



**Pb-free
HEAT**



4868K Series

Single Color Semi-Round Shape Type

Features

Package	2 × 4 Semi-Round shape type, MBG,MPG : Pale Green Clear epoxy MPY,MAY : Pale Yellow Clear epoxy MAA : Pale Orange Clear epoxy MVR,BR,MPR : Pale Red Clear epoxy
Product features	<ul style="list-style-type: none"> • Outer Dimension 2 × 4 Semi-Round shape type • Operation temperature range. Storage Temperature : -30°C~100°C Operating Temperature : -30°C~85°C • Lead-free soldering compatible • RoHS compliant
Dominant wavelength	Green : 558nm (MBG) 567nm (MPG) Yellow Green : 572nm (MPY) Yellow : 590nm (MAY) Orange : 606nm (MAA) Red : 624nm (MVR) 647nm (BR) 630nm (MPR)
Half Intensity Angle	MBG,MPG,MPY,MAY,MAA,MVR,MPR : $\theta_x=110$ deg. $\theta_y=90$ deg. BR : $\theta_x=140$ deg. $\theta_y=80$ deg.
Die materials	MBG, MPG, MPY, MPR : GaP MAY, MAA, MVR : 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 λd (nm)		Luminous Intensity Iv (mcd)		
					TYP.	I _F	MIN.	TYP.	I _F
					MBG4868K	GaP	Green	Pale Green	Clear
MPG4868K	GaP	Green	567	20	4	8	20		
MPY4868K	GaP	Yellow Green	Pale Yellow	572	20	6	12	20	
MAY4868K	GaAsP	Yellow		590	20	5	10	20	
MAA4868K	GaAsP	Orange	Pale Orange	606	20	5	10	20	
MVR4868K	GaAsP	Red	Pale Red	624	20	4	8	20	
BR4868K	GaAlAs	Red		647	20	5	10	20	
MPR4868K	GaP	Red		630	10	1.0	1.5	10	

Absolute Maximum Ratings

(Ta=25°C)

Item	Symbol	Absolute Maximum Ratings								Unit
		MBG	MPG	MPY	MAY	MAA	MVR	BR	MPR	
Power Dissipation	P_d	70	70	85	85	70	75	100	75	mW
Forward Current	I_F	25	25	30	30	25	30	50	30	mA
Pulse Forward Current ※1	I_{FRM}	60	60	75	75	60	75	300	75	mA
Derating (Ta=25°C or higher)	ΔI_F	0.33	0.33	0.40	0.40	0.33	0.40	0.67	0.40	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 ≤ 1 ms., Duty $\leq 1/20$.

Electro-Optical Characteristics(MBG,MPG,MPY,MAY,MAA,MVR,BR) (Ta=25°C)

Item	Conditions	Symbol	Characteristics								Unit
			MBG	MPG	MPY	MAY	MAA	MVR	BR		
Forward Voltage	I _F =20mA	V _F	TYP.	2.1	2.1	2.1	2.2	2.2	2.0	1.7	V
			MAX.	2.8	2.8	2.8	2.8	2.8	2.8	2.0	
Reverse Current	V _R =4V	I _R	MAX.	20	20	20	20	20	20	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.	110(θx)	110(θx)	110(θx)	110(θx)	110(θx)	110(θx)	140(θx)	deg.
				90(θy)	90(θy)	90(θy)	90(θy)	90(θy)	90(θy)	80(θy)	

Electro-Optical Characteristics(MPR)

(Ta=25°C)

Item	Conditions	Symbol	Characteristics		Unit
				MPR	
Forward Voltage	I _F =10mA	V _F	TYP.	2.1	V
			MAX.	2.8	
Reverse Current	V _R =4V	I _R	MAX.	20	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.	110(θx)	deg.
				90(θy)	

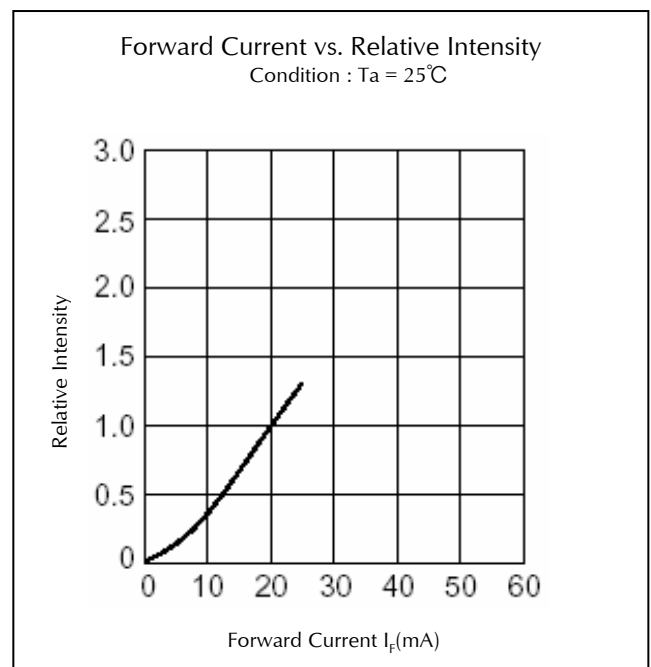
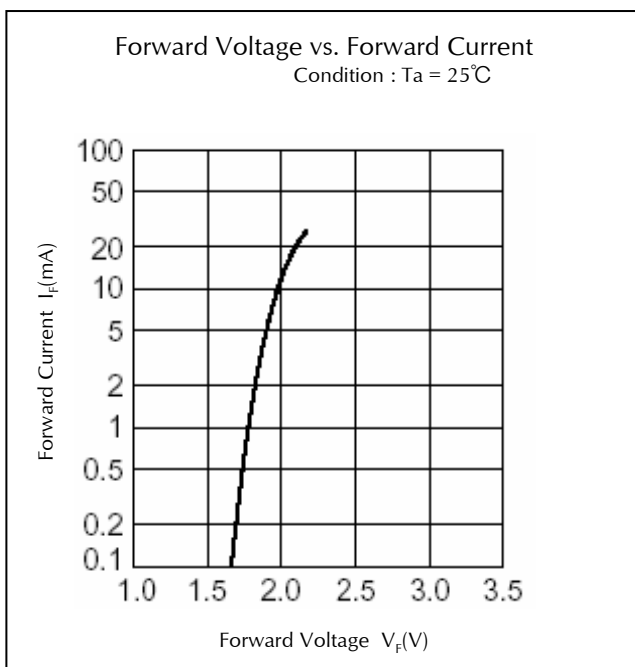
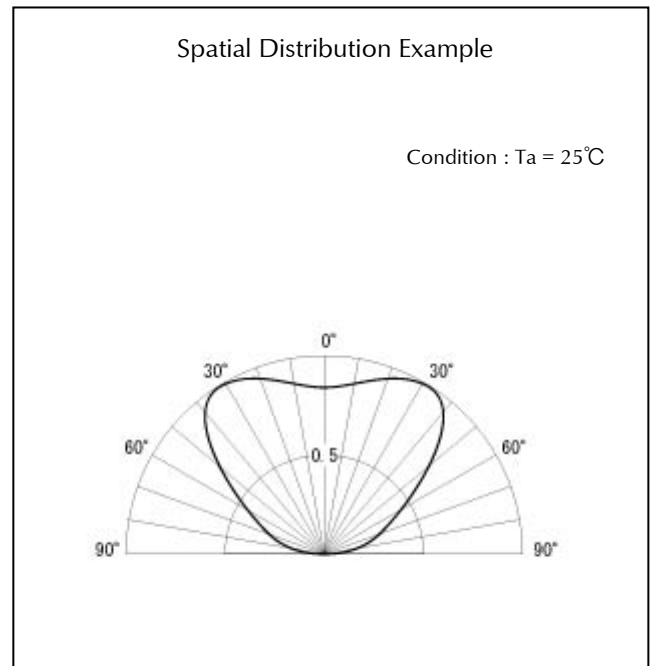
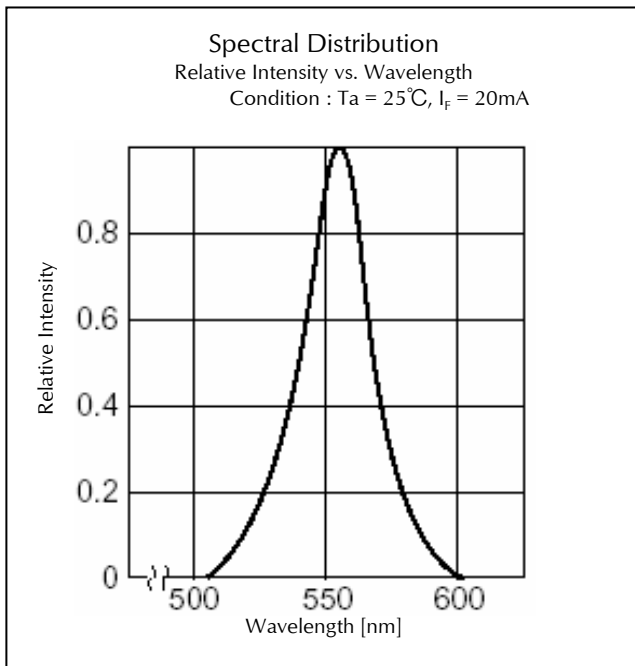
Luminous Intensity Rank

(Ta=25°C)

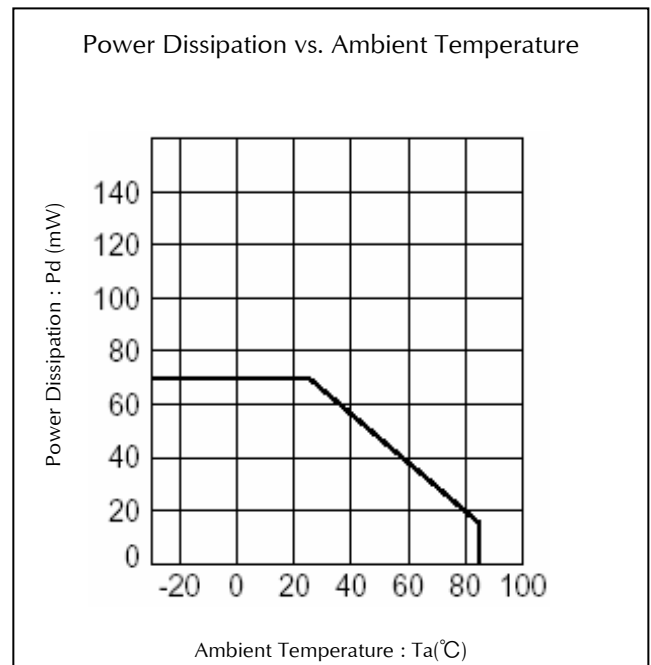
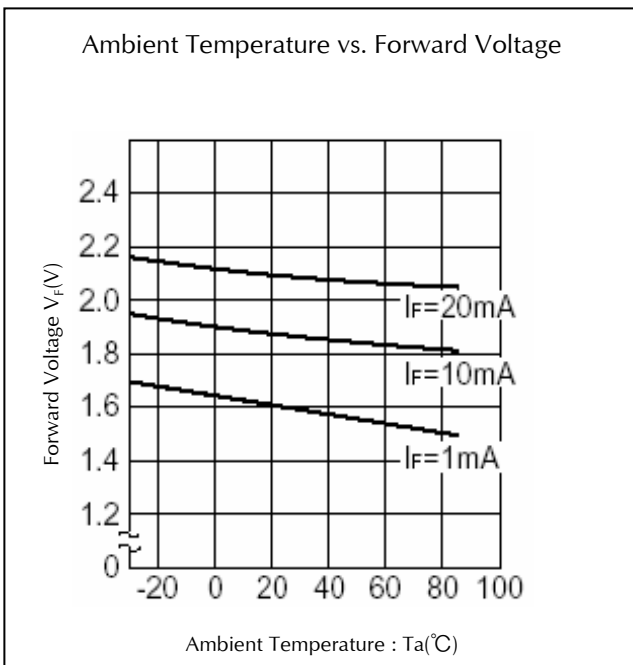
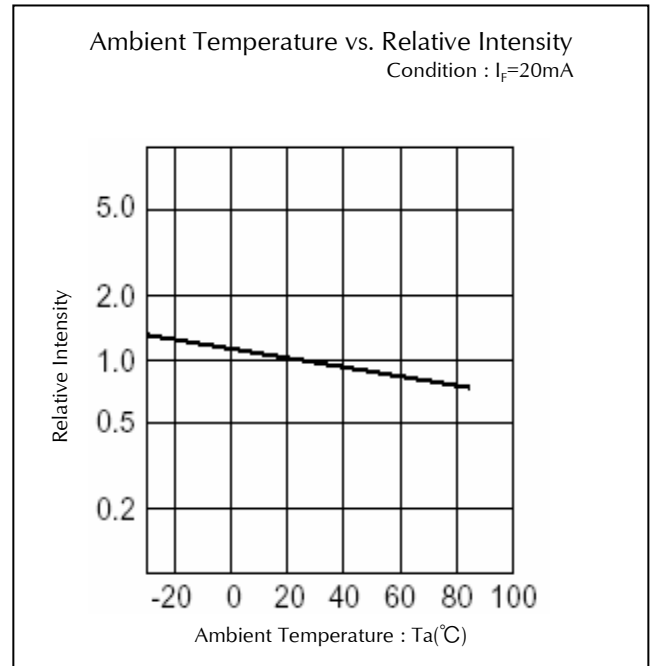
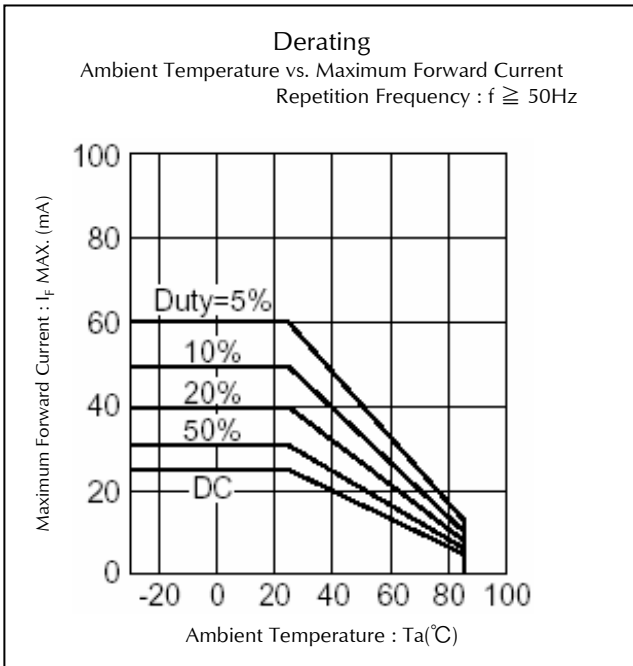
Rank	I _v (mcd)															
	MBG		MPG		MPY		MAY		MAA		MVR		BR		MPR	
	I _f =20mA		I _f =20mA		I _f =20mA		I _f =20mA		I _f =20mA		I _f =20mA		I _f =20mA		I _f =10mA	
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
A	2.0	4.0	4.0	8.0	6.0	12.0	5	10	5	10	4.0	8.0	5	10	1.0	2.0
B	2.8	5.6	5.6	11.2	8.4	16.8	7	14	7	14	5.6	11.2	7	14	1.4	2.8
C	4.0	8.0	8.0	16.0	12.0	24.0	10	20	10	20	8.0	16.0	10	20	2.0	4.0
D	5.6	11.2	11.2	22.4	16.8	33.6	14	28	14	28	11.2	22.4	14	28	2.8	5.6
E	8.0	-	16.0	-	24.0	-	20	-	20	-	16.0	-	20	-	4.0	-

Please contact our sales staff concerning rank designation.

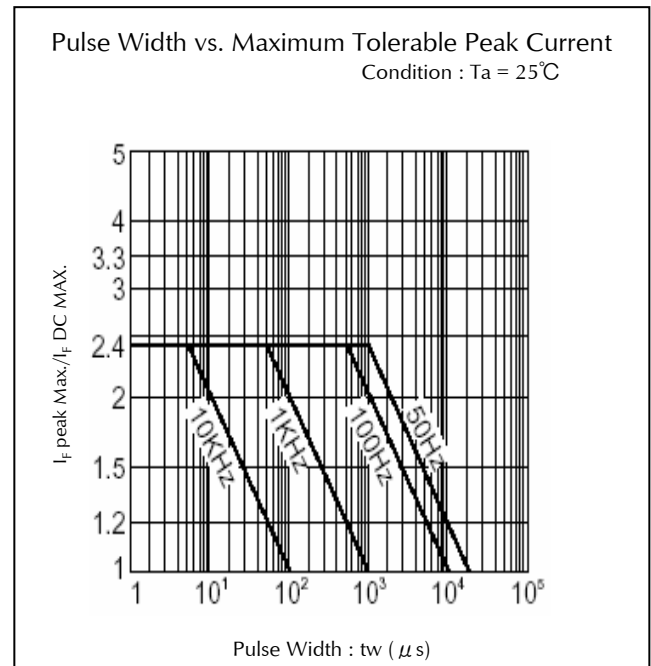
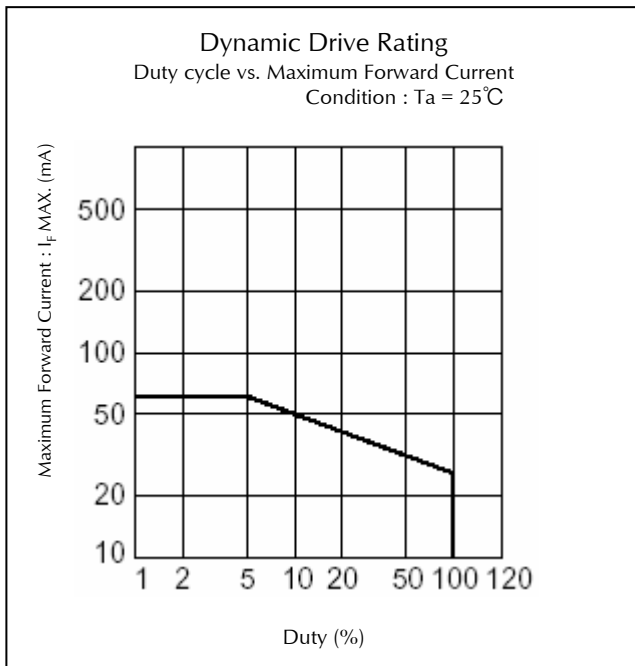
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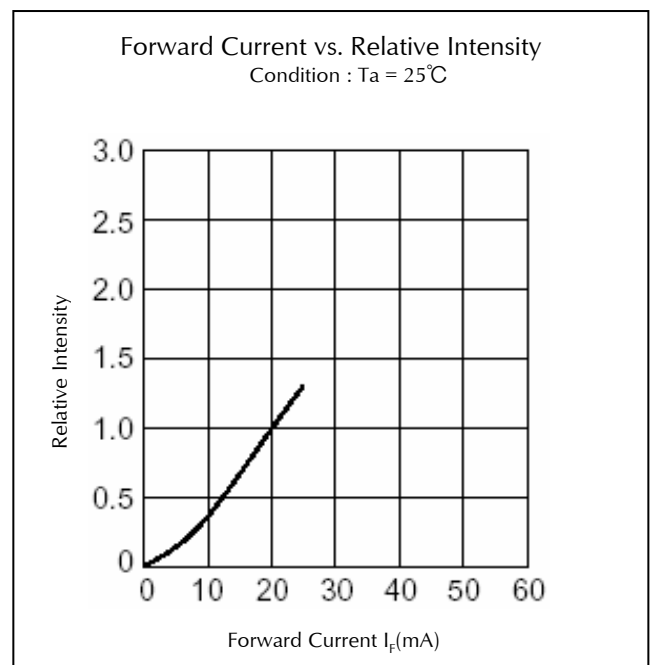
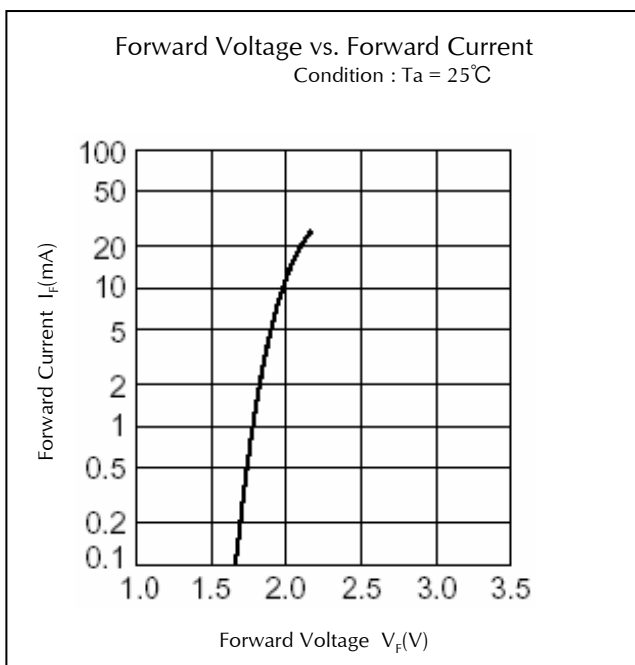
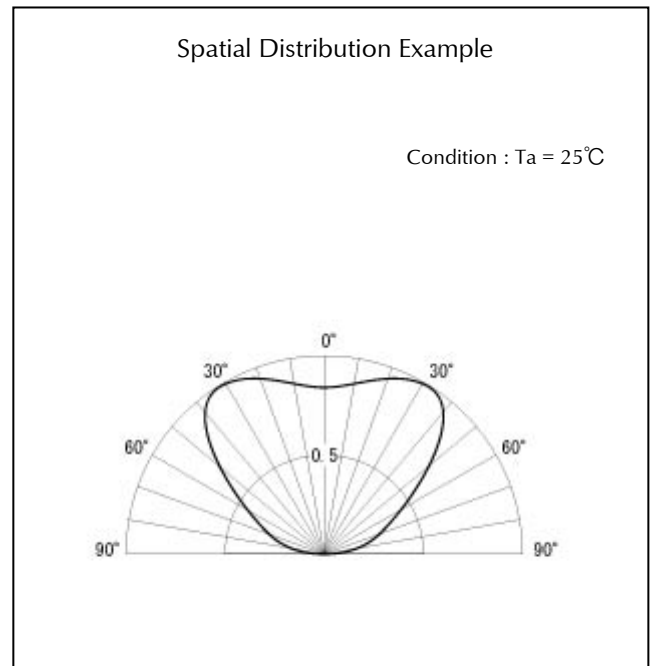
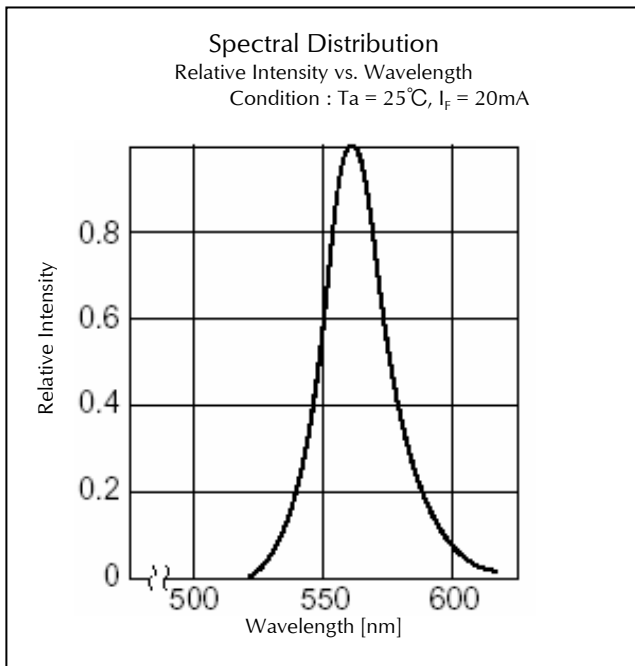
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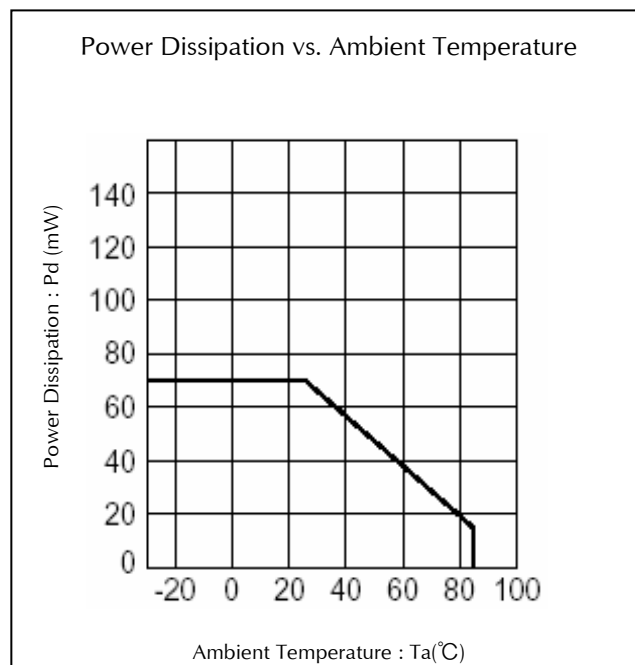
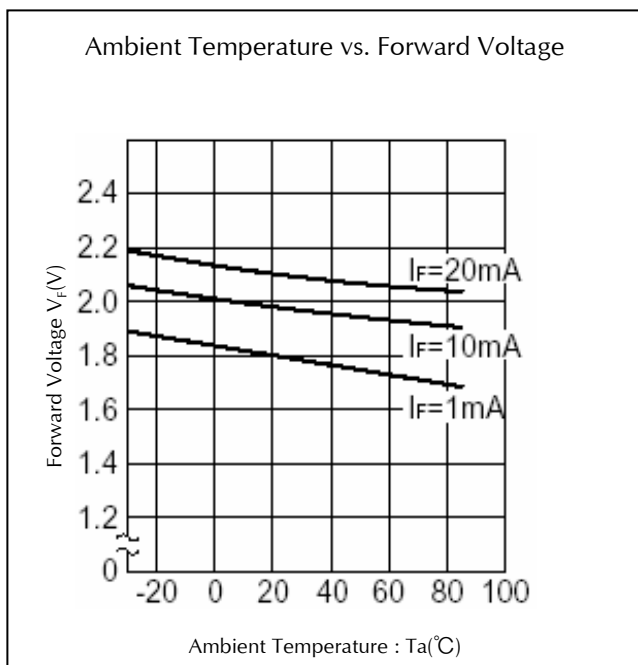
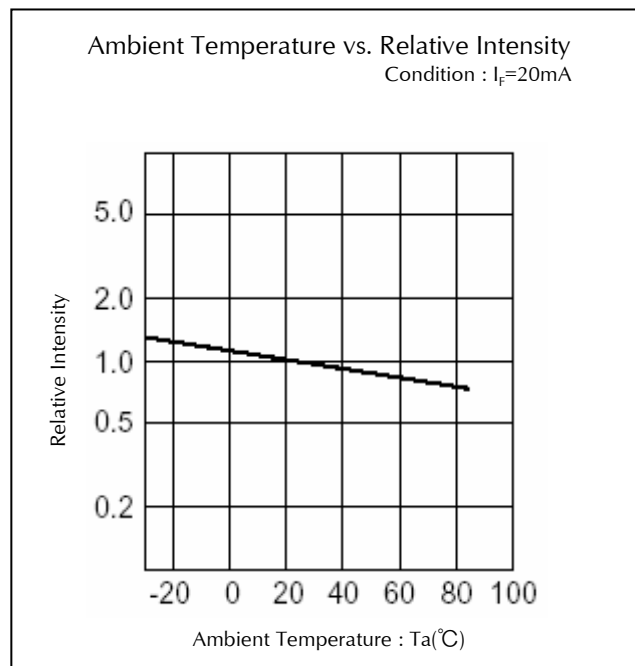
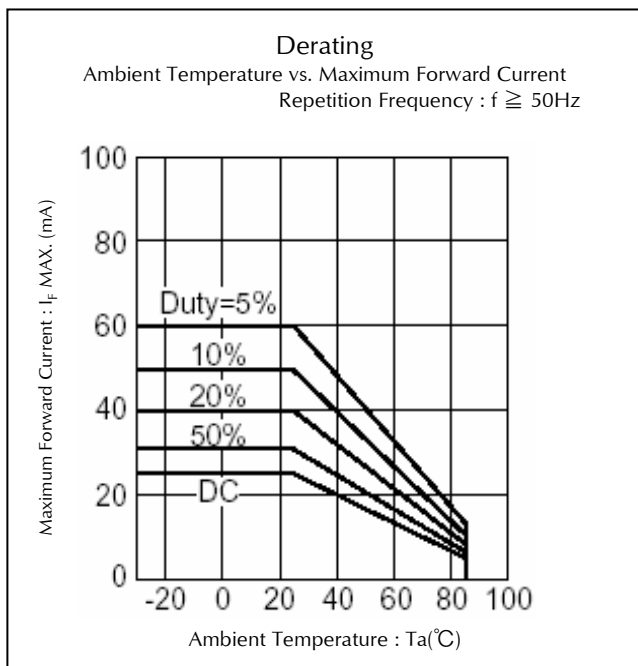
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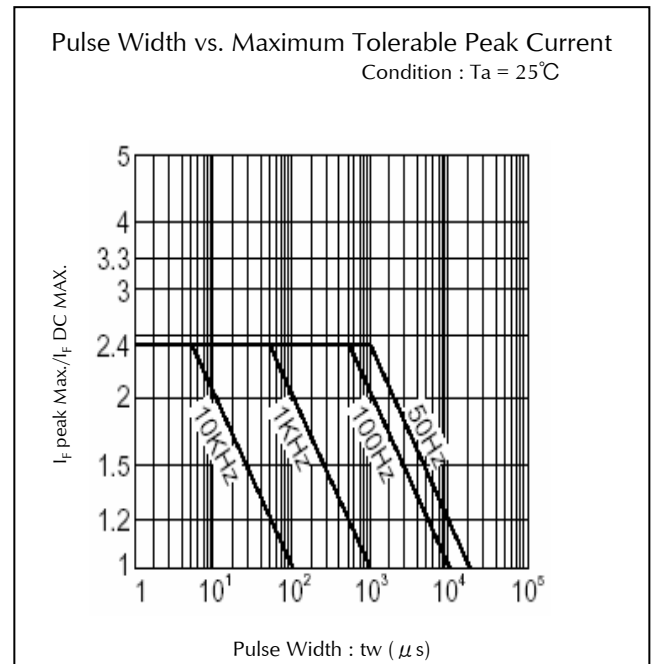
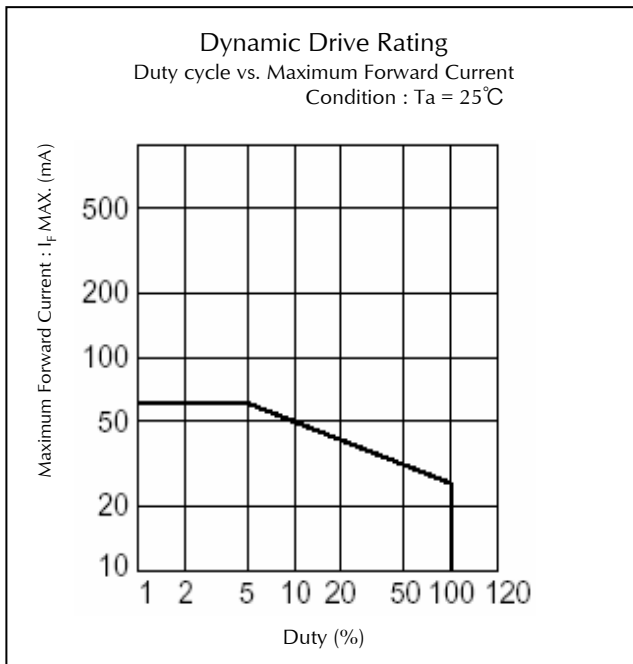
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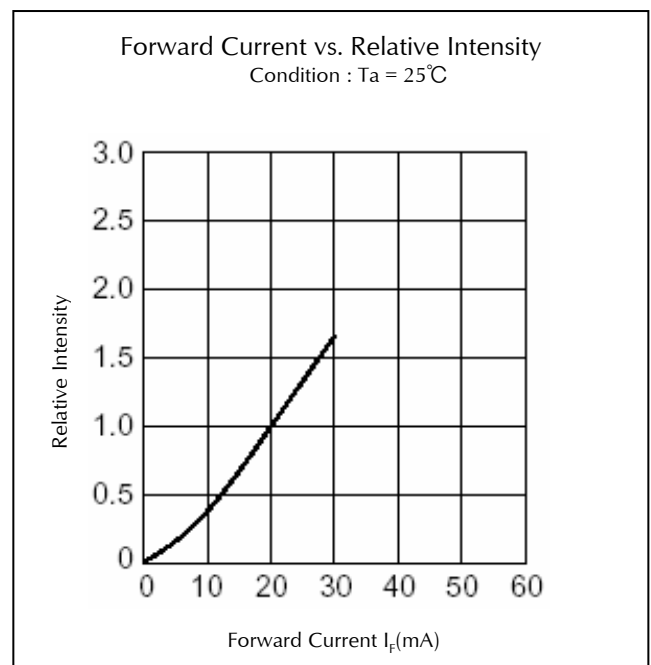
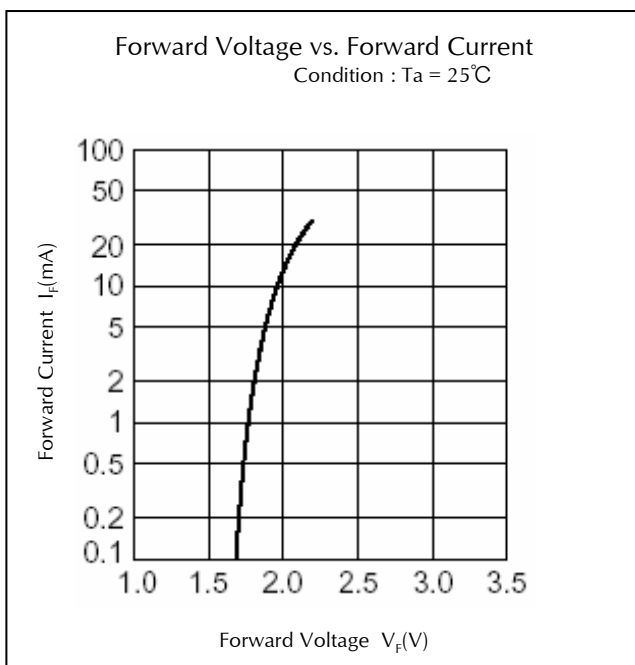
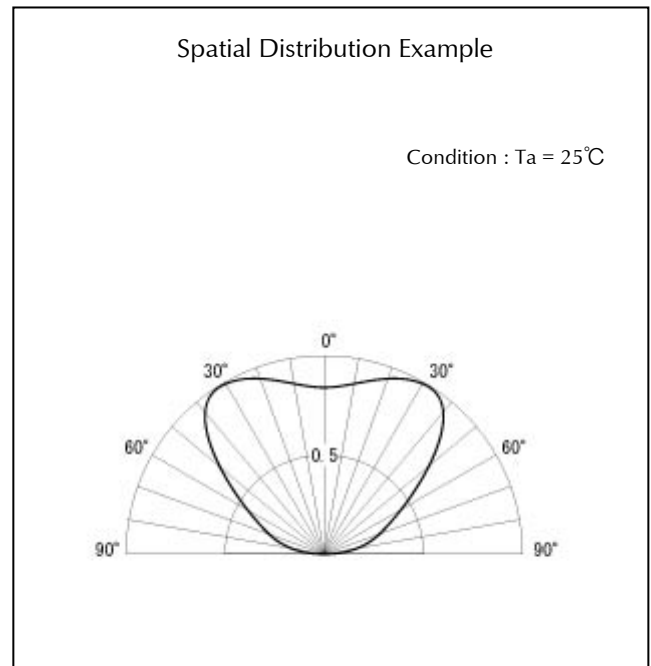
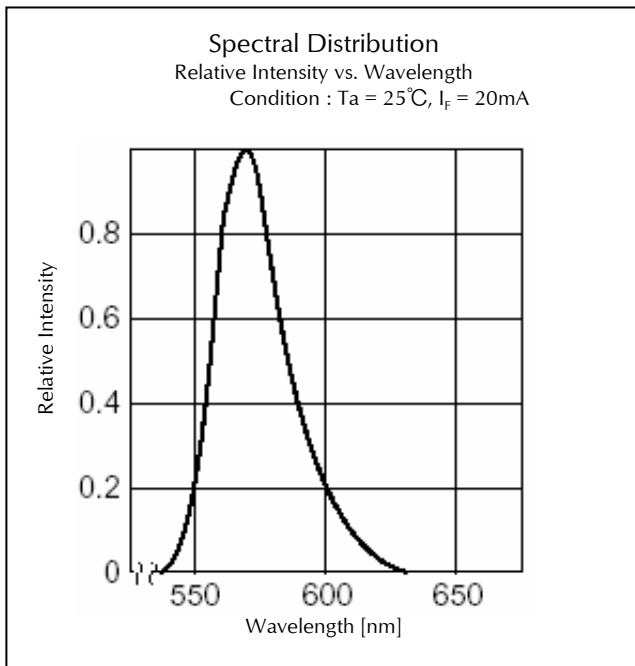
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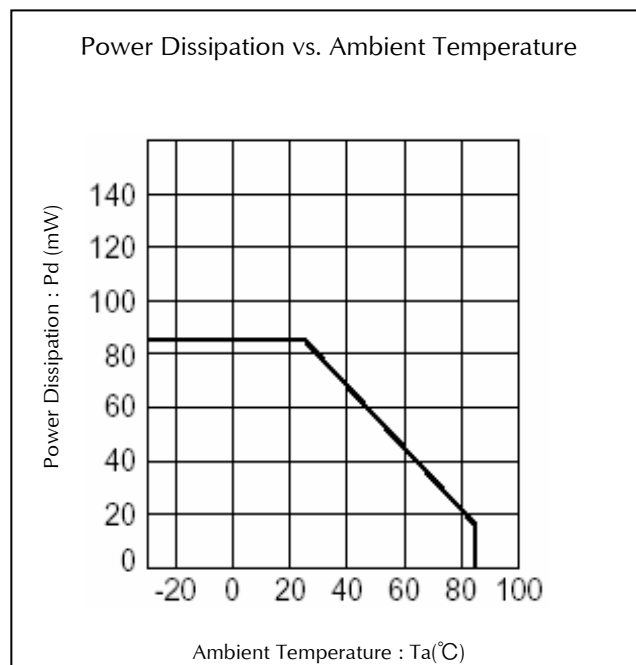
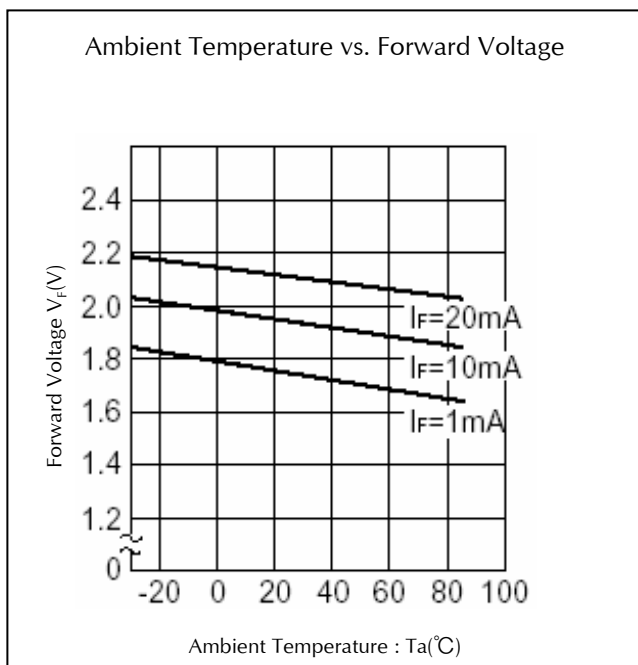
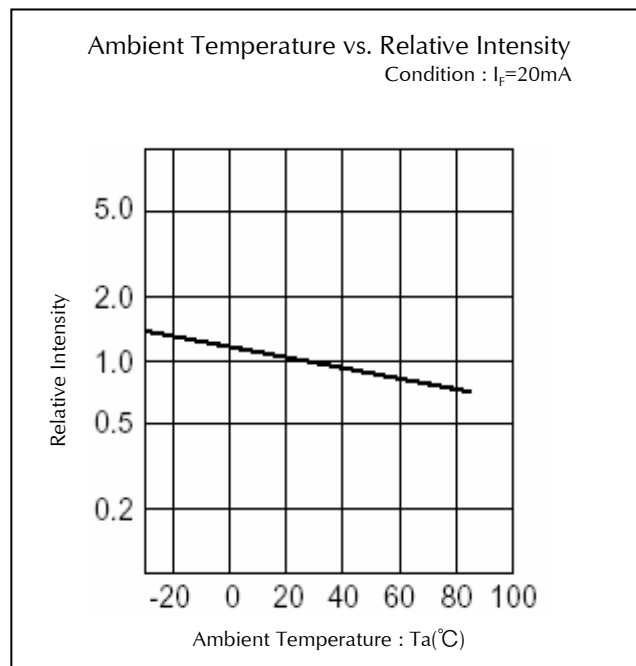
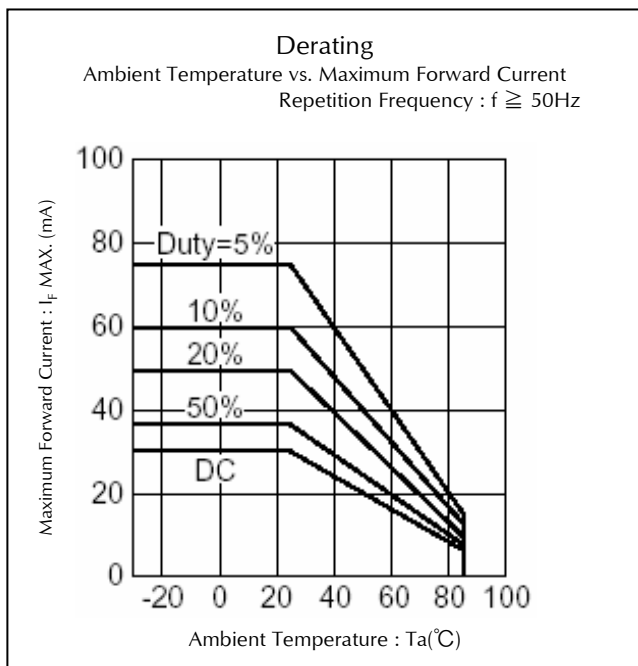
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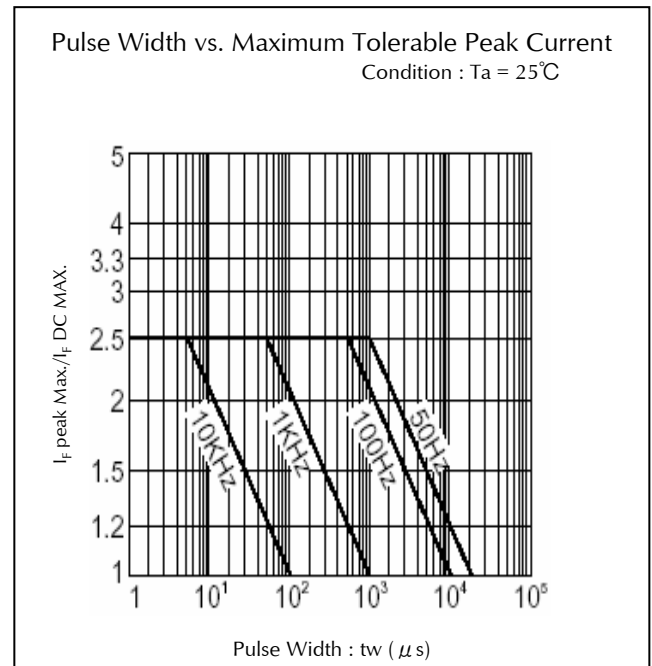
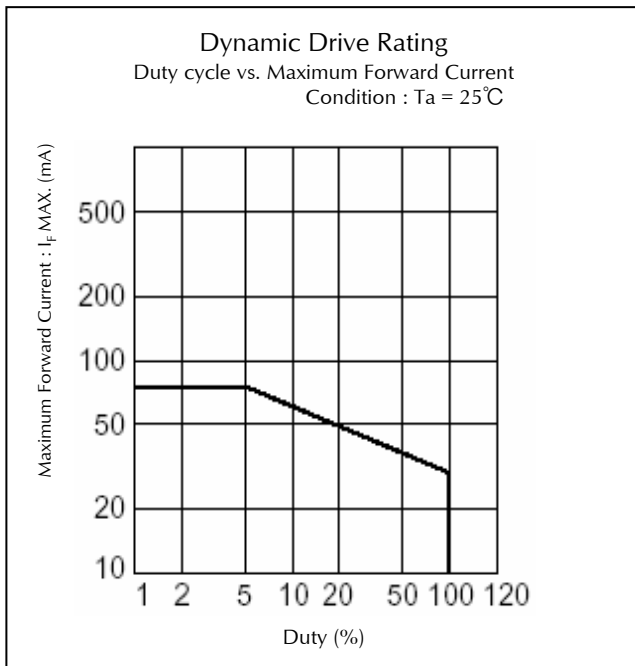
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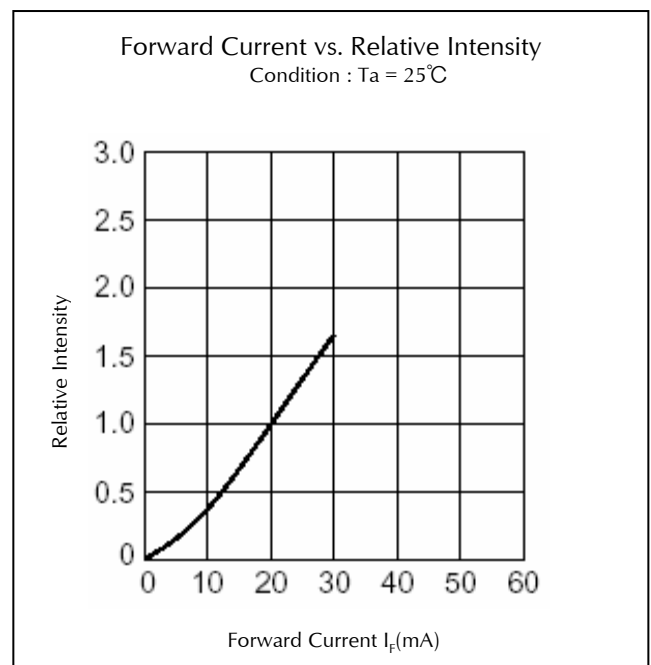
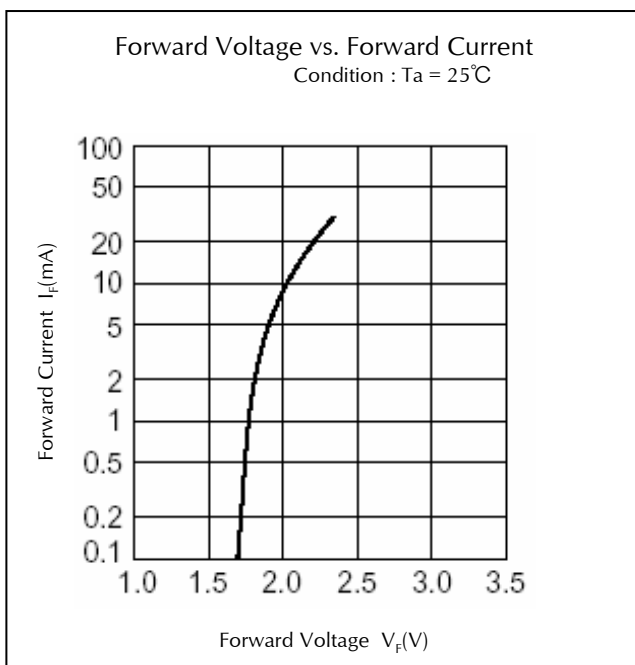
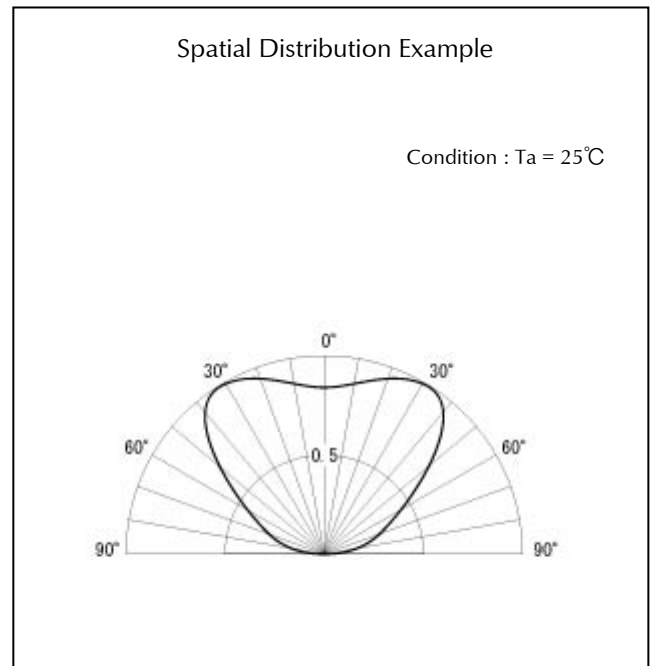
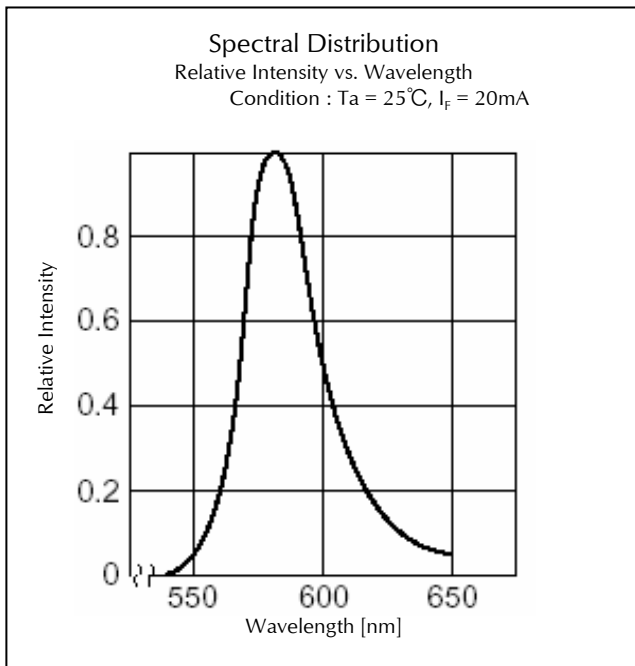
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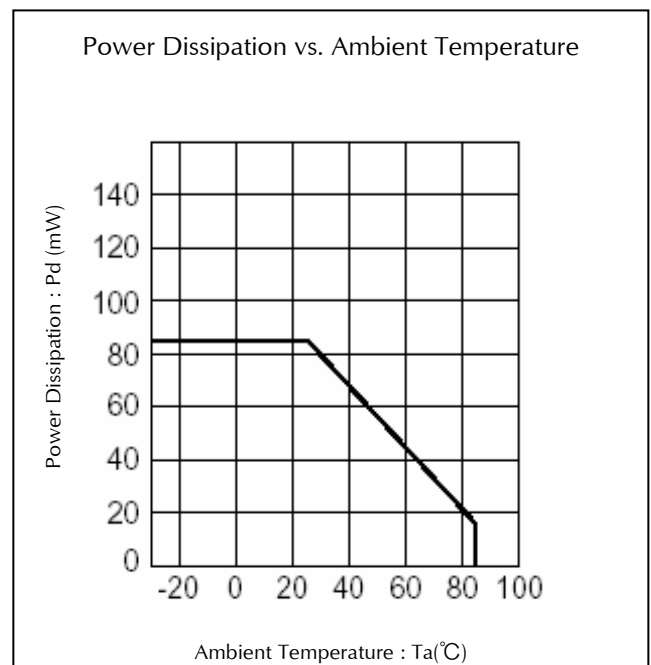
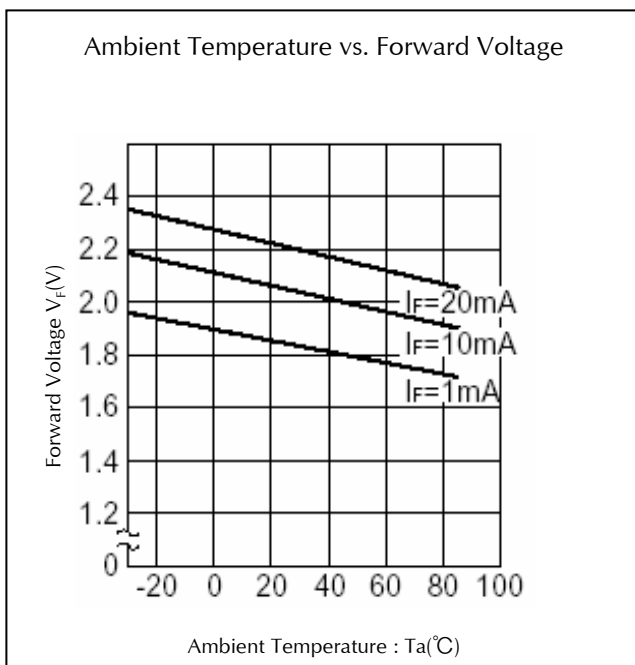
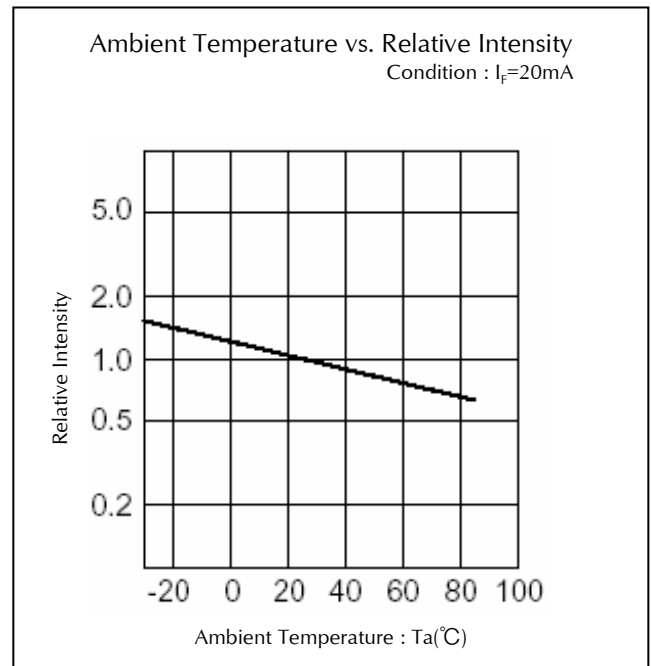
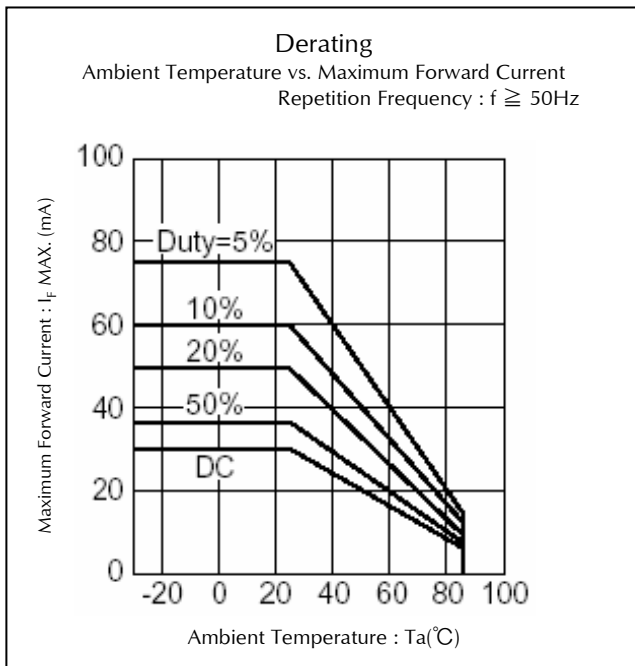
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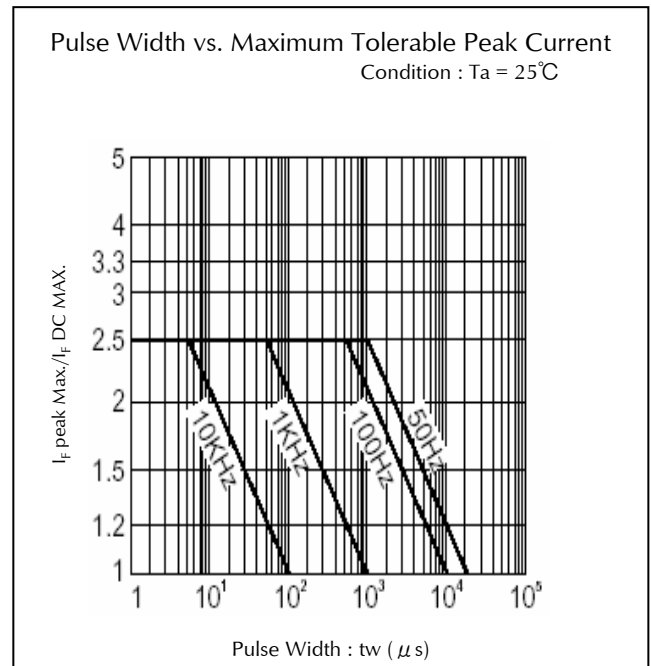
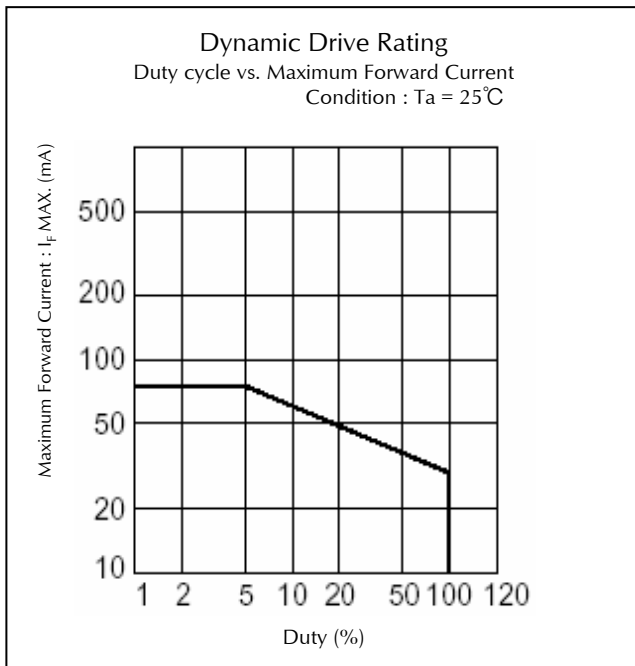
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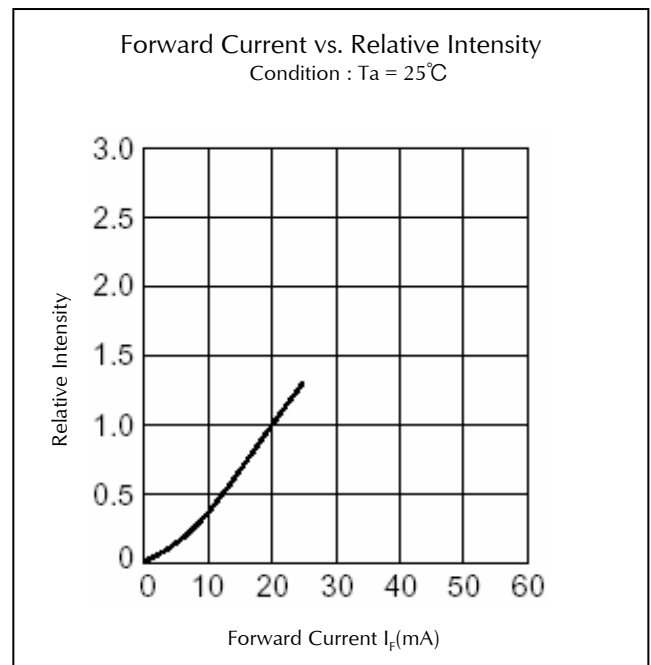
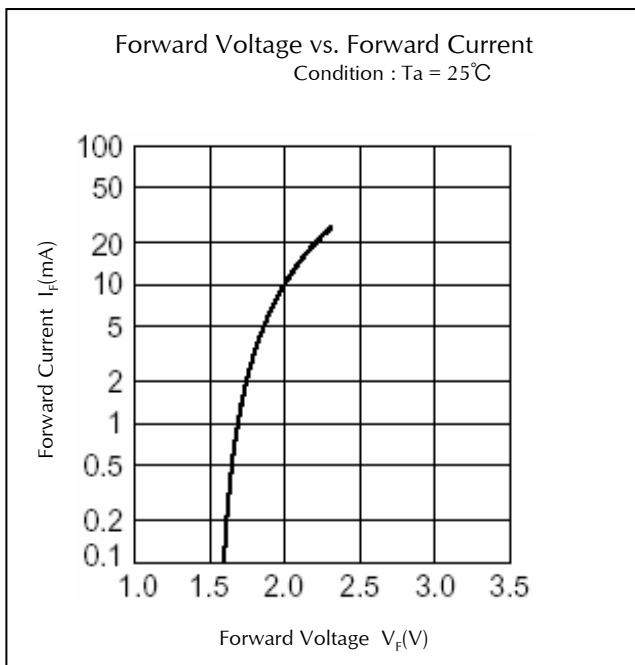
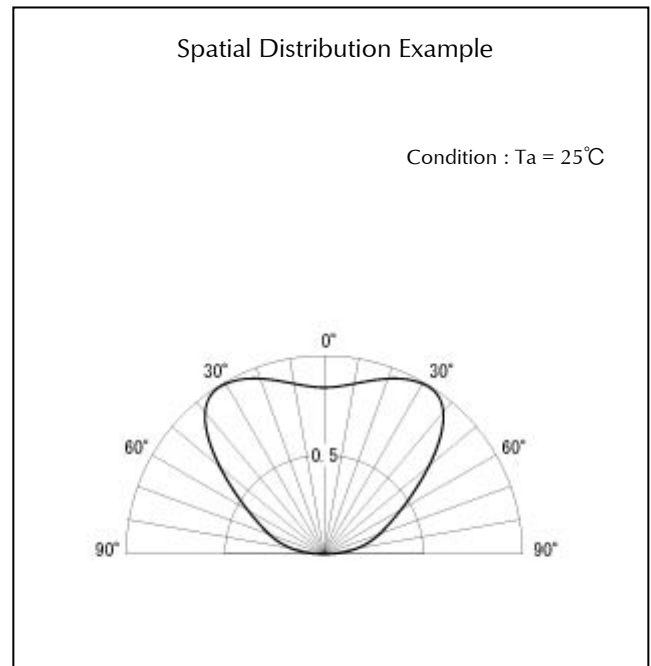
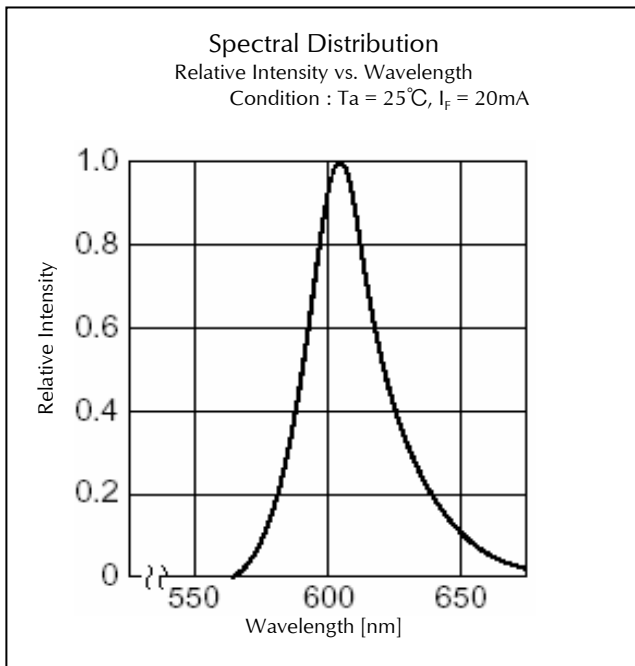
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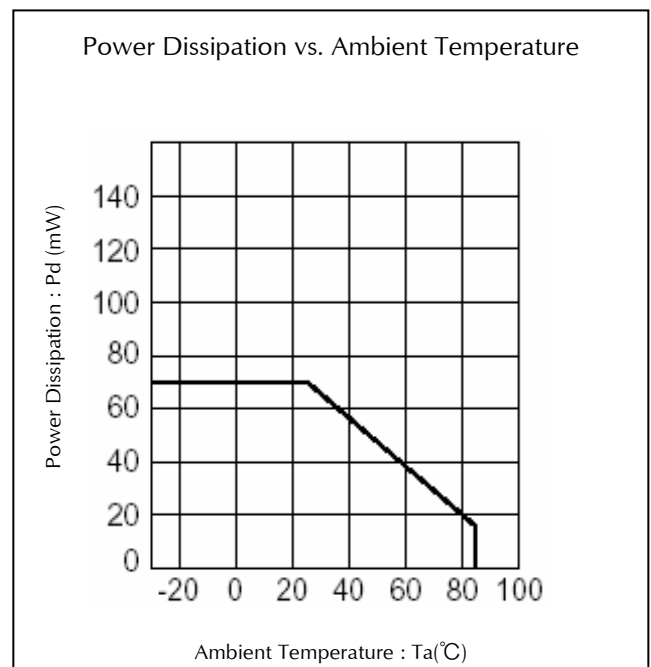
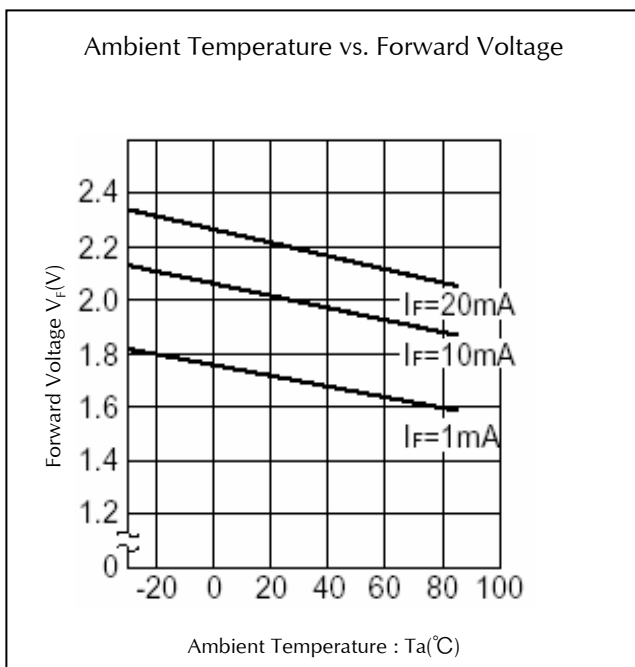
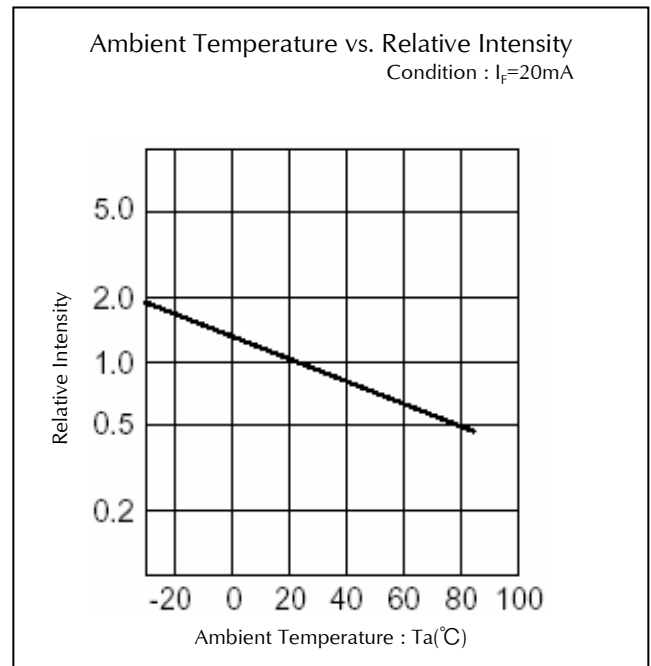
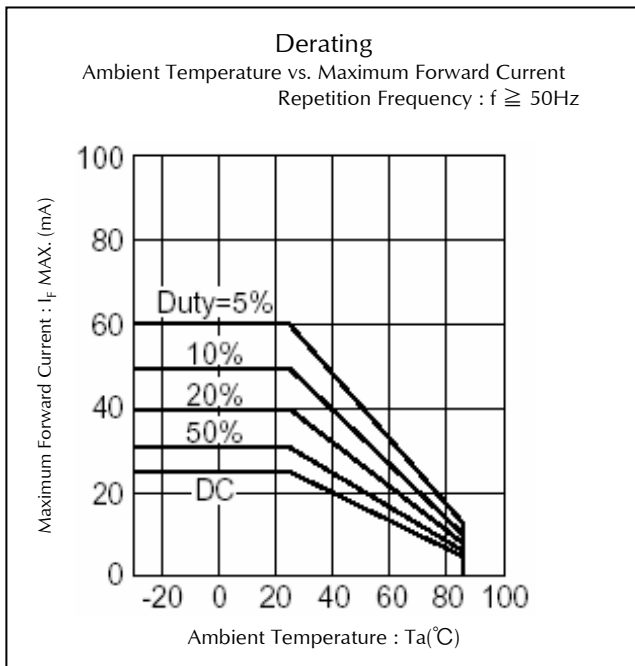
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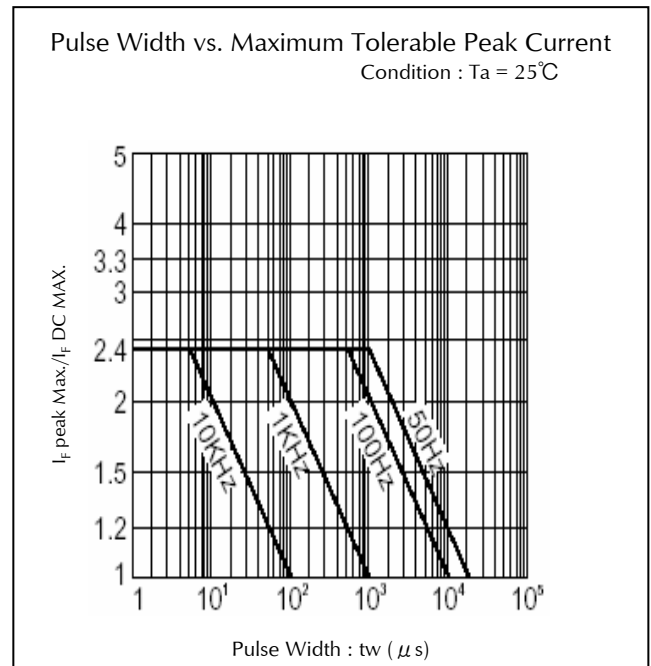
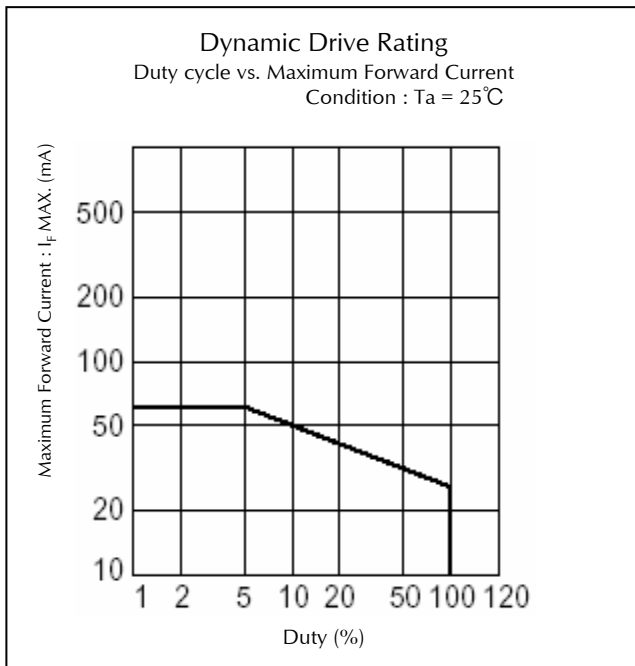
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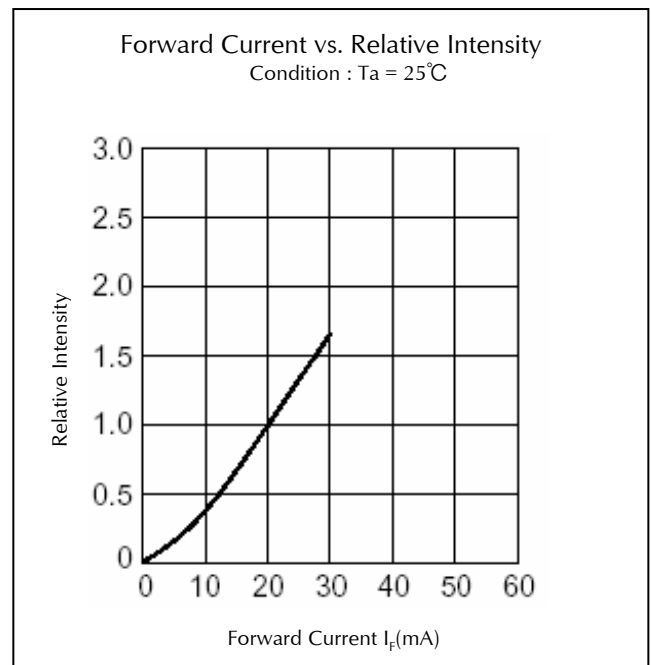
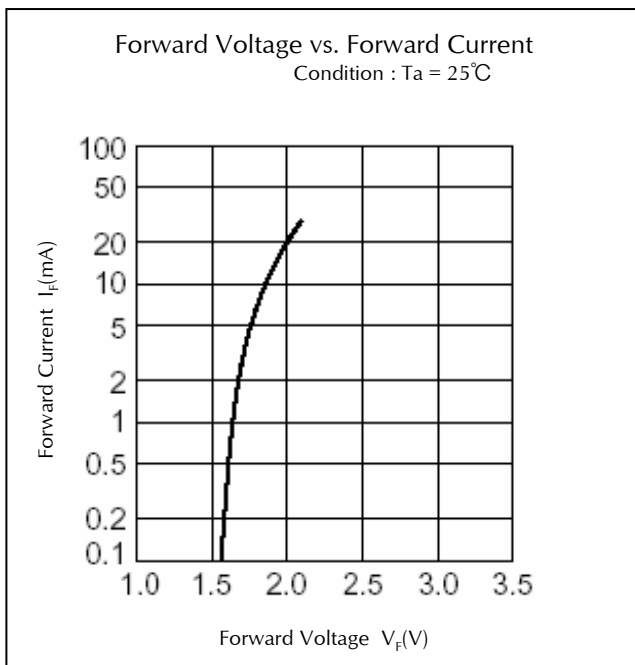
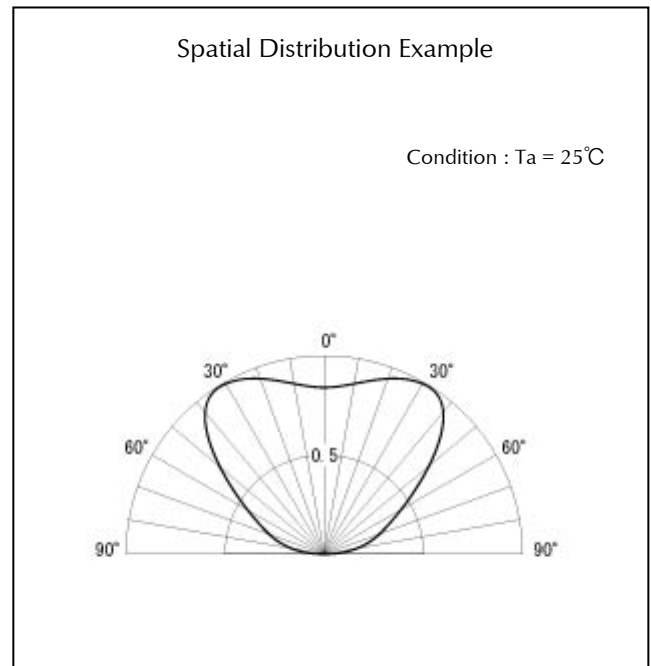
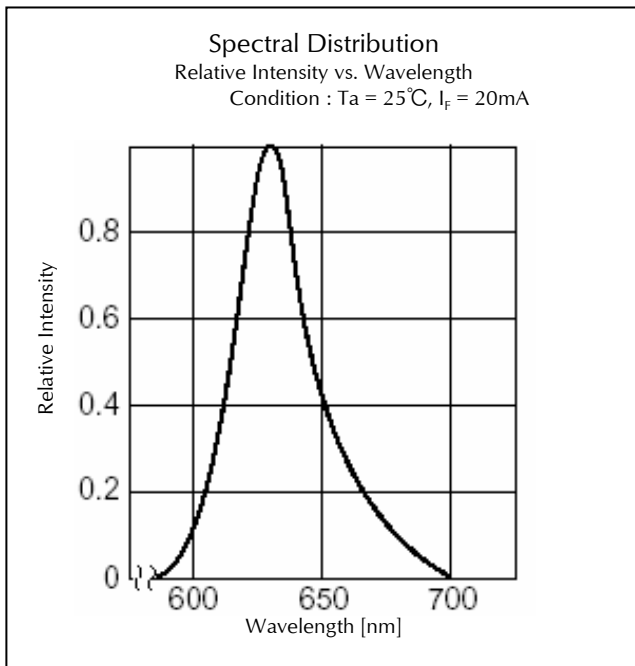
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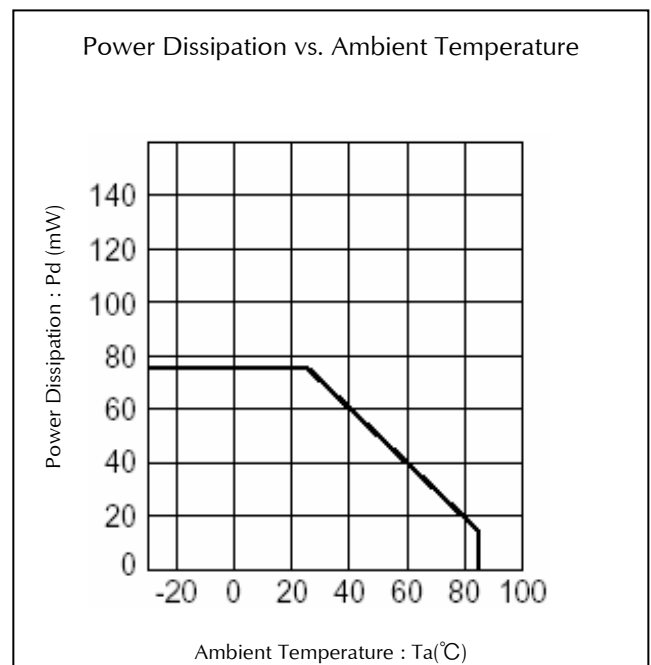
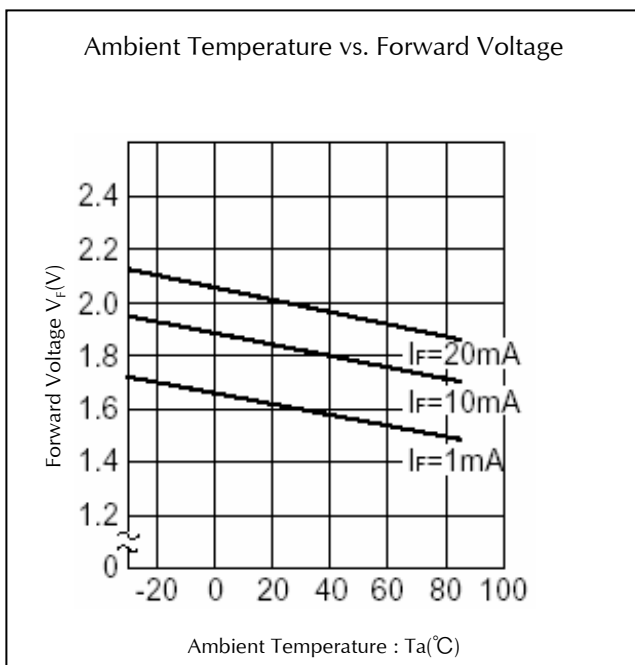
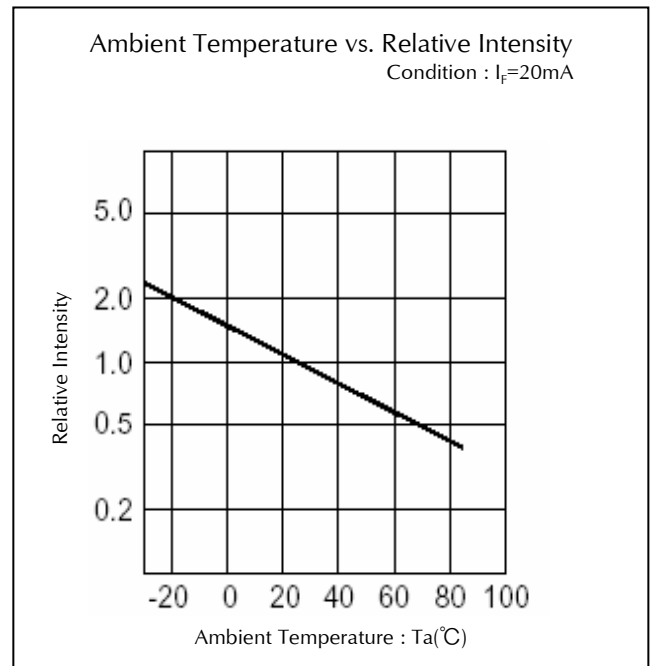
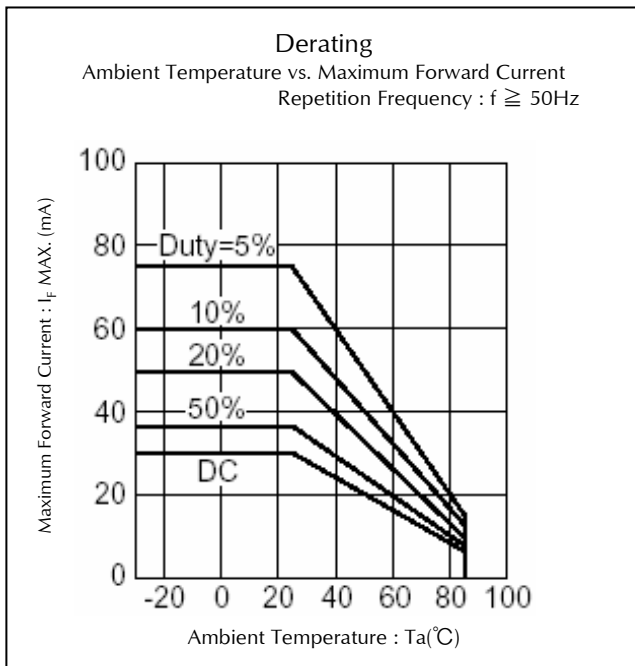
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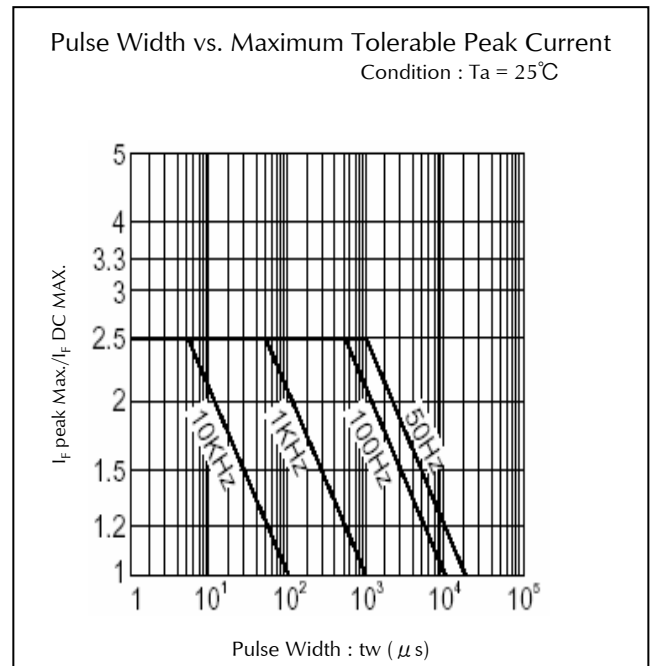
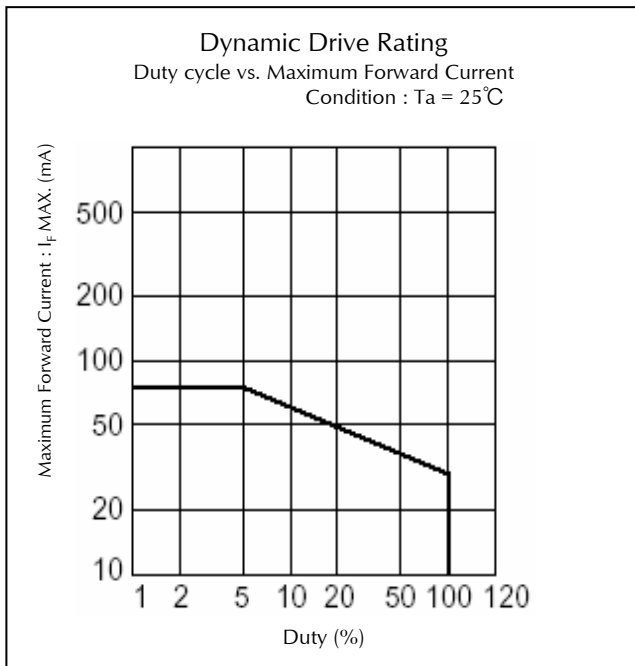
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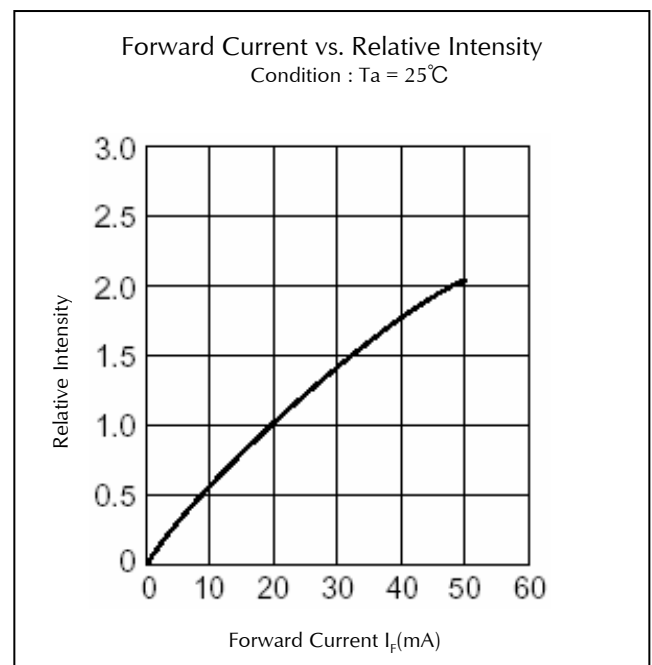
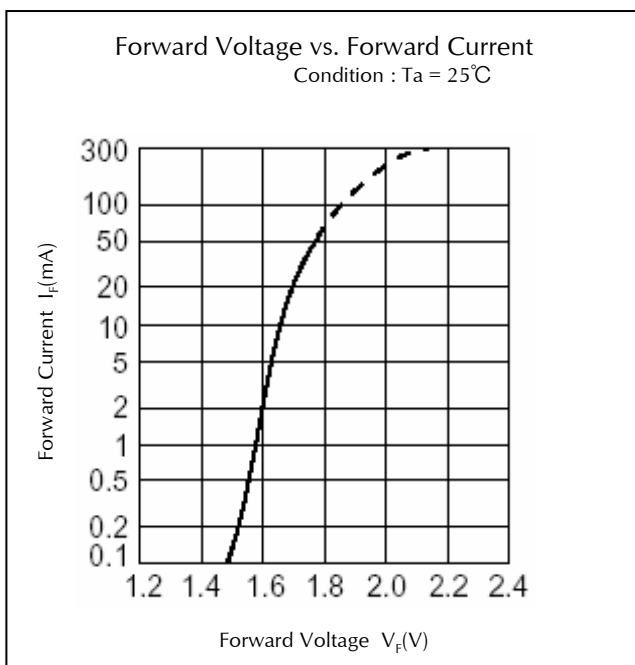
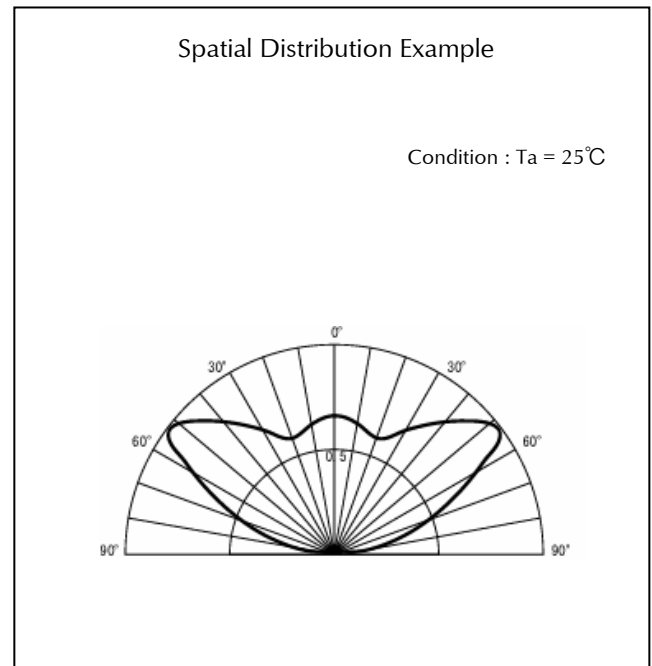
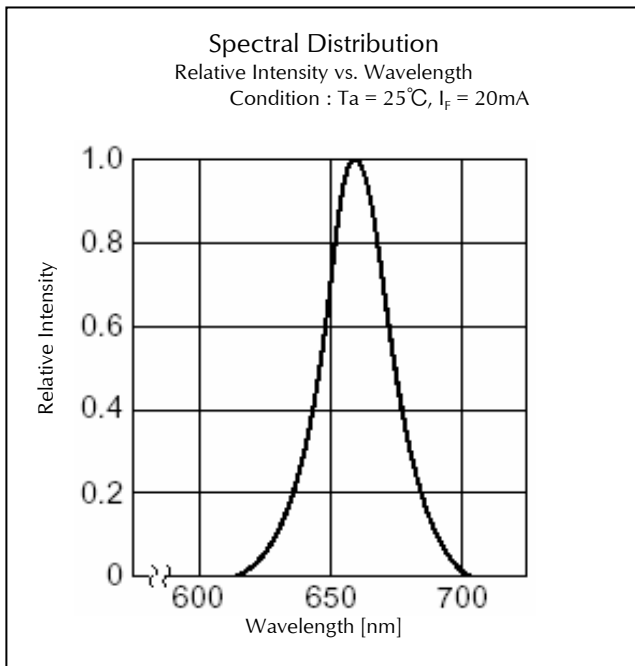
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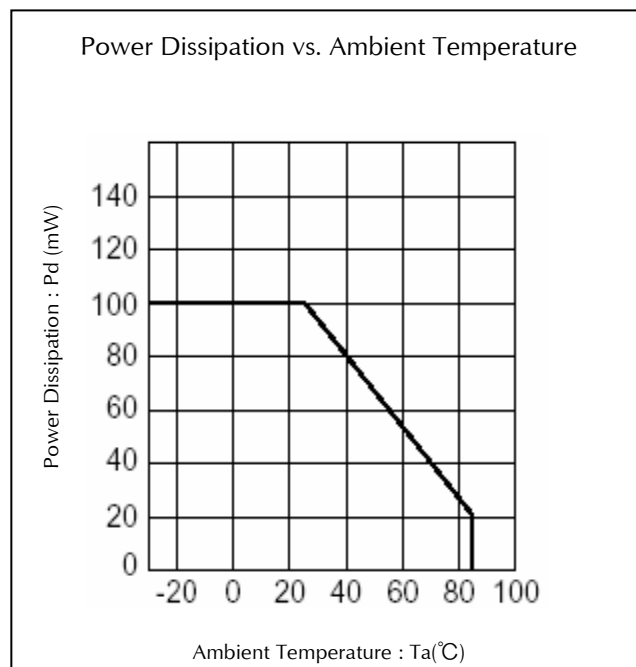
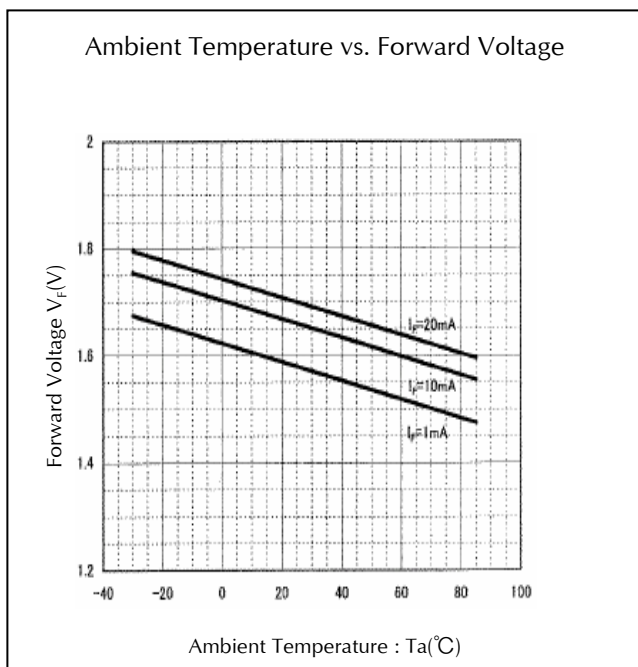
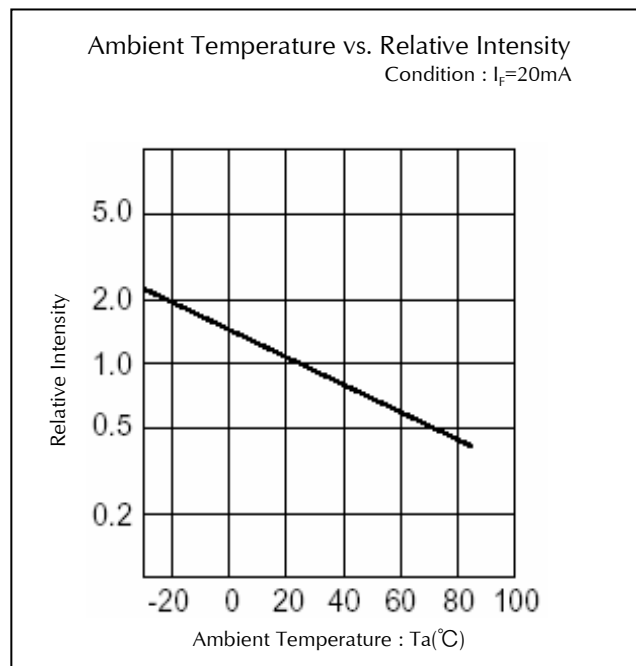
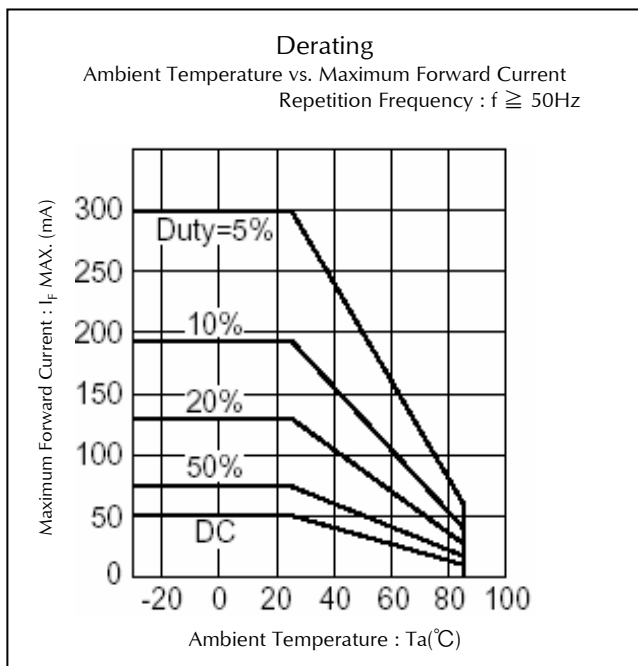
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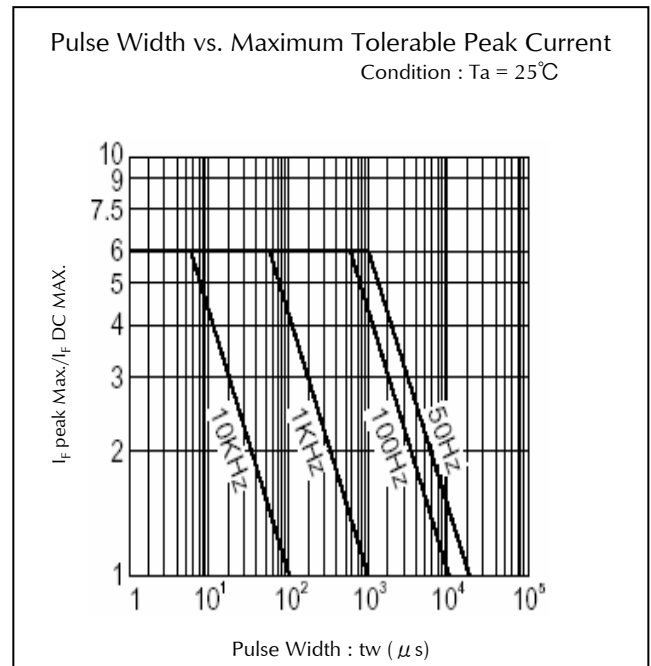
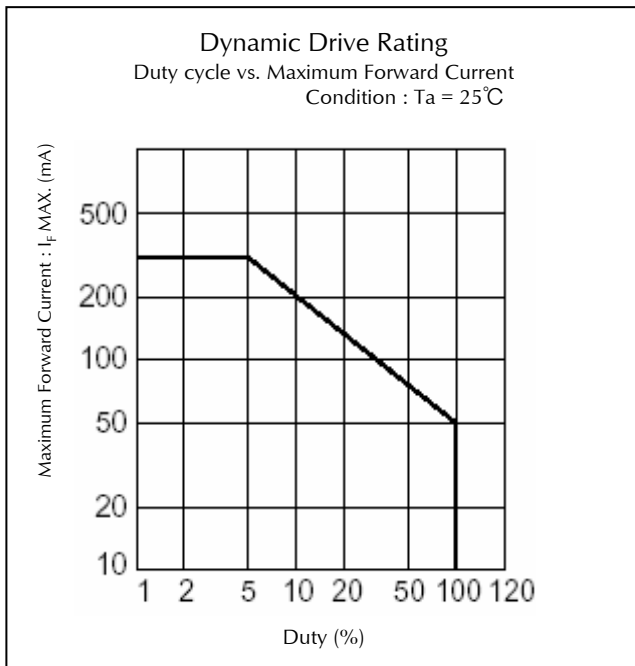
Technical Data(BR)



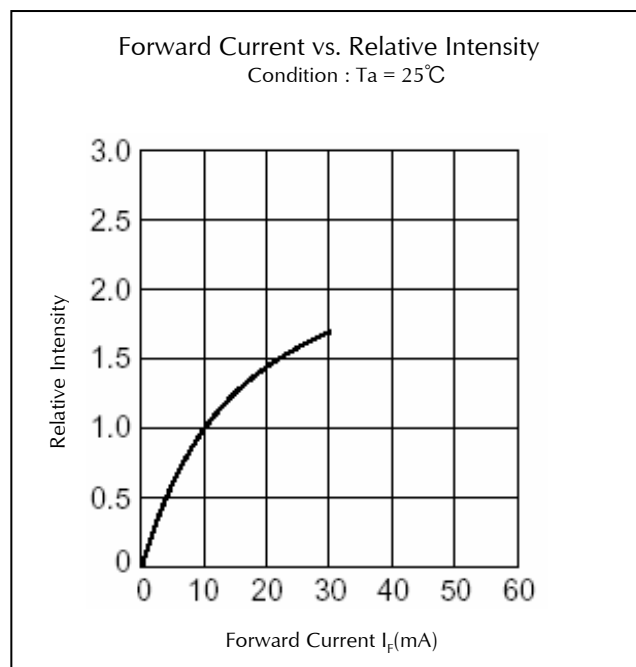
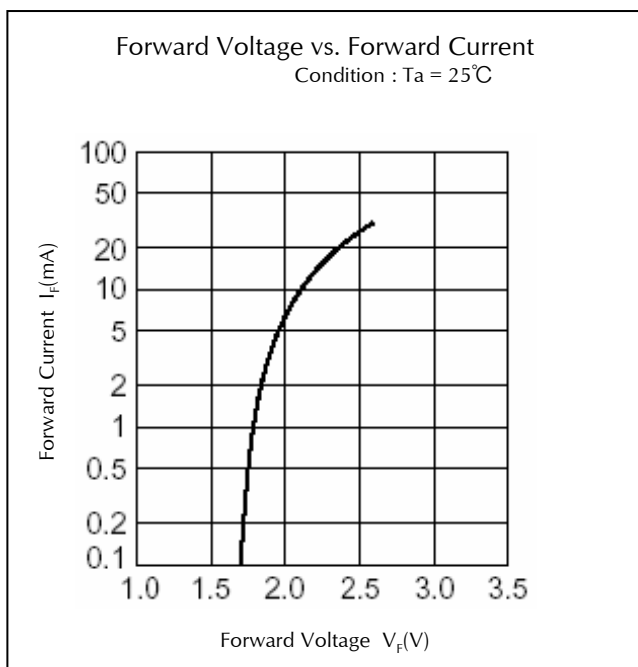
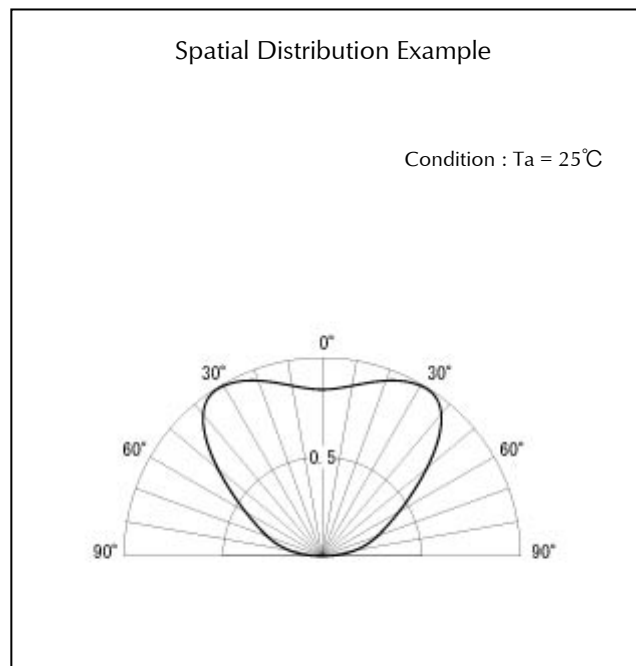
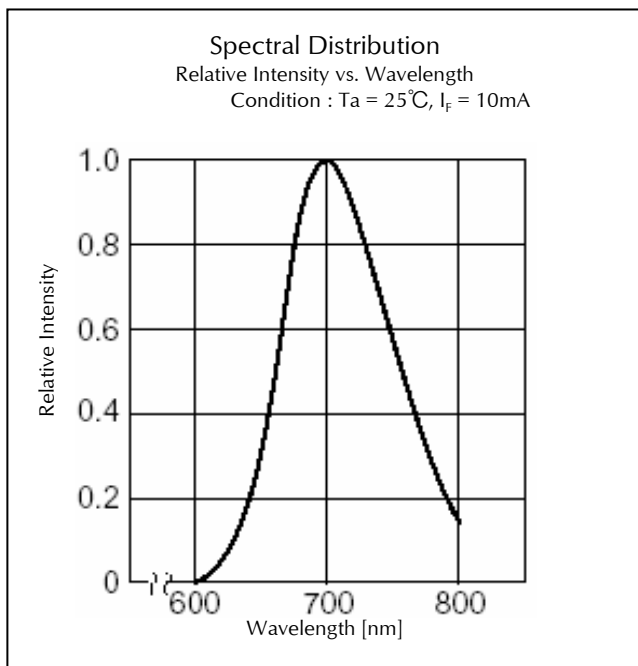
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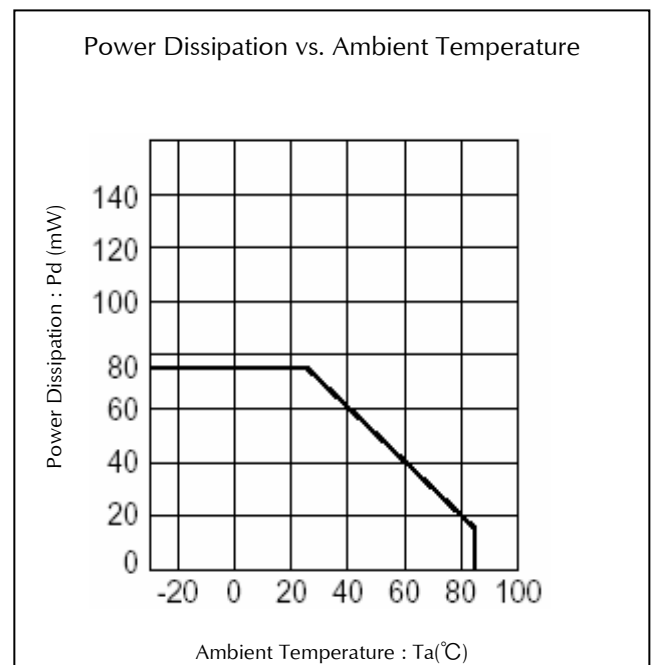
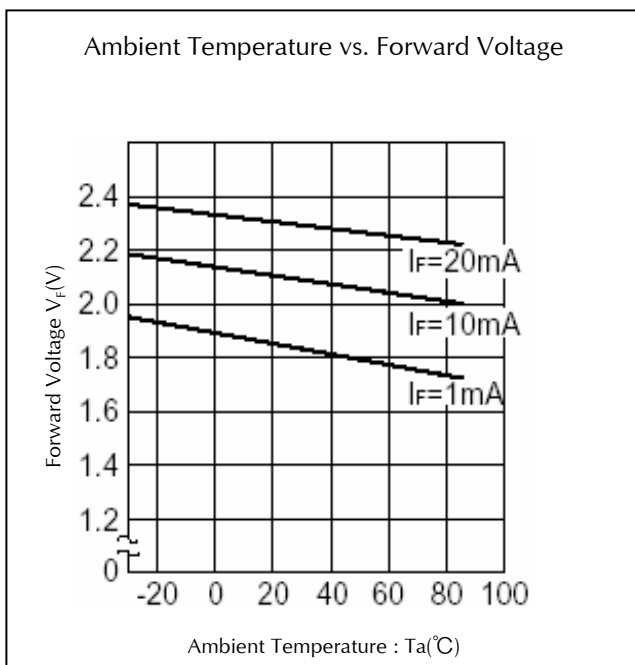
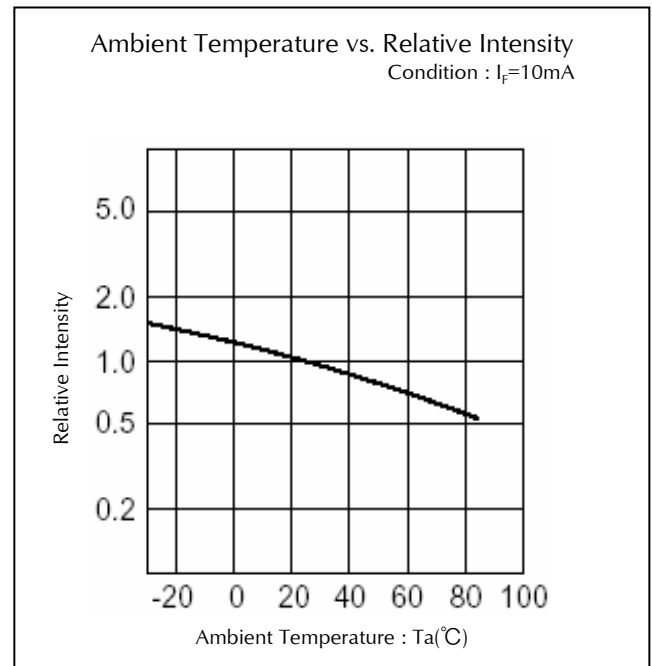
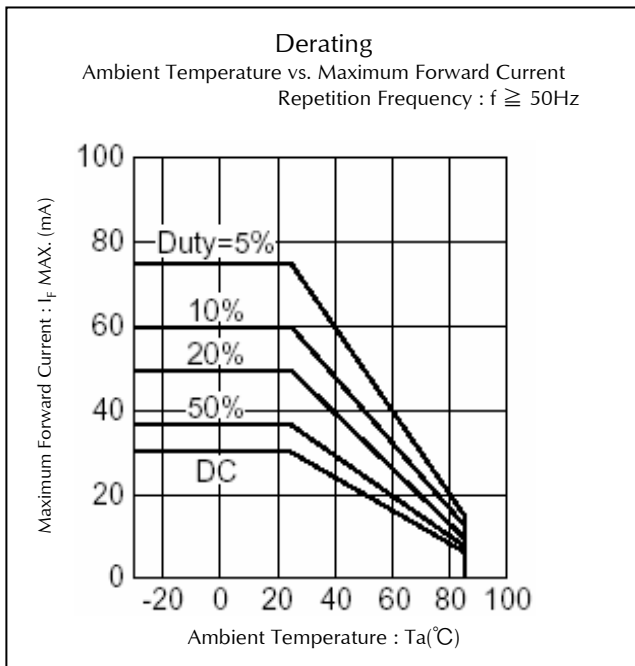
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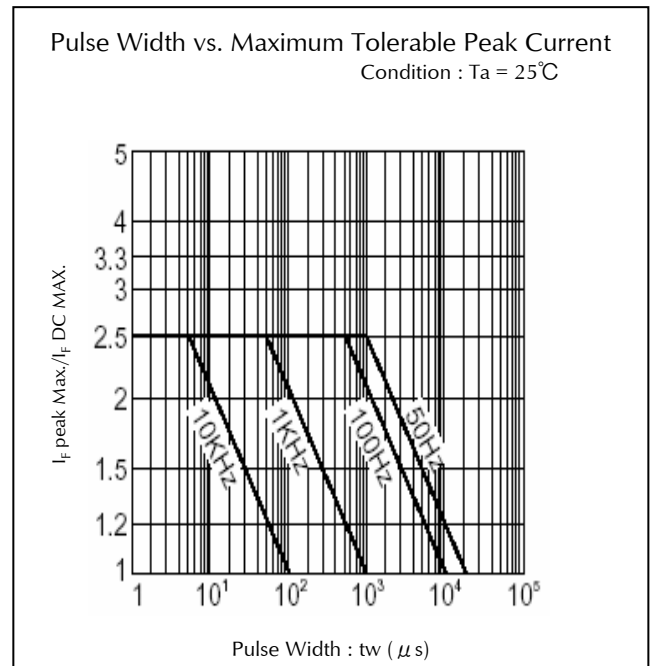
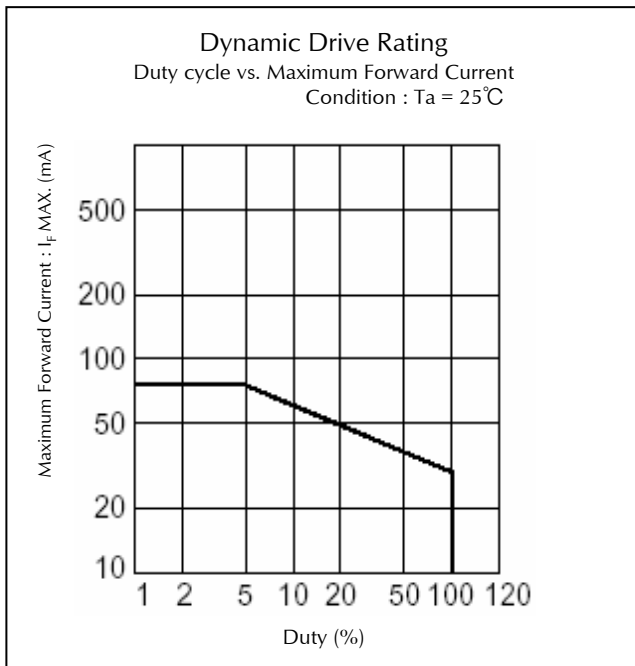
Technical Data(MPR)



Technical Data(MPR)

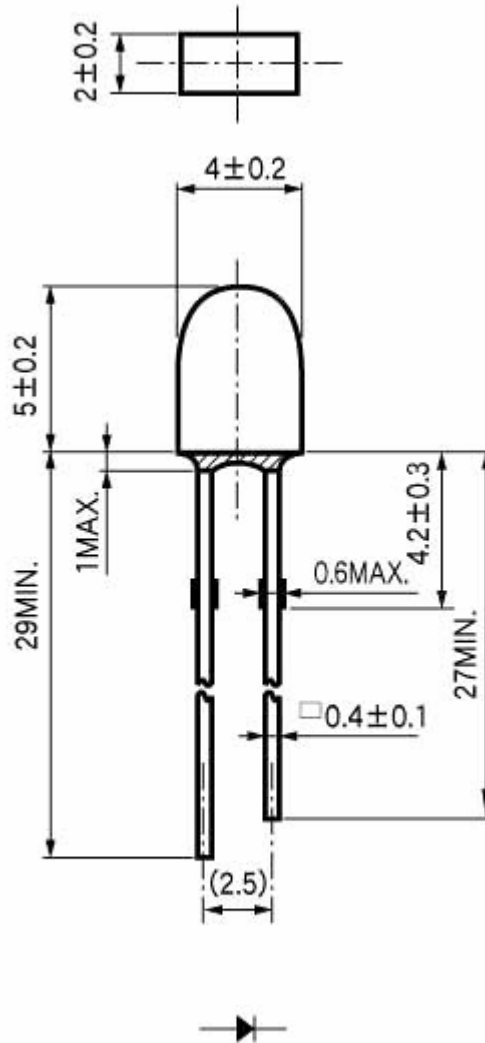


Technical Data(MPR)



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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