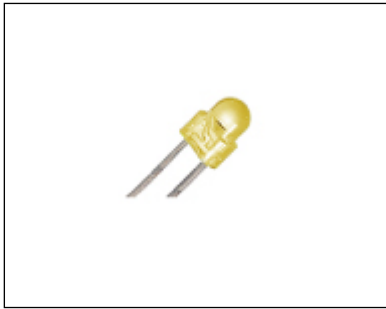




Ph-free
HEAT



3864X Series

Single Color $\phi 3$ Flush Mount Round Shape Type

Features

Package	$\Phi 3$ Round shape type, YPY,FY : Pale Yellow Clear epoxy FA : Pale Orange Clear epoxy FR : Pale Red Clear epoxy
Product features	• Outer Dimension $\phi 3$ Flush Mount 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 Green : 572nm (YPY) Yellow : 590nm (FY) Orange : 605nm (FA) Red : 626nm (FR)
Half Intensity Angle	YPY,FY,FA,FR : 70 deg.
Die materials	YPY,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
YPY3864X	AlGaInP	Yellow Green	Pale Yellow	Clear	572	20	60	120	20
FY3864X	AlGaInP	Yellow	Yellow		590	20	125	250	20
FA3864X	AlGaInP	Orange	Pale Orange		605	20	140	280	20
FR3864X	AlGaInP	Red	Pale Red		626	20	110	220	20

Absolute Maximum Ratings

(Ta=25°C)

Item	Symbol	Absolute Maximum Ratings				Unit
		YPY	FY	FA	FR	
Power Dissipation	P_d	130	125	125	125	mW
Forward Current	I_F	50	50	50	50	mA
Pulse Forward Current ※1	I_{FRM}	200	200	200	200	mA
Derating (Ta=25°C or higher)	ΔI_F	0.67	0.67	0.67	0.67	mA/°C
Reverse Voltage	V_R	5	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 $\leq 1ms.$, Duty $\leq 1/20$.

Electro-Optical Characteristics

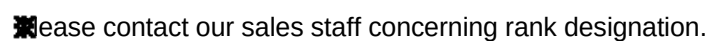
(Ta=25°C)

Item	Conditions	Symbol	Characteristics					Unit
				YPY	FY	FA	FR	
Forward Voltage	I _F =20mA	V _F	TYP.	2.1	1.9	1.9	1.9	V
			MAX.	2.5	2.4	2.4	2.4	
Reverse Current	V _R =5V	I _R	MAX.	100	100	100	100	μ A
Peak Wavelength	I _F =20mA	λ _p	TYP.	575	592	609	635	nm
Dominant Wavelength	I _F =20mA	λ _d	TYP.	572	590	605	626	nm
Spectral Line Half Width	I _F =20mA	Δ λ	TYP.	15	15	15	15	nm
Half Intensity Angle	I _F =20mA	2 θ 1/2	TYP.	70	70	70	70	deg.

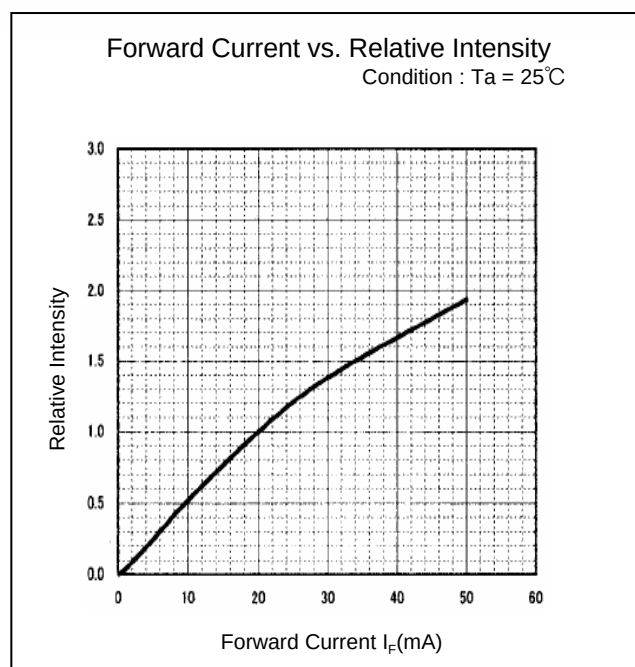
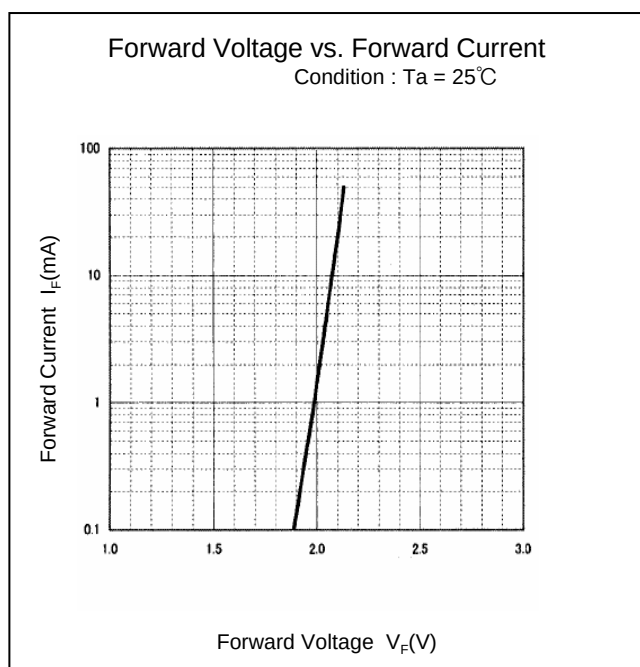
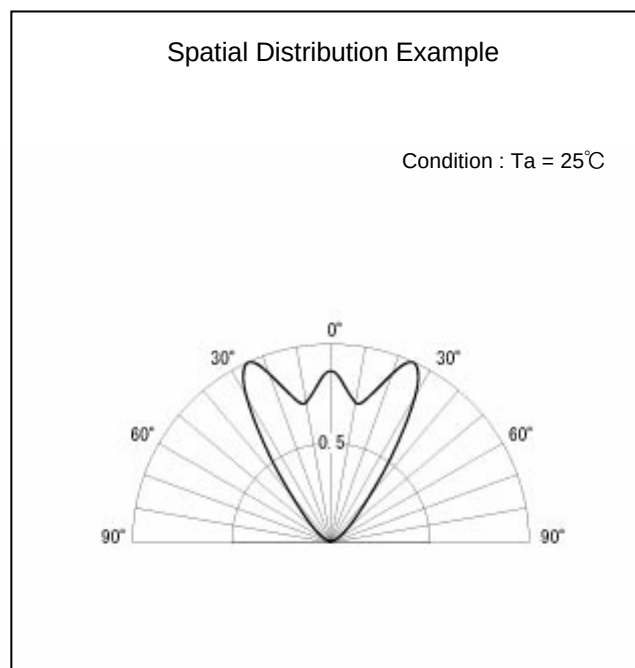
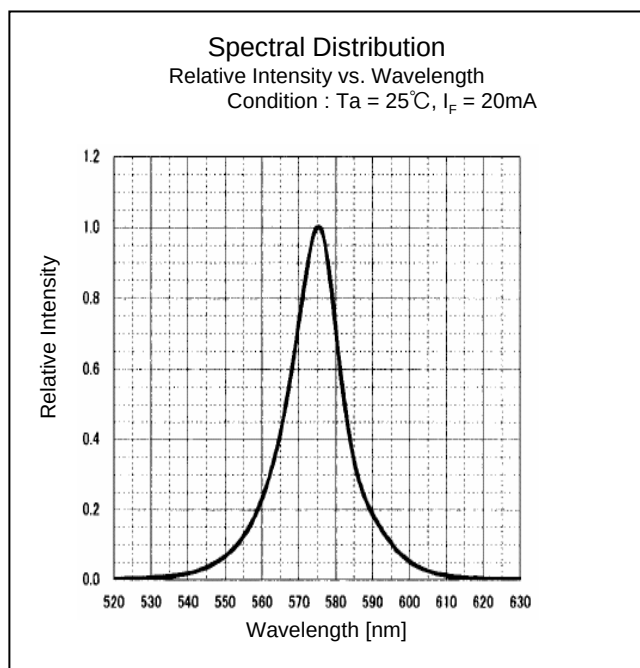
Luminous Intensity Rank

(Ta=25°C)

Rank	I _v (mcd)								Condition
	YPY		FY		FA		FR		
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	
A	60	120	125	250	140	280	110	220	I _F = 20mA
B	85	170	175	350	200	400	150	300	
C	120	240	250	500	280	560	220	440	
D	170	340	350	700	400	800	300	600	
E	240	-	500	-	560	-	440	-	



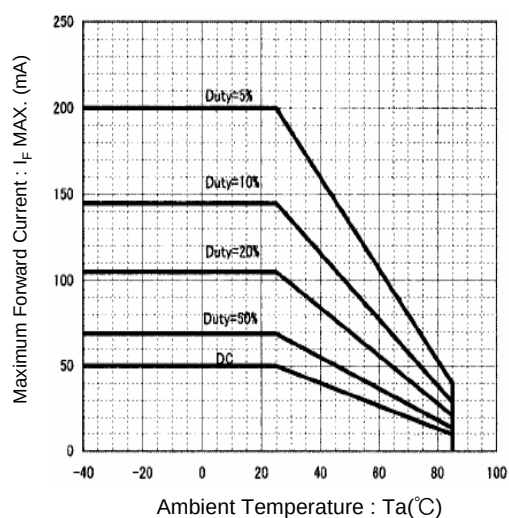
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Technical Data(YPY)

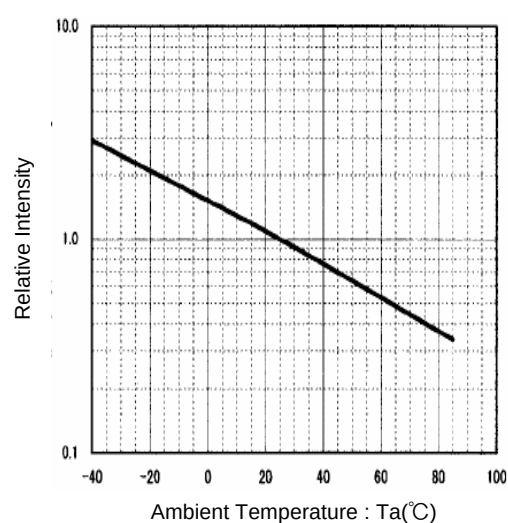
Derating

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

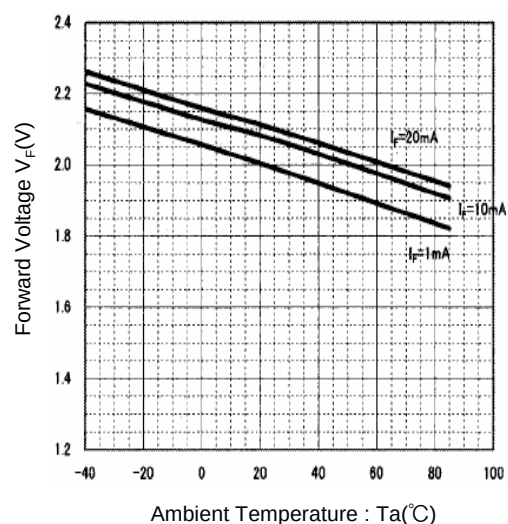


Ambient Temperature vs. Relative Intensity

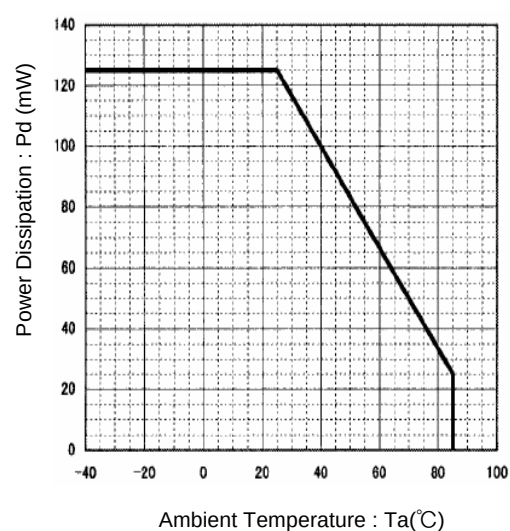
Condition : $I_F=20\text{mA}$



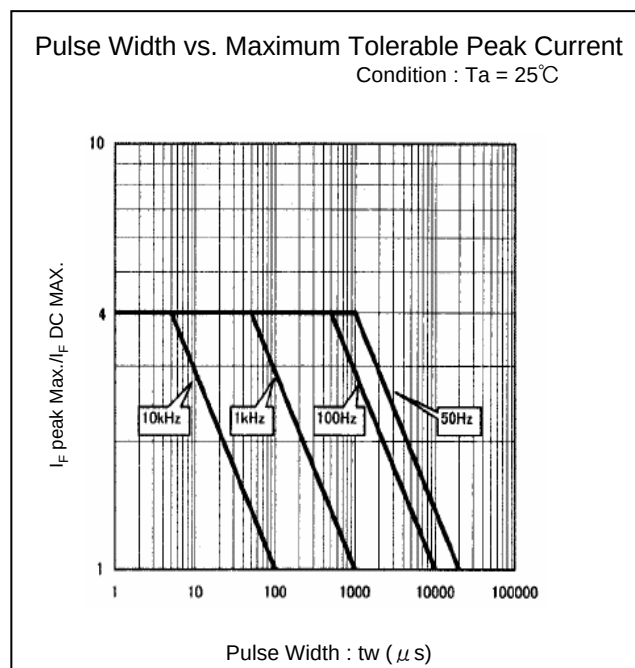
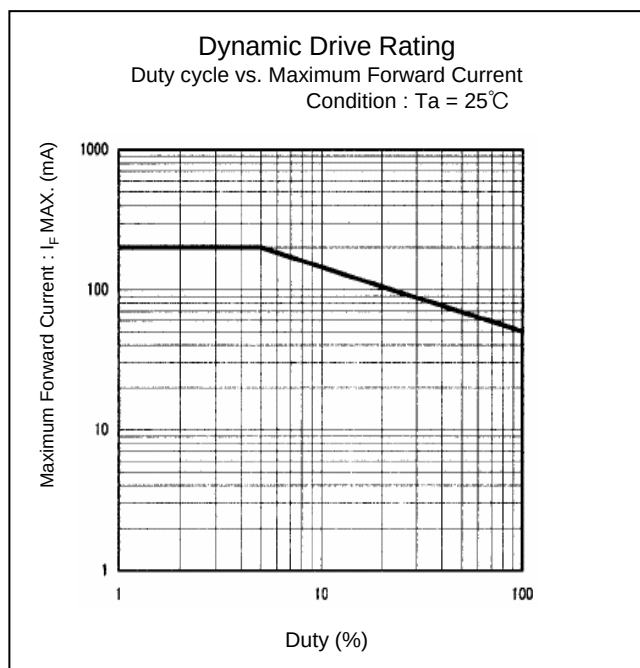
Ambient Temperature vs. Forward Voltage



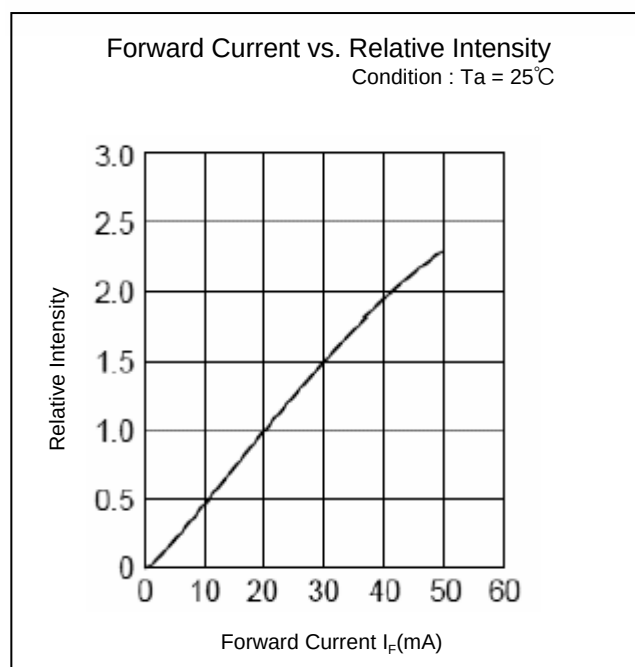
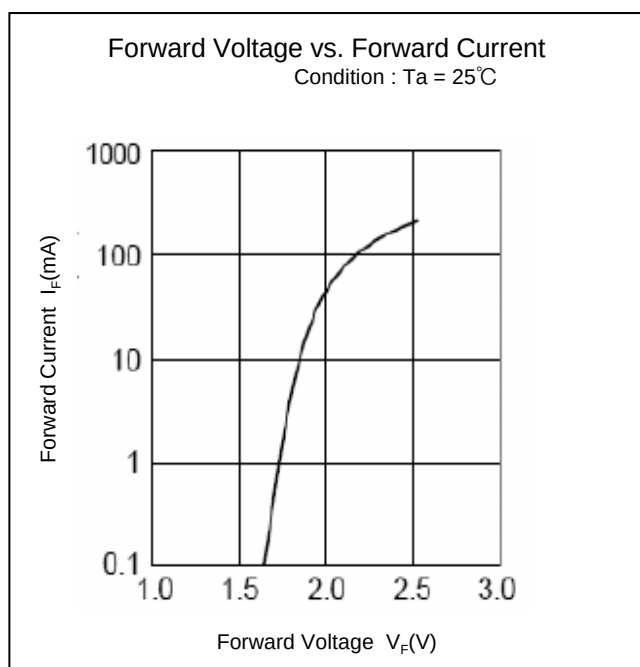
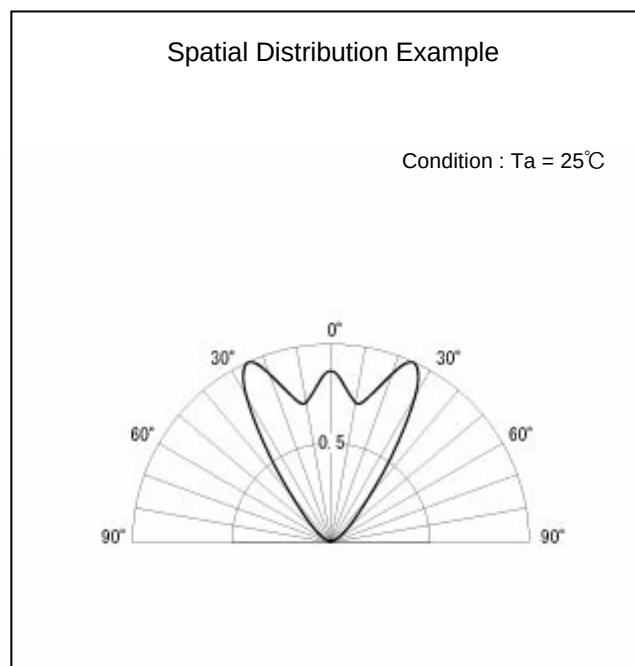
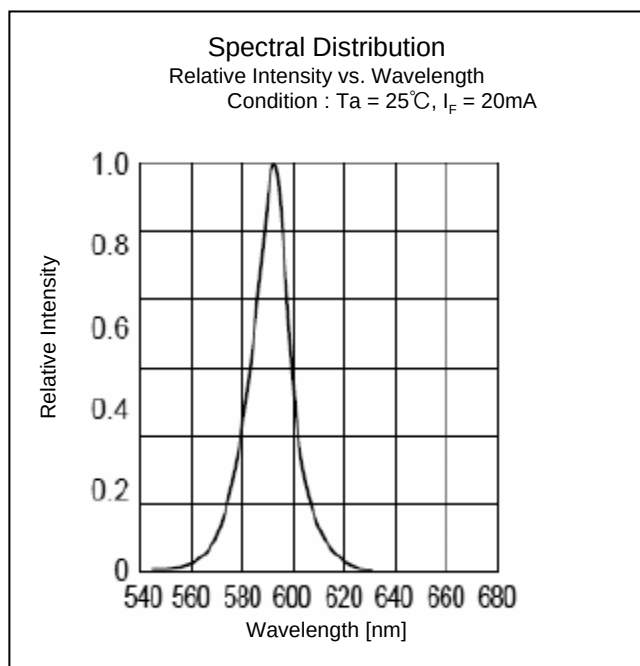
Power Dissipation vs. Ambient Temperature



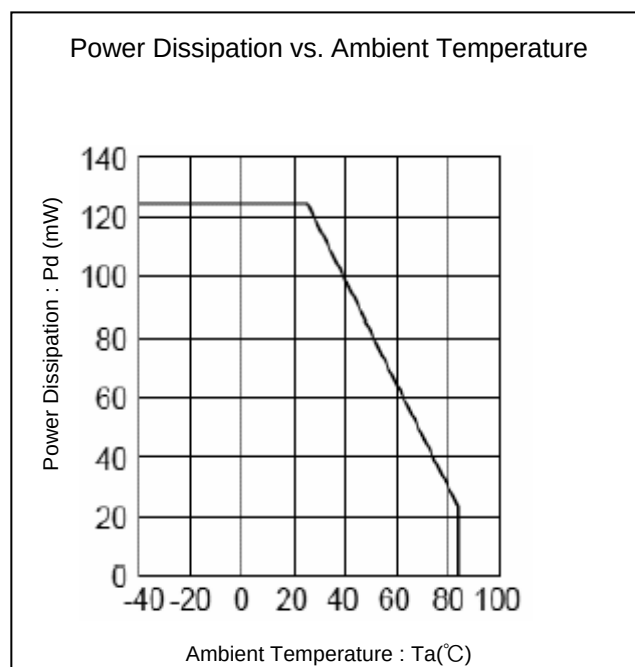
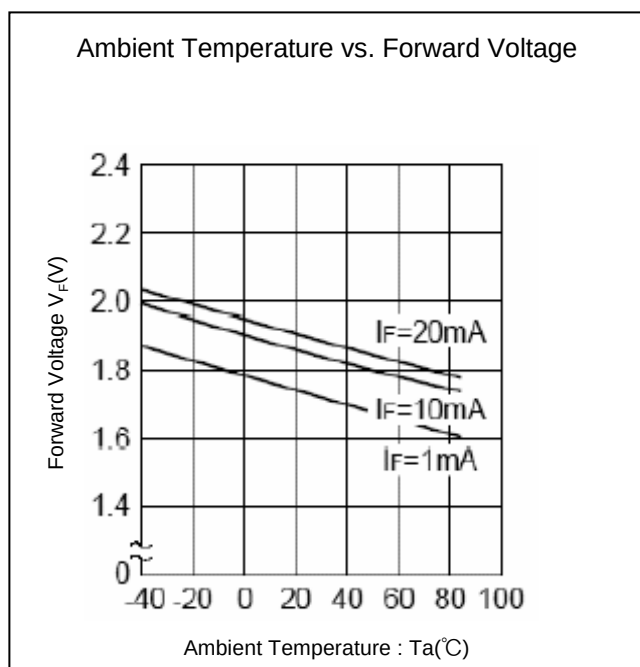
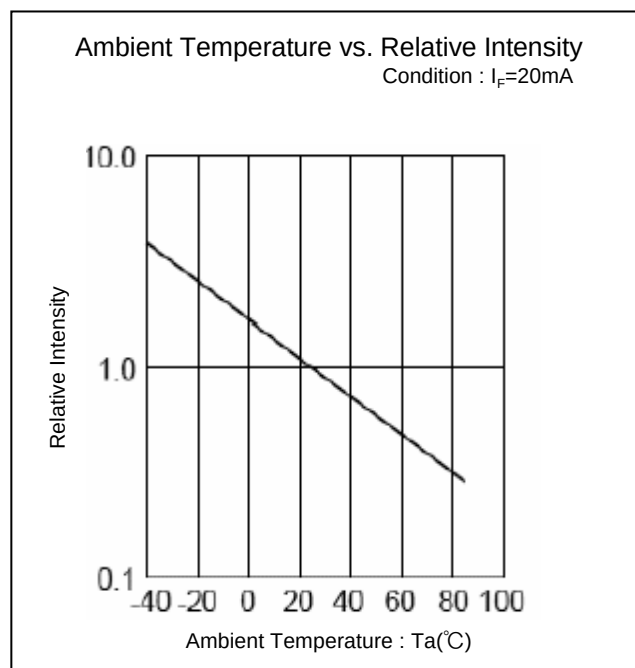
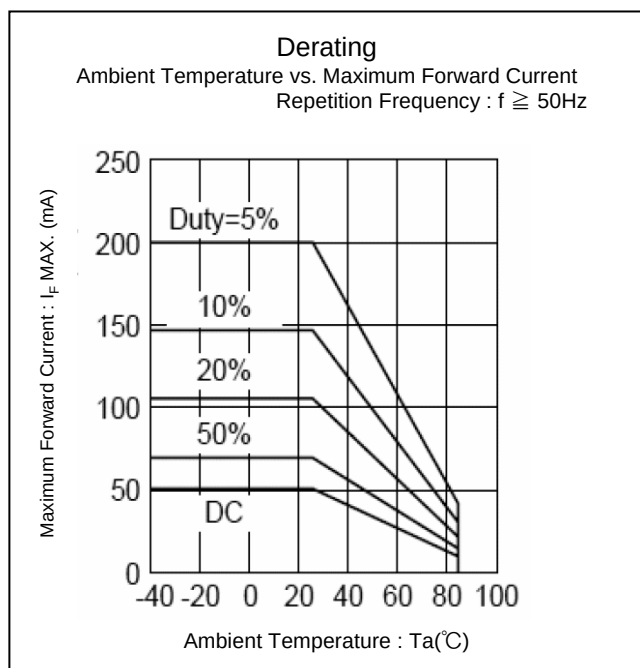
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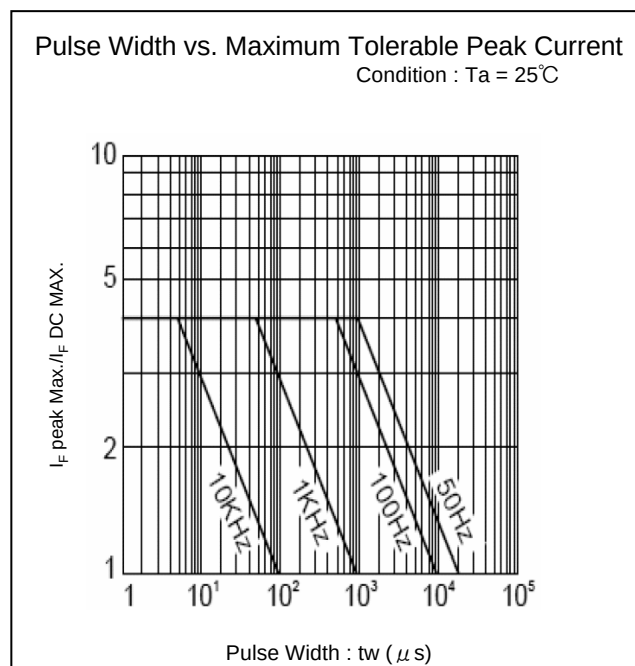
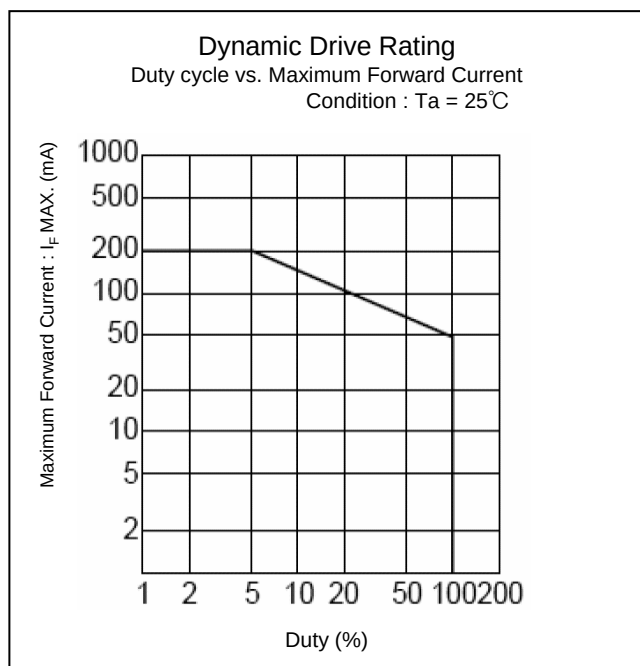
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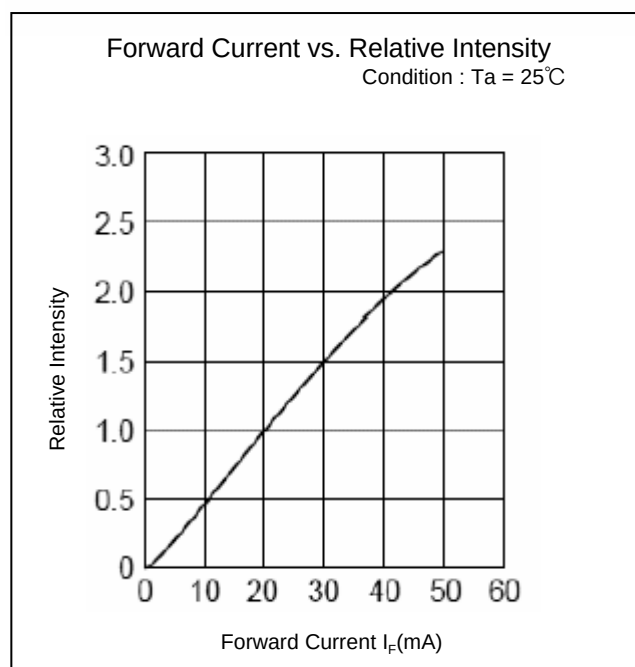
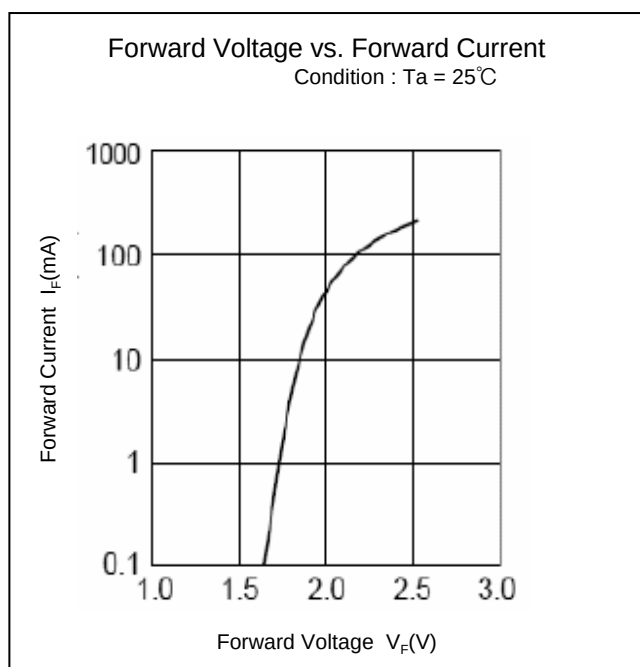
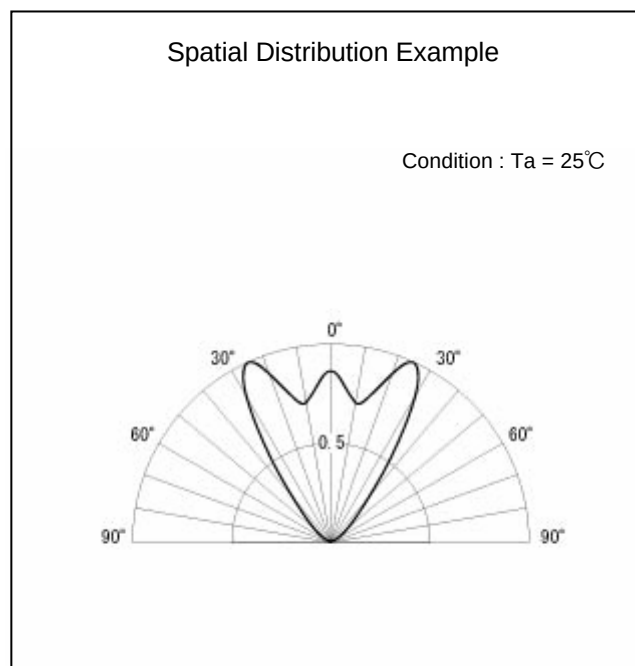
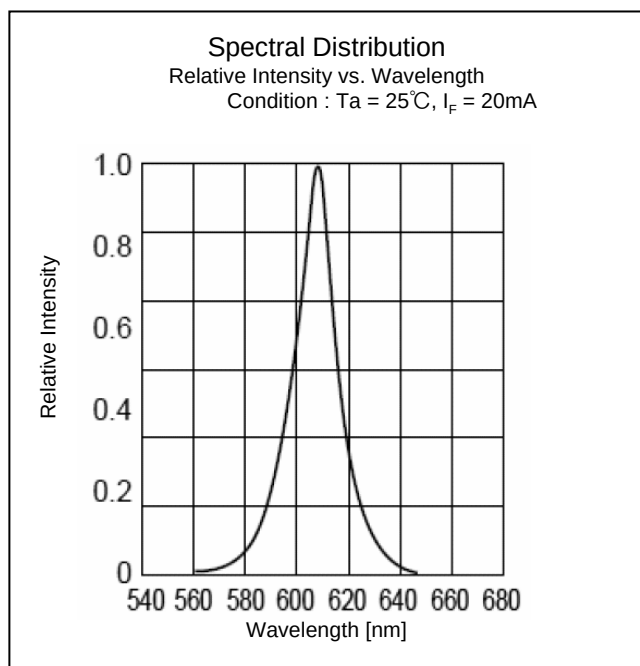
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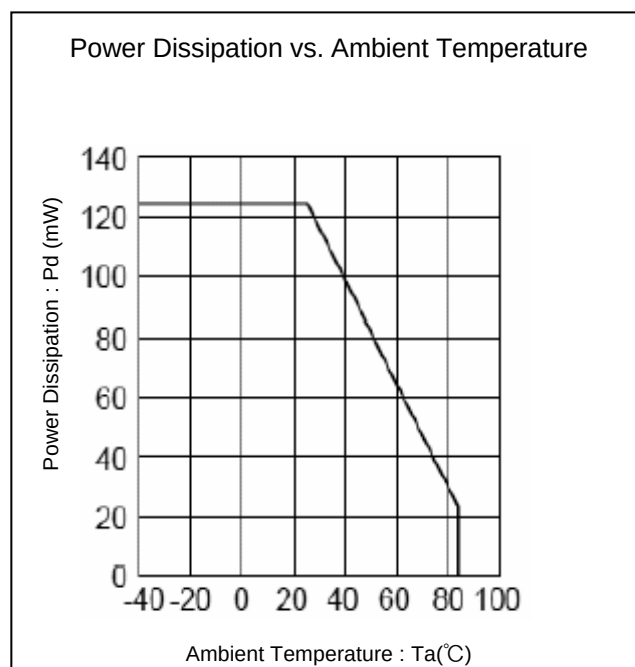
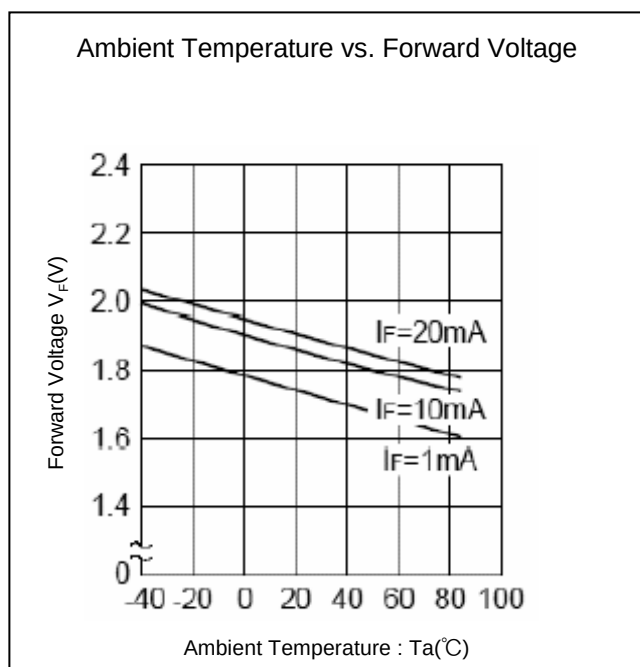
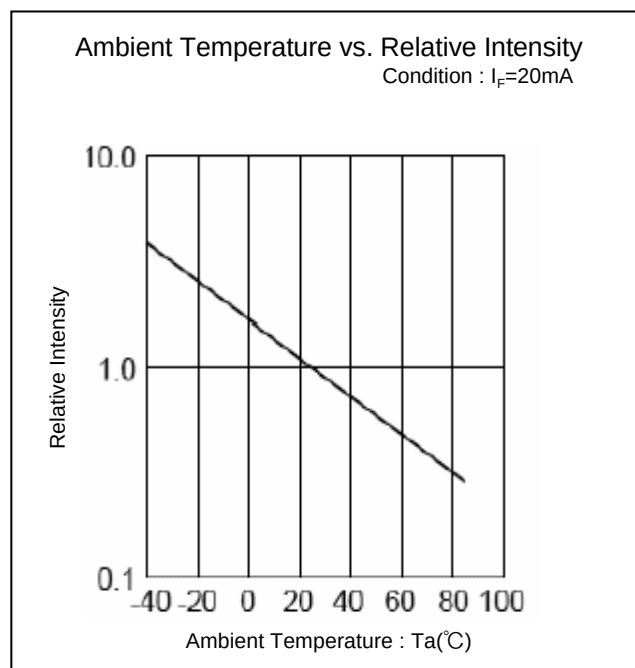
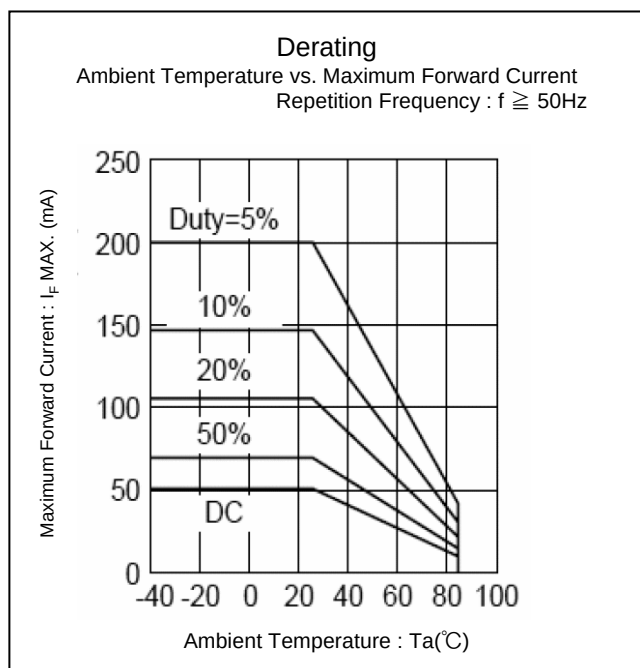
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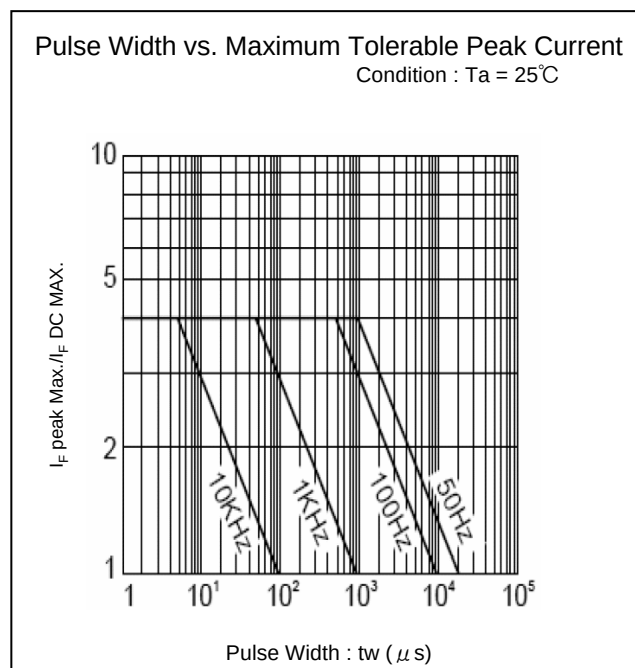
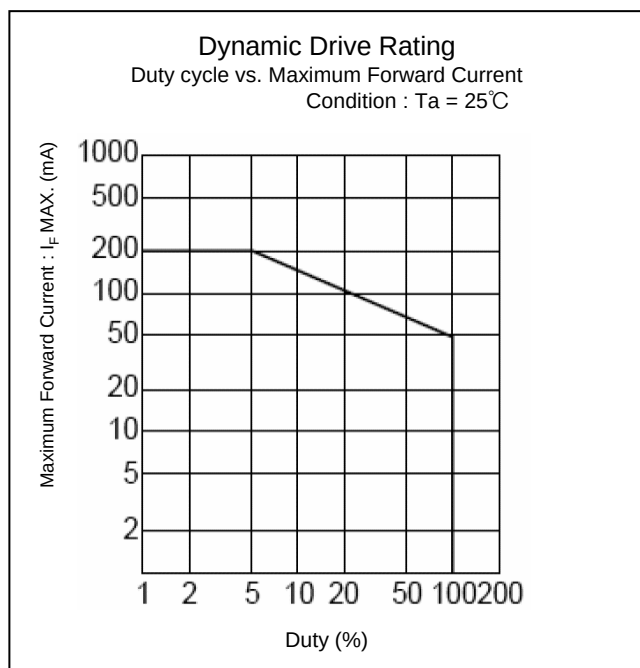
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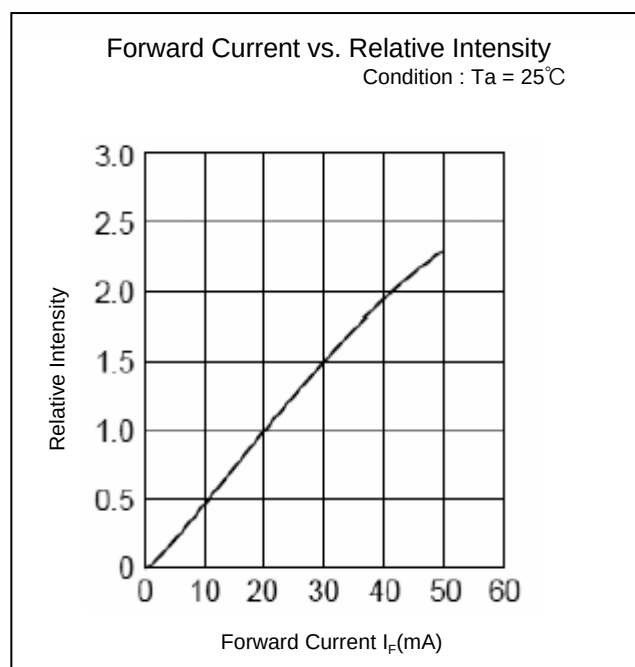
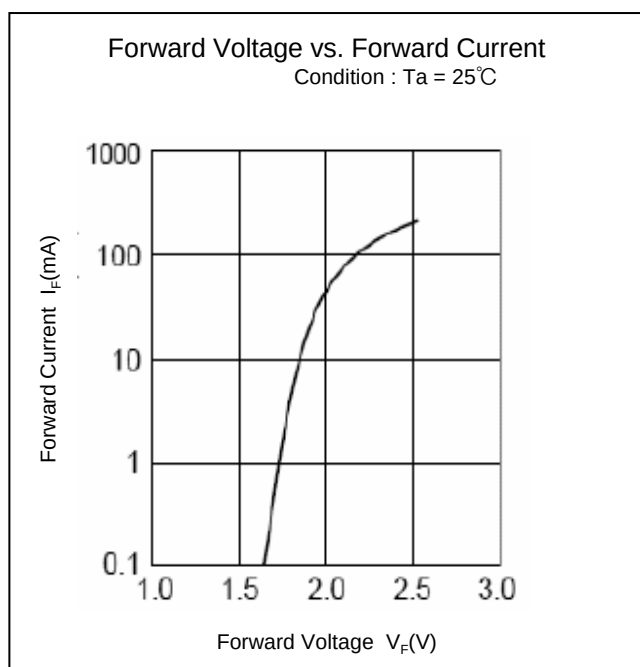
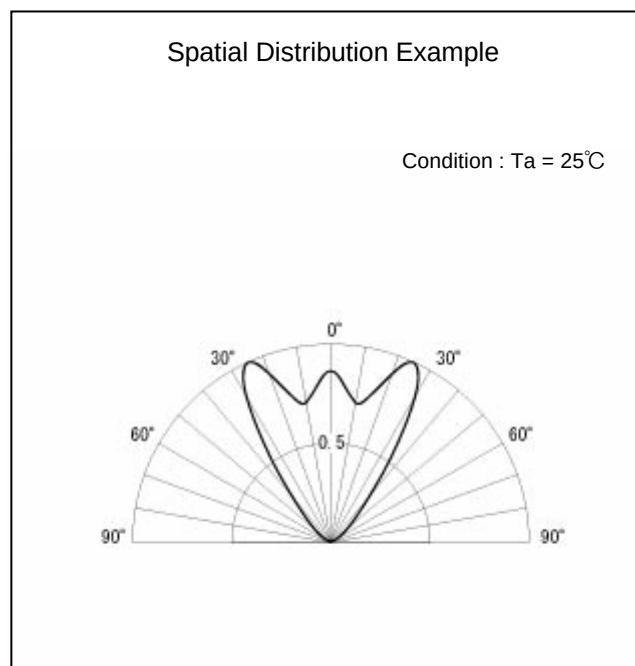
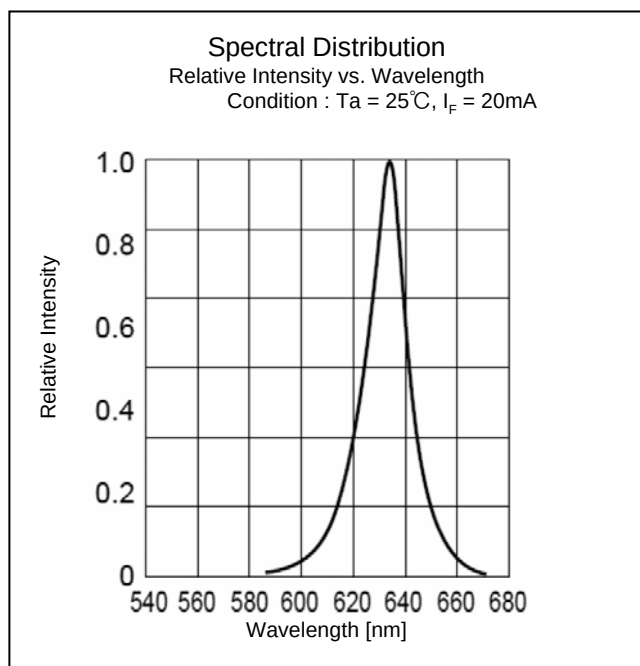
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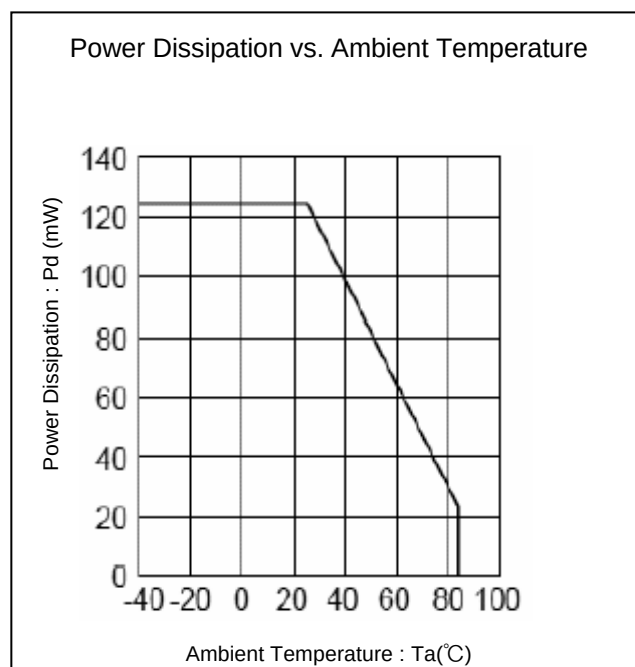
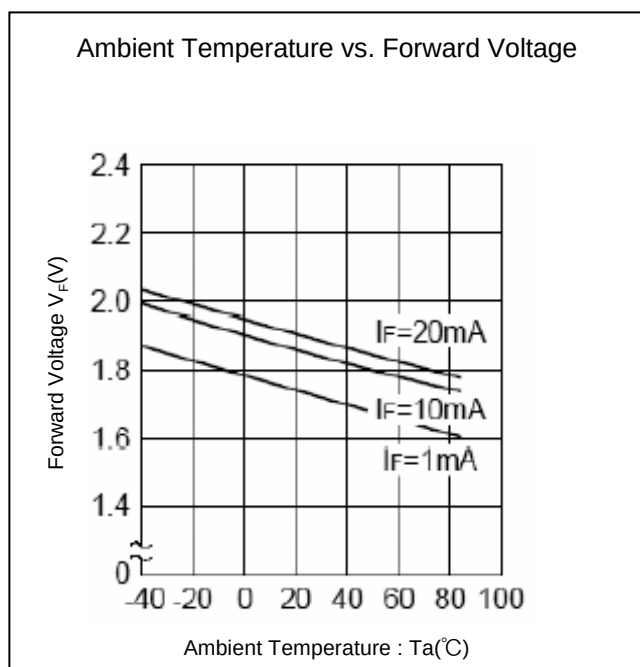
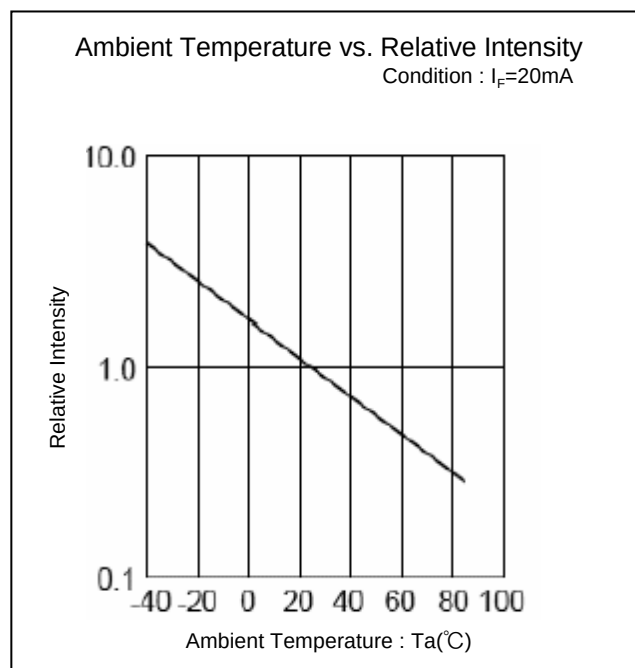
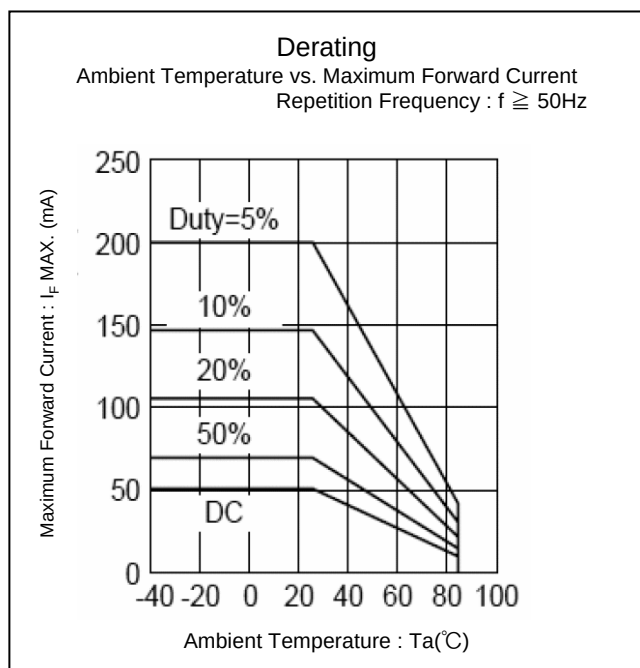
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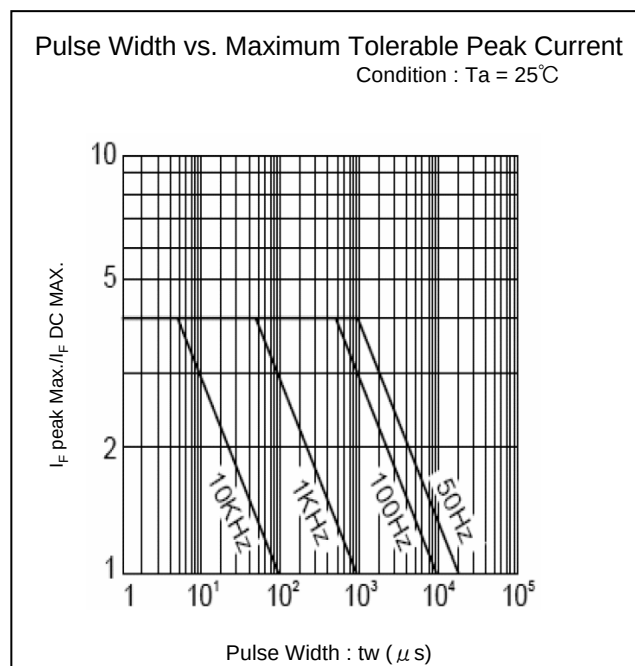
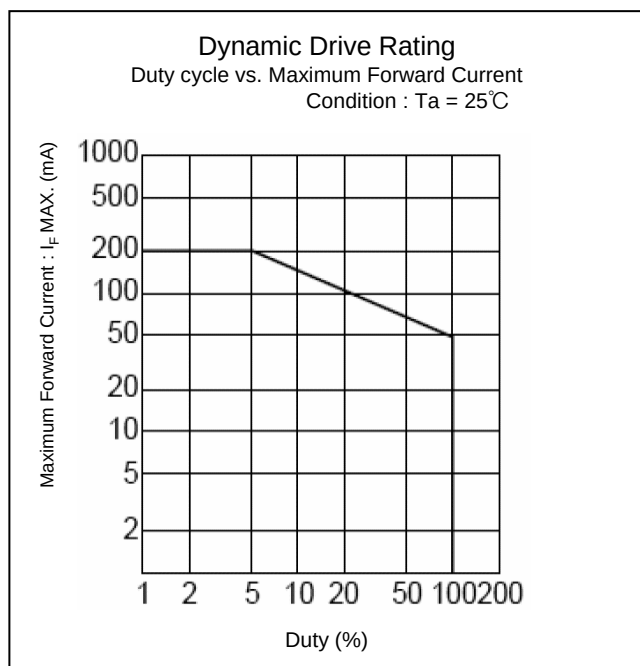
Technical Data(FR)



Technical Data(FR)

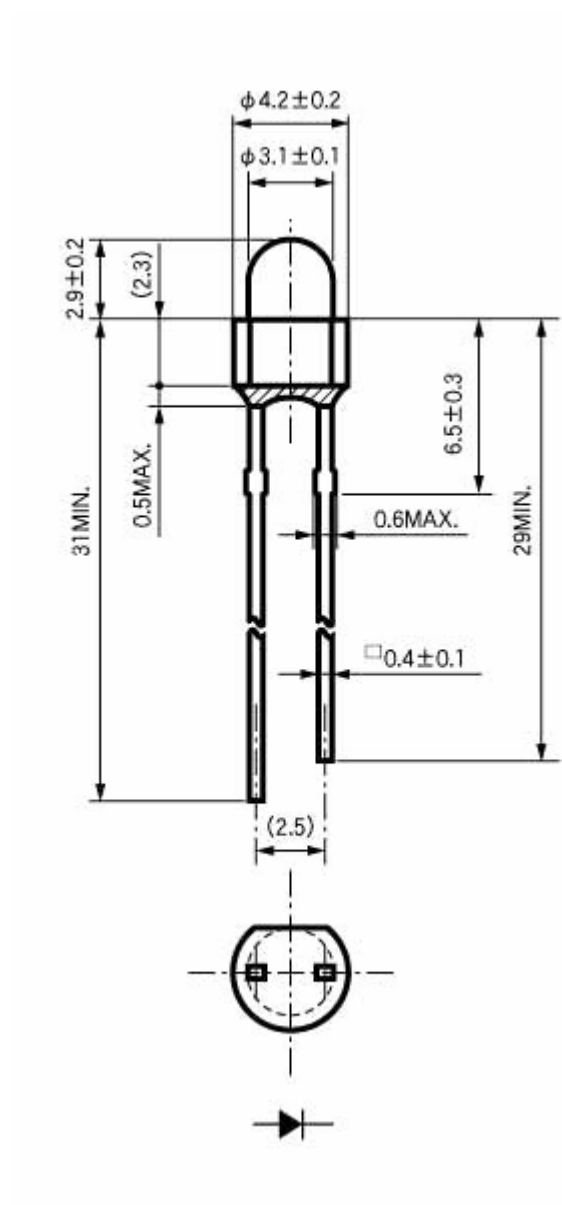


Technical Data(FR)



Package Dimensions

(Unit: mm)



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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