



5365S Series

Single Color High Brightness $\phi 5$ Type

Features

Package	$\phi 5$ Round shape type, FY : Pale Yellow Clear epoxy FA : Pale Orange Clear epoxy FR : Pale Red Clear epoxy
Product features	• Outer Dimension $\phi 5$ Round shape type • Operation temperature range. Storage Temperature : $-40^{\circ}\text{C} \sim 100^{\circ}\text{C}$ Operating Temperature : $-40^{\circ}\text{C} \sim 85^{\circ}\text{C}$ • Lead-free soldering compatible • RoHS compliant
Dominant wavelength	Yellow : 590nm (FY) Orange : 605nm (FA) Red : 626nm (FR)
Half Intensity Angle	FY,FA,FR : 45 deg.
Die materials	FY,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°C)

Part No.	Material	Emitted Color	Lens Color		Dominant Wavelength λ_d (nm)		Luminous Intensity I_v (mcd)		
					TYP.	I_F	MIN.	TYP.	I_F
FY5365S	AlGaInP	Yellow	Pale Yellow	Clear	590	20	250	500	20
FA5365S	AlGaInP	Orange	Pale Orange		605	20	290	580	20
FR5365S	AlGaInP	Red	Pale Red		626	20	220	440	20

Absolute Maximum Ratings

(Ta=25°C)

Item	Symbol	Absolute Maximum Ratings			Unit
		FY	FA	FR	
Power Dissipation	P_d	125	125	125	mW
Forward Current	I_F	50	50	50	mA
Pulse Forward Current ※1	I_{FRM}	200	200	200	mA
Derating (Ta=25°C or higher)	ΔI_F	0.67	0.67	0.67	mA/°C
Reverse Voltage	V_R	5	5	5	V
Operating Temperature	T_{opr}	-40~+85			°C
Storage Temperature	T_{stg}	-40~+100			°C

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

Electro-Optical Characteristics

(Ta=25°C)

Item	Conditions	Symbol	Characteristics				Unit
				FY	FA	FR	
Forward Voltage	$I_F=20\text{mA}$	V_F	TYP.	1.9	1.9	1.9	V
			MAX.	2.4	2.4	2.4	
Reverse Current	$V_R=5\text{V}$	I_R	MAX.	100	100	100	μA
Peak Wavelength	$I_F=20\text{mA}$	λ_p	TYP.	592	609	635	nm
Dominant Wavelength	$I_F=20\text{mA}$	λ_d	TYP.	590	605	626	nm
Spectral Line Half Width	$I_F=20\text{mA}$	$\Delta\lambda$	TYP.	15	15	15	nm
Half Intensity Angle	$I_F=20\text{mA}$	$2\theta_{1/2}$	TYP.	45	45	45	deg.

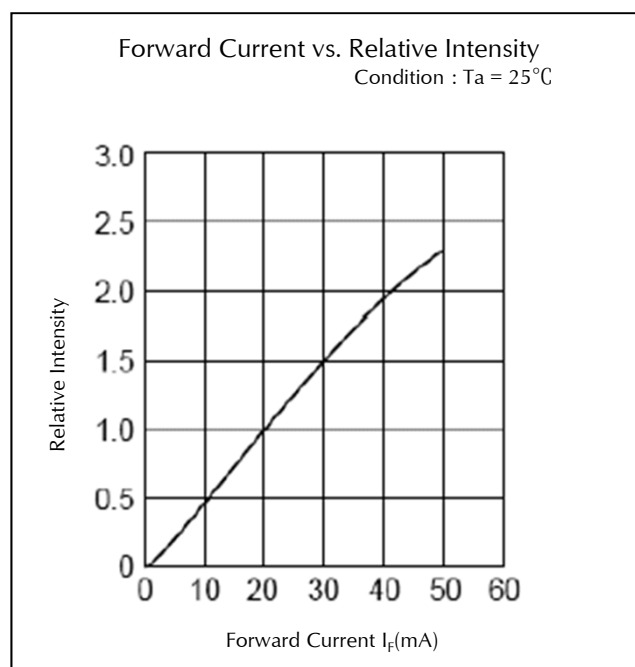
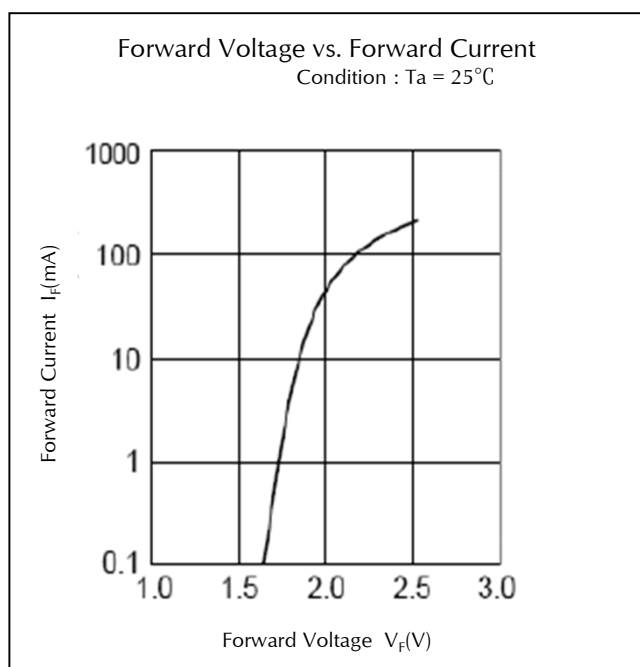
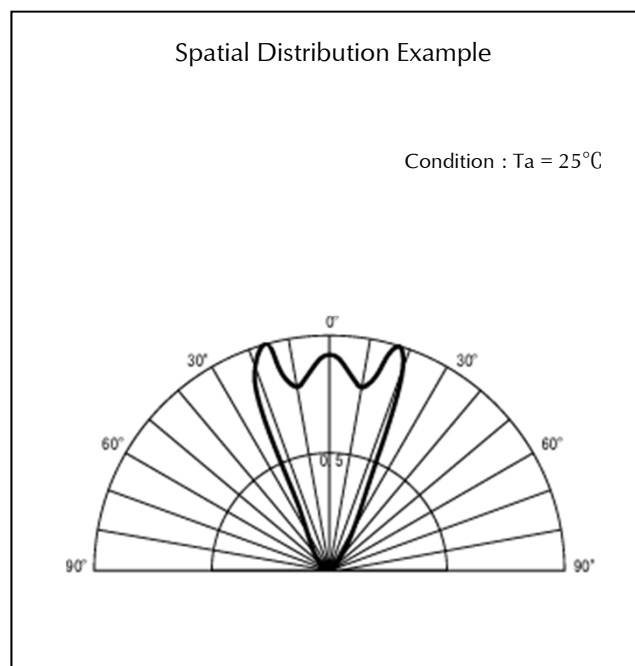
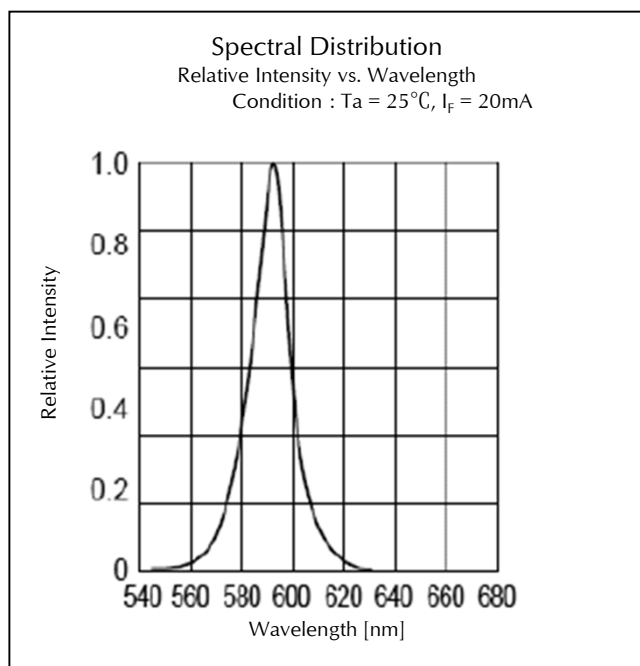
Luminous Intensity Rank

(Ta=25°C)

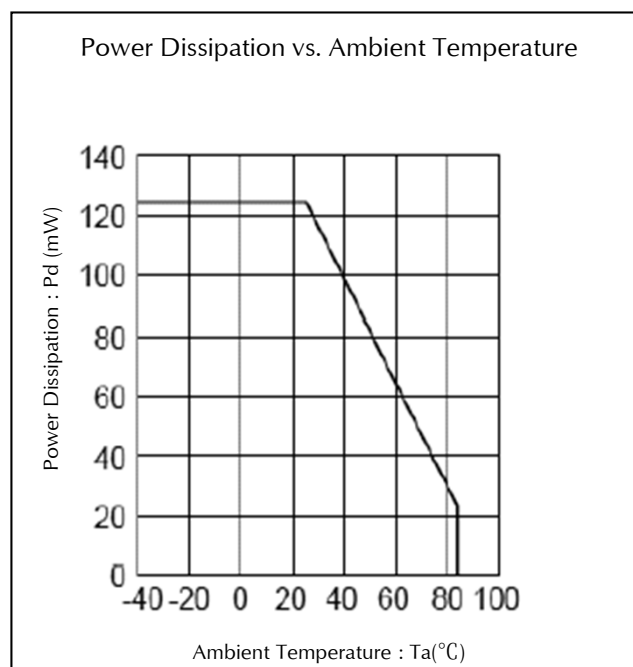
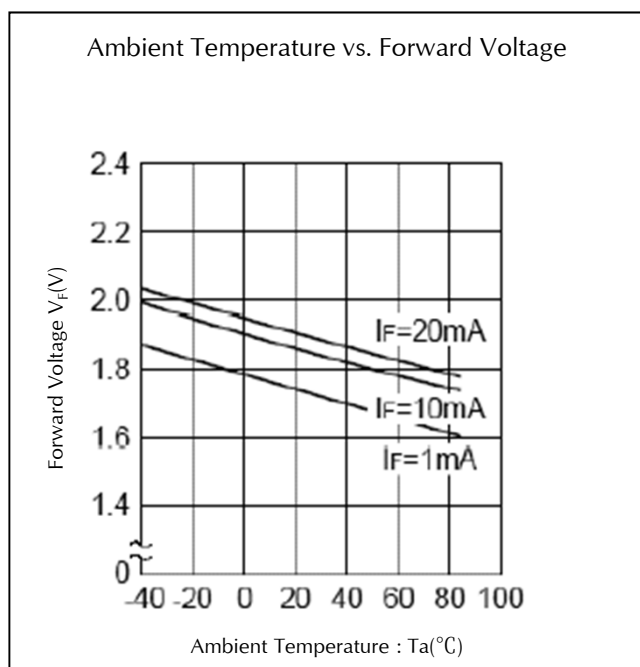
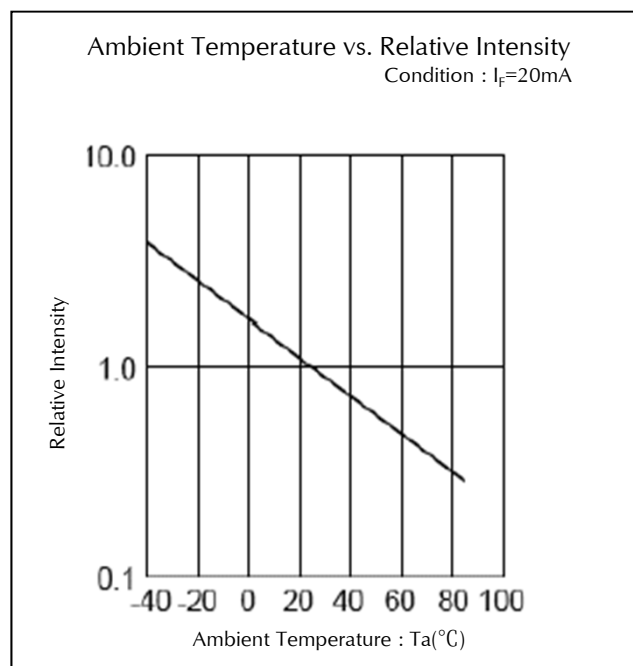
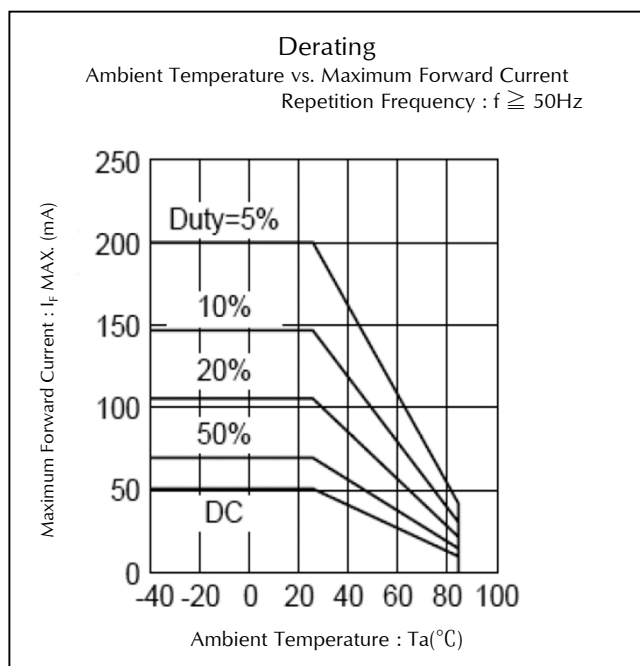
Rank	I _V (mcd)						Condition
	FY		FA		FR		
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	
A	250	500	290	580	220	440	I _F = 20mA
B	350	700	410	820	310	620	
C	500	1,000	580	1,160	440	880	
D	700	1,400	820	1,640	620	1,240	
E	1,000	-	1,160	-	880	-	

※Please contact our sales staff concerning rank designation.

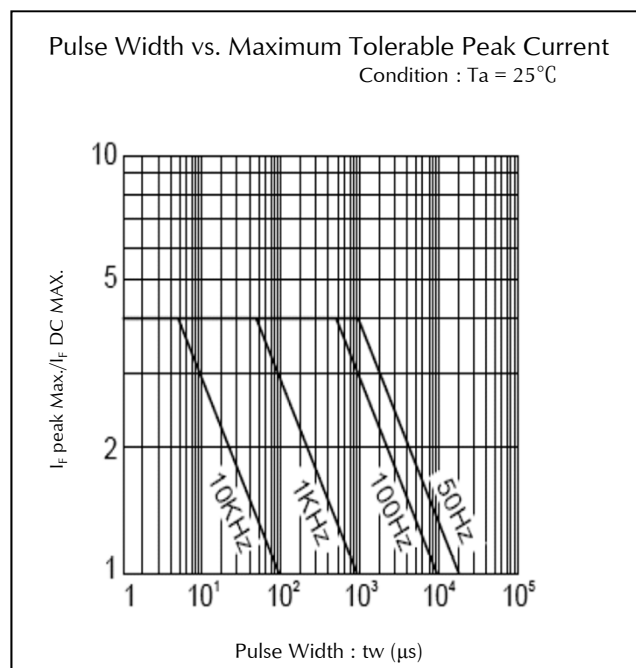
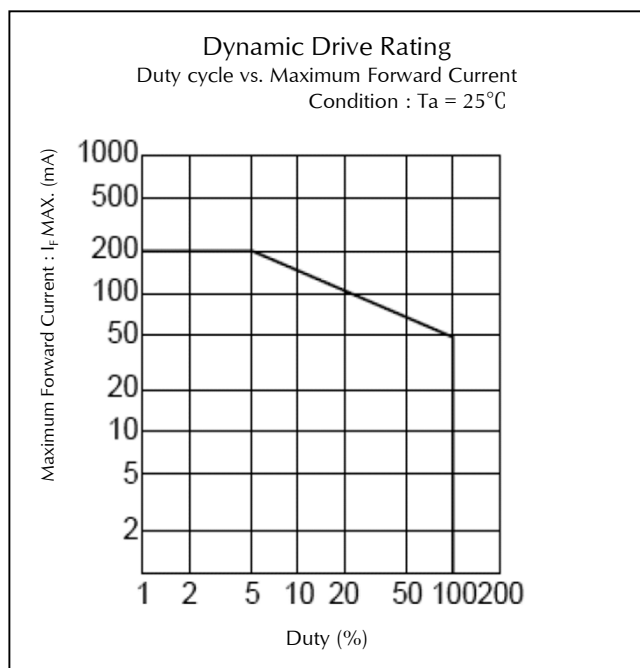
Technical Data(FY)



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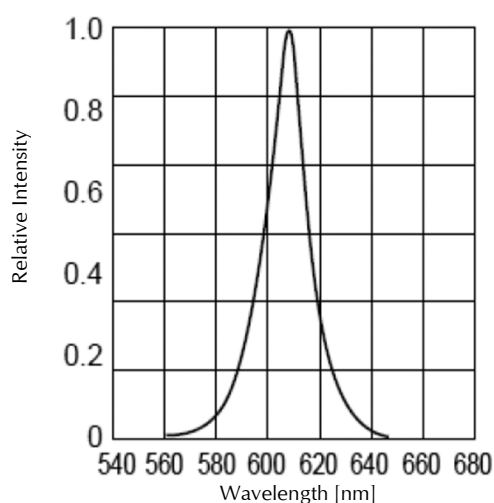


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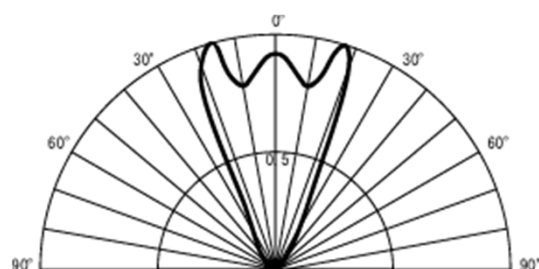
Technical Data(FA)

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

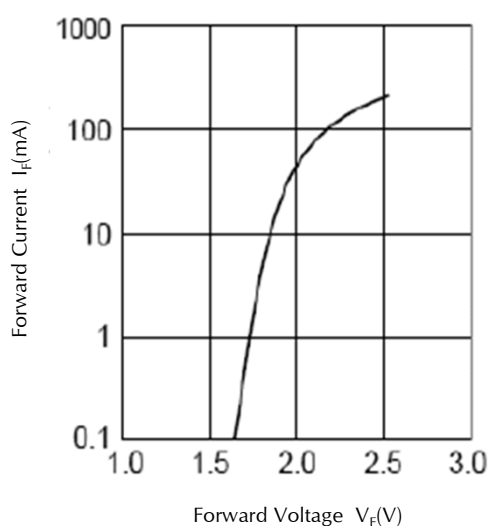


Spatial Distribution Example

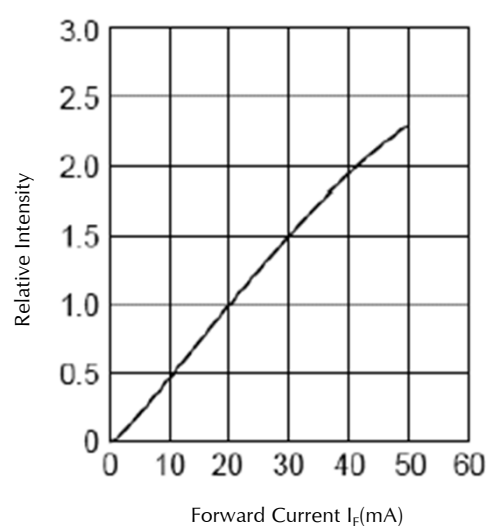
Condition : $T_a = 25^\circ\text{C}$



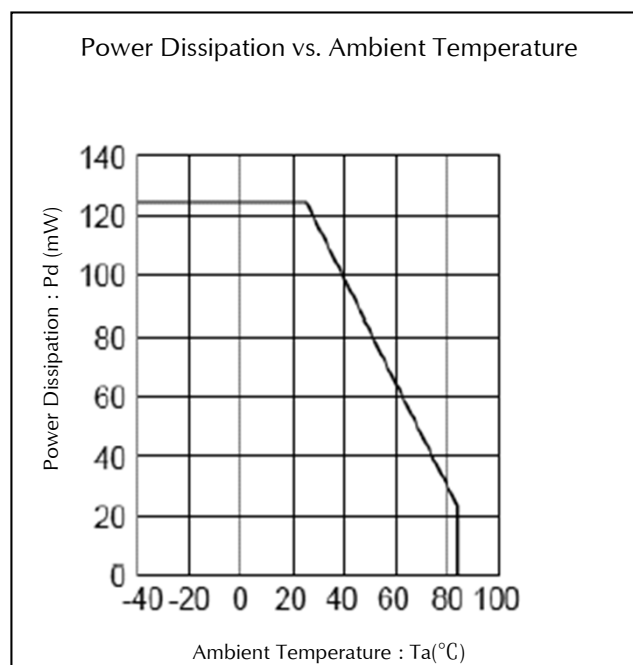
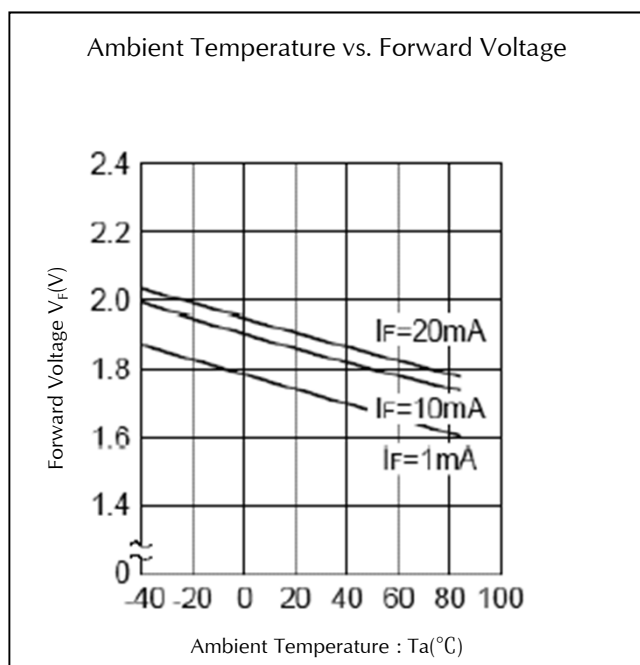
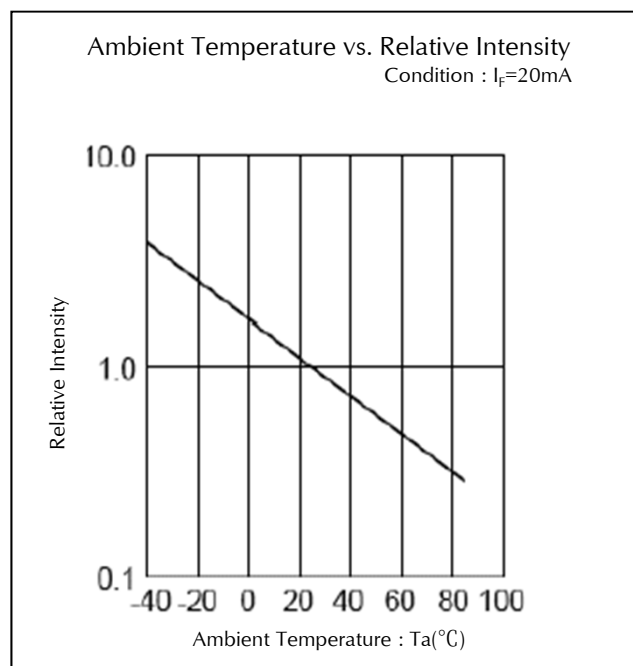
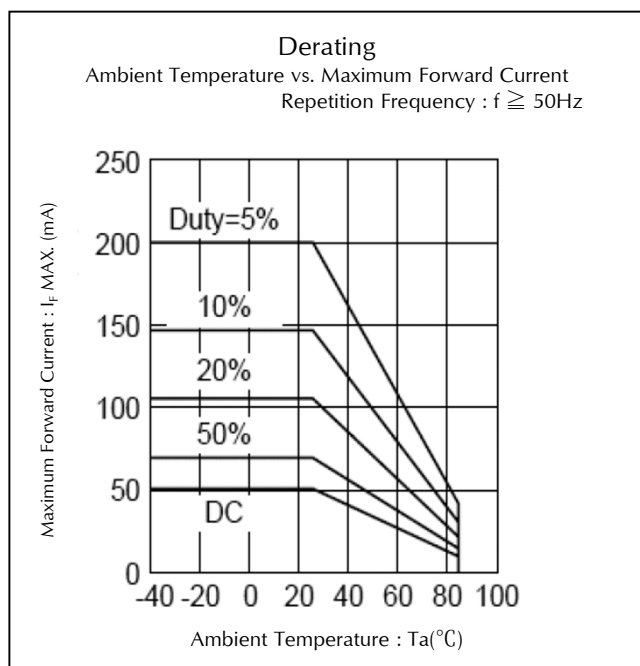
Forward Voltage vs. Forward Current
Condition : $T_a = 25^\circ\text{C}$



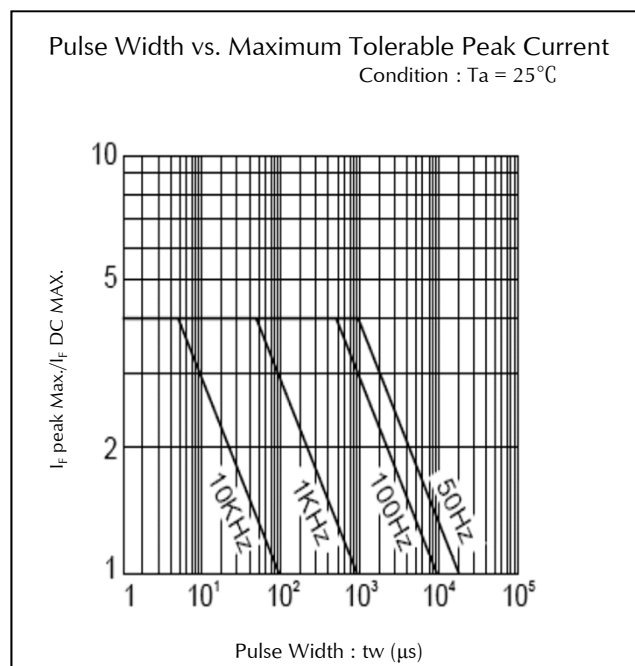
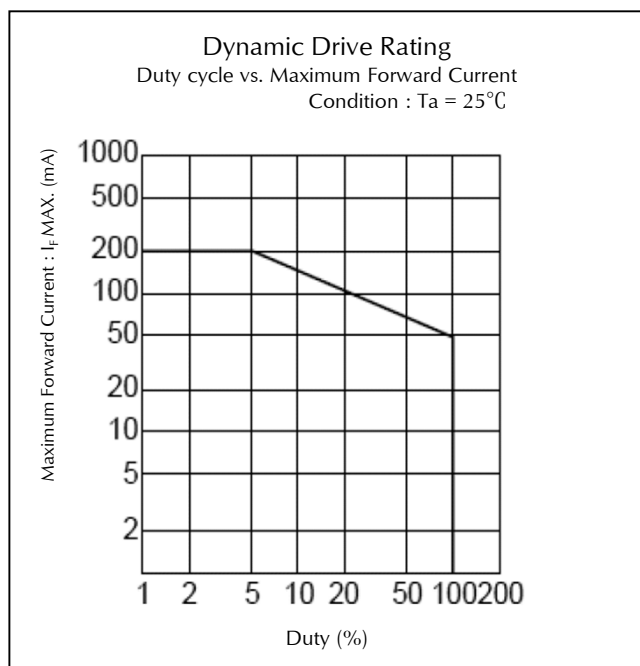
Forward Current vs. Relative Intensity
Condition : $T_a = 25^\circ\text{C}$



Technical Data(FA)

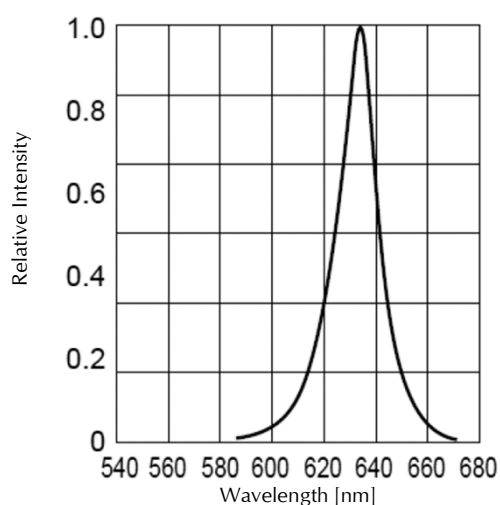


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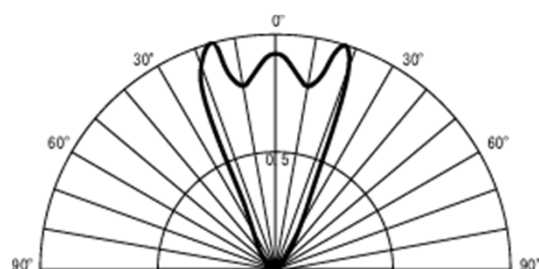
Technical Data(FR)

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

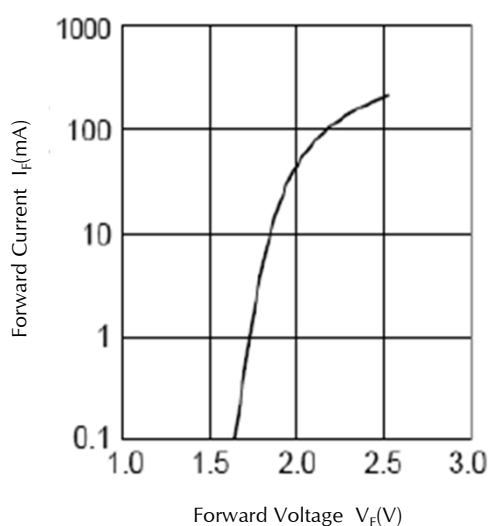


Spatial Distribution Example

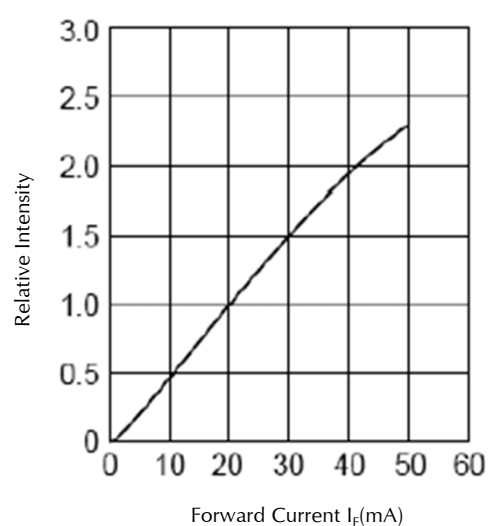
Condition : $T_a = 25^\circ\text{C}$



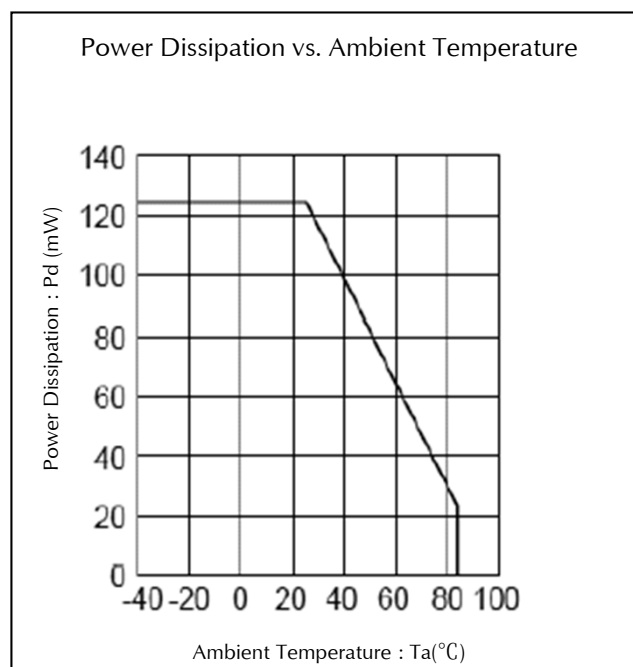
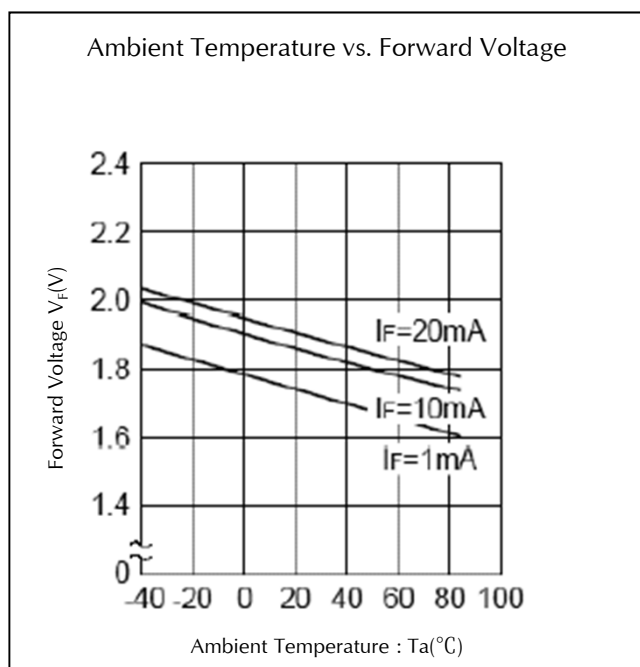
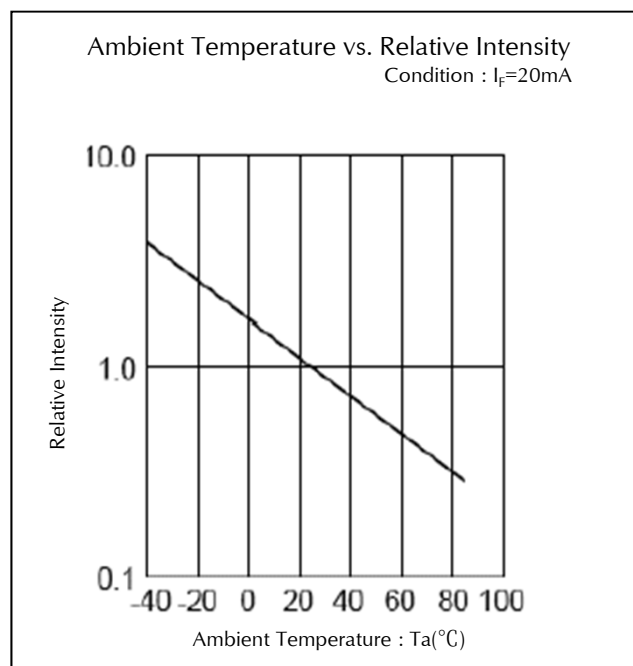
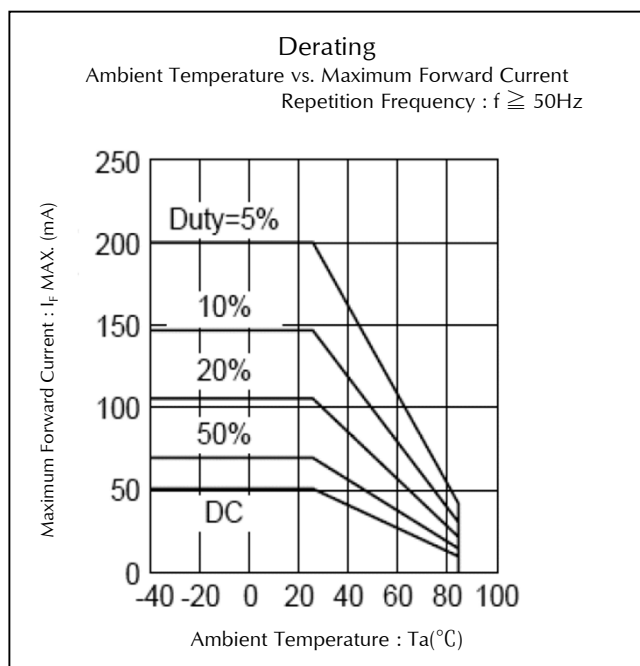
Forward Voltage vs. Forward Current
Condition : $T_a = 25^\circ\text{C}$



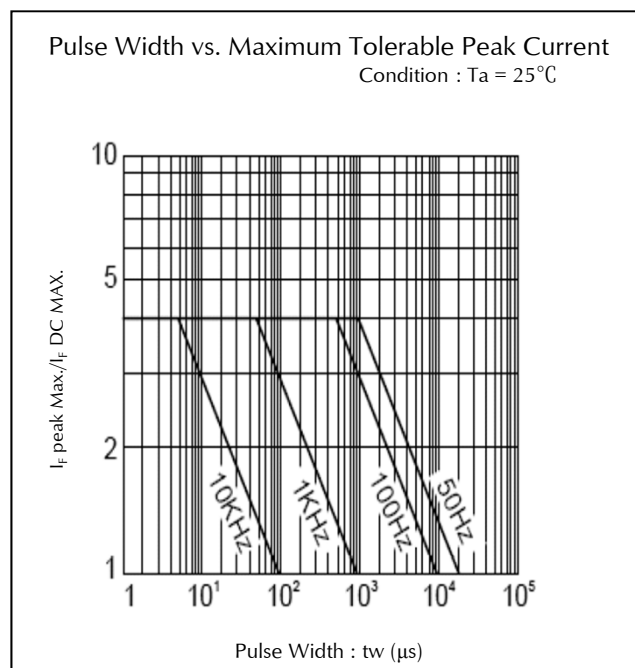
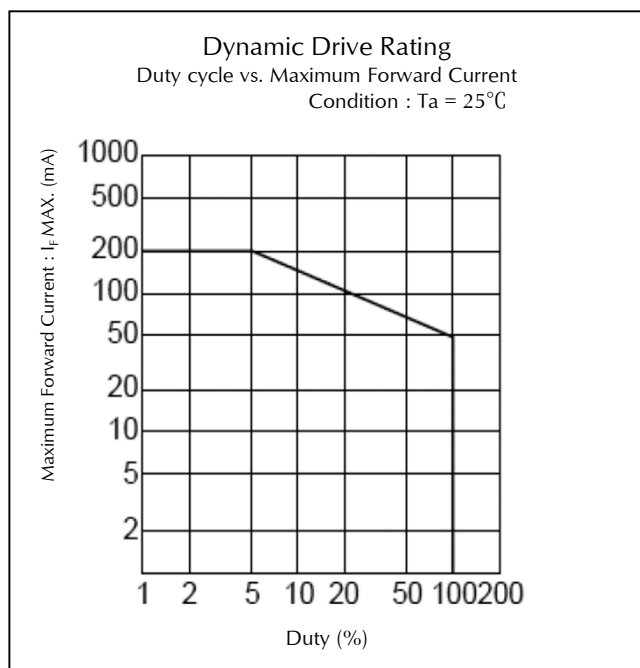
Forward Current vs. Relative Intensity
Condition : $T_a = 25^\circ\text{C}$



Technical Data(FR)



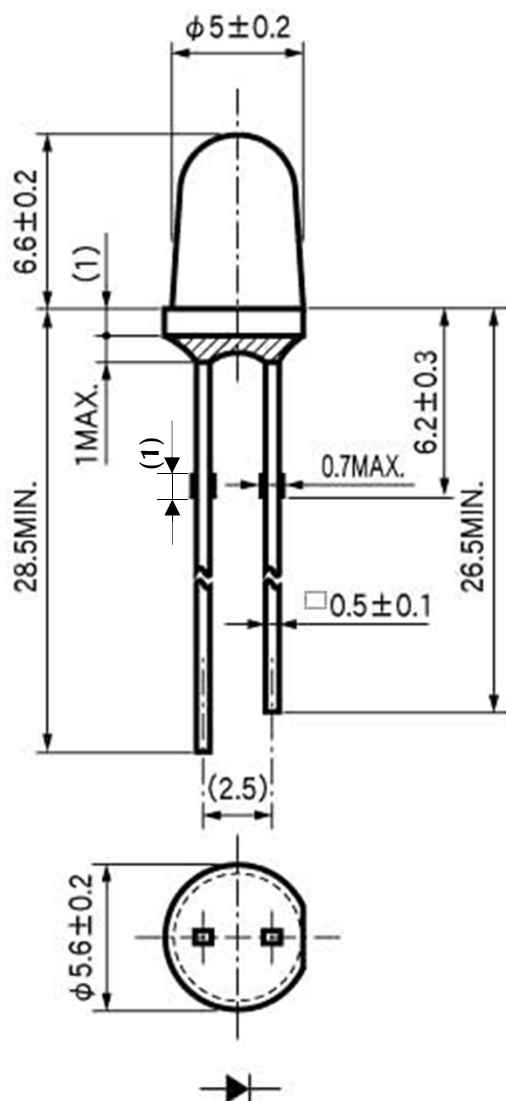
Technical Data(FR)



Package Dimensions

(Unit: mm)

Mass : (0.34)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.	360°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	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 $\pm$ 5°C, 3mm 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 $\pm$ 2°C, RH = 90 $\pm$ 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 ($\square$ 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 $\geq$ Spec. Max. Value x 1.2
Reverse Current	I _R	V _R = Maximum Rated Reverse Voltage V	Testing Max. Value $\geq$ Spec. Max. Value x 2.5
Cosmetic Appearance	-	-	Occurrence of notable decoloration, deformation and cracking

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