH = 90±5%	1,000 h	0/25
High Temp. Storage Life	BAJED-4701/200(201)	Ta = Maximum Rated Storage Temperature	1,000 h	0/25
Low Temp. Storage Life	BAJED-4701/200(202)	Ta = Minimum Rated Storage Temperature	1,000 h	0/25
Lead Tension	BAJED-4701/400(401)	10N, 1time (□0.4 and Flat Package : 5N)	10s	0/10
Vibration, Variable Frequency	BAJED-4701/400(403)	98.1m/s ² (10G), 100 ~ 2KHz sweep for 20min., XYZ each direction	2 h	0/10

Failure Criteria

Items	Symbols	Conditions	Failure criteria
Luminous Intensity	Iv	If Value of each product Luminous Intensity	Testing Min. Value < Spec. Min. Value x 0.5
Forward Voltage	V _F	If Value of each product Forward Voltage	Testing Max. Value ≥ Spec. Max. Value x 1.2
Reverse Current	I _R	V _R = Maximum Rated Reverse Voltage V	Testing Max. Value ≥ Spec. Max. Value x 2.5
Cosmetic Appearance	-	-	Occurrence of notable decoloration, deformation and cracking

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