



**Pb-free
HEAT**

STANLEY

5307S Series

Single Color ϕ 5 Round Shape Type

Features

Package	ϕ 5 Round shape type, Water Clear epoxy
Product features	• Outer Dimension ϕ 5 Round shape type • Operation temperature range. Storage Temperature : $-30^{\circ}\text{C} \sim 100^{\circ}\text{C}$ Operating Temperature : $-30^{\circ}\text{C} \sim 85^{\circ}\text{C}$ • Lead-free soldering compatible
Dominant wavelength	Green : 558nm (BG) : 567nm (PG) Yellow Green : 572nm (PY) Yellow : 590nm (AY) Orange : 606nm (AA) Red : 624nm (VR) : 647nm (BR) : 630nm (PR)
Half Intensity Angle	BG,PG,PY : 75 deg. AY,AA,VR : 128 deg. BR : 40 deg. PR : 132 deg.
Die materials	BG,PG,PY,PR : GaP AY,AA,VR : GaAsP BR : GaAlAs
Rank grouping parameter	Sorted by luminous intensity per rank taping
Soldering methods	TTW (Through The Wave) soldering and manual soldering
ESD	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		
					TYP.	I _F	MIN.	TYP.	I _F
BG5307S	GaP	Green	Water Clear	Clear	558	20	2	4	20
PG5307S	GaP				567	20	4	8	20
PY5307S	GaP	Yellow Green			572	20	5	10	20
AY5307S	GaAsP	Yellow			590	20	3	6	20
AA5307S	GaAsP	Oreng			606	20	3	6	20
VR5307S	GaAsP	Red			624	20	3	6	20
BR5307S	GaAlAs				647	20	5	10	20
PR5307S	GaP				630	10	0.6	1.2	10

Absolute Maximum Ratings

(Ta=25°C)

Item	Symbol	Absolute Maximum Ratings								Unit
		BG	PG	PY	AY	AA	VR	BR	PR	
Power Dissipation	P_d	125	125	125	125	125	75	100	75	mW
Forward Current	I_F	50	50	50	50	50	30	50	30	mA
Pulse Forward Current ※1	I_{FRM}	100	100	100	100	100	100	300	100	mA
Derating (Ta=25°C or higher)	ΔI_F	0.67	0.67	0.67	0.67	0.67	0.33	0.67	0.33	mA/°C
Reverse Voltage	V_R	4	4	4	4	4	4	4	4	V
Operating Temperature	T_{opr}	-30~+85								°C
Storage Temperature	T_{stg}	-30~+100								°C

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

Electro-Optical Characteristics(BG,PG,PY,AY,AA,VR,BR)

(Ta=25°C)

Item	Conditions	Symbol	Characteristics								Unit
				BG	PG	PY	AY	AA	VR	BR	
Forward Voltage	I _F =20mA	V _F	TYP.	2.1	2.1	2.1	2.2	2.2	2	1.7	V
			MAX.	2.5	2.5	2.5	2.5	2.5	2.5	2.0	
Reverse Current	V _R =4V	I _R	MAX.	100	100	100	100	100	100	100	μ A
Peak Wavelength	I _F =20mA	λ _p	TYP.	555	560	570	580	605	630	660	nm
Dominant Wavelength	I _F =20mA	λ _d	TYP.	558	567	572	590	606	624	647	nm
Spectral Line Half Width	I _F =20mA	Δλ	TYP.	30	30	30	30	30	30	30	nm
Half Intensity Angle	I _F =20mA	2θ 1/2	TYP.	75	75	75	128	128	128	40	deg.

Electro-Optical Characteristics(PR)

(Ta=25°C)

Item	Conditions	Symbol	Characteristics		Unit
				PR	
Forward Voltage	I _F =10mA	V _F	TYP.	2.1	V
			MAX.	2.5	
Reverse Current	V _R =4V	I _R	MAX.	100	μ A
Peak Wavelength	I _F =10mA	λ _p	TYP.	700	nm
Dominant Wavelength	I _F =10mA	λ _d	TYP.	630	nm
Spectral Line Half Width	I _F =10mA	Δλ	TYP.	100	nm
Half Intensity Angle	I _F =10mA	2θ 1/2	TYP.	132	deg.

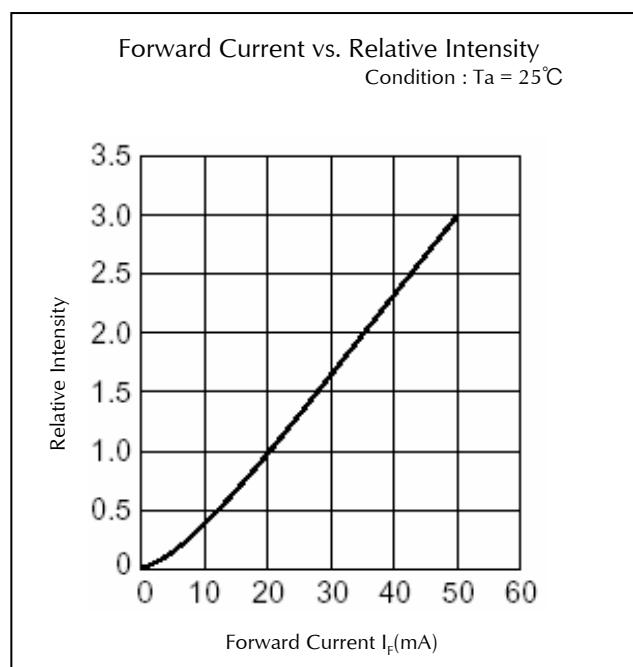
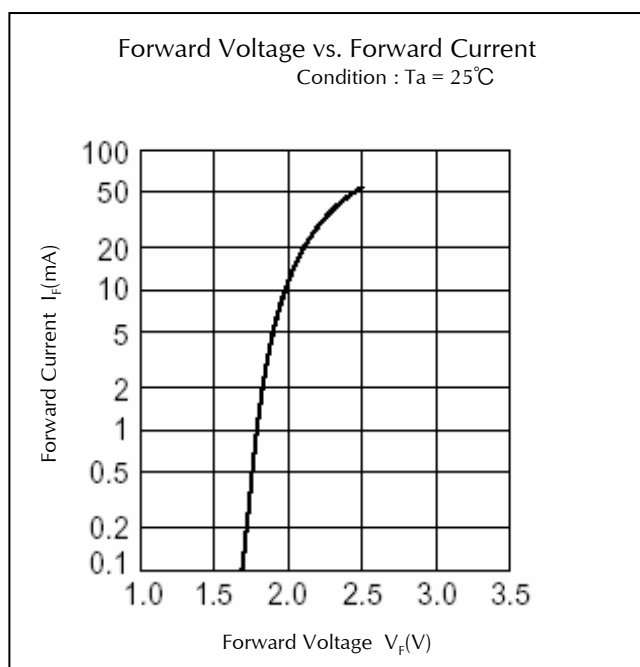
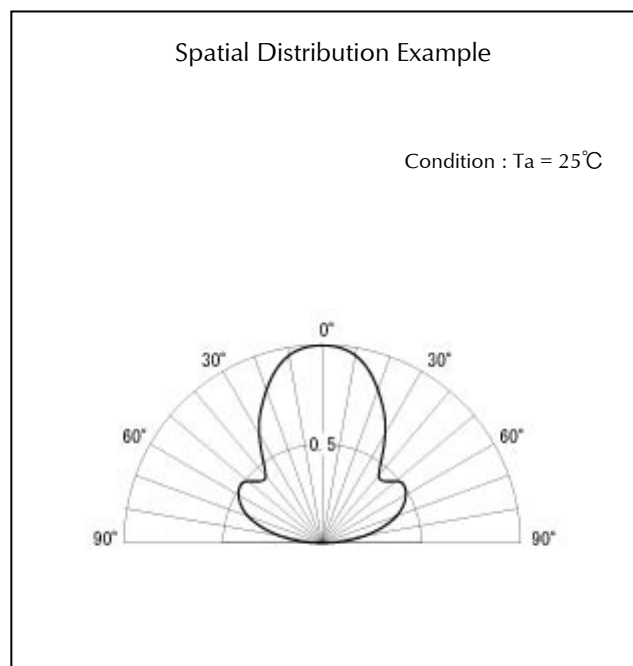
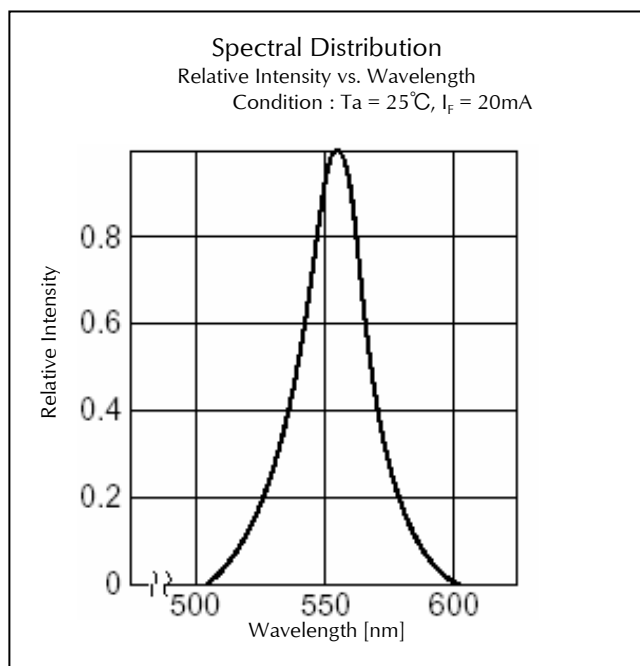
Luminous Intensity Rank

(Ta=25°C)

Rank	I _v (mcd)															
	BG		PG		PY		AY		AA		VR		BR		PR	
	I _F =20mA		I _F =20mA		I _F =20mA		I _F =20mA		I _F =20mA		I _F =20mA		I _F =20mA		I _F =10mA	
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
A	2.0	4.0	4.0	8.0	5.0	10.0	3.0	6.0	3.0	6.0	3.0	6.0	5.0	10.0	0.60	1.20
B	2.8	5.6	5.6	11.2	7.0	14.0	4.2	8.4	4.2	8.4	4.2	8.4	7.0	14.0	0.84	1.68
C	4.0	8.0	8.0	16.0	10.0	20.0	6.0	12.0	6.0	12.0	6.0	12.0	10.0	20.0	1.20	2.40
D	5.6	11.2	11.2	22.4	14.0	28.0	8.4	16.8	8.4	16.8	8.4	16.8	14.0	28.0	1.68	3.36
E	8.0	-	16.0	-	20.0	-	12.0	-	12.0	-	12.0	-	20.0	-	2.40	-

Please contact our sales staff concerning rank designation.

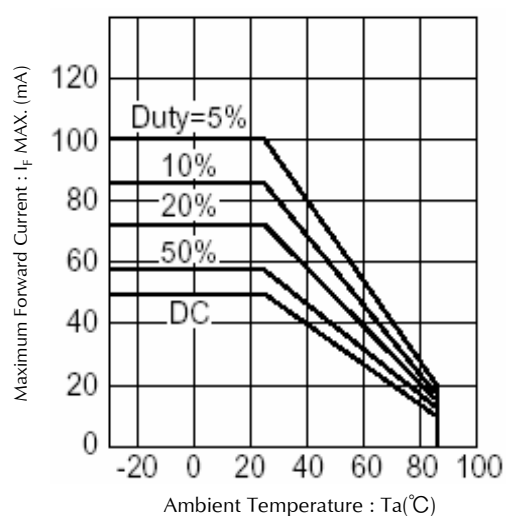
Technical Data(BG)



Technical Data(BG)

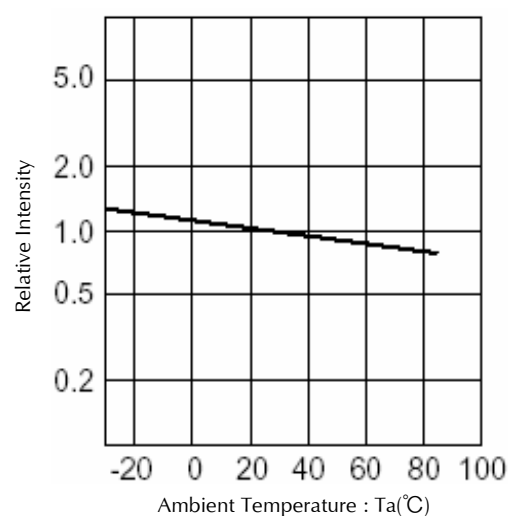
Derating

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

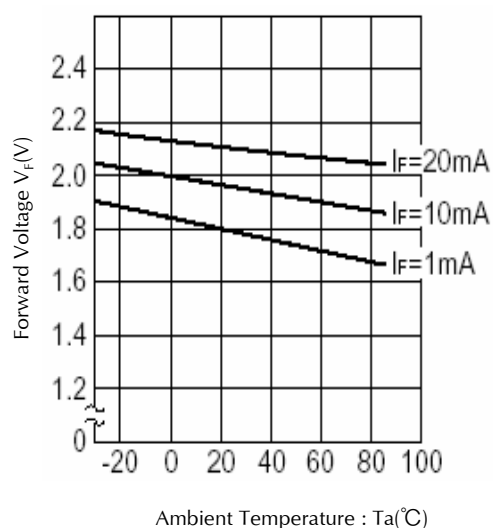


Ambient Temperature vs. Relative Intensity

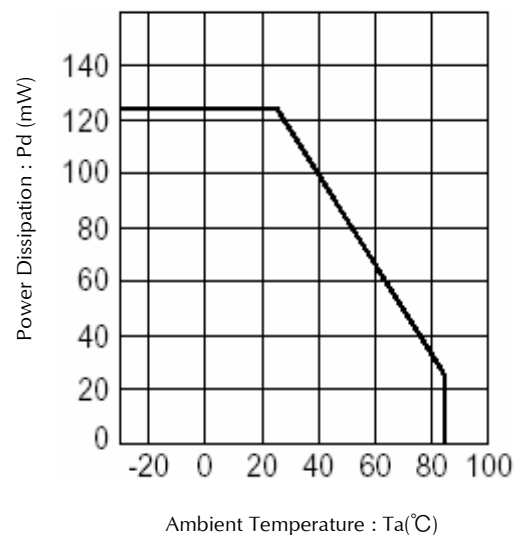
Condition : $I_F=20\text{mA}$



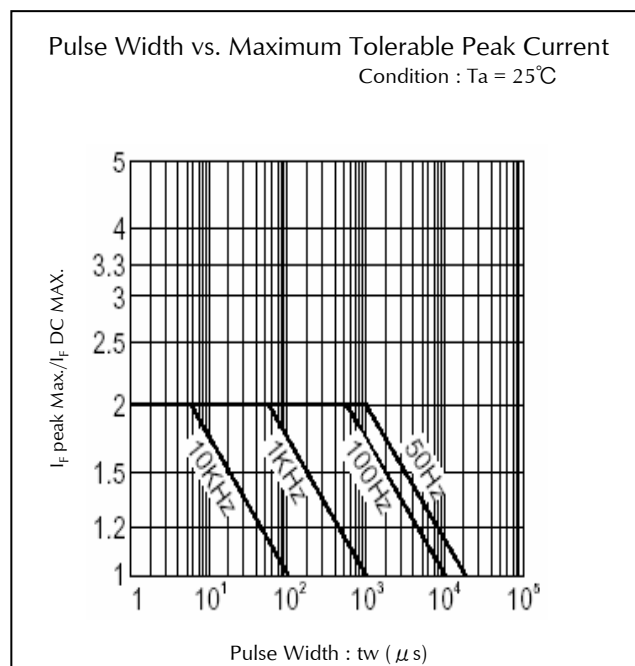
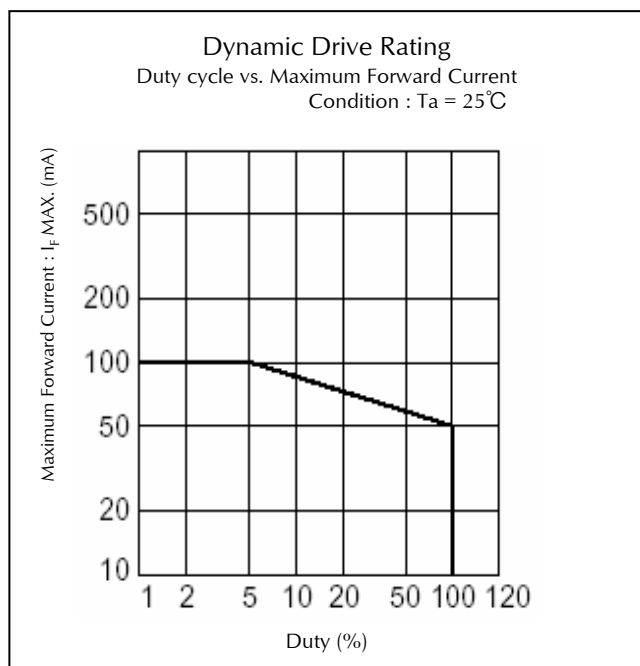
Ambient Temperature vs. Forward Voltage



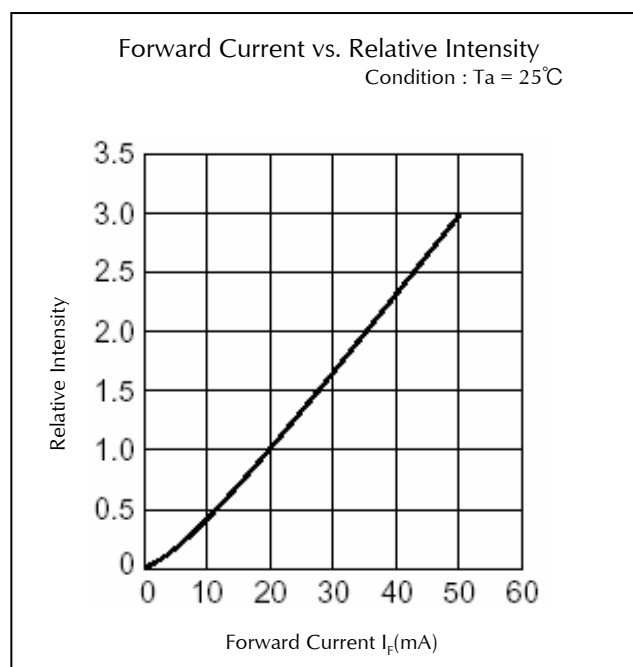
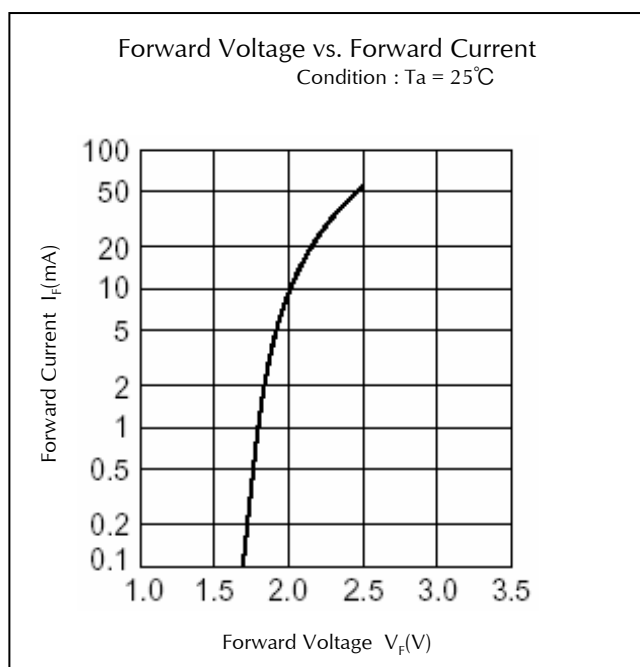
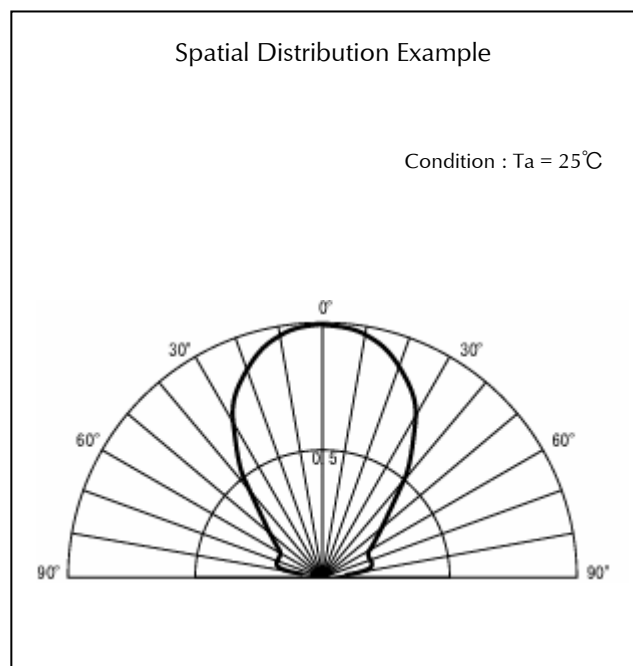
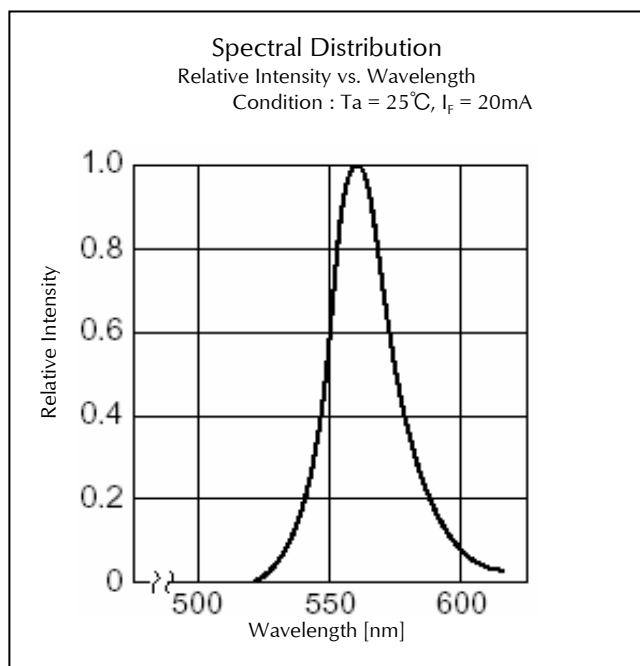
Power Dissipation vs. Ambient Temperature



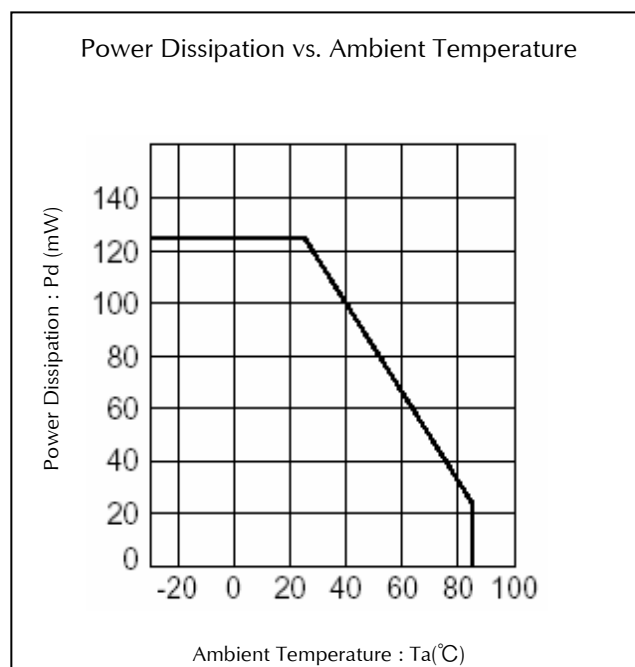
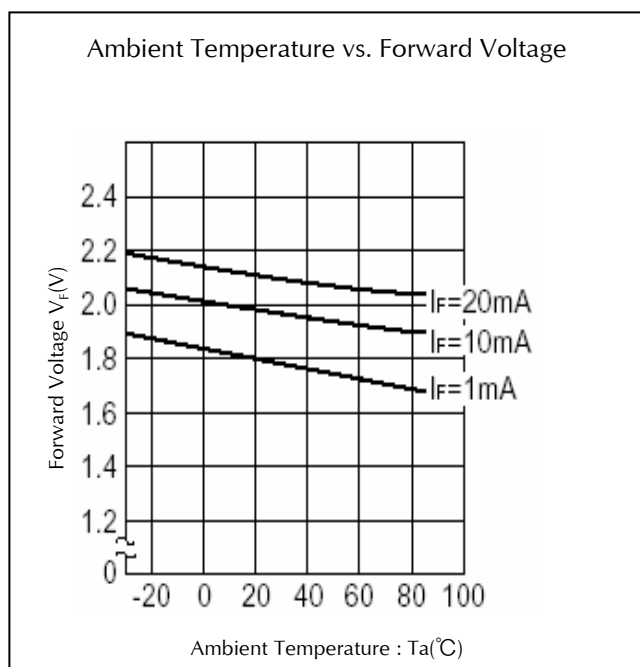
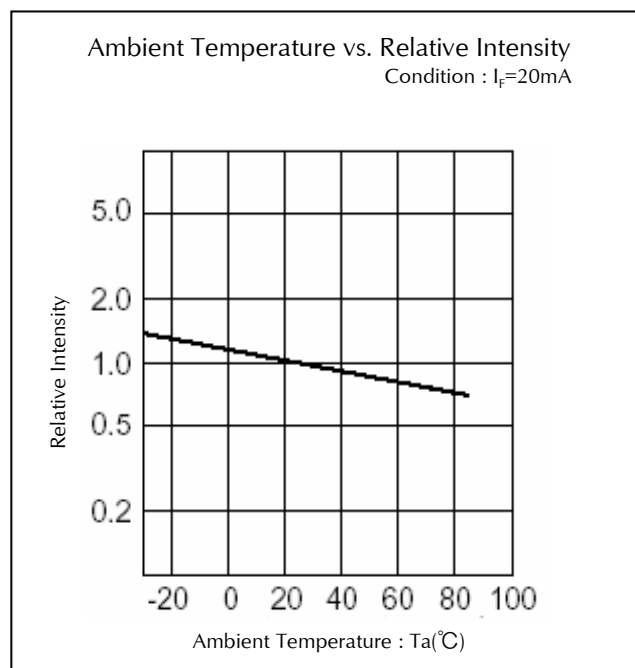
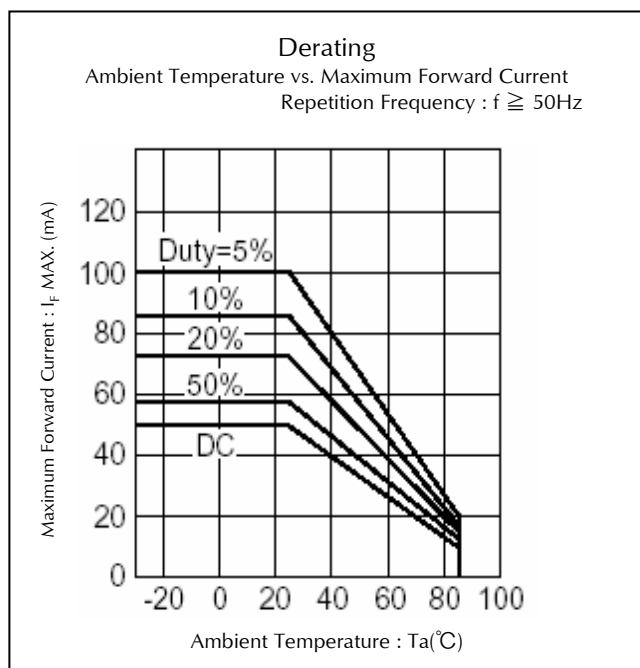
Technical Data(BG)



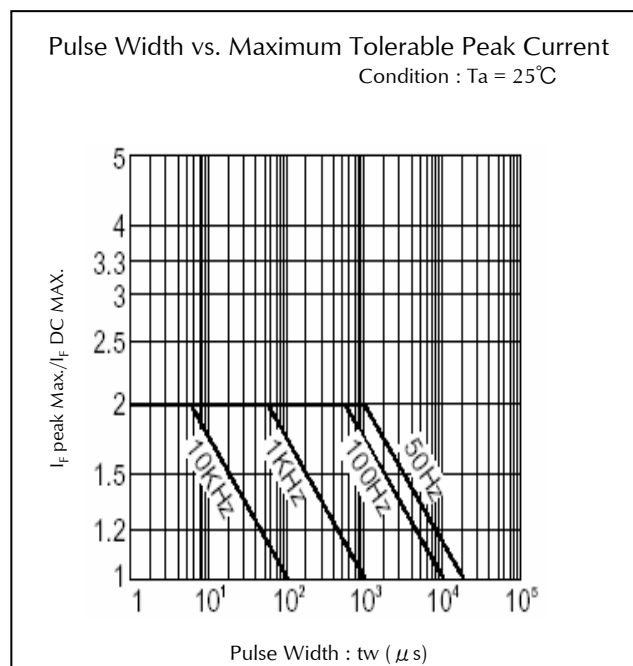
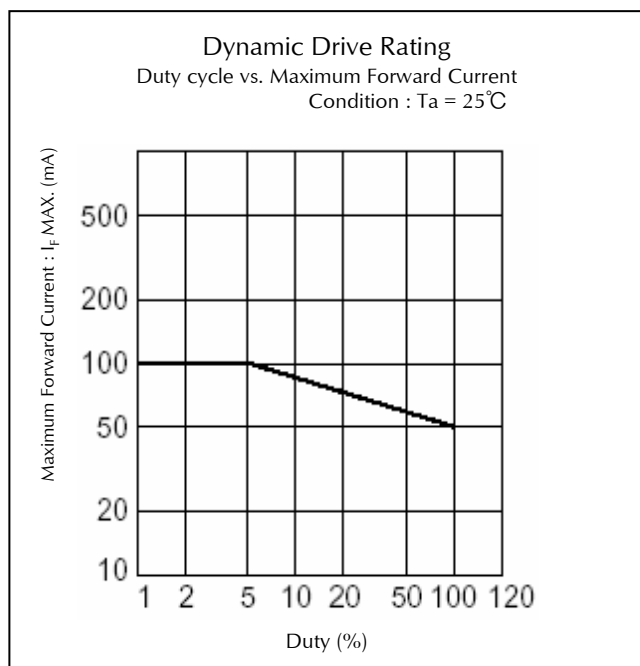
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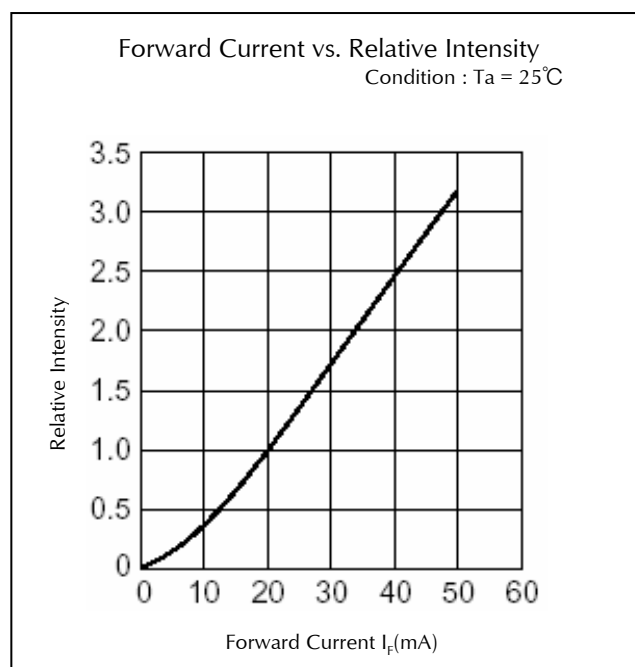
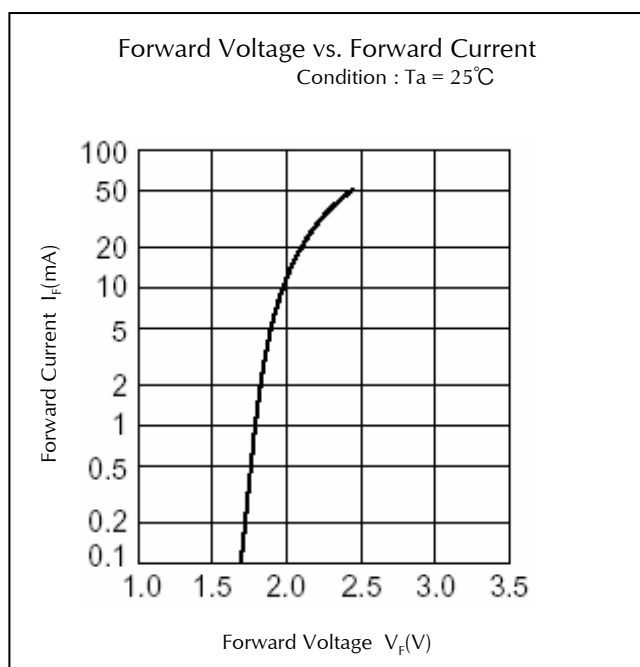
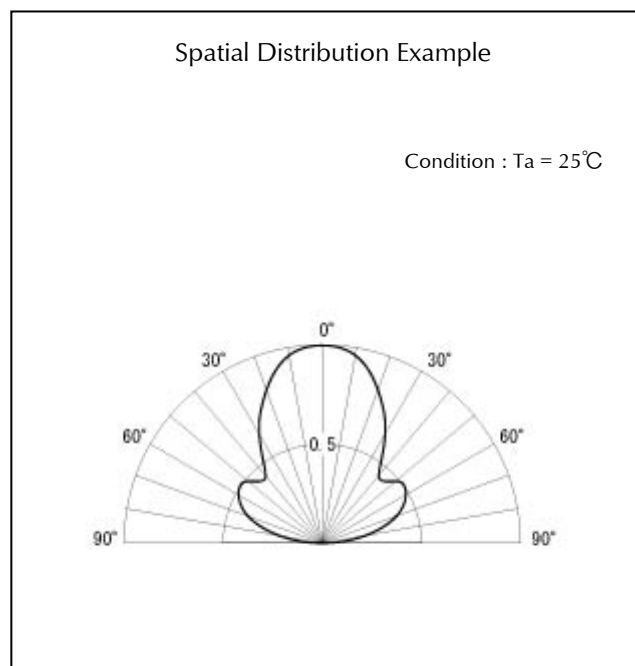
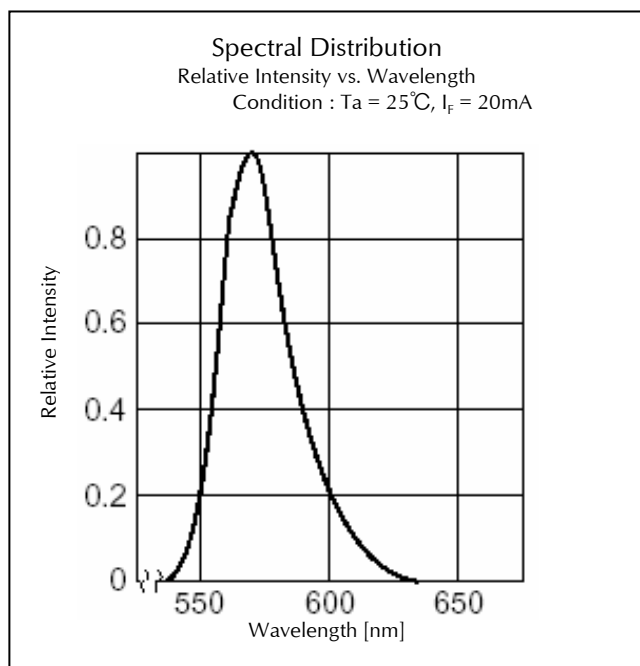
Technical Data(PG)



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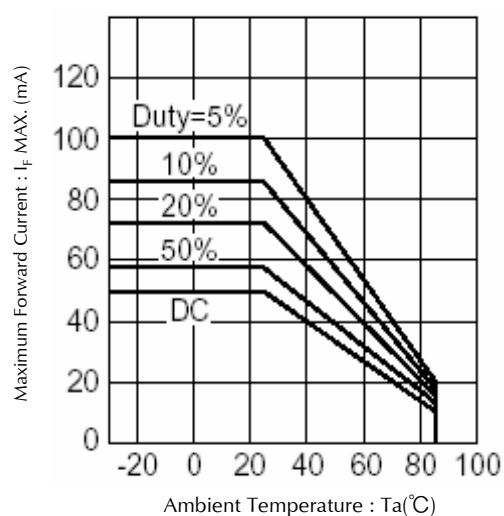
Technical Data(PY)



Technical Data(PY)

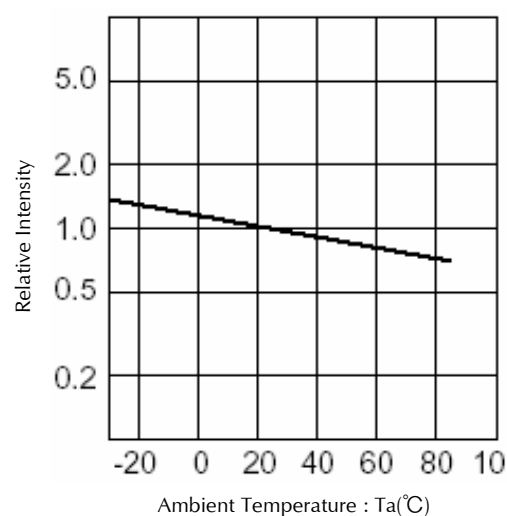
Derating

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

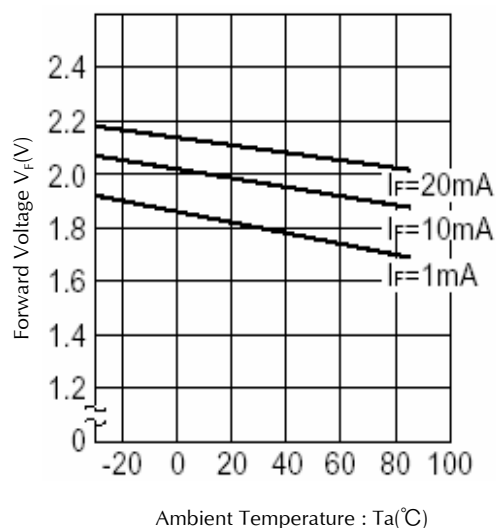


Ambient Temperature vs. Relative Intensity

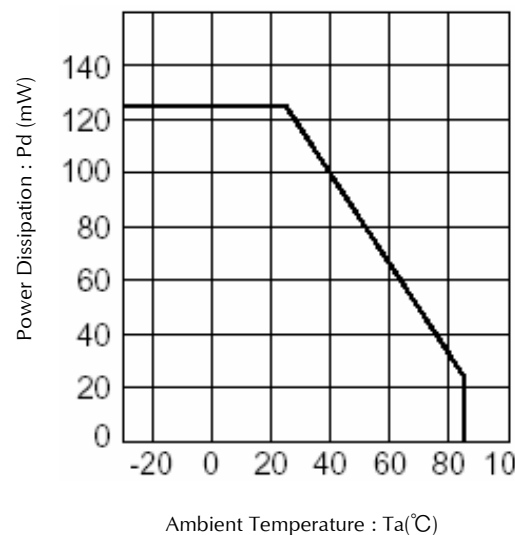
Condition : $I_F=20\text{mA}$



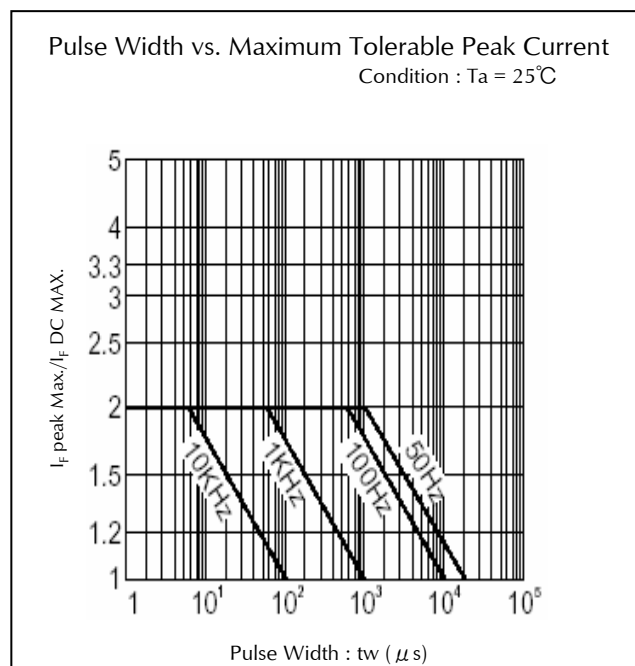
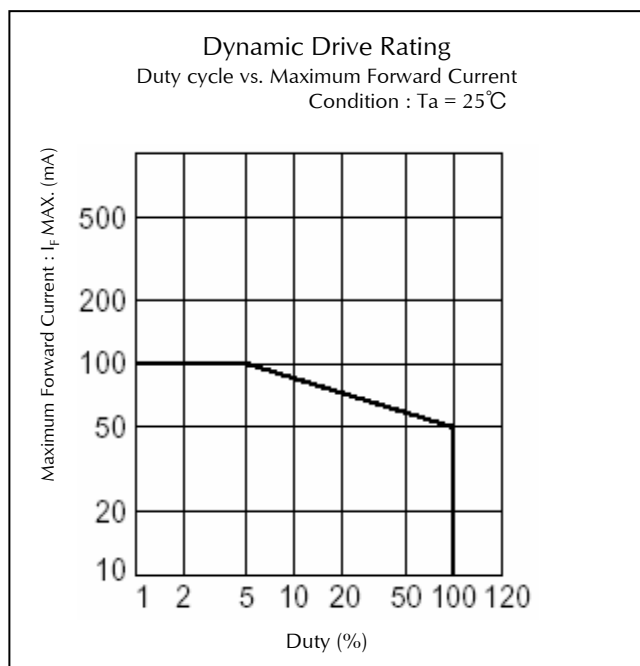
Ambient Temperature vs. Forward Voltage



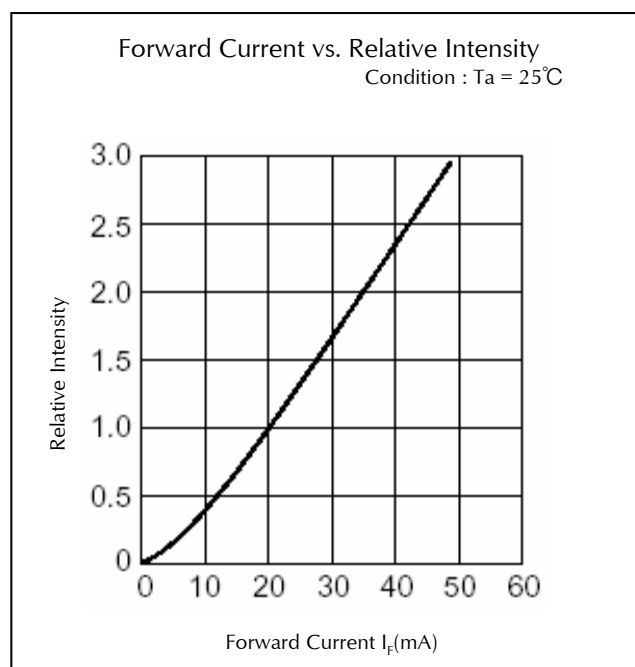
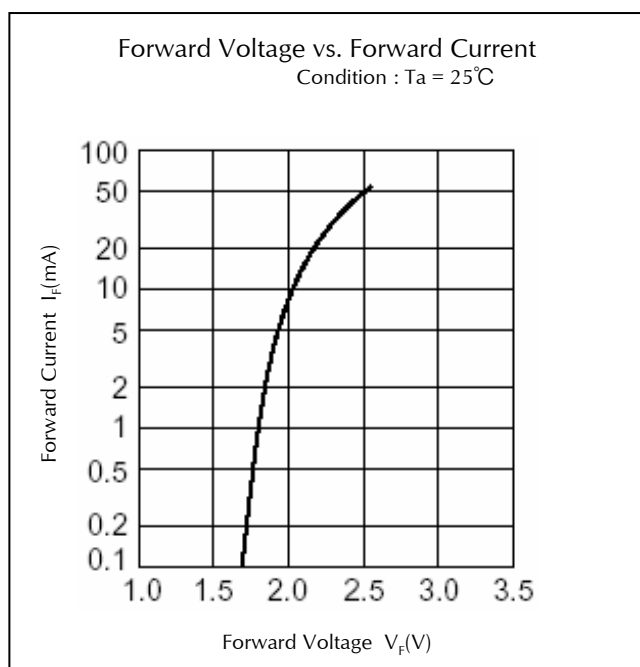
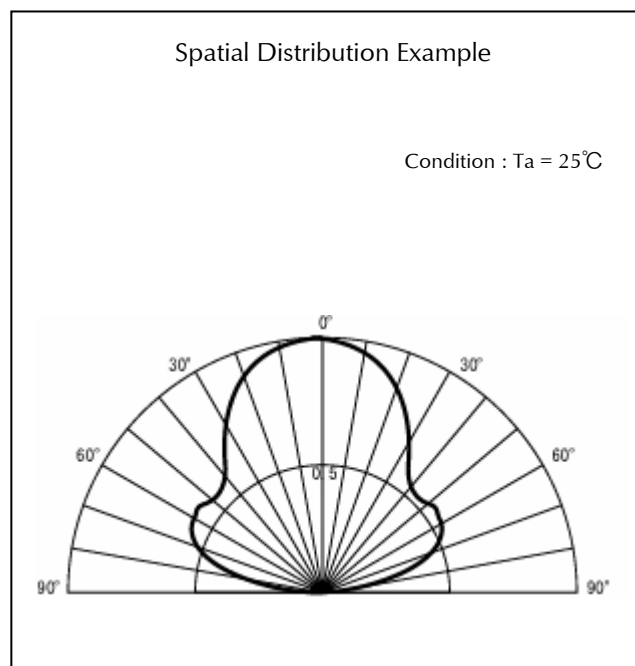
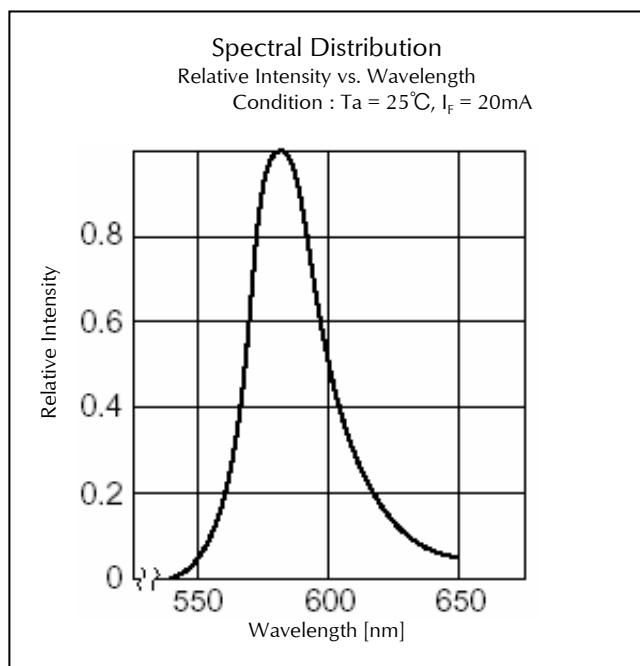
Power Dissipation vs. Ambient Temperature



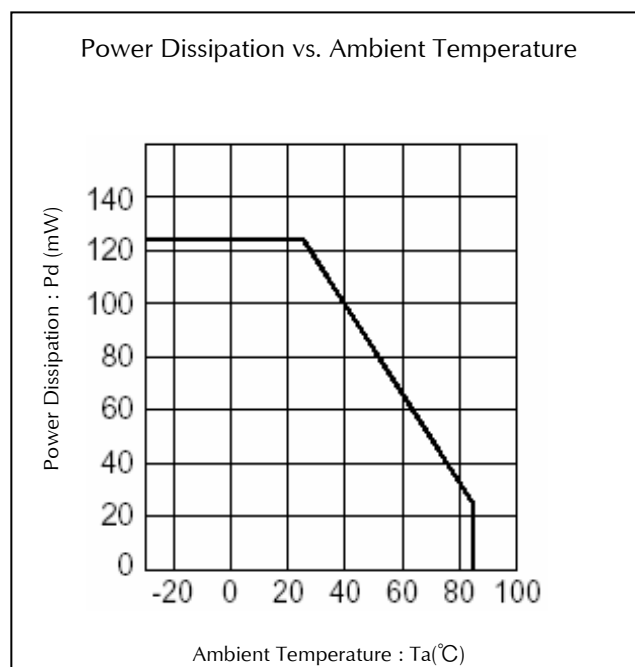
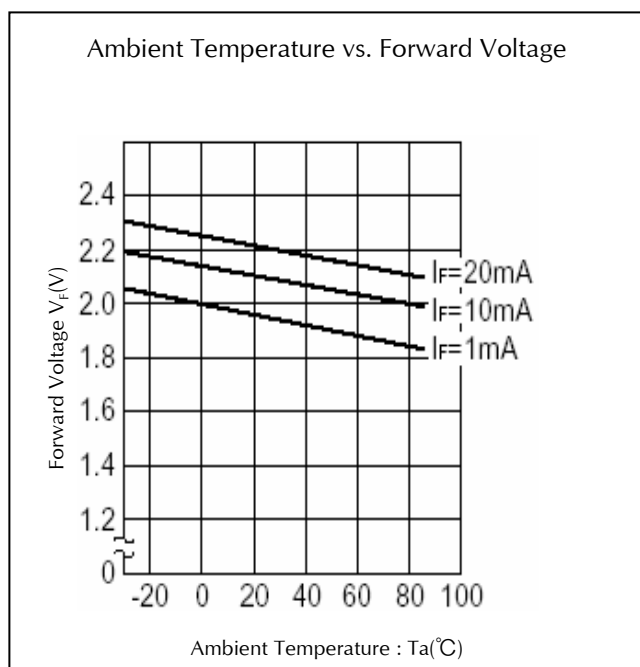
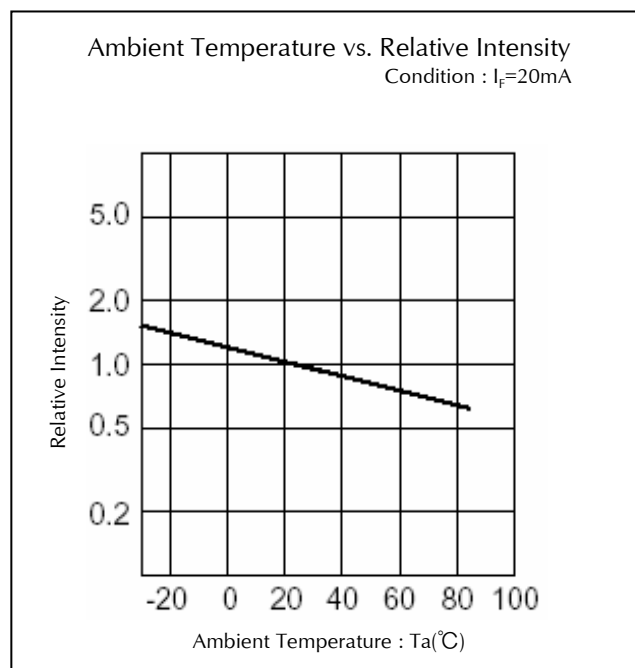
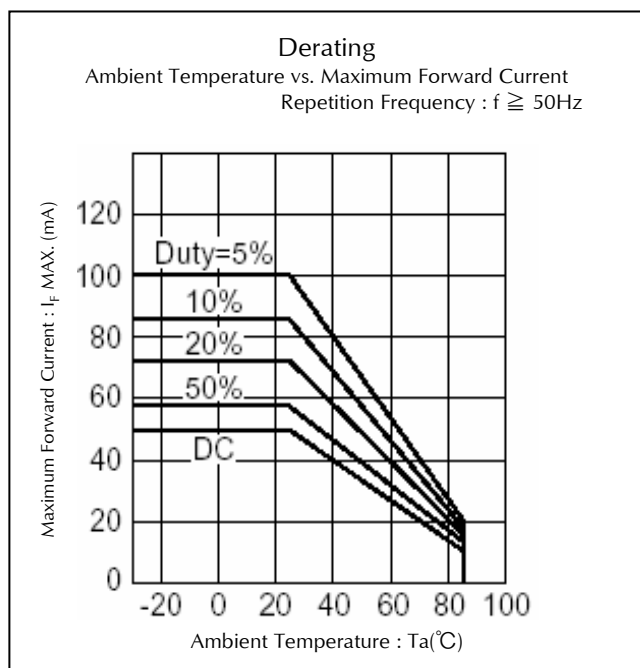
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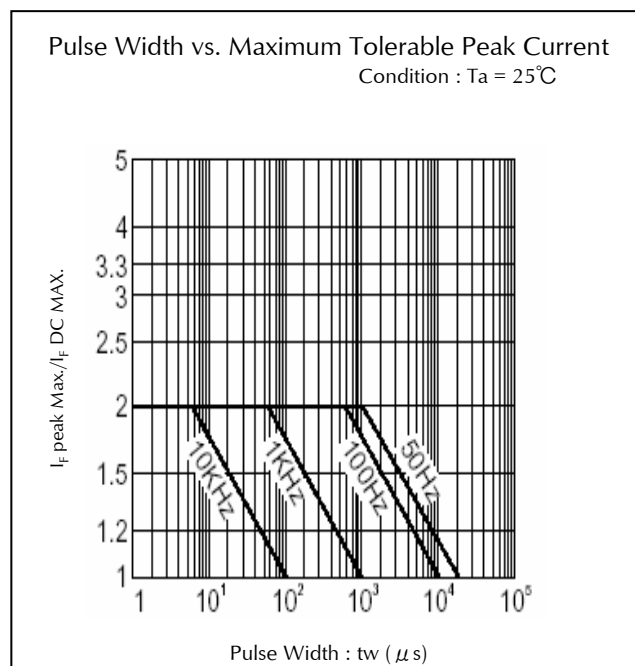
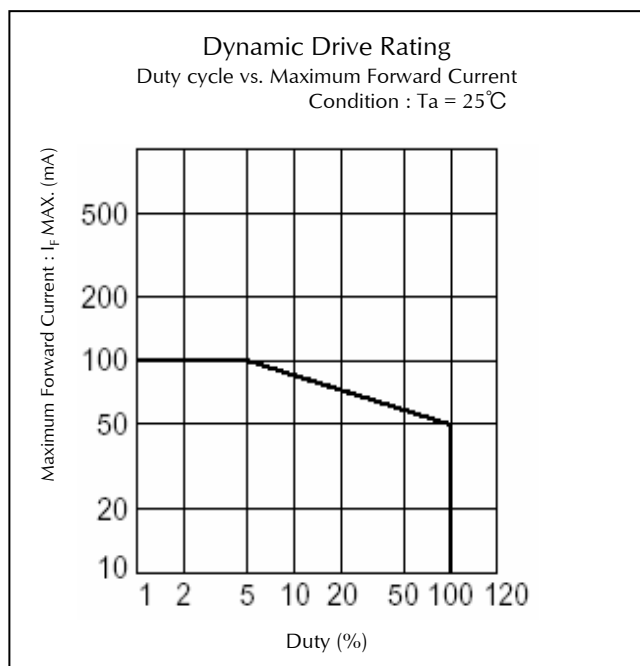
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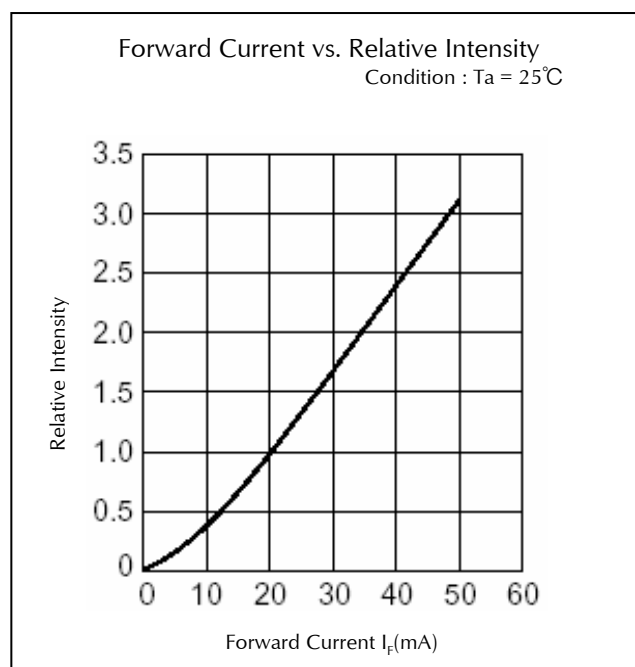
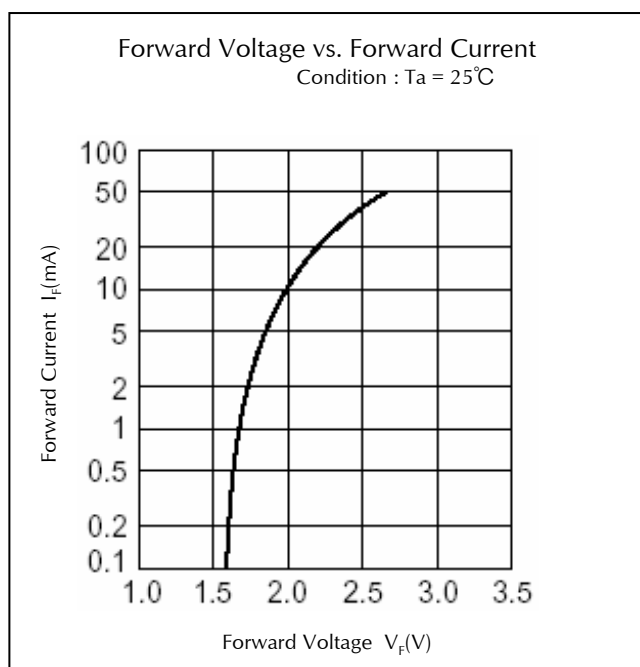
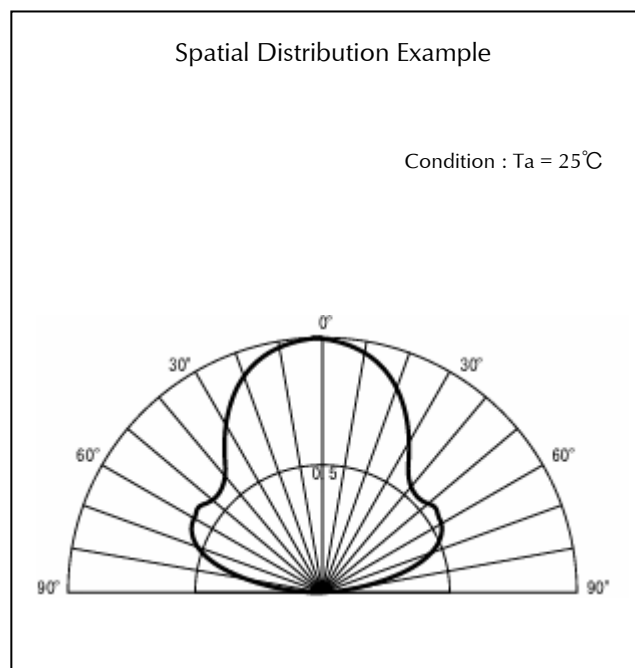
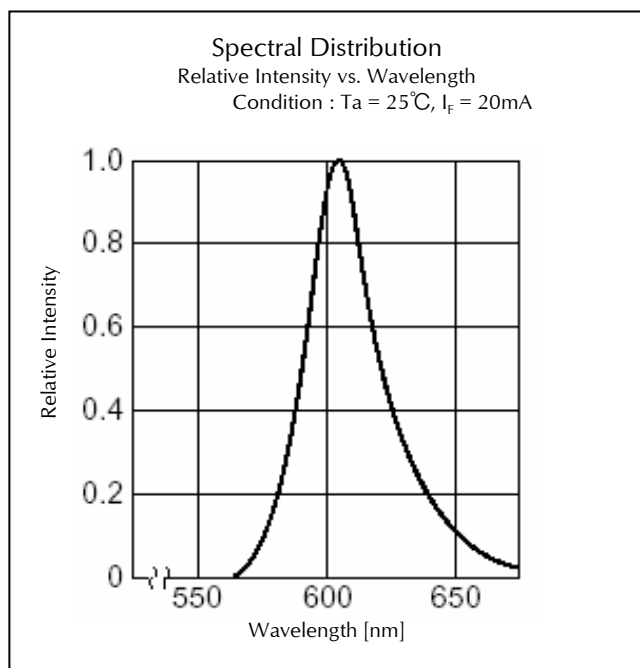
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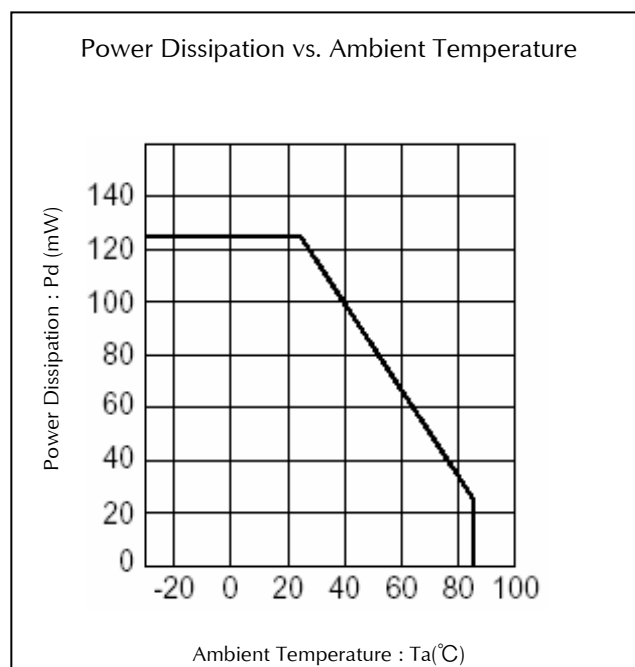
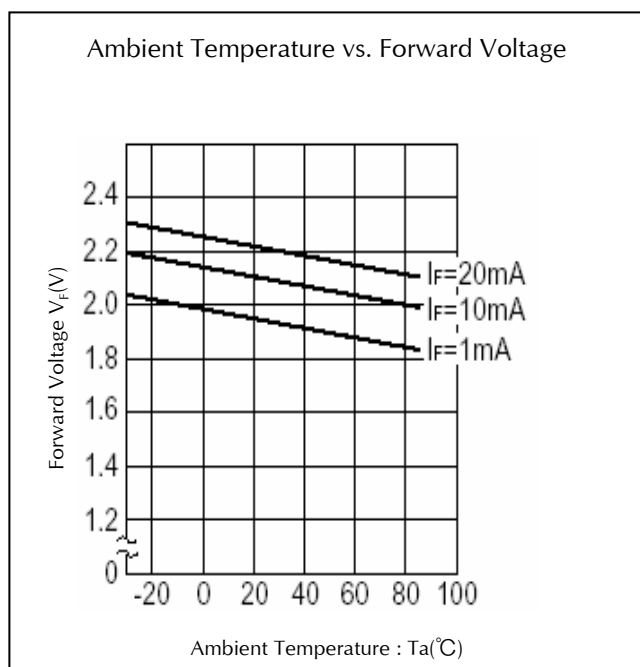
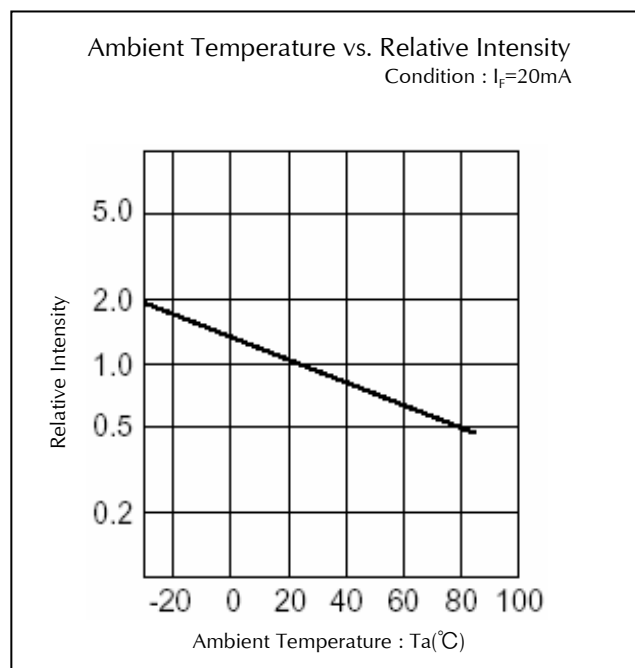
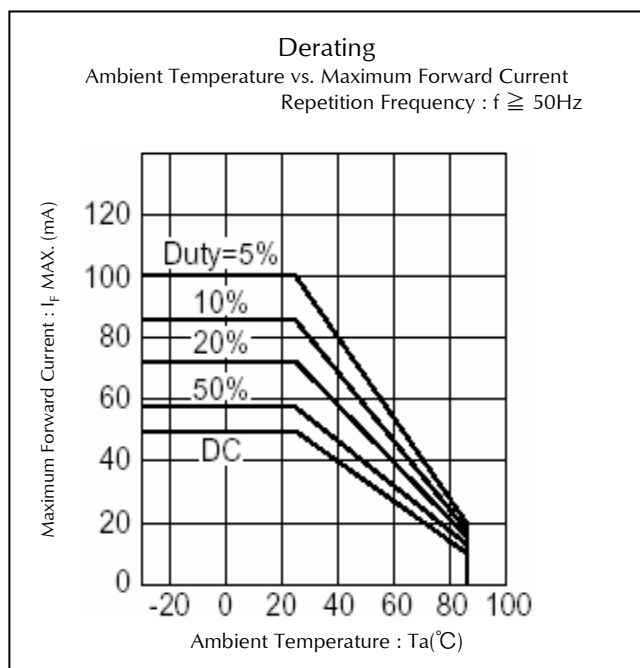
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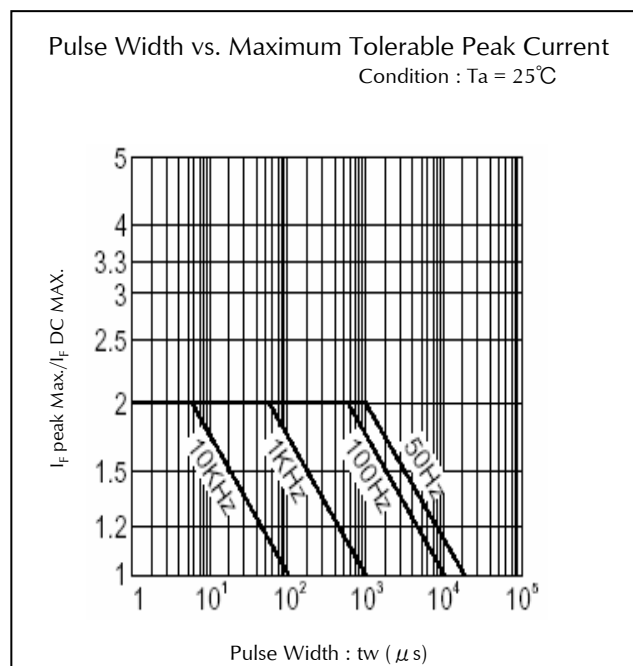
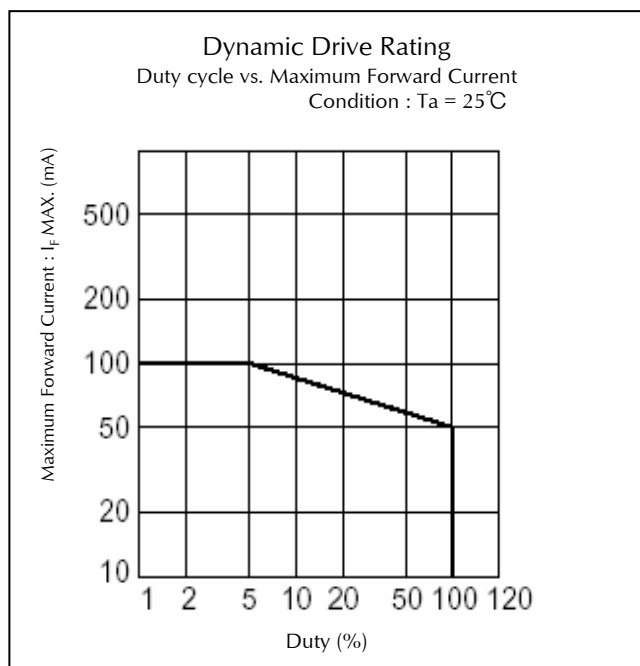
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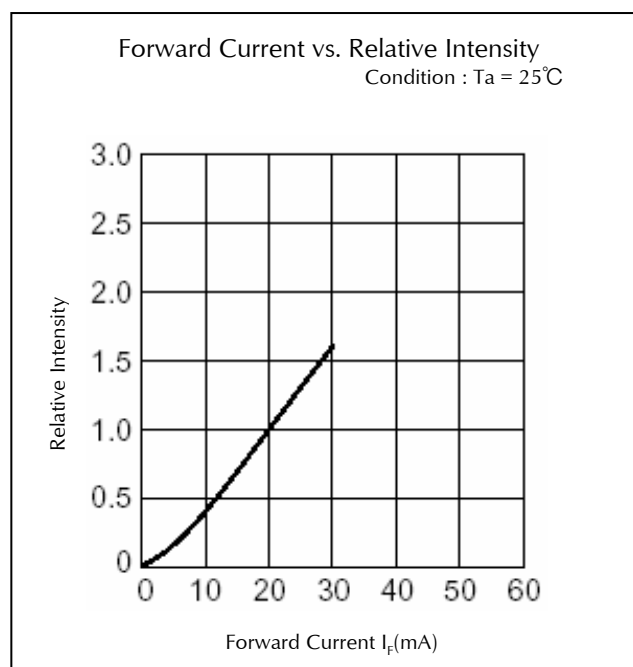
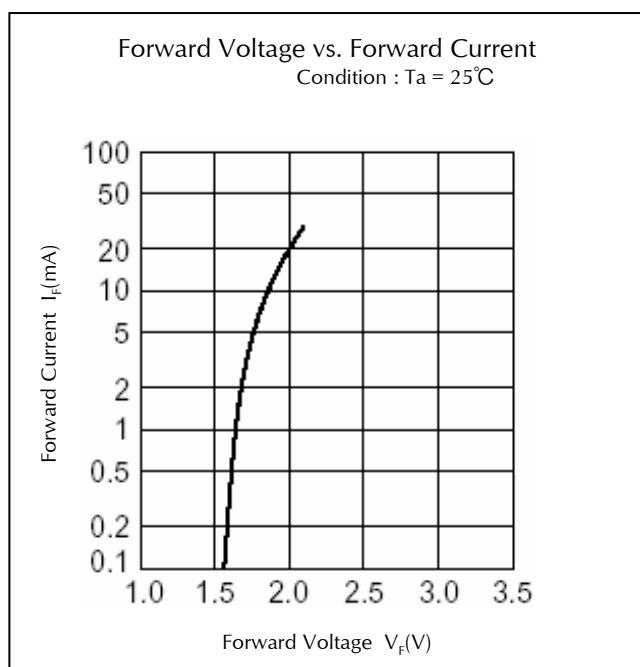
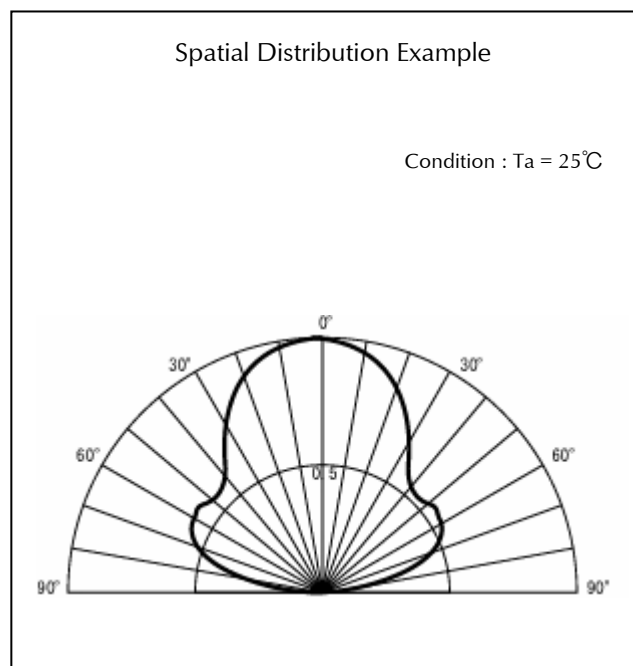
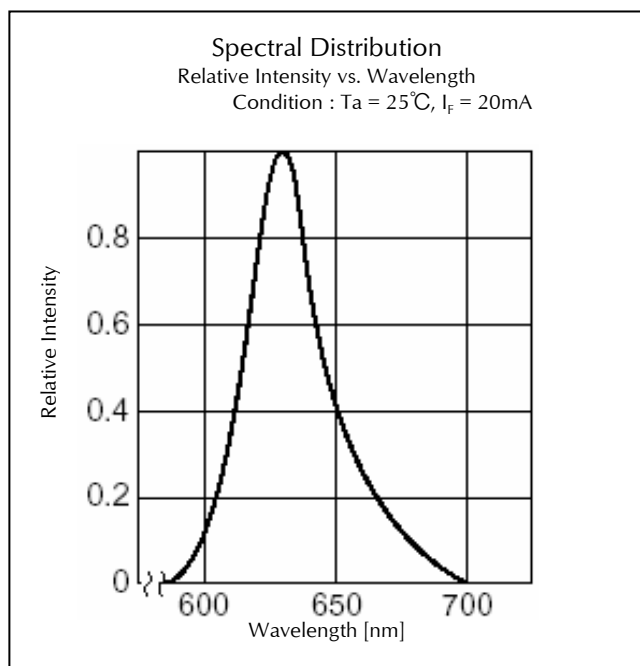
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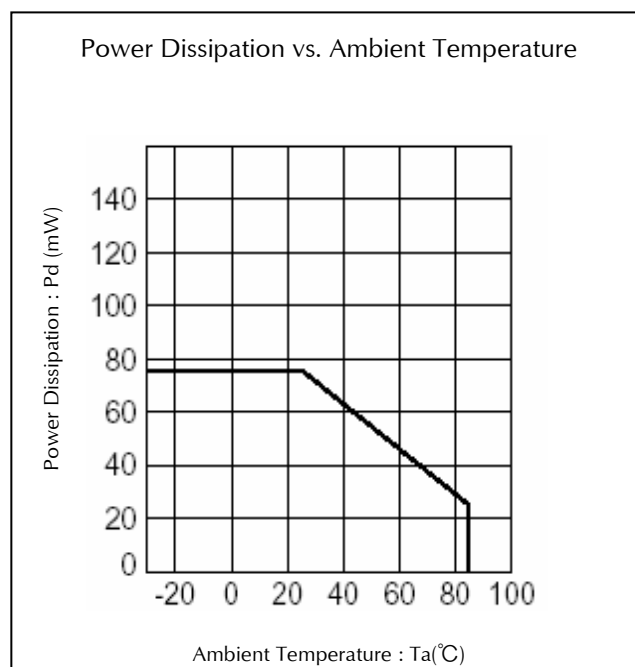
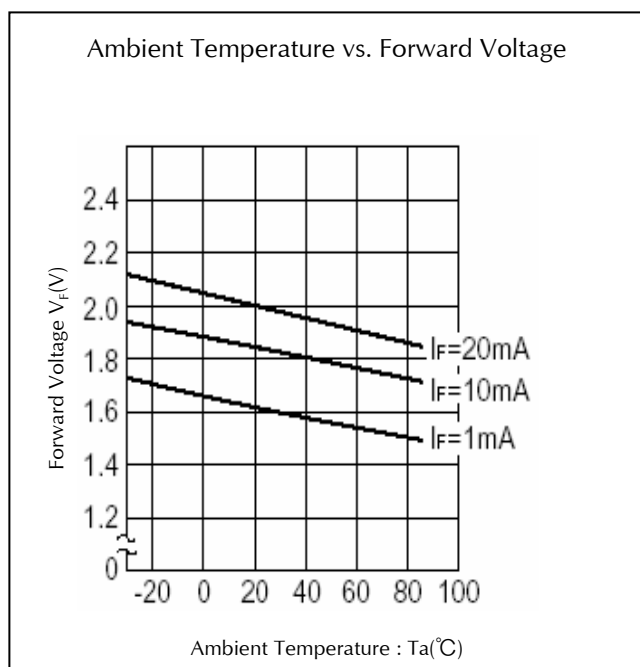
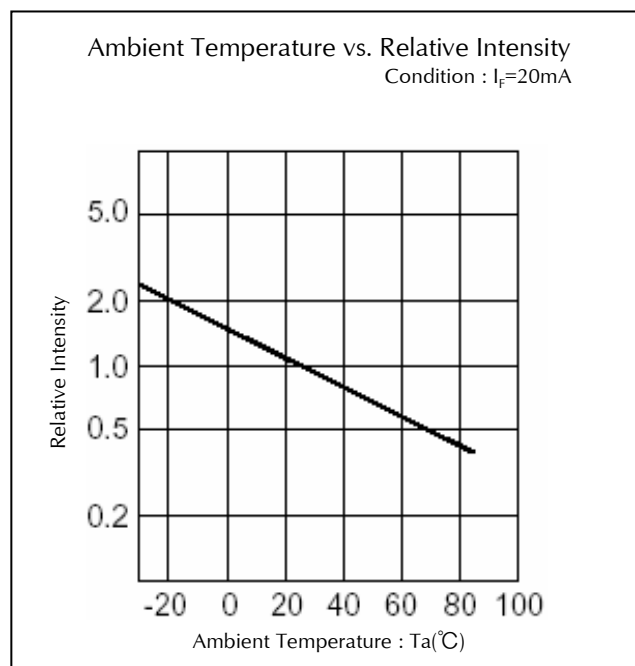
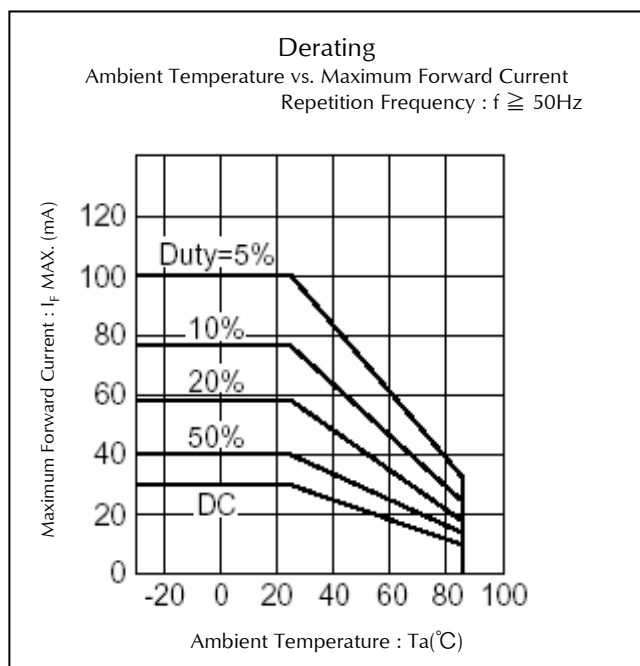
Technical Data(AA)



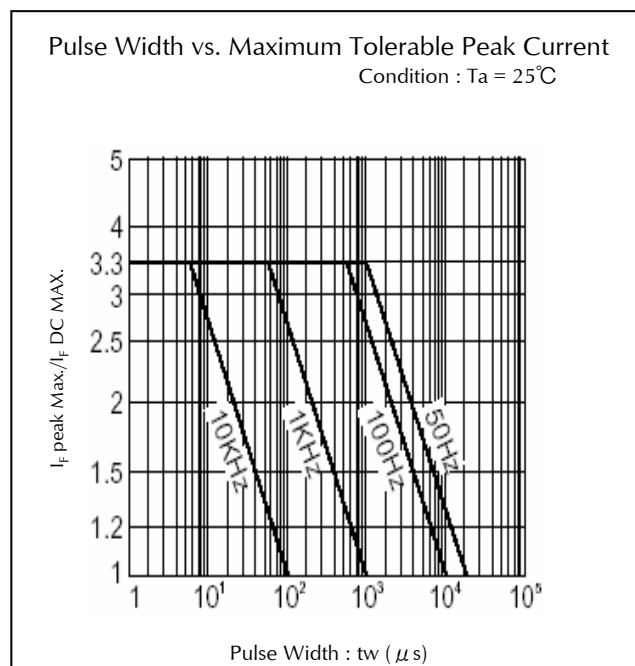
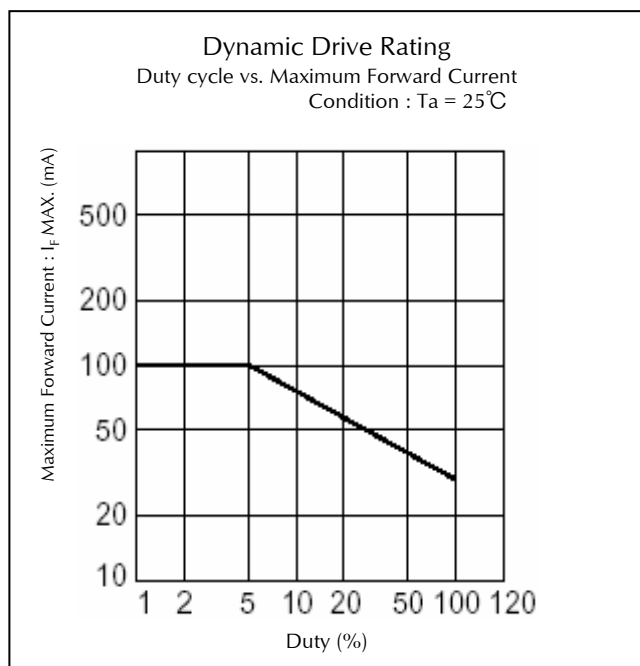
Technical Data(VR)



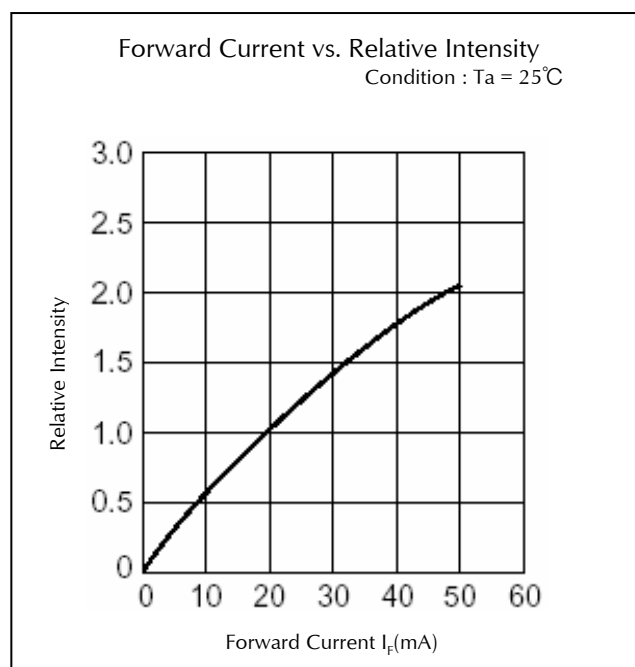
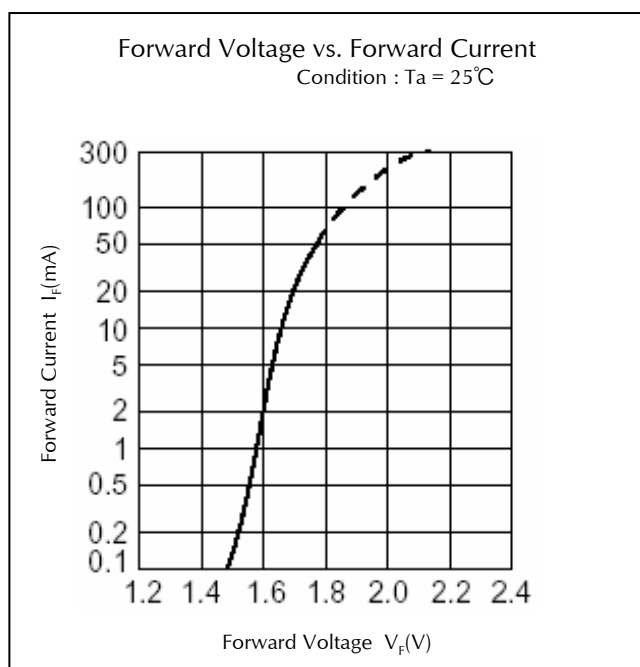
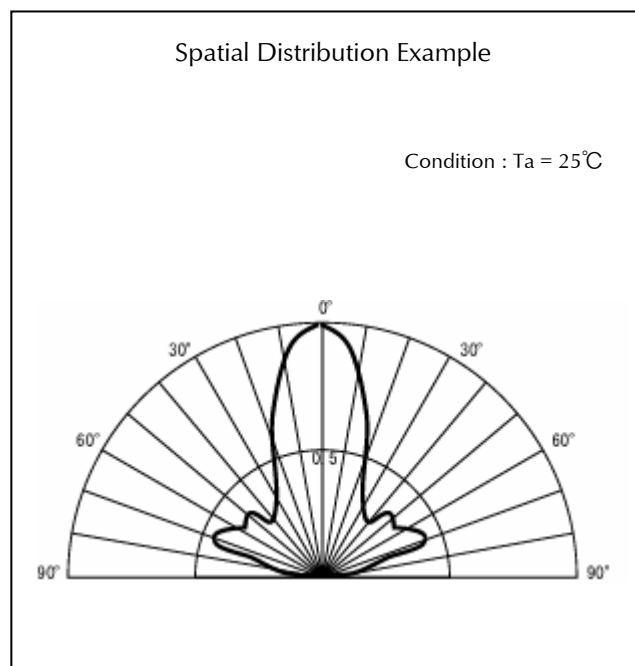
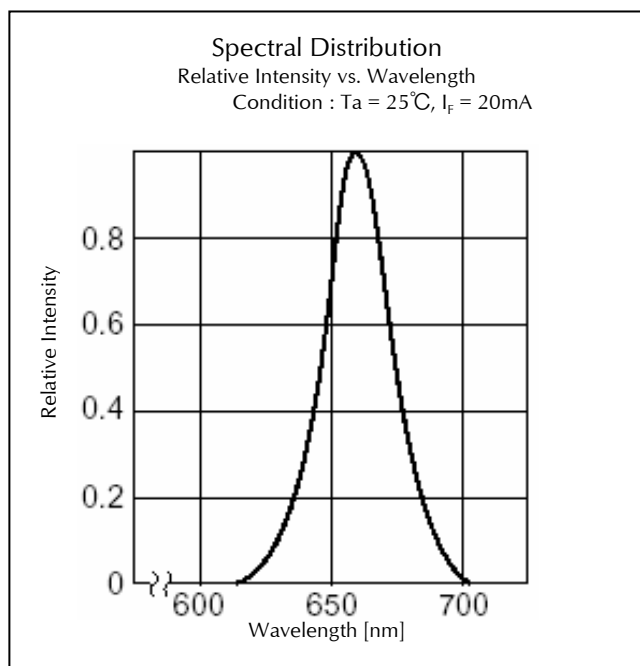
Technical Data(VR)



Technical Data(VR)



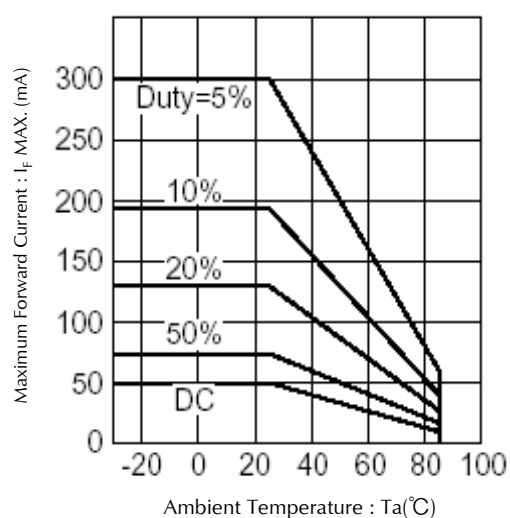
Technical Data(BR)



Technical Data(BR)

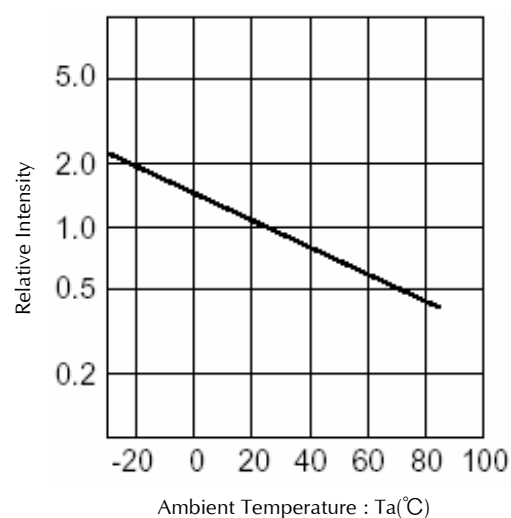
Derating

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

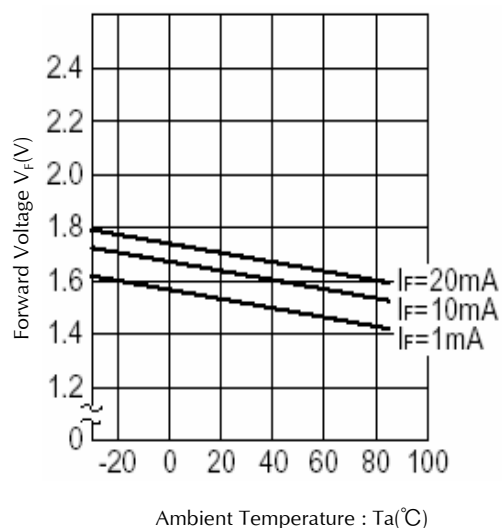


Ambient Temperature vs. Relative Intensity

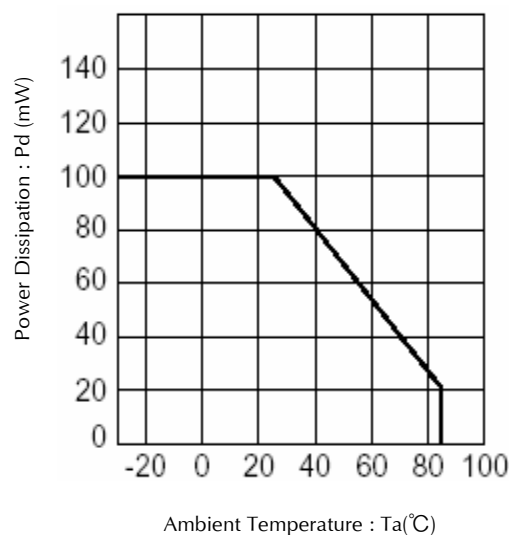
Condition : $I_F=20\text{mA}$



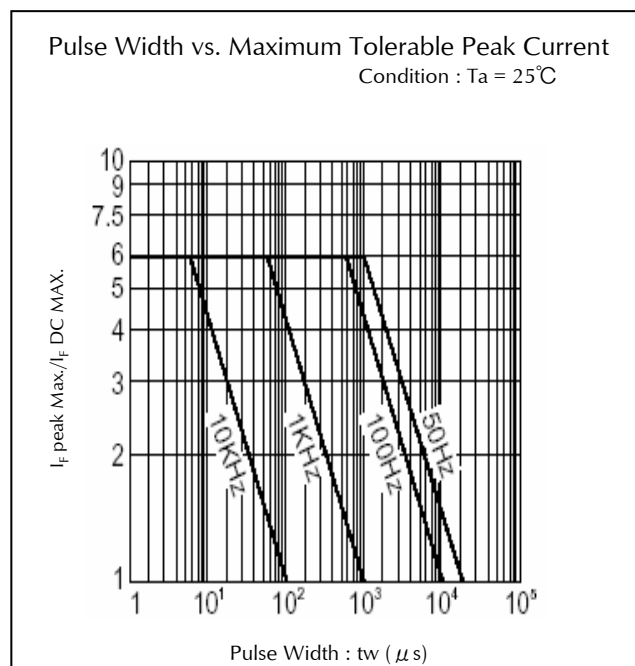
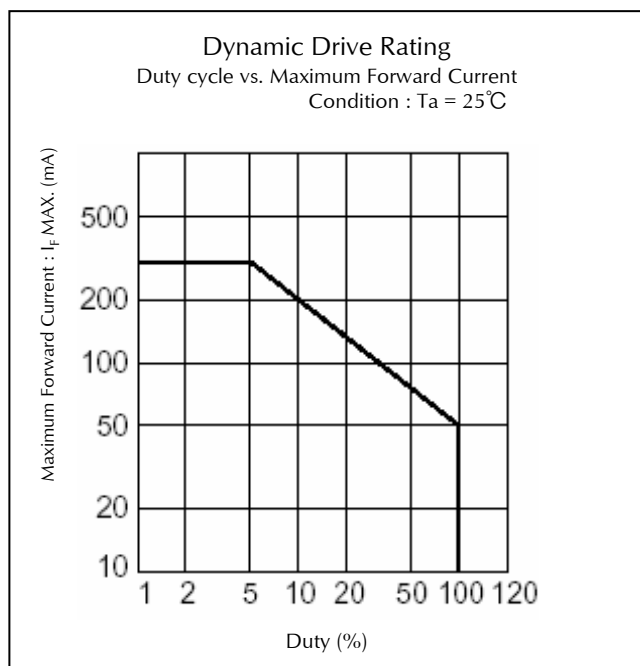
Ambient Temperature vs. Forward Voltage



Power Dissipation vs. Ambient Temperature

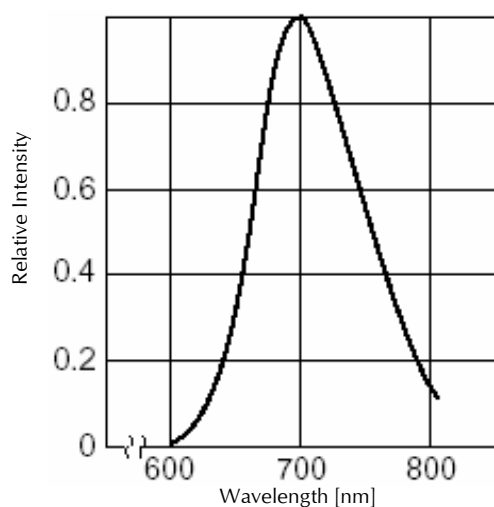


Technical Data(BR)



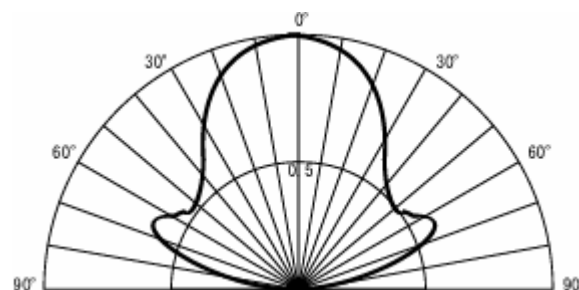
Technical Data(PR)

Spectral Distribution
Relative Intensity vs. Wavelength
Condition : $T_a = 25^\circ\text{C}$, $I_F = 10\text{mA}$

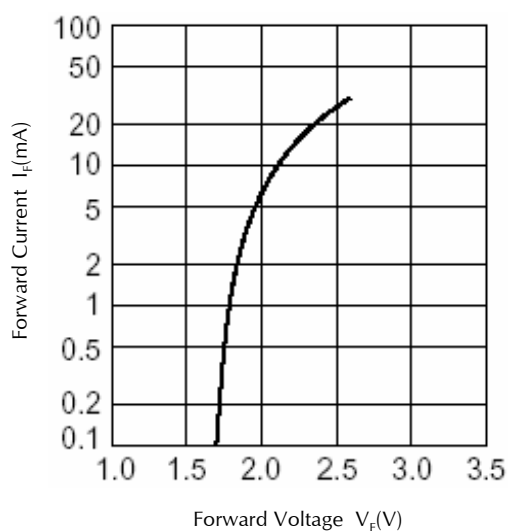


Spatial Distribution Example

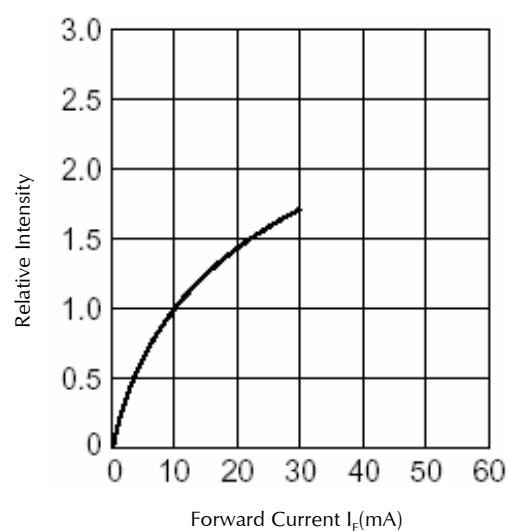
Condition : $T_a = 25^\circ\text{C}$



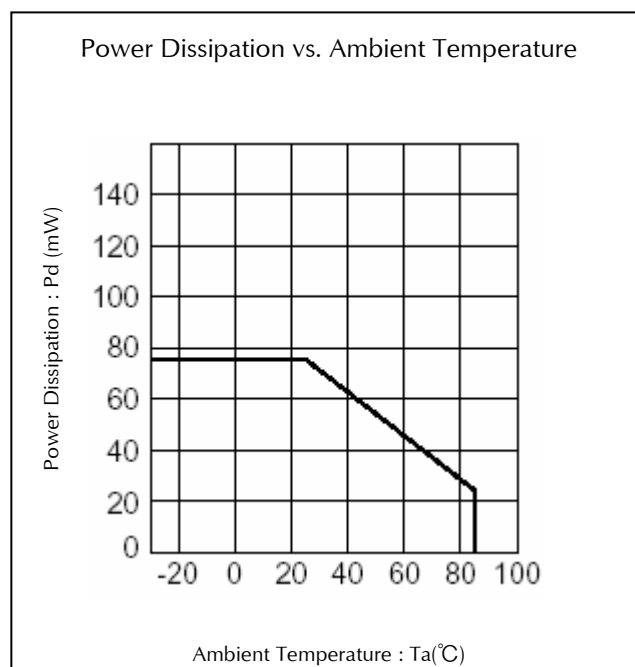
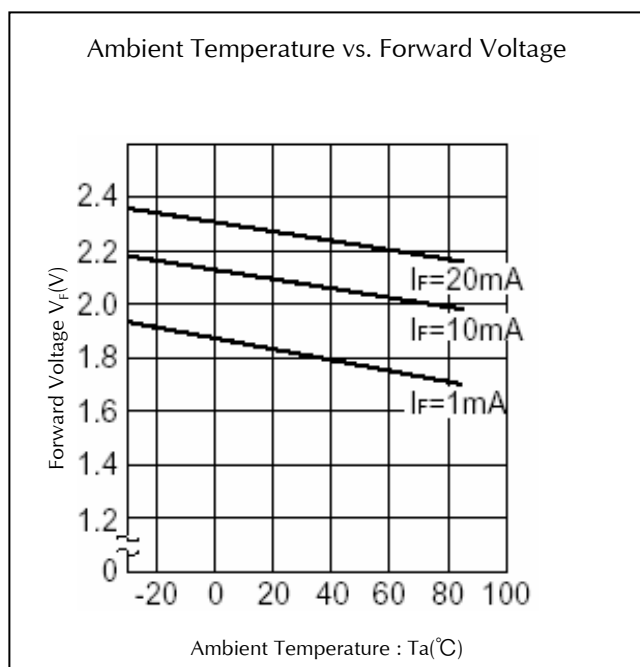
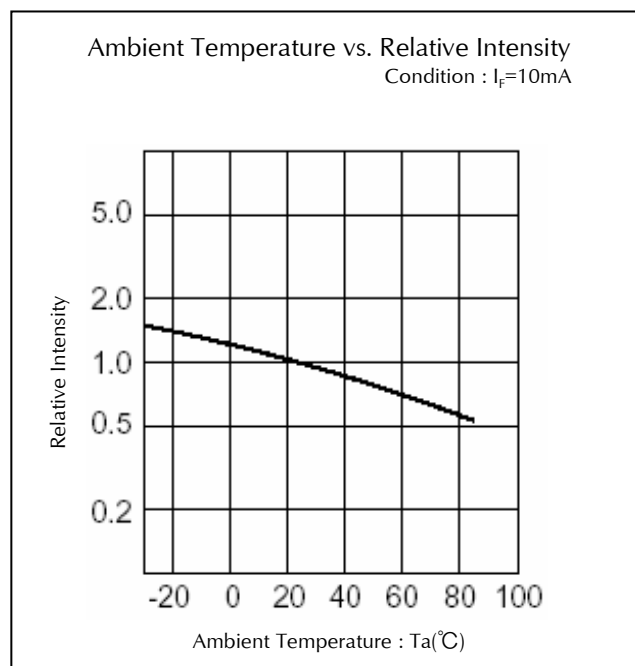
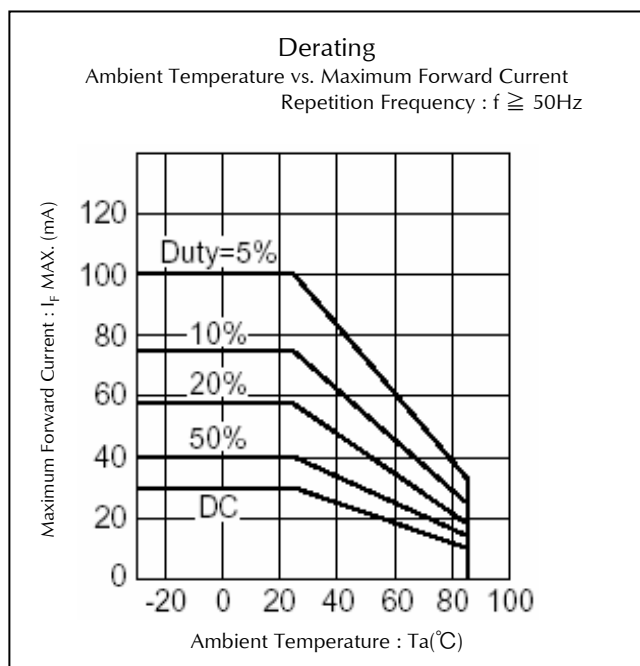
Forward Voltage vs. Forward Current
Condition : $T_a = 25^\circ\text{C}$



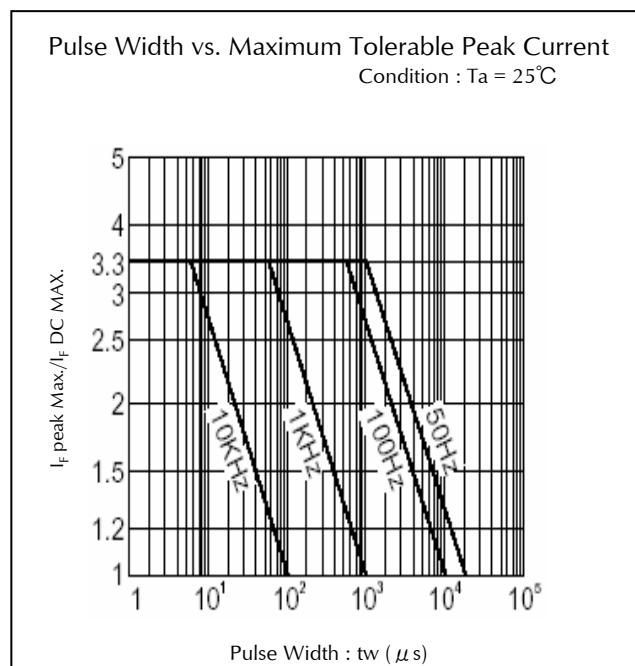
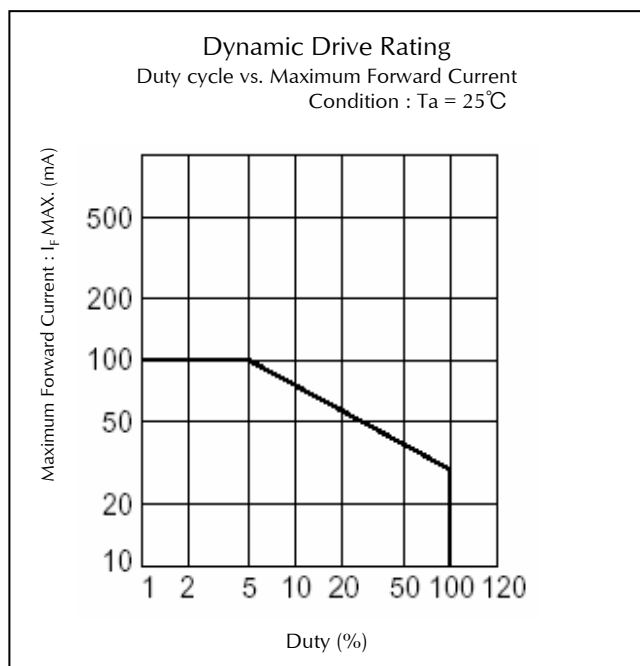
Forward Current vs. Relative Intensity
Condition : $T_a = 25^\circ\text{C}$



Technical Data(PR)

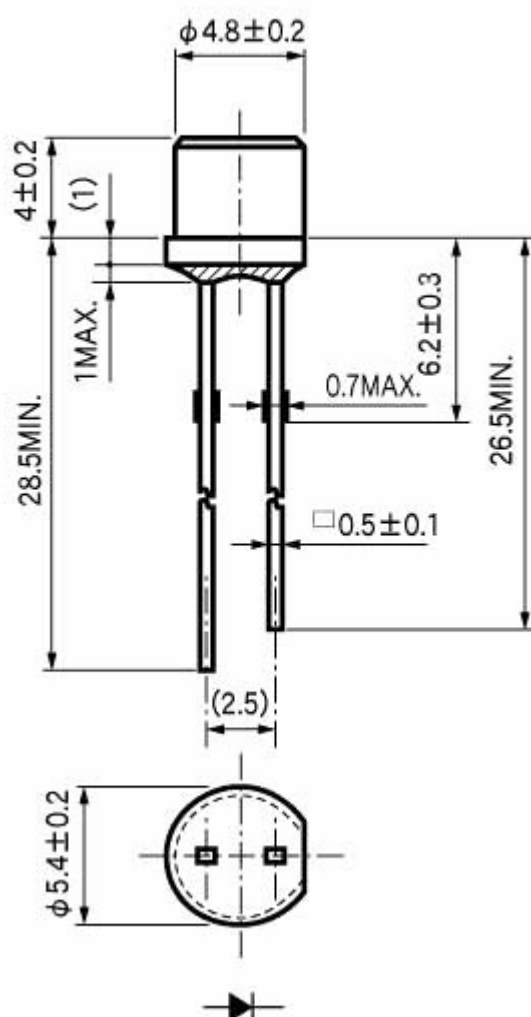


Technical Data(PR)



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	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, 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±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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