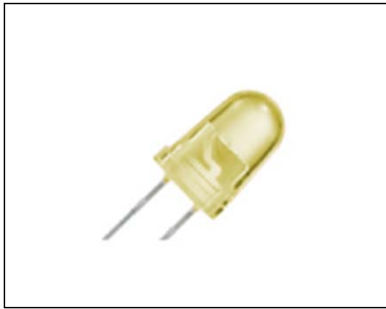




5865S Series

Single Color ϕ 5 Flush Mount Round Shape Type

Features

Package	ϕ 5 Round shape type, FA : Pale Orange Clear epoxy FR : Pale Red Clear epoxy
Product features	• Outer Dimension ϕ5 Flush Mount Round shape type • Operation temperature range. Storage Temperature : -40 ~100 Operating Temperature : -40 ~85 • Lead-free soldering compatible • RoHS compliant
Dominant wavelength	Orange : 605nm (FA) Red : 626nm (FR)
Half Intensity Angle	FA,FR : 50 deg.
Die materials	FA,FR : AlGaInP
Rank grouping parameter	Sorted by luminous intensity per rank taping
Soldering methods	TTW (Through The Wave) soldering and manual soldering
ESD	AlGaInP : More than 2kV(HBM)
Packing	Bulk : 200pcs(MIN.)

Recommended Applications

Amusement Equipment, Electric Household Appliances, OA/FA, Other General Applications

Color and Luminous Intensity

(Ta=25)

Part No.	Material	Emitted Color	Lens Color		Dominant Wavelength λ_d (nm)		Luminous Intensity Iv (mcd)		
					TYP.	I _F	MIN.	TYP.	I _F
FA5865S	AlGaInP	Orange	Pale Orange	Clear	605	20	290	580	20
FR5865S	AlGaInP	Red	Pale Red		626	20	220	440	20

Absolute Maximum Ratings

(Ta=25)

Item	Symbol	Absolute Maximum Ratings		Unit
		FA	FR	
Power Dissipation	P_d	125	125	mW
Forward Current	I_F	50	50	mA
Pulse Forward Current ※1	I_{FRM}	200	200	mA
Derating (Ta=25°C or higher)	ΔI_F	0.67	0.67	mA/°C
Reverse Voltage	V_R	5	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)

Item	Conditions	Symbol	Characteristics			Unit
				FA	FR	
Forward Voltage	$I_F=20\text{mA}$	V_F	TYP.	1.9	1.9	V
			MAX.	2.4	2.4	
Reverse Current	$V_R=5\text{V}$	I_R	MAX.	100	100	μA
Peak Wavelength	$I_F=20\text{mA}$	λ_p	TYP.	609	635	nm
Dominant Wavelength	$I_F=20\text{mA}$	λ_d	TYP.	605	626	nm
Spectral Line Half Width	$I_F=20\text{mA}$	$\Delta\lambda$	TYP.	15	15	nm
Half Intensity Angle	$I_F=20\text{mA}$	$2\theta_{1/2}$	TYP.	50	50	deg.

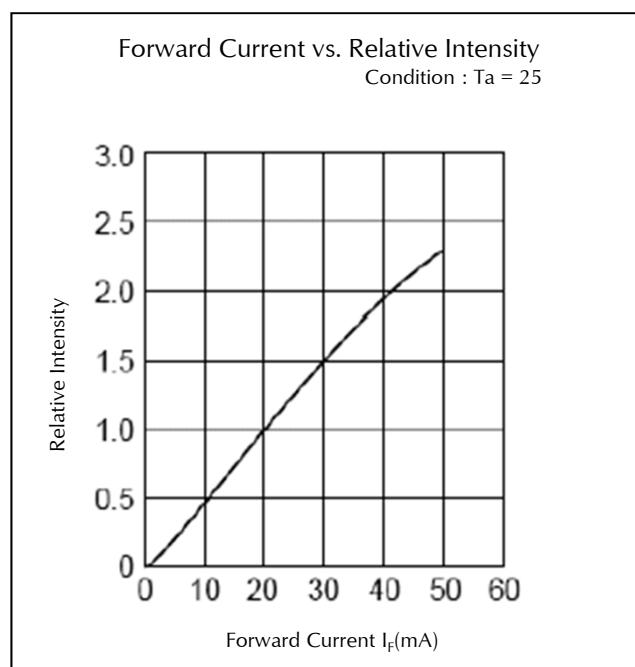
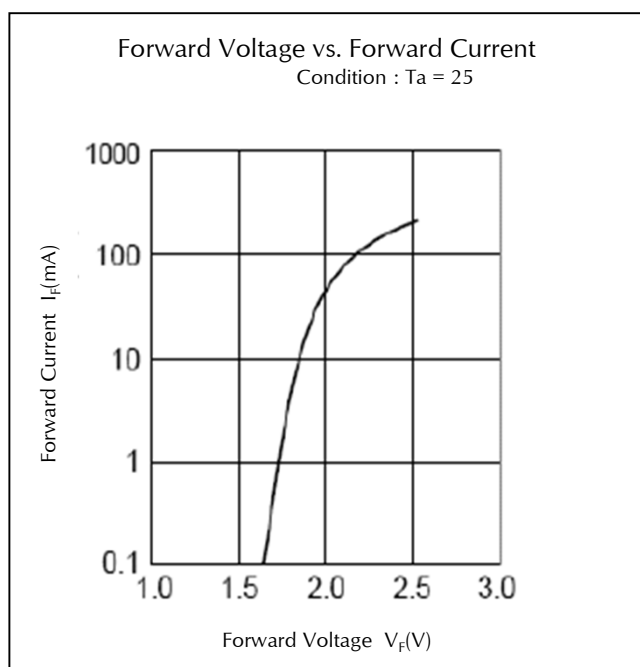
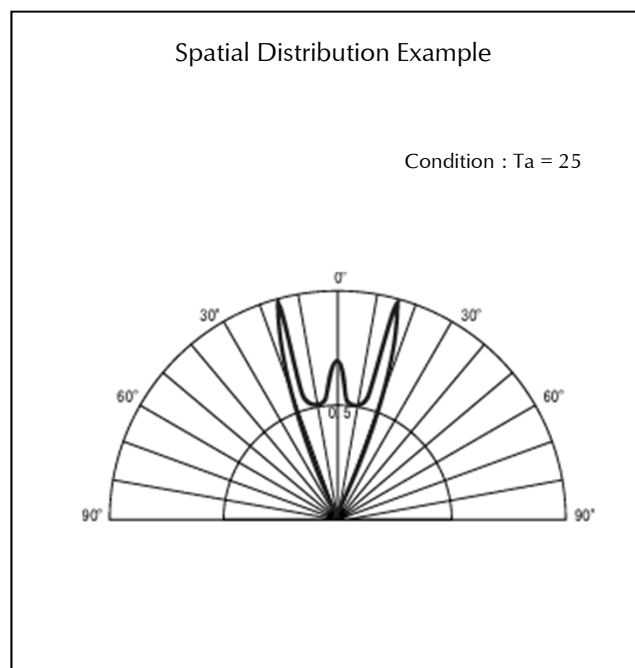
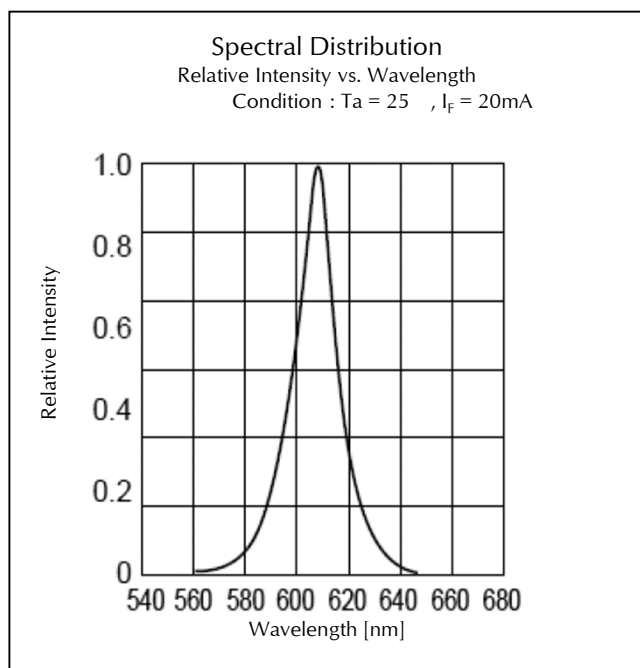
Luminous Intensity Rank

(Ta=25)

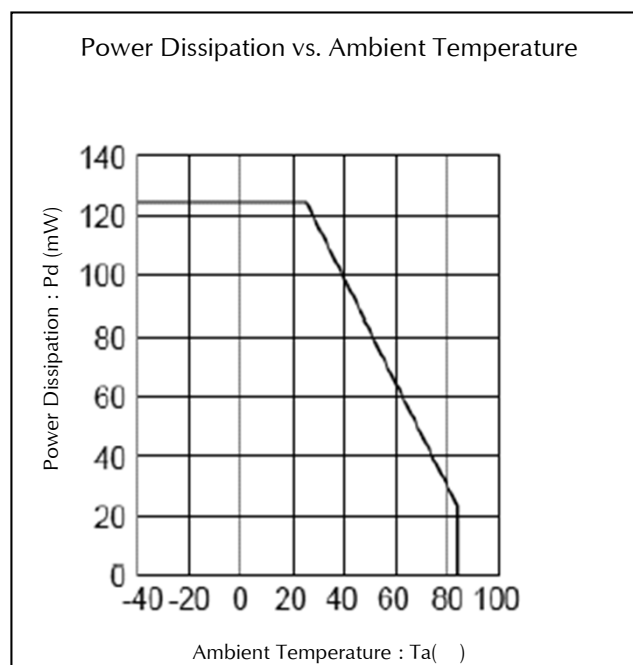
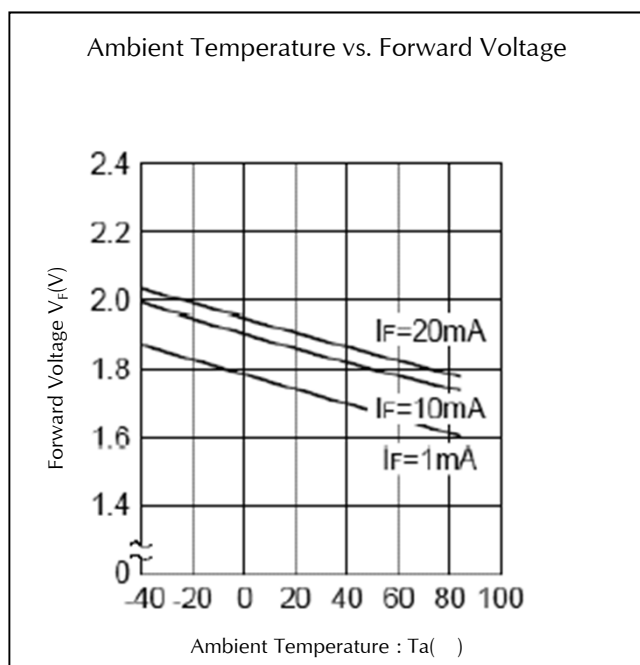
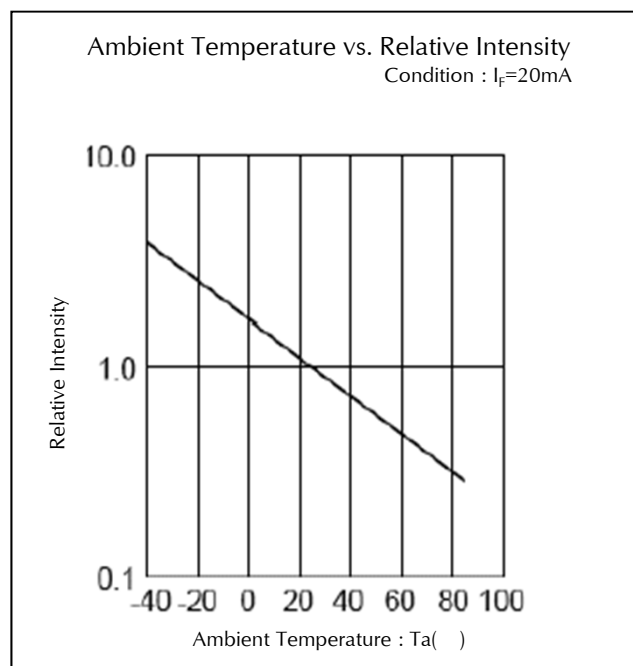
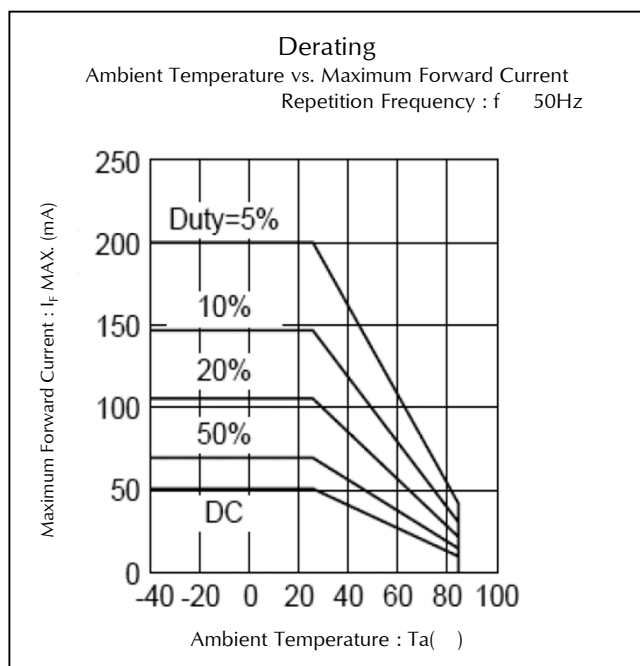
Rank	I _V (mcd)				Condition
	FA		FR		
	MIN.	MAX.	MIN.	MAX.	
A	290	580	220	440	I _F = 20mA
B	410	820	310	620	
C	580	1,160	440	880	
D	820	1,640	620	1,240	
E	1,160	-	880	-	

※Please contact our sales staff concerning rank designation.

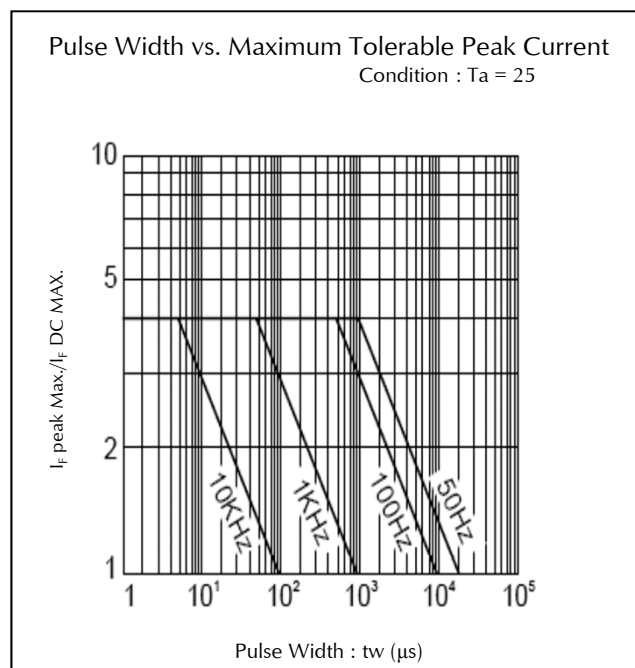
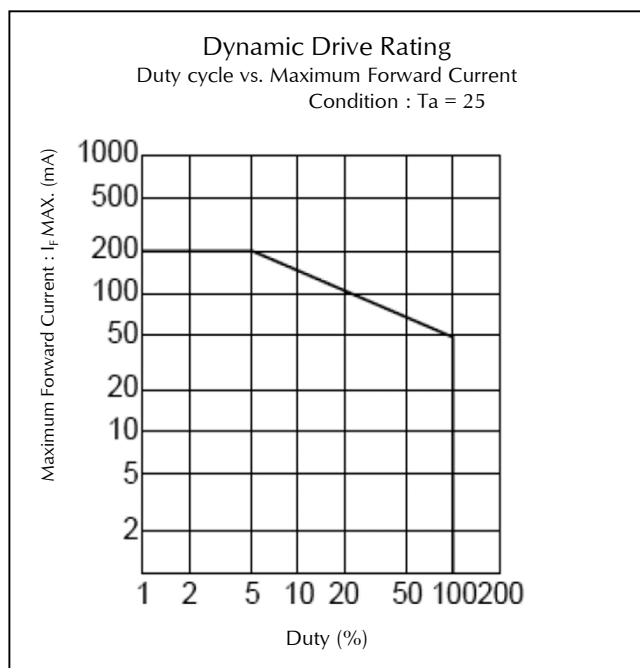
Technical Data(FA)



Technical Data(FA)

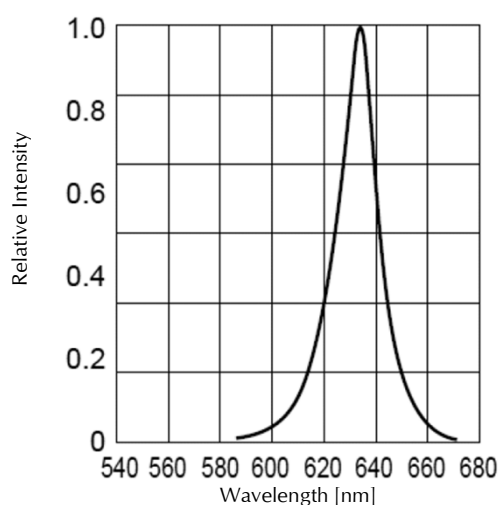


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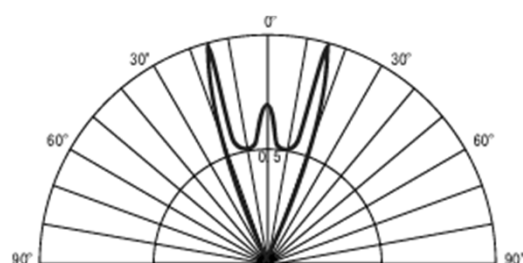
Technical Data(FR)

Spectral Distribution
Relative Intensity vs. Wavelength
Condition : $T_a = 25$, $I_F = 20\text{mA}$

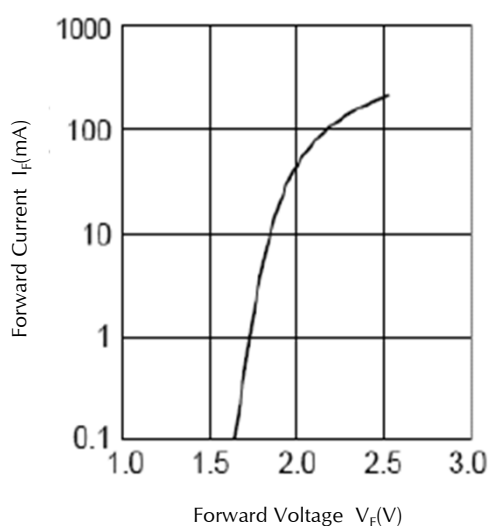


Spatial Distribution Example

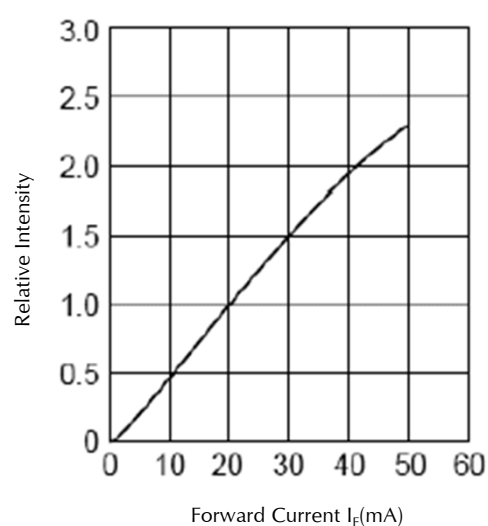
Condition : $T_a = 25$



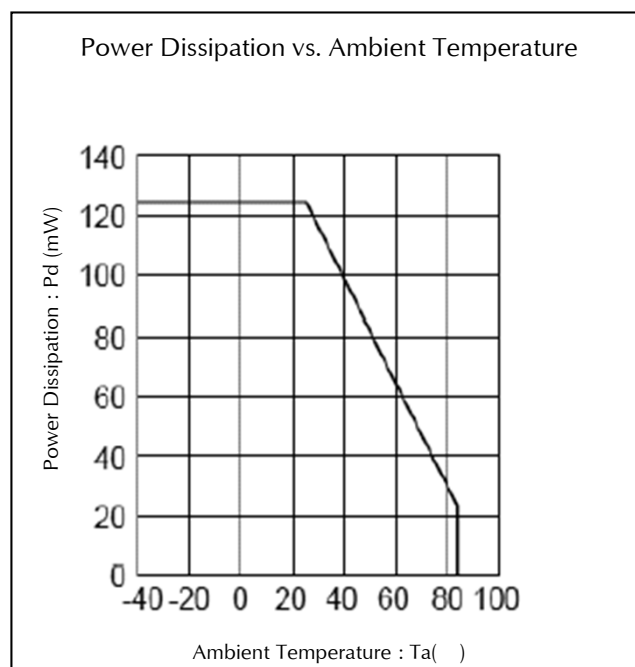
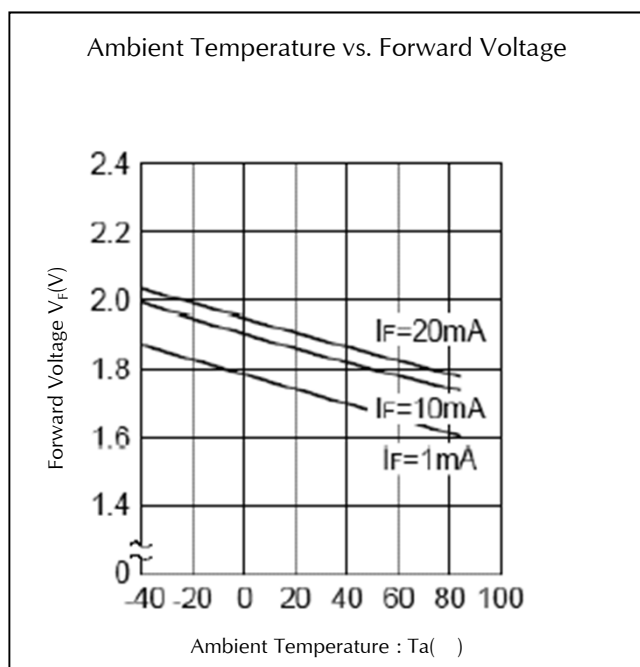
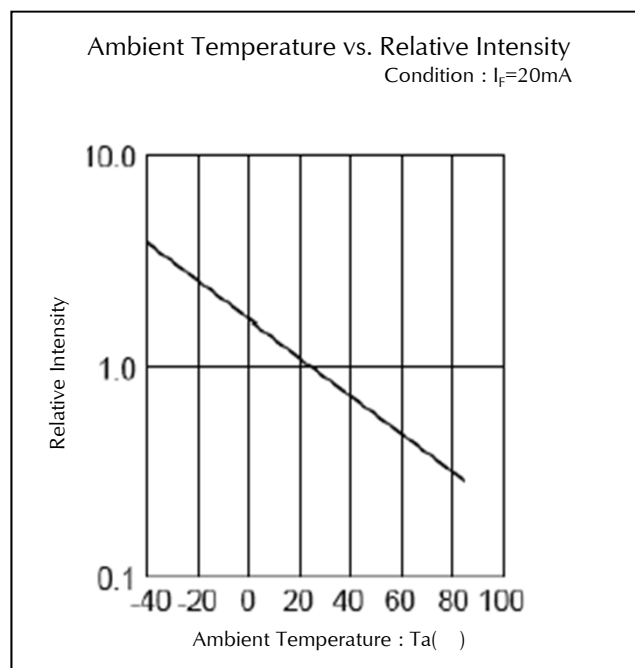
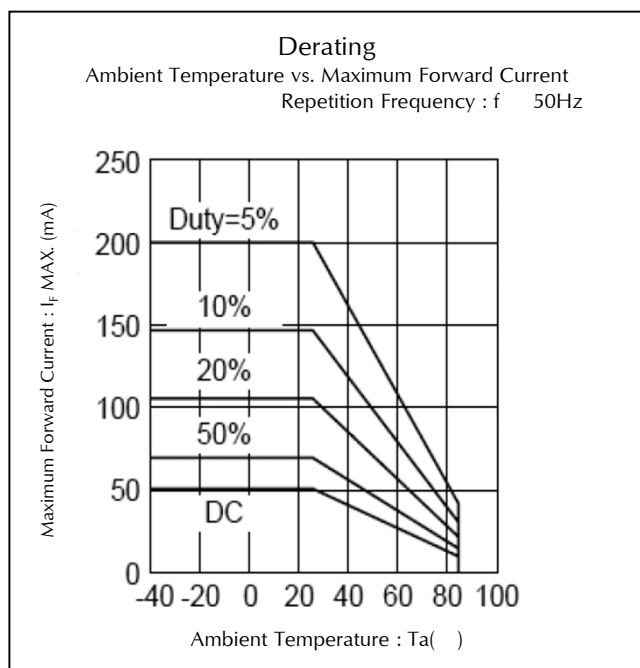
Forward Voltage vs. Forward Current
Condition : $T_a = 25$



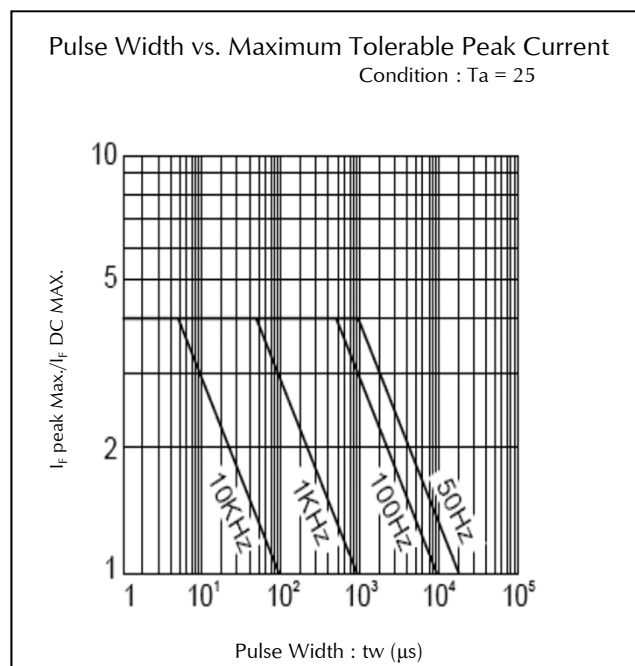
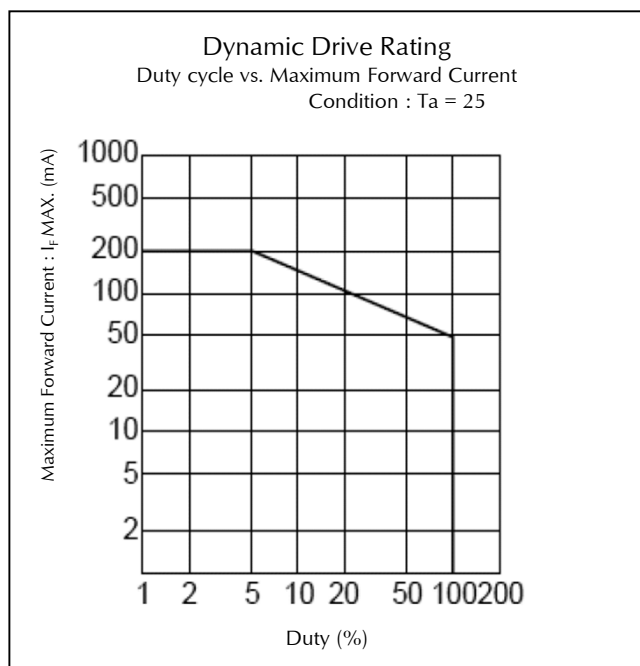
Forward Current vs. Relative Intensity
Condition : $T_a = 25$



Technical Data(FR)



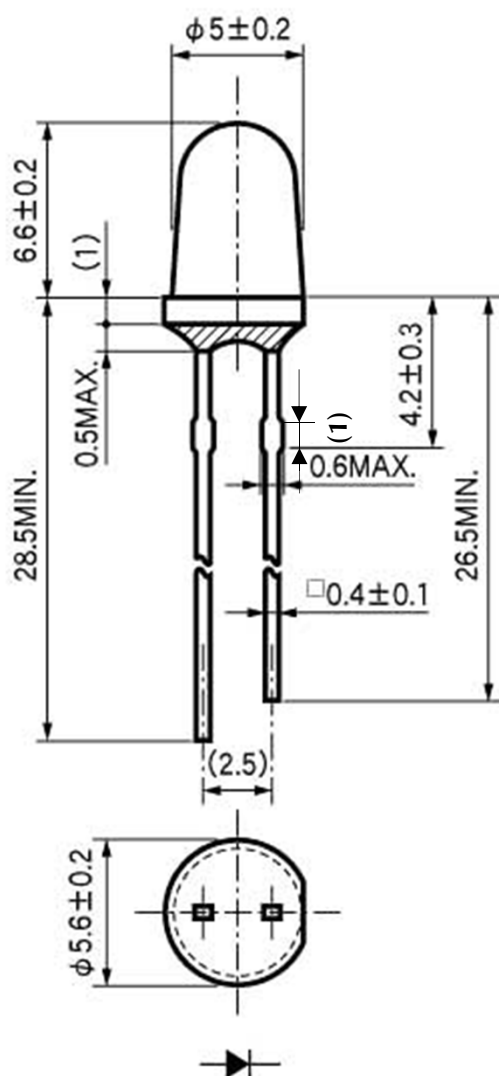
Technical Data(FR)



Package Dimensions

(Unit: mm)

Mass : (0.34)g



TTW (Through The Wave) soldering Conditions

Pre-heating	100	(MAX.)
Solder Bath Temp.	265	(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.	360	(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	EIAJ ED-4701/100(101)	Ta = 25°C, If = Maximum Rated Current	1,000 h	0/25
Resistance to Soldering Heat	EIAJ ED-4701/300(302)	260±5°C, 1.6mm from package base	10s	0/25
Temperature Cycling	EIAJ ED-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	EIAJ ED-4701/100(103)	Ta = 60±2°C, RH = 90±5%	1,000 h	0/25
High Temp. Storage Life	EIAJ ED-4701/200(201)	Ta = Maximum Rated Storage Temperature	1,000 h	0/25
Low Temp. Storage Life	EIAJ ED-4701/200(202)	Ta = Minimum Rated Storage Temperature	1,000 h	0/25
Lead Tension	EIAJ ED-4701/400(401)	10N, 1time (□0.4 and Flat Package : 5N)	10s	0/10
Vibration, Variable Frequency	EIAJ ED-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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