



**Pb-free  
HEAT**



# 4371F Series

Single Color  $\phi$  3.6 Right Angle Type

## Features

Package	$\Phi$ 3.6 Right Angle type, MBG,MPG : Pale Green Diffused epoxy MPY,MAY : Pale Yellow Diffused epoxy MAA : Pale Orange Diffused epoxy MVR,BR,MPR : Pale Red Diffused epoxy	
Product features	<ul style="list-style-type: none"> <li>• Outer Dimension <math>\Phi</math>3.6 Right Angle type,</li> <li>• Operation temperature range.            Storage Temperature : -30°C~100°C            Operating Temperature : -30°C~85°C</li> <li>• Lead-free soldering compatible</li> <li>• RoHS compliant</li> </ul>	
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 : 107deg., MPY : 110deg., MAA : 109deg., BR : 110deg.,	MPG : 111deg. MAY : 104deg. MVR : 101deg. MPR : 97deg.
Die materials	MBG, MPG, MPY, MPR : GaP MAY, MAA, MVR : GaAsP BR : GaAlAs	
Soldering methods	TTW (Through The Wave) soldering and manual soldering	
ESD	More than 2kV(HBM)	
Packing	Bulk : 200pcs(MIN.)	

Packing

## 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		Luminous Intensity		
					$\lambda d$ (nm)		Iv (mcd)		
					TYP.	I <sub>F</sub>	MIN.	TYP.	I <sub>F</sub>
MBG4371F	GaP	Green	Pale Green	Diffused	558	20	1.5	3	20
MPG4371F	GaP	Green			567	20	3	6	20
MPY4371F	GaP	Yellow Green	Pale Yellow		572	20	5	10	20
MAY4371F	GaAsP	Yellow			590	20	4	8	20
MAA4371F	GaAsP	Orange	Pale Orange		606	20	4	8	20
MVR4371F	GaAsP	Red	Pale Red		624	20	3	6	20
BR4371F	GaAlAs	Red			647	20	5	10	20
MPR4371F	GaP	Red			630	10	0.5	1	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)	$\Delta I_F$	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  $\leq$  1ms., Duty  $\leq$  1/20.

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

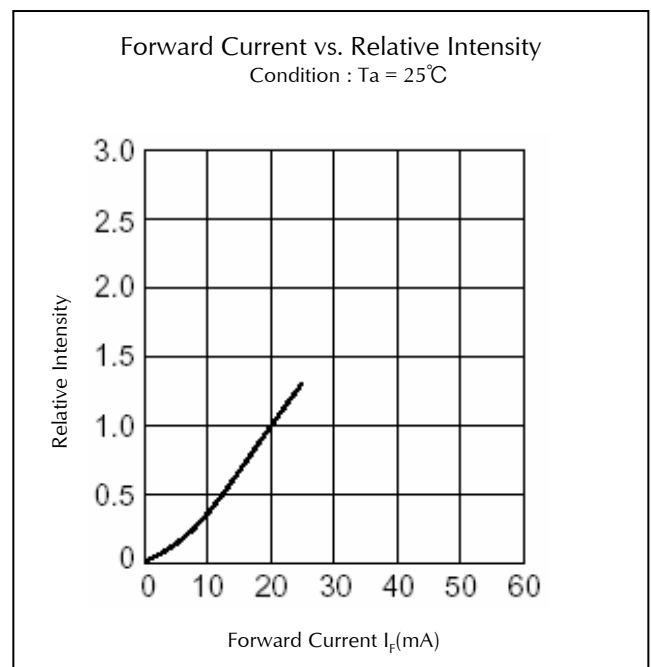
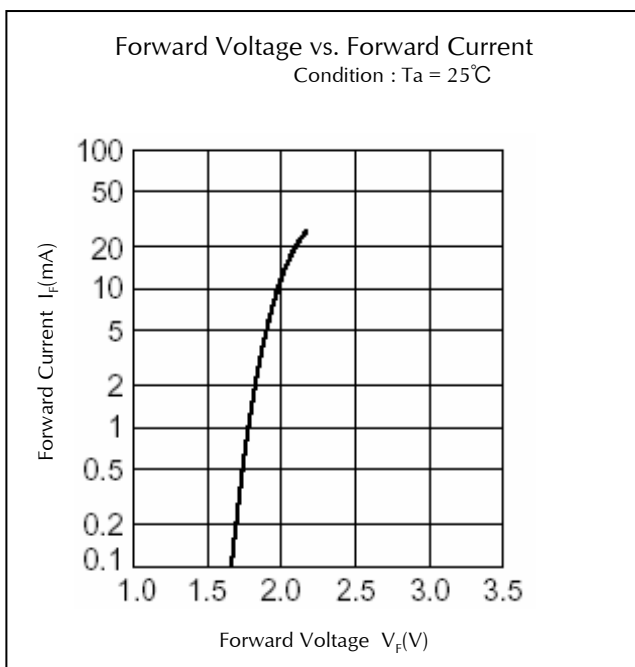
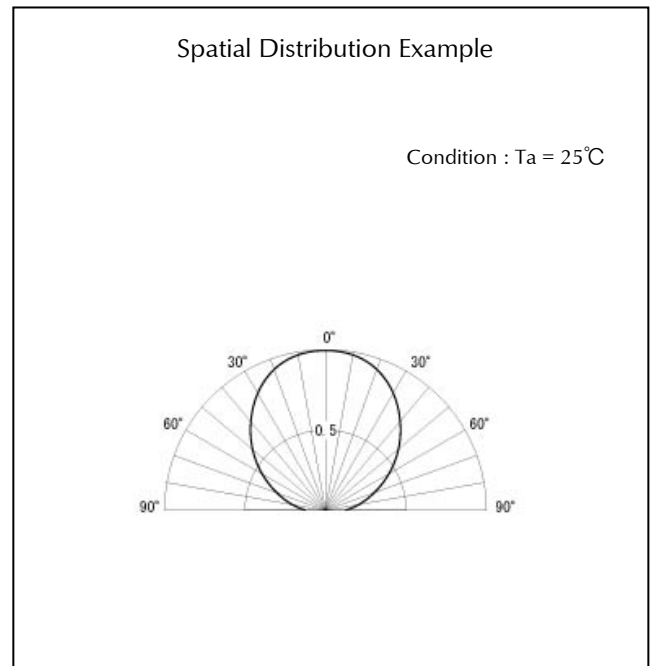
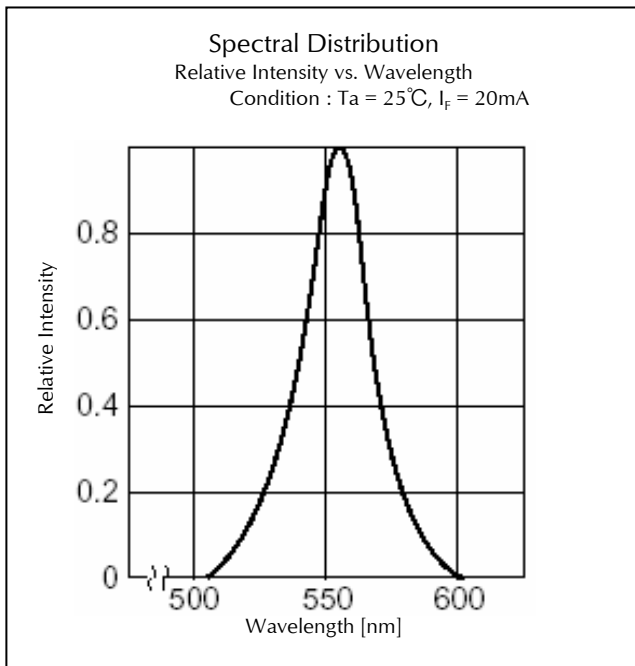
Item	Conditions	Symbol	Characteristics								Unit
			MBG	MPG	MPY	MAY	MAA	MVR	BR		
Forward Voltage	I <sub>F</sub> =20mA	V <sub>F</sub>	TYP.	2.1	2.1	2.1	2.2	2.2	2.0	1.7	V
			MAX.	2.8	2.8	2.8	2.8	2.8	2.8	2.0	
Reverse Current	V <sub>R</sub> =4V	I <sub>R</sub>	MAX.	20	20	20	20	20	20	100	$\mu$ A
Peak Wavelength	I <sub>F</sub> =20mA	$\lambda_p$	TYP.	555	560	570	580	605	630	660	nm
Dominant Wavelength	I <sub>F</sub> =20mA	$\lambda_d$	TYP.	558	567	572	590	606	624	647	nm
Spectral Line Half Width	I <sub>F</sub> =20mA	$\Delta \lambda$	TYP.	30	30	30	30	30	30	30	nm
Half Intensity Angle	I <sub>F</sub> =20mA	2 $\theta$ 1/2	TYP.	107	111	110	104	109	101	110	deg.

**Electro-Optical Characteristics(MPR)**

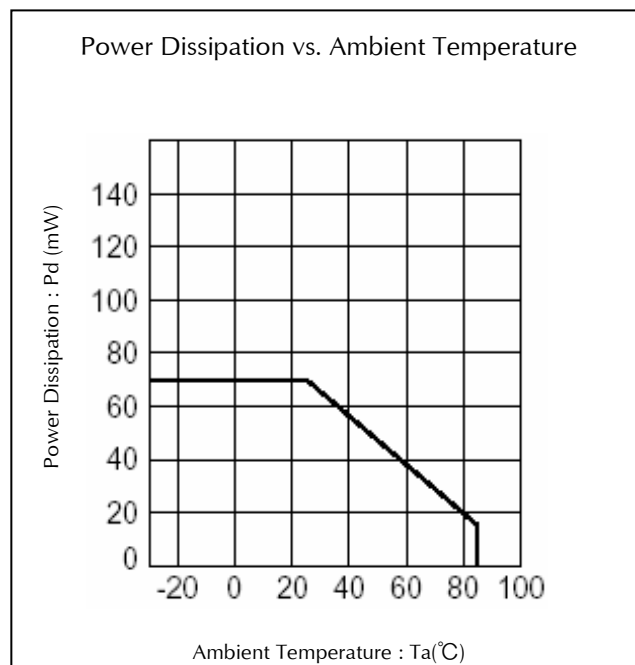
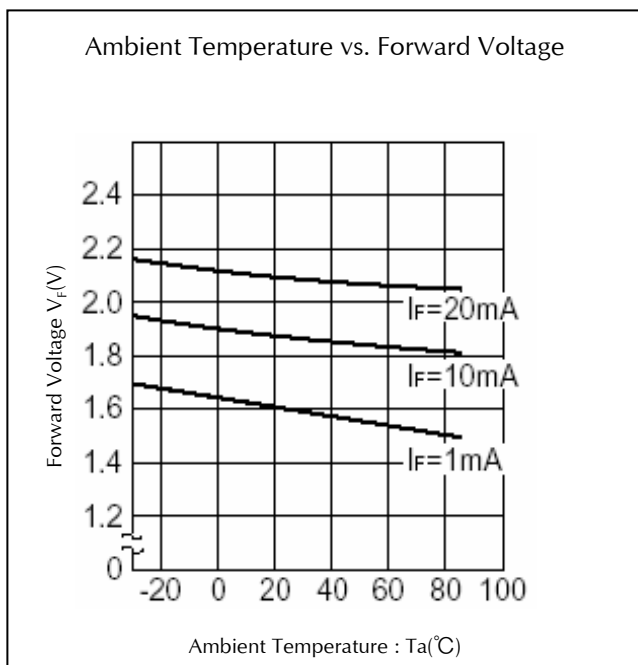
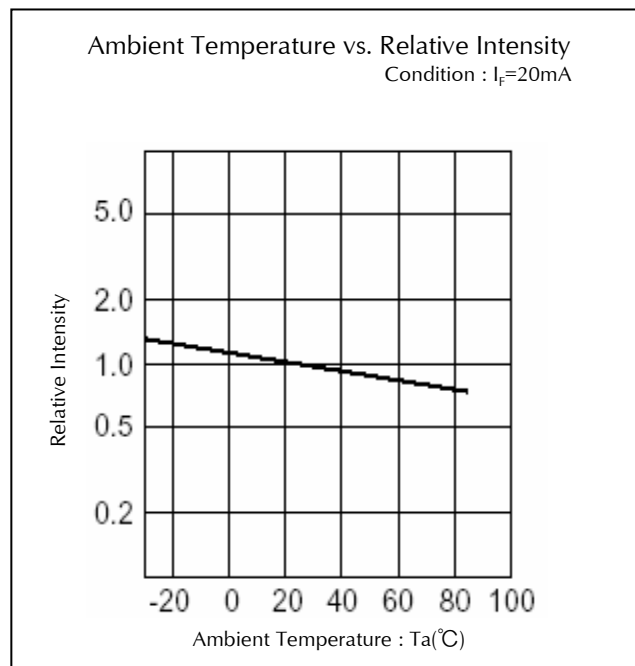
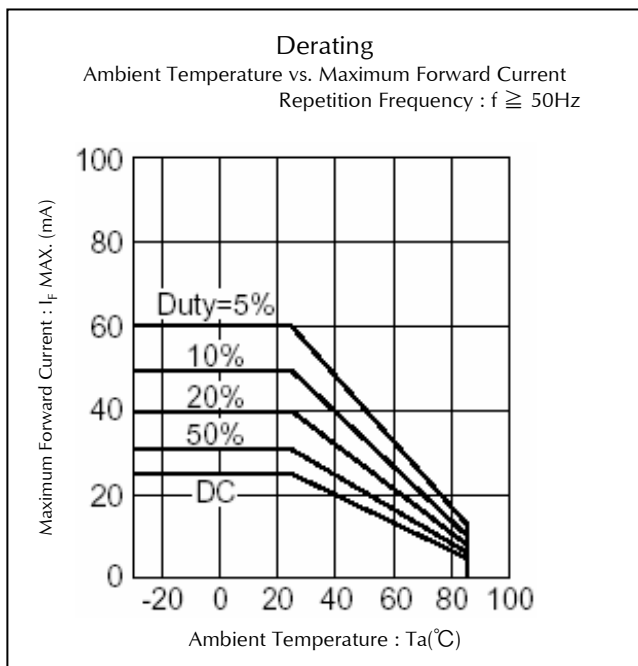
(Ta=25°C)

Item	Conditions	Symbol	Characteristics		Unit
				MPR	
Forward Voltage	I <sub>F</sub> =10mA	V <sub>F</sub>	TYP.	2.1	V
			MAX.	2.8	
Reverse Current	V <sub>R</sub> =4V	I <sub>R</sub>	MAX.	20	$\mu$ A
Peak Wavelength	I <sub>F</sub> =10mA	$\lambda_p$	TYP.	700	nm
Dominant Wavelength	I <sub>F</sub> =10mA	$\lambda_d$	TYP.	630	nm
Spectral Line Half Width	I <sub>F</sub> =10mA	$\Delta \lambda$	TYP.	100	nm
Half Intensity Angle	I <sub>F</sub> =10mA	2 $\theta$ 1/2	TYP.	97	deg.

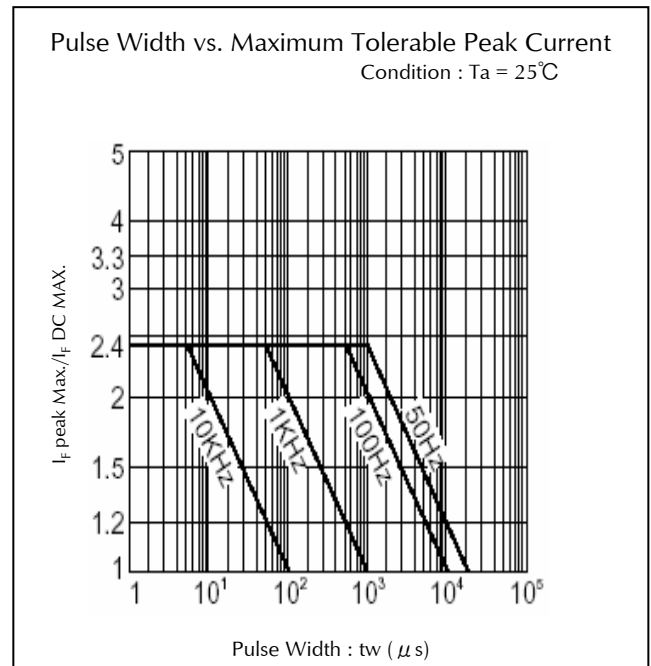
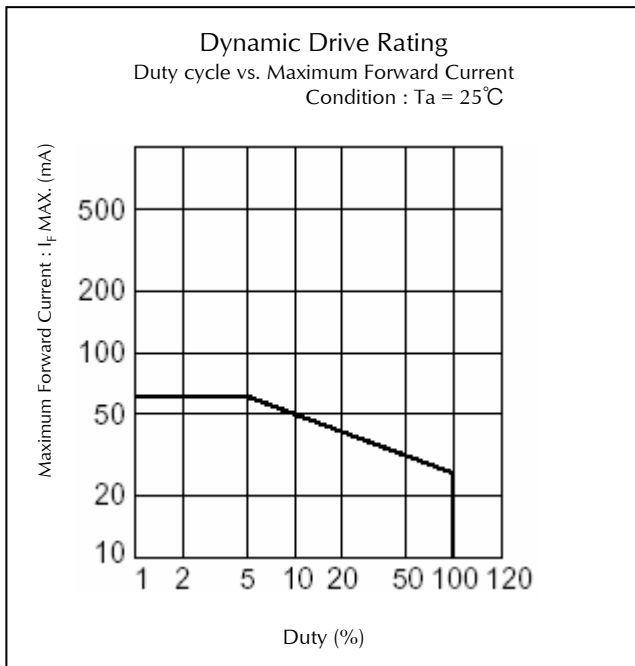
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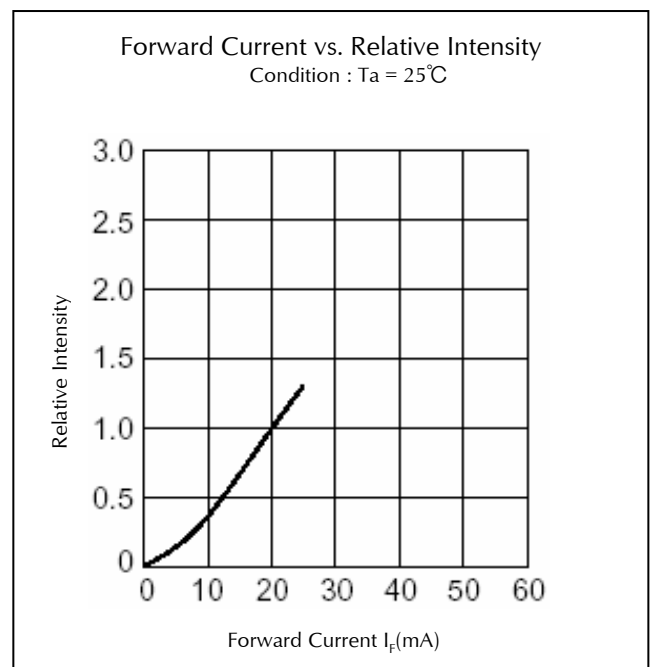
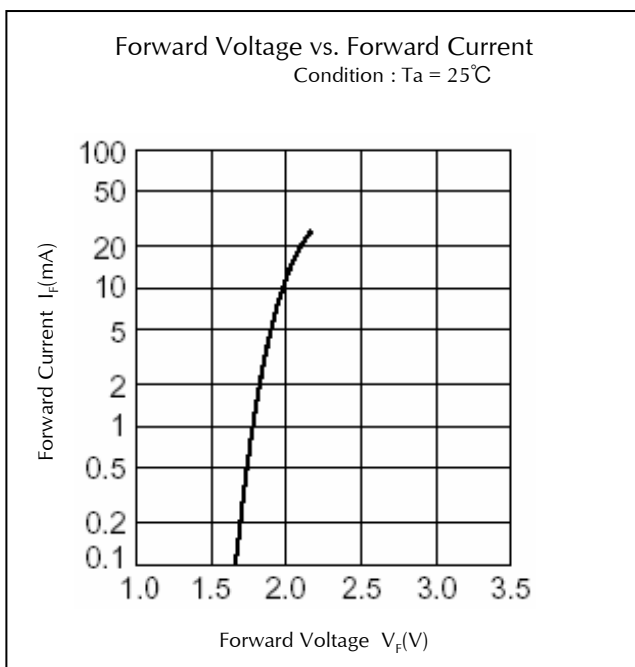
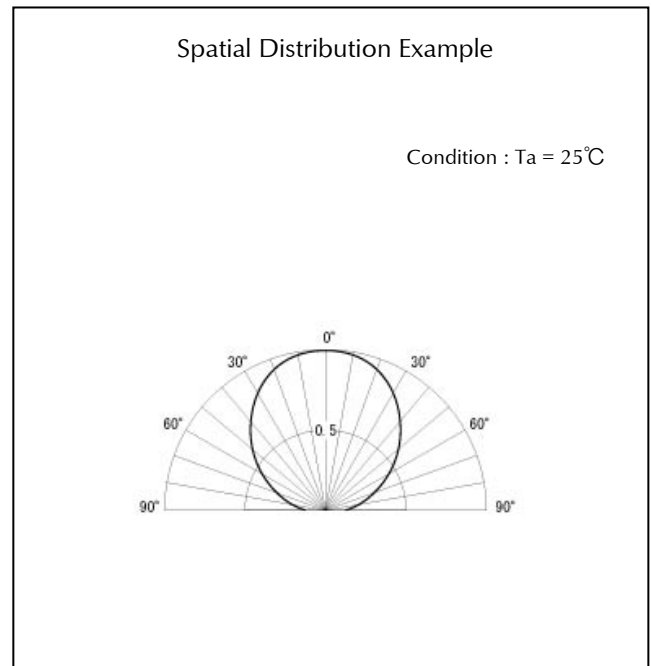
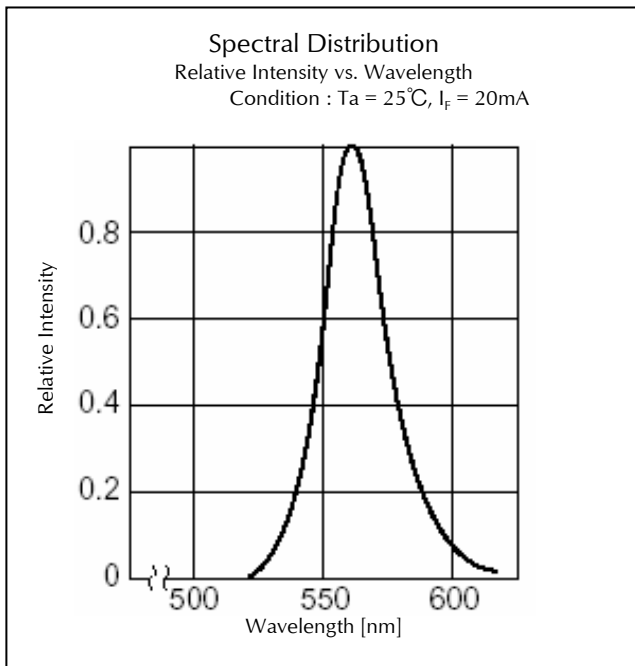
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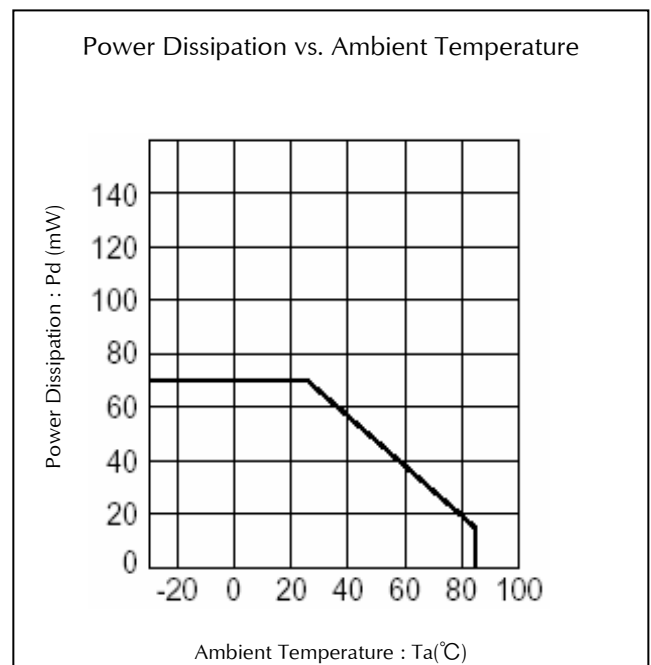
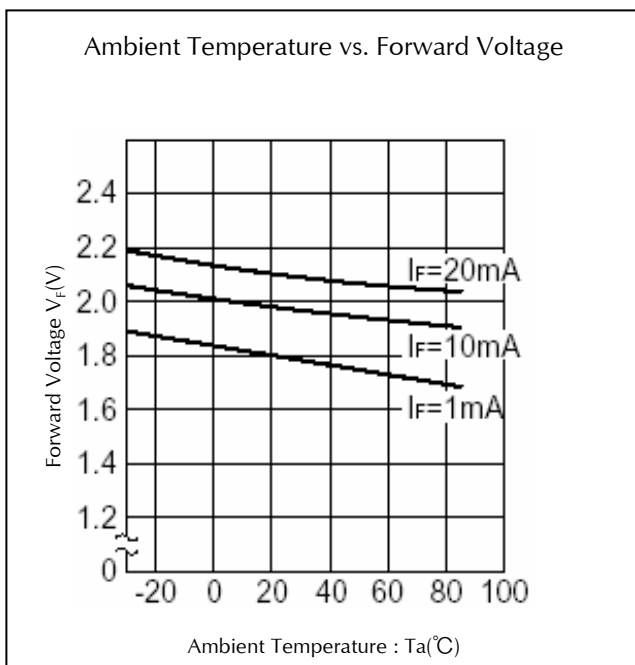
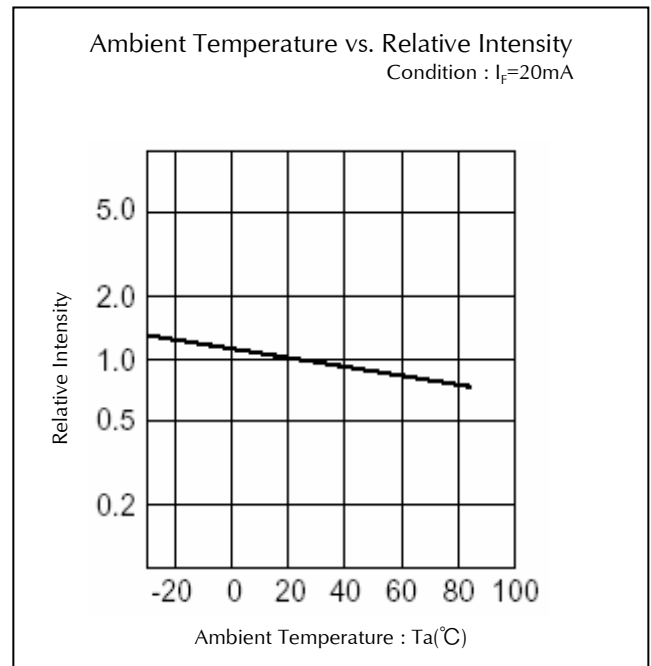
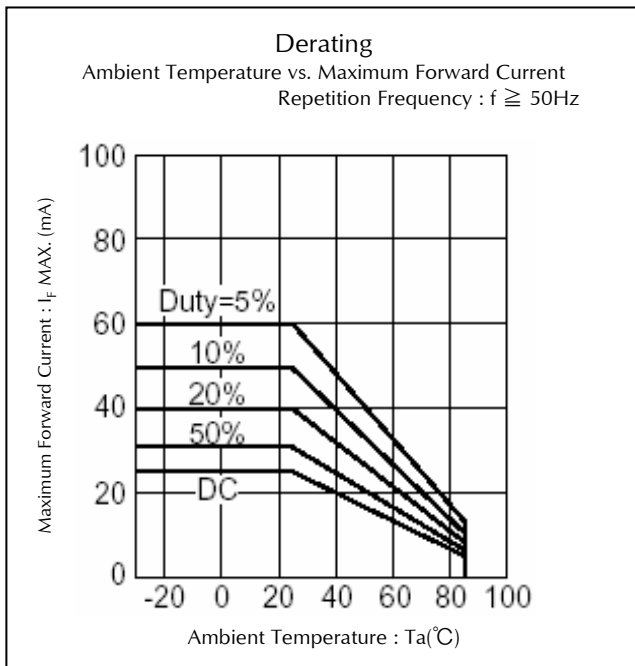


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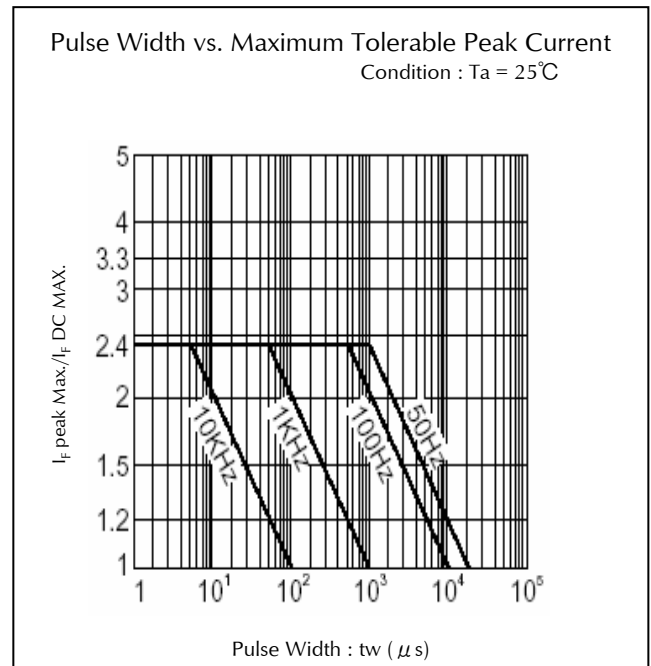
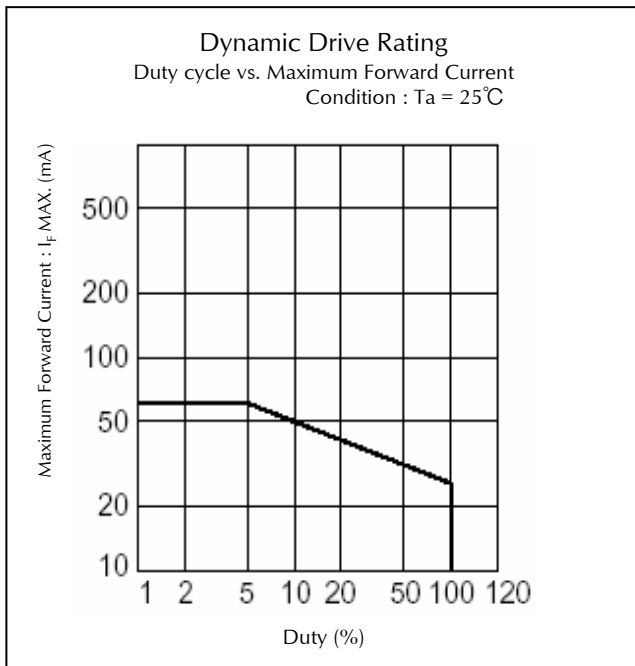




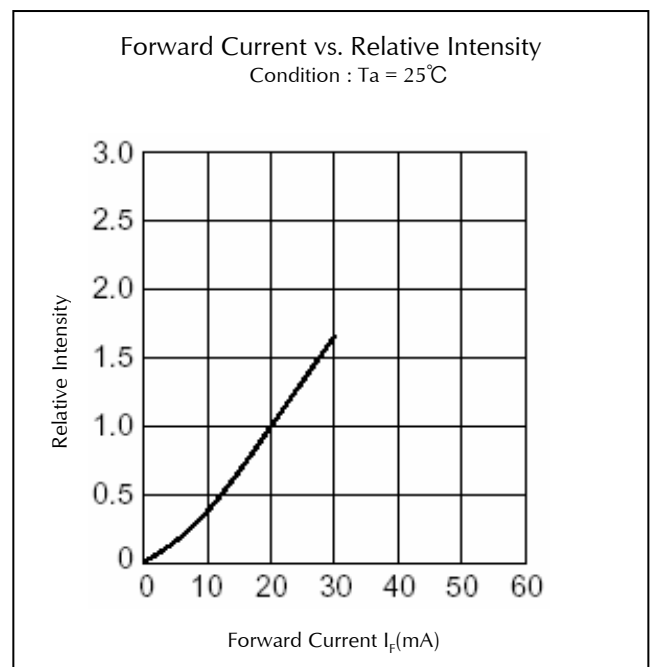
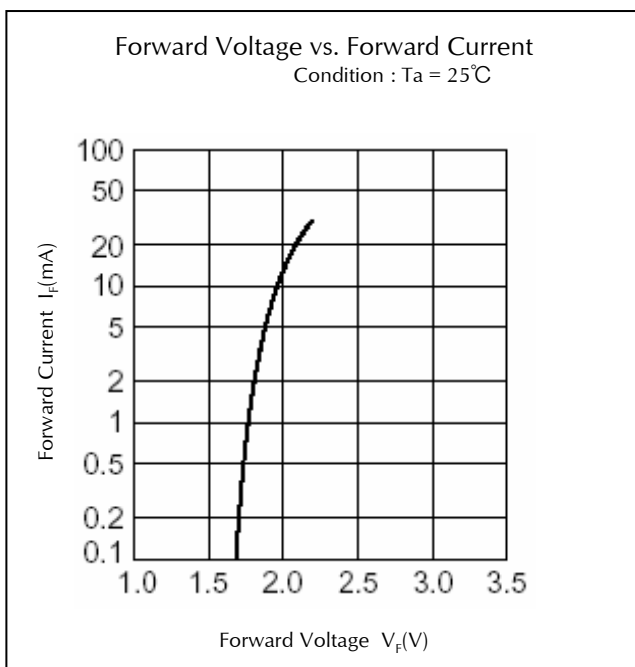
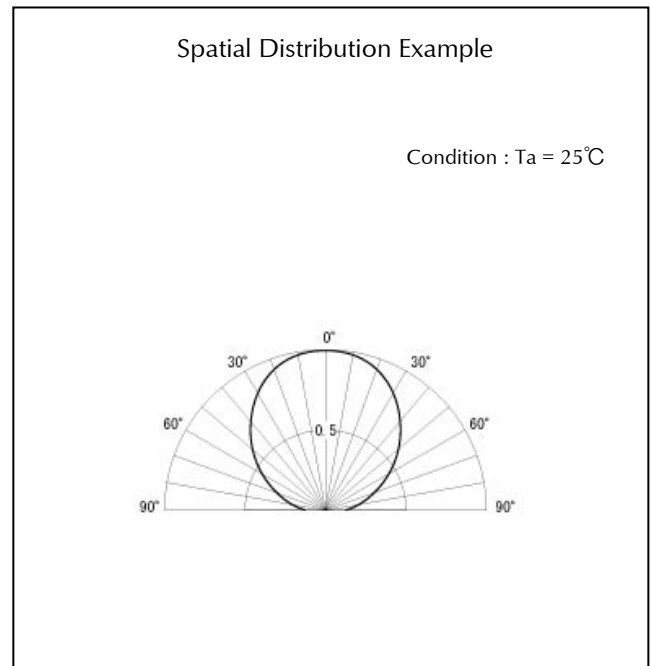
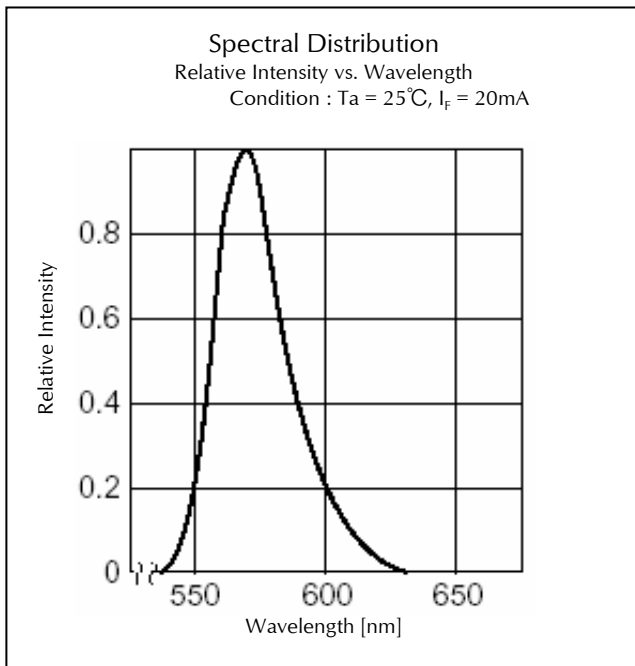
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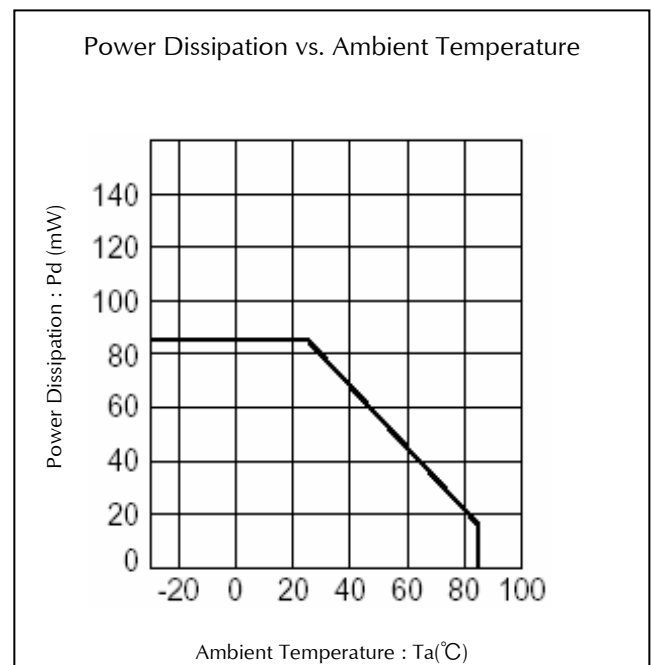
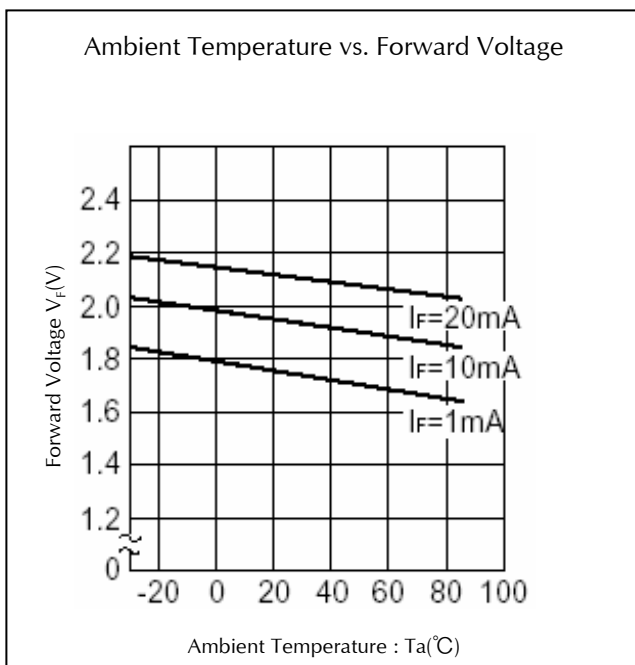
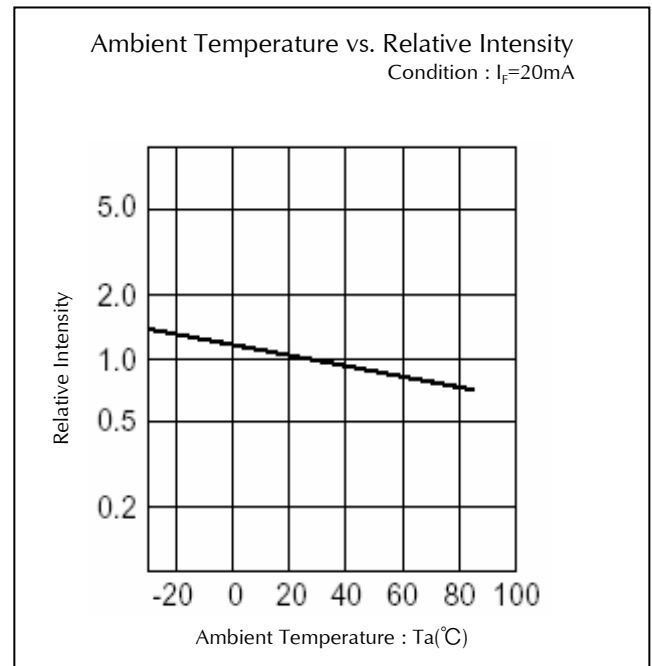
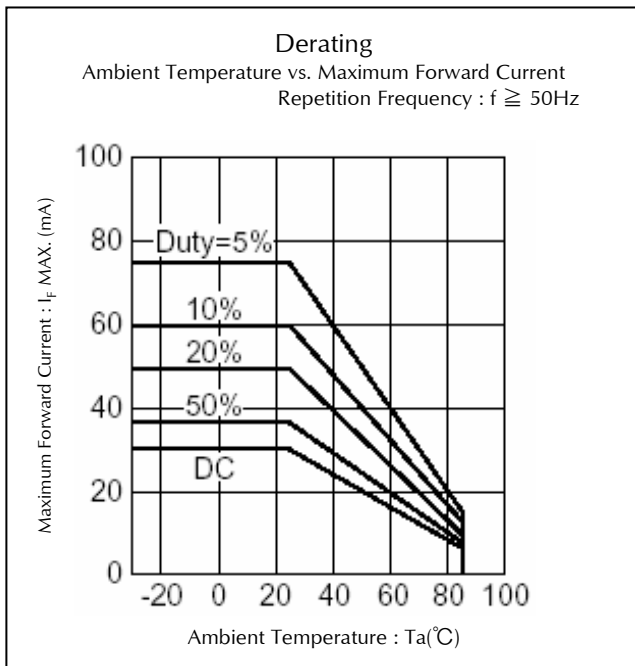
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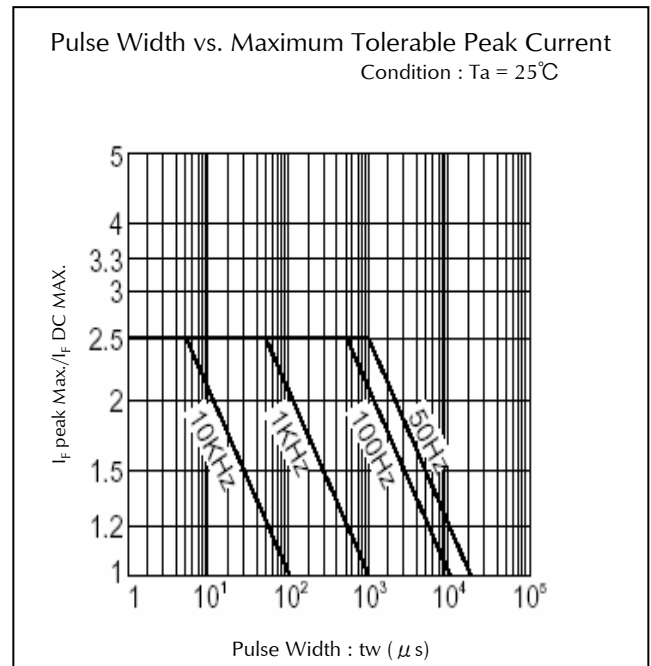
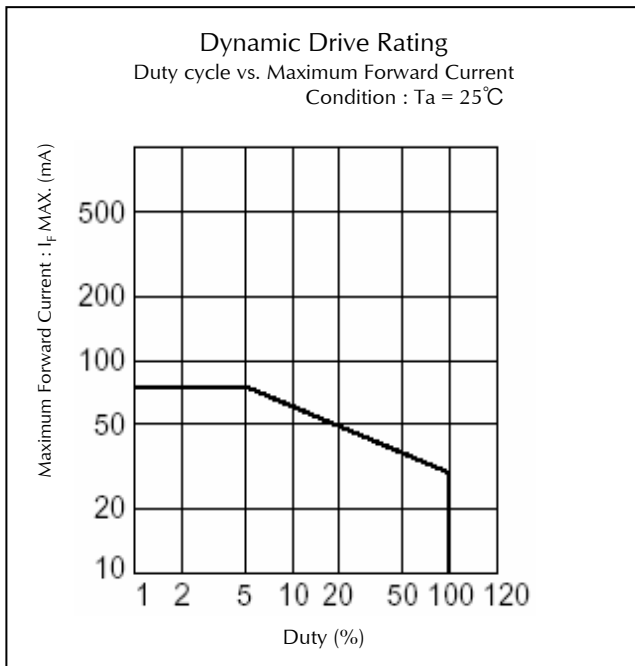
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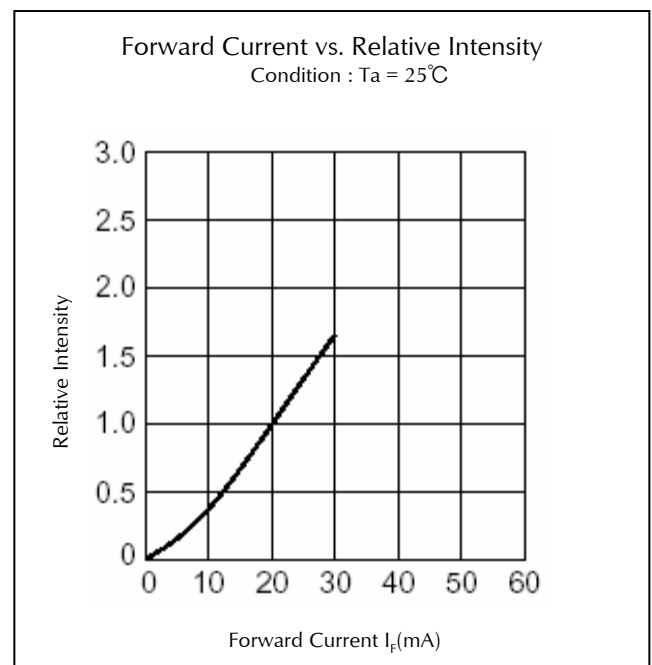
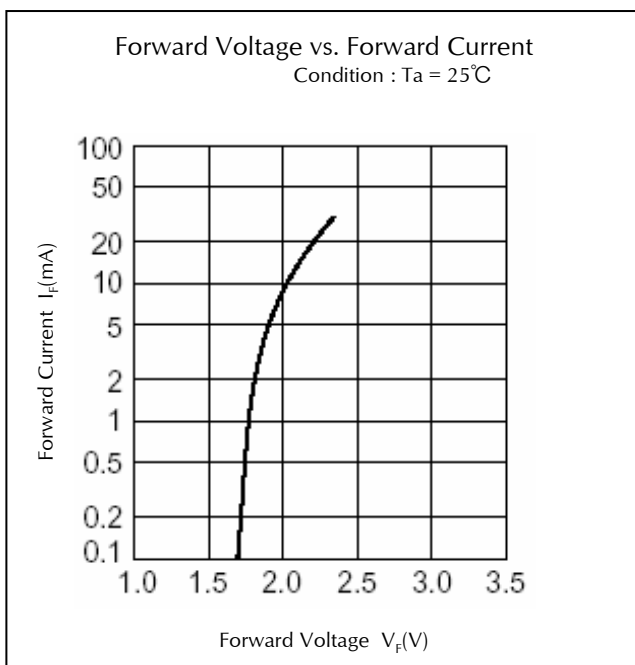
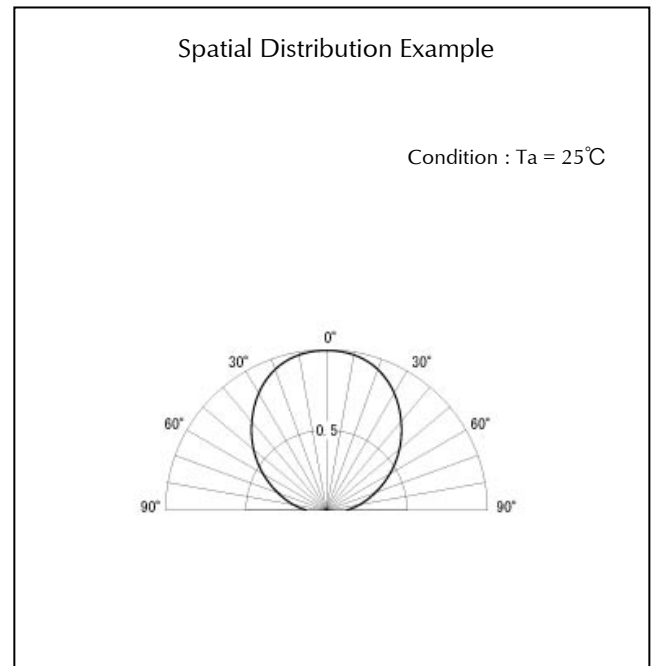
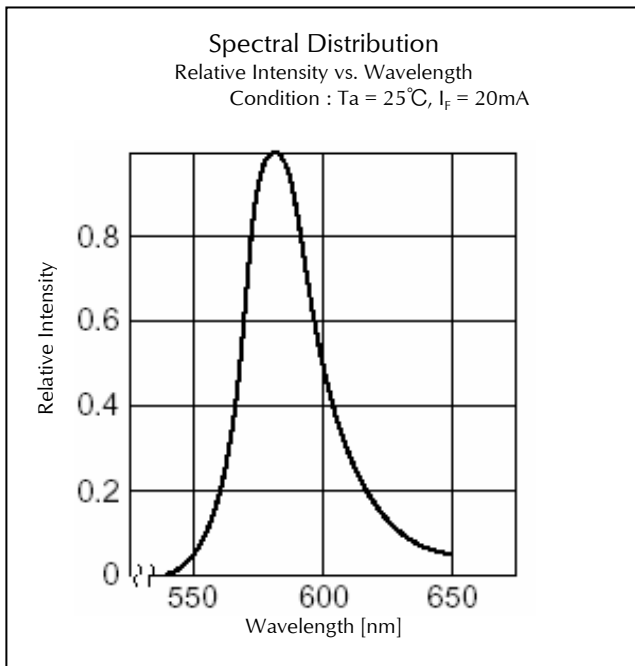
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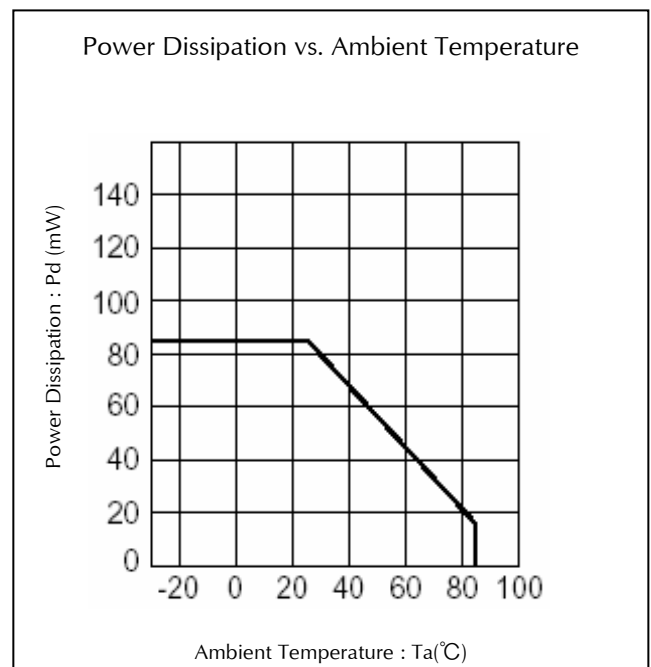
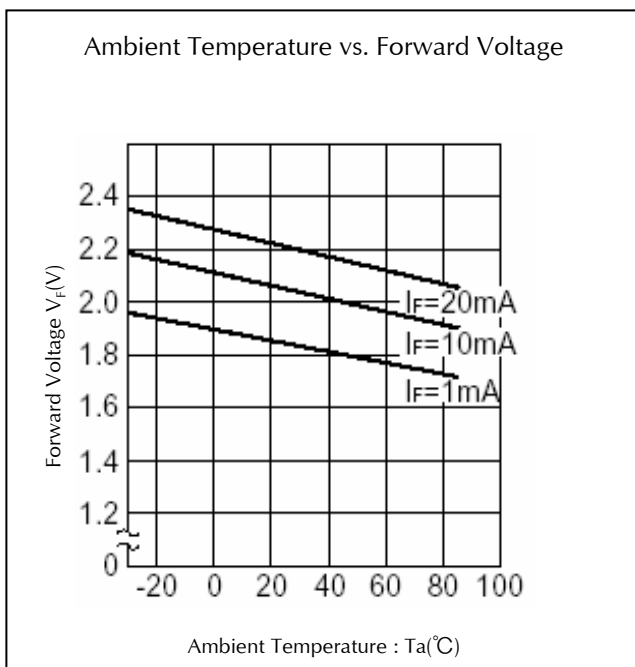
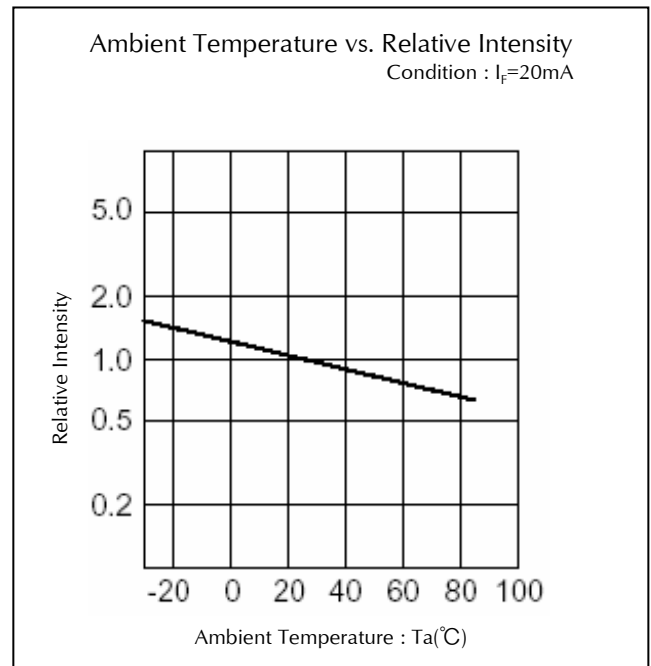
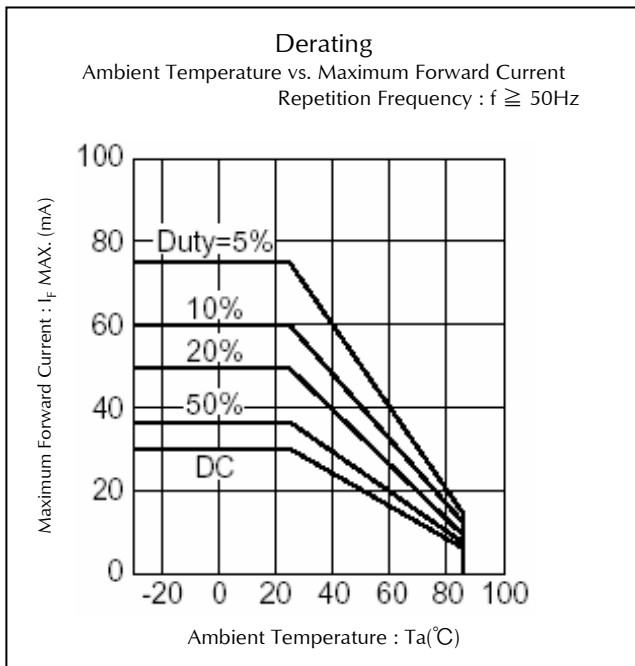
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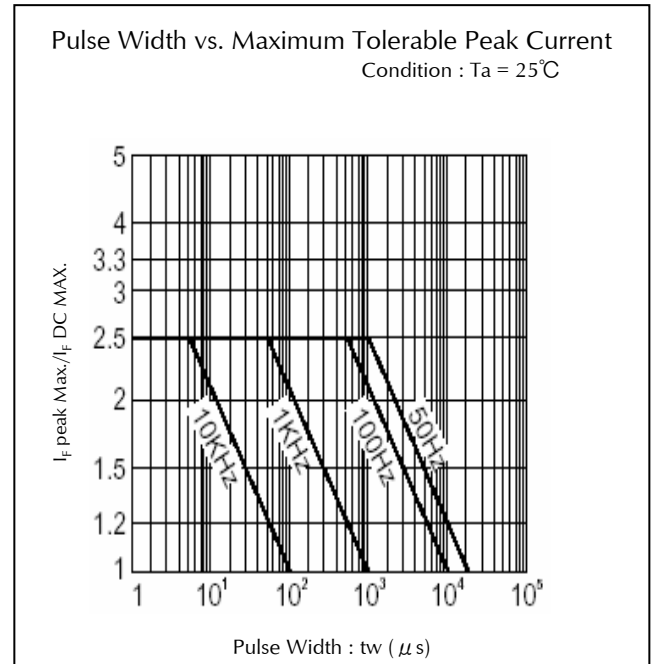
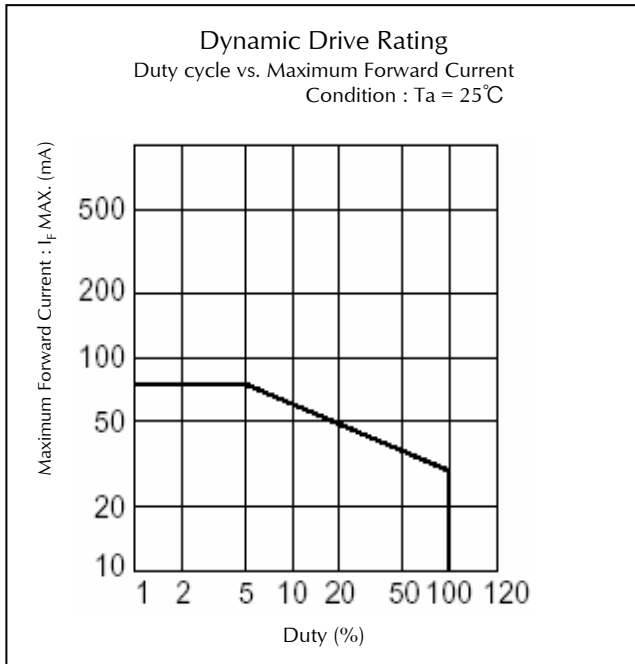
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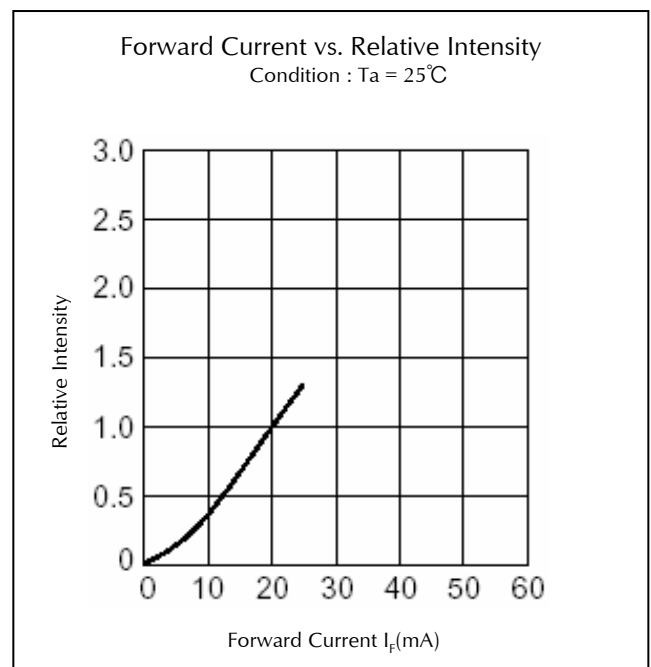
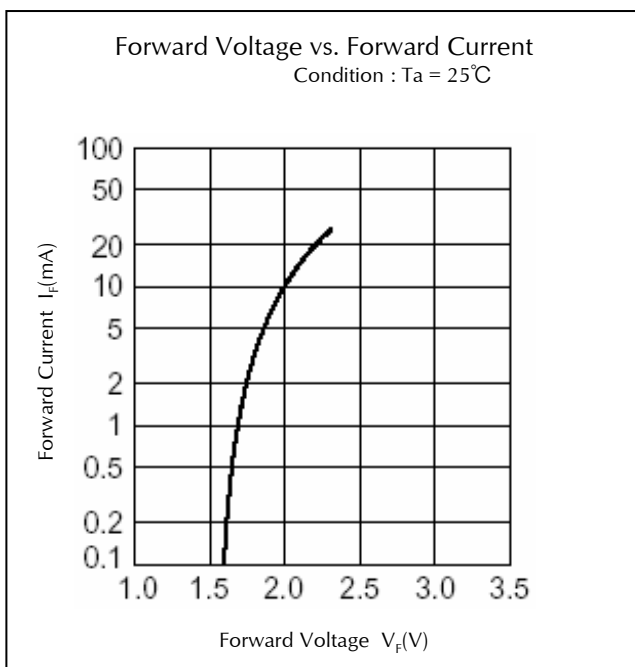
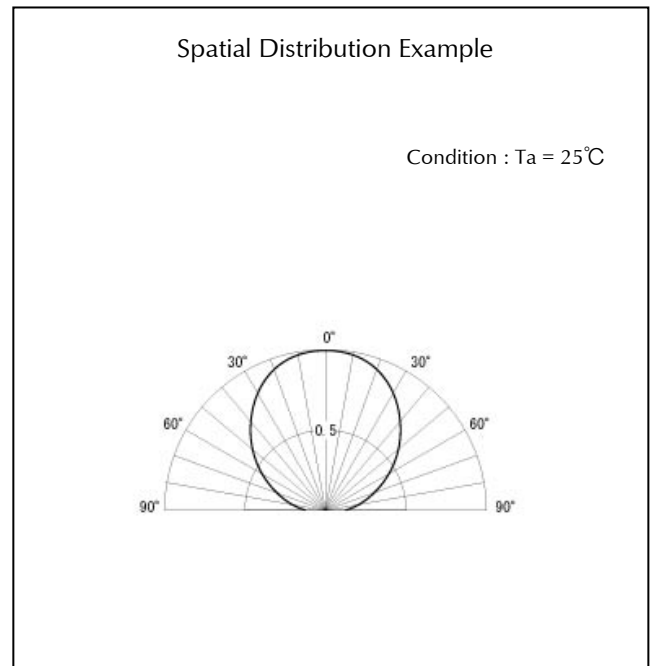
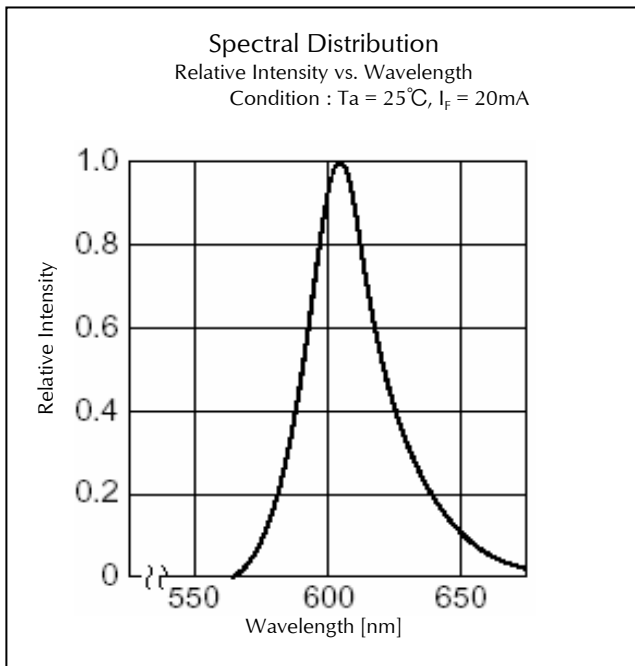


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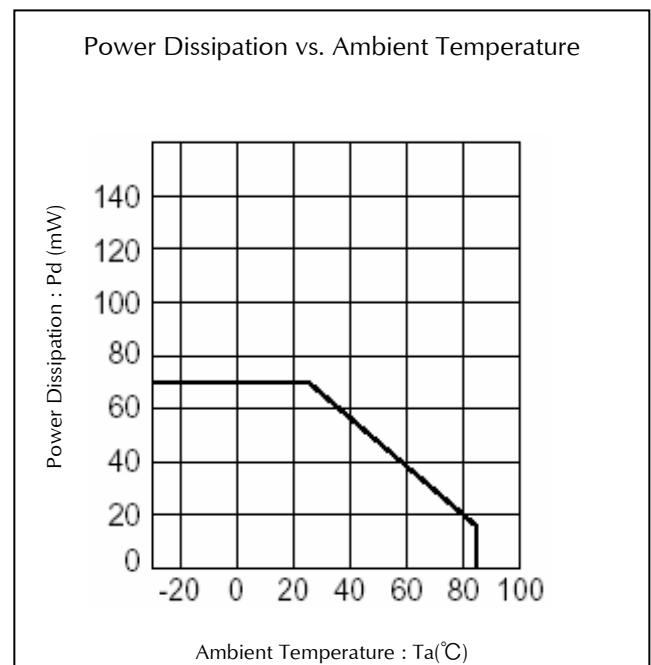
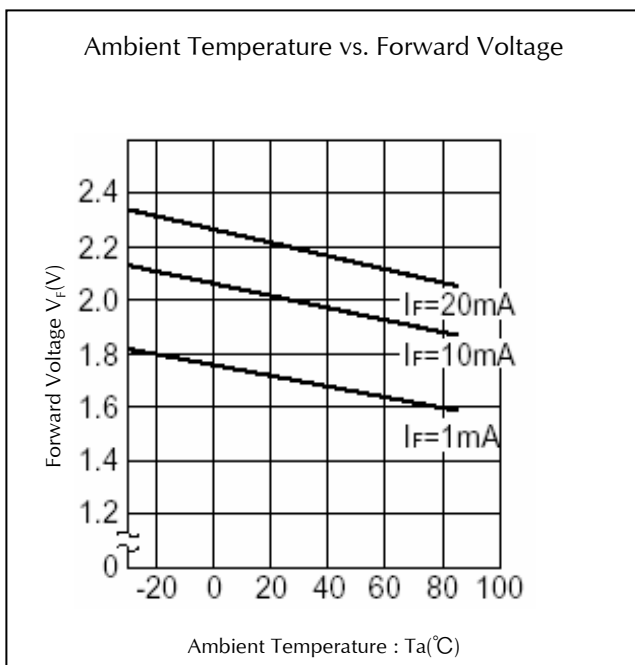
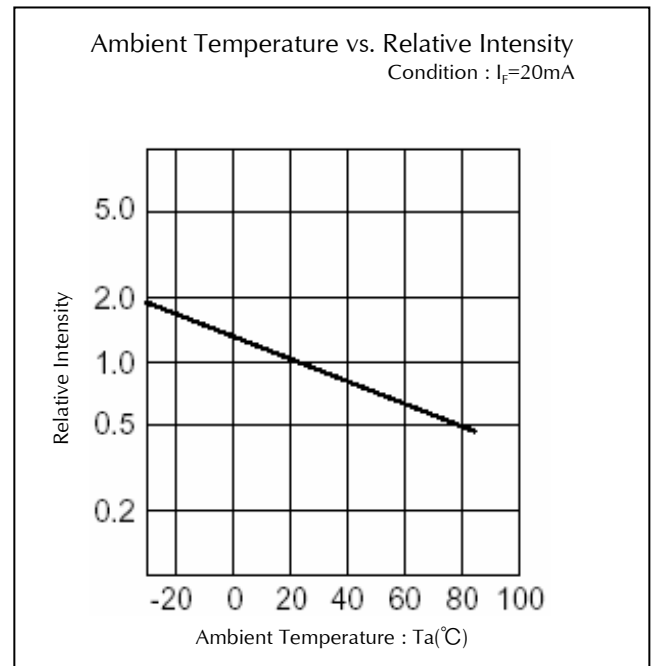
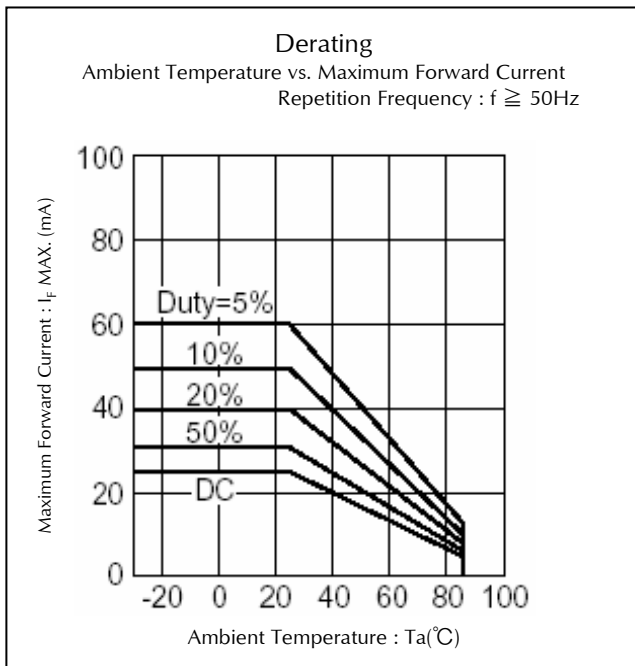




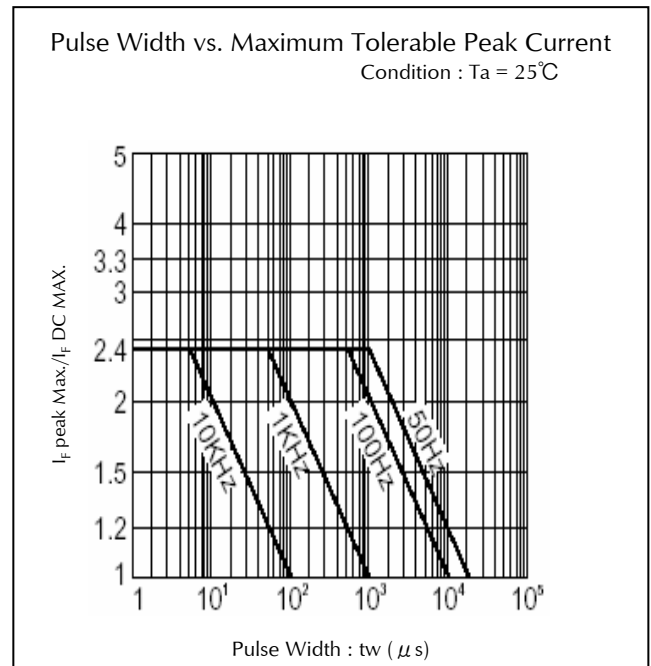
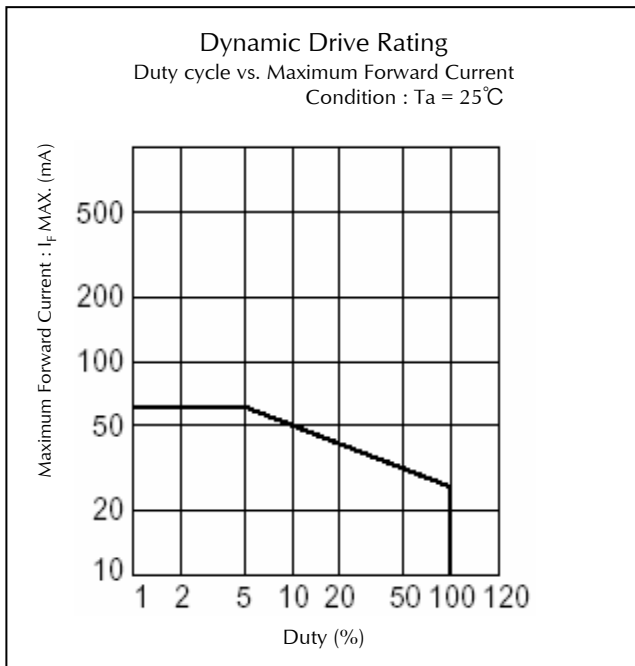
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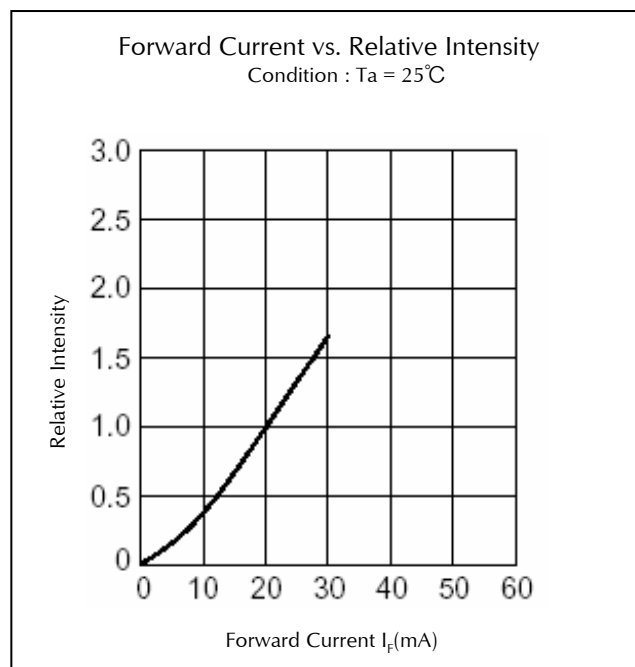
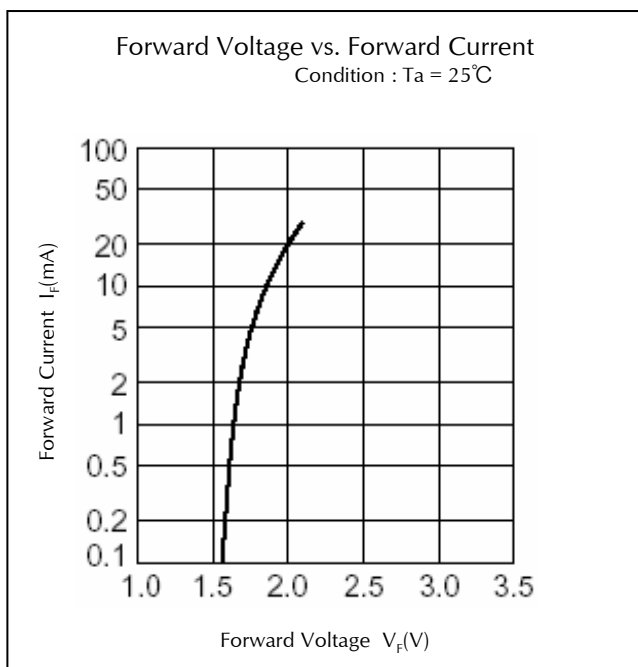
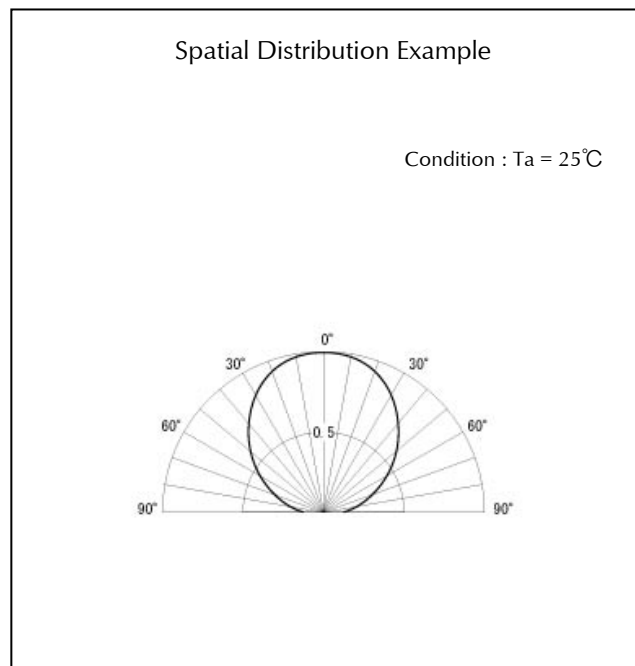
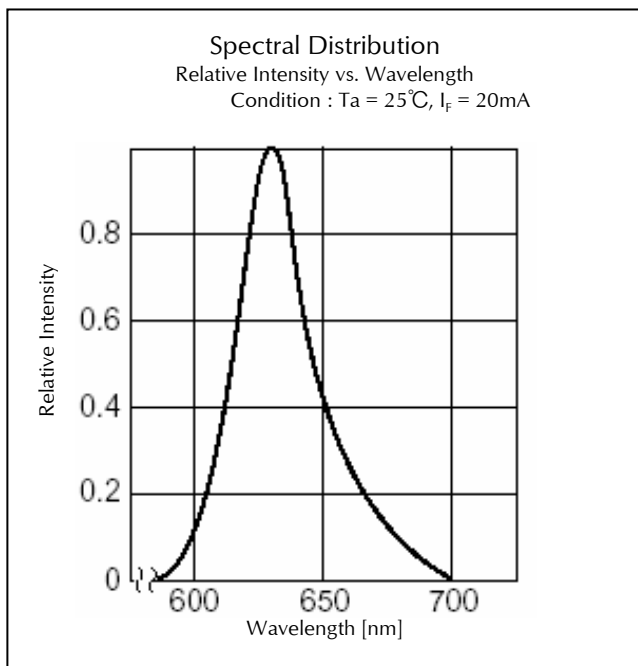
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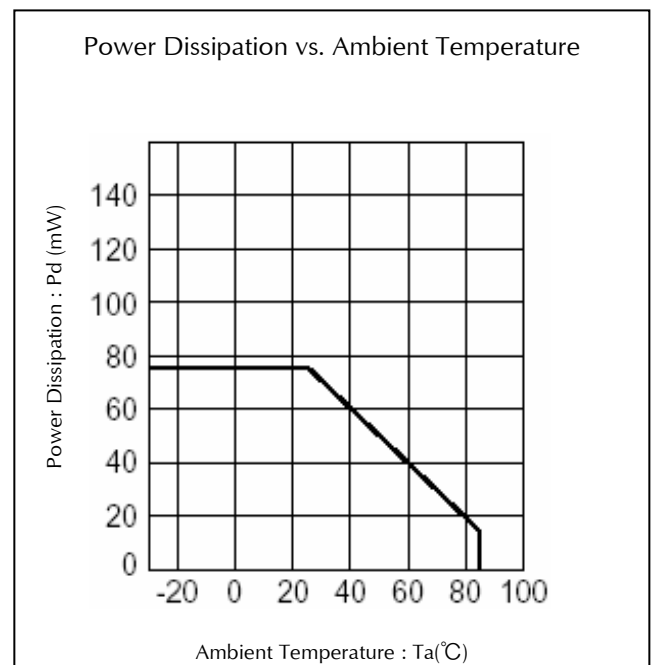
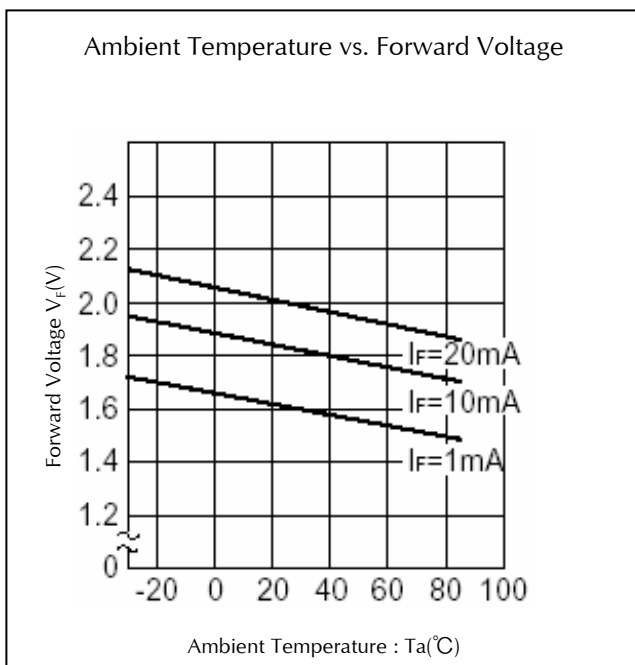
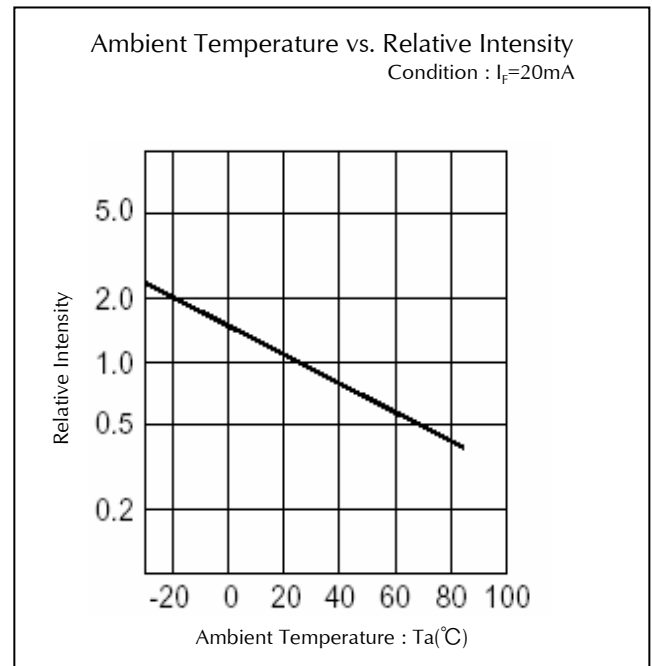
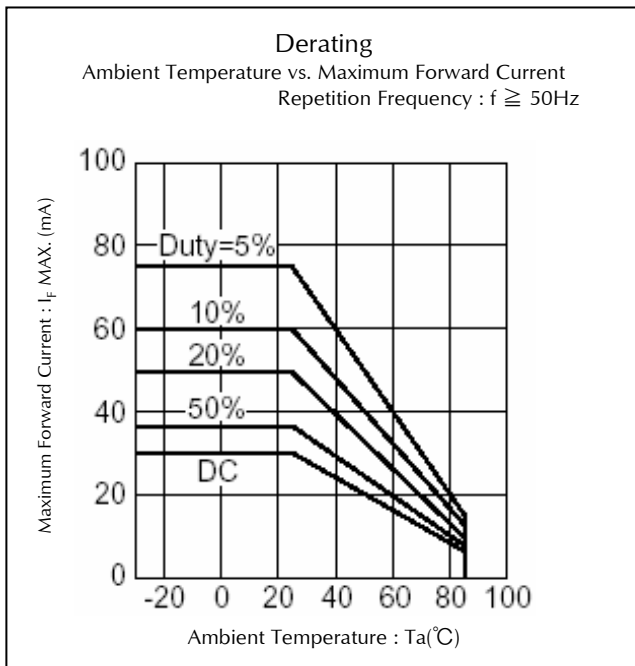
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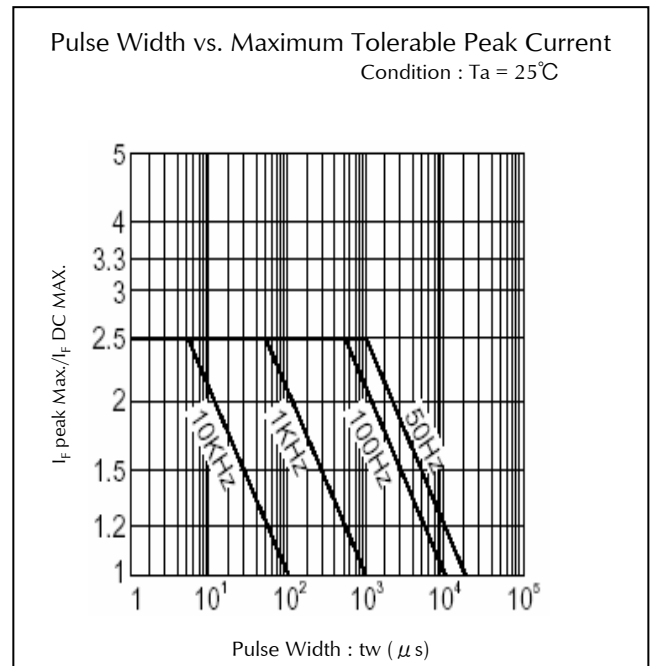
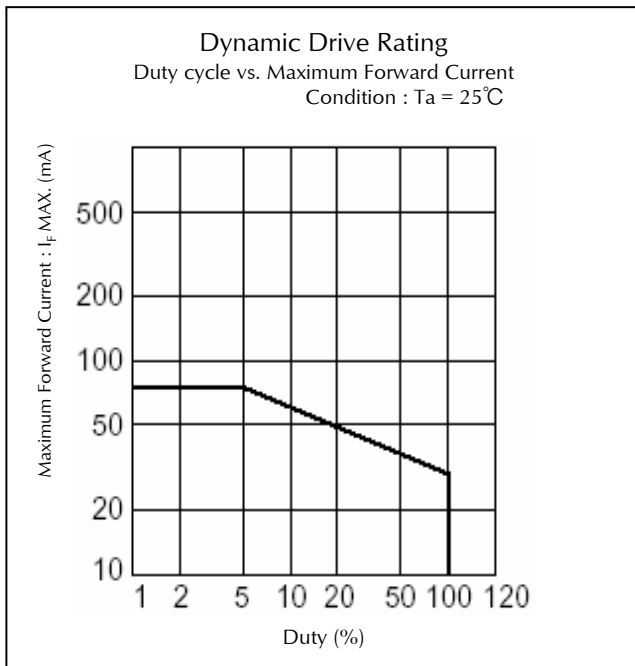
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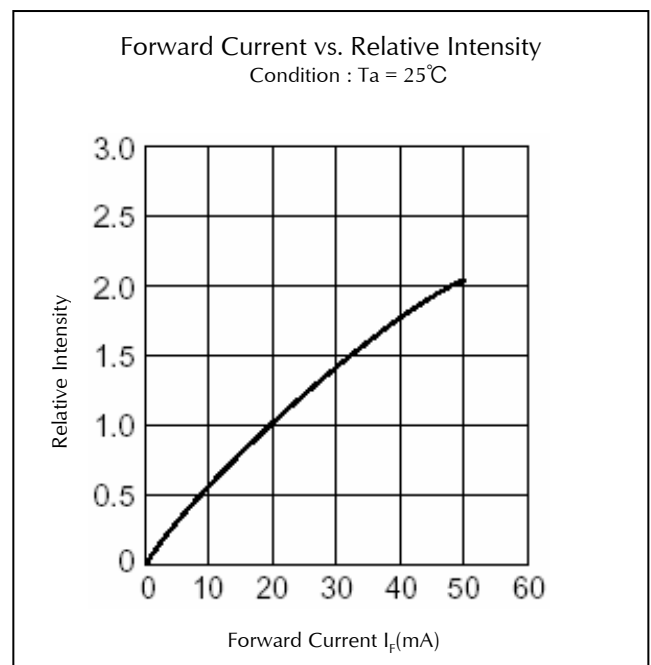
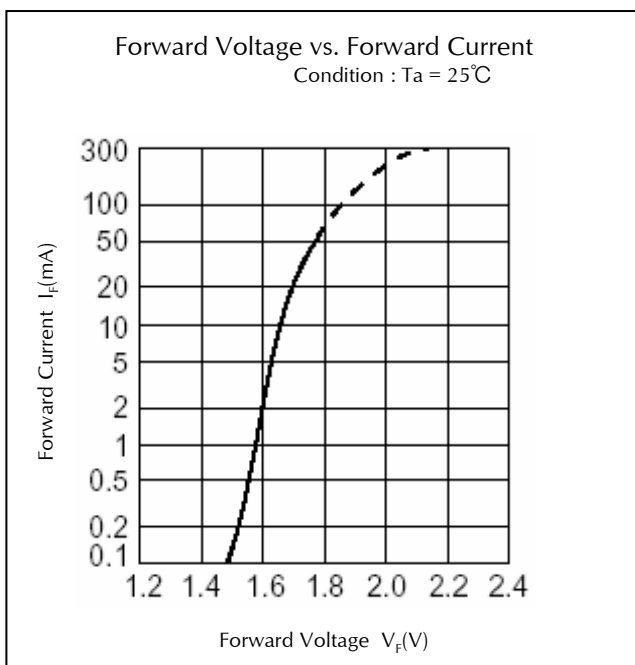
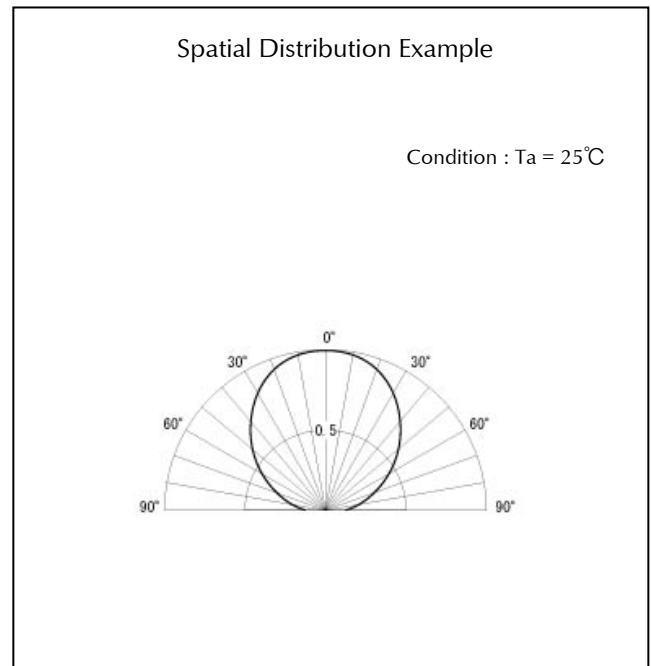
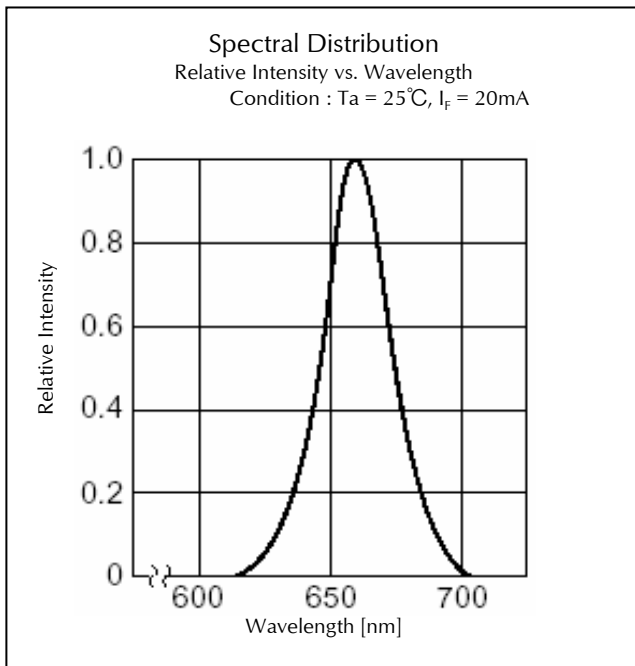
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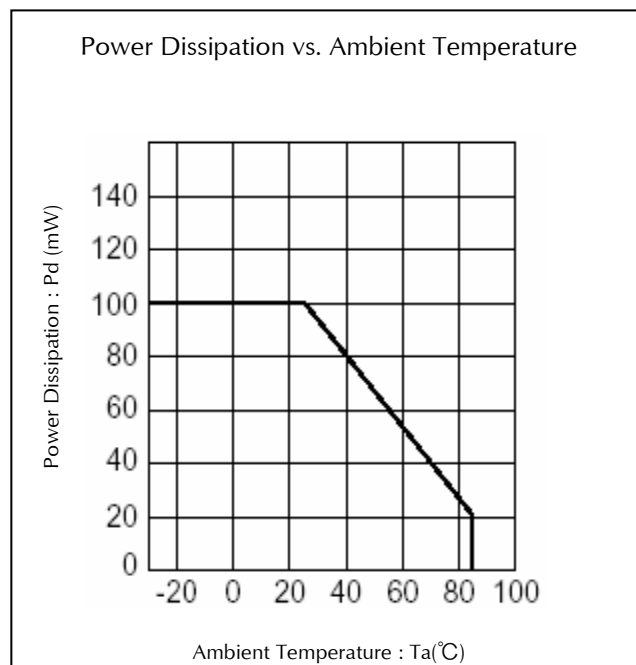
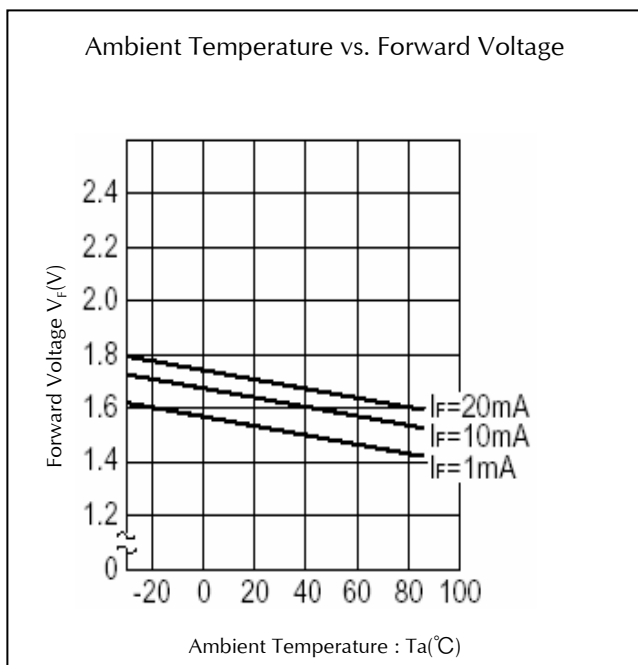
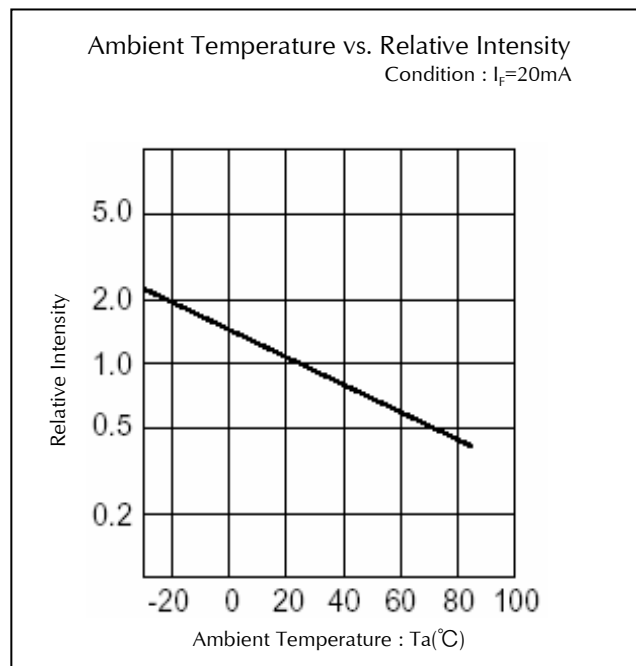
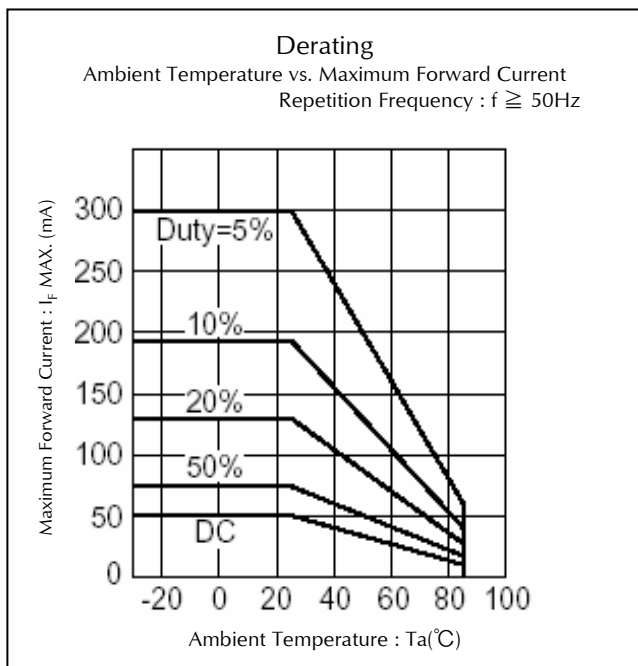
## Technical Data(MVR)



## Technical Data(BR)

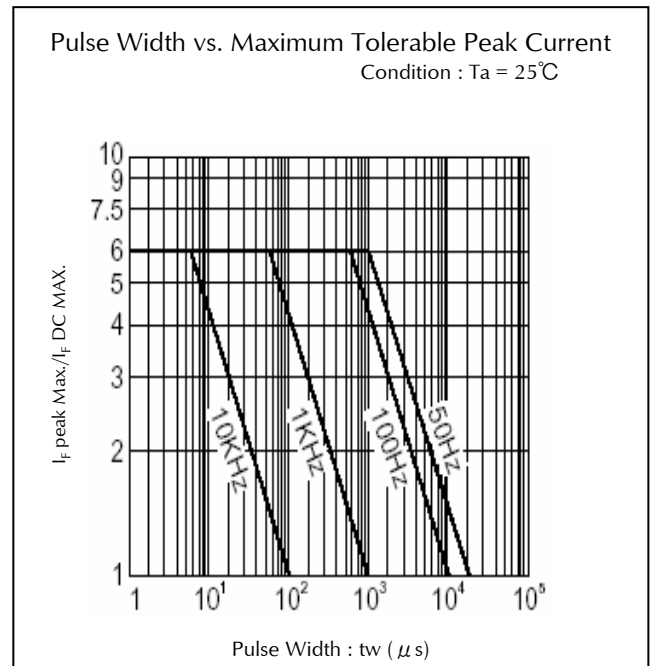
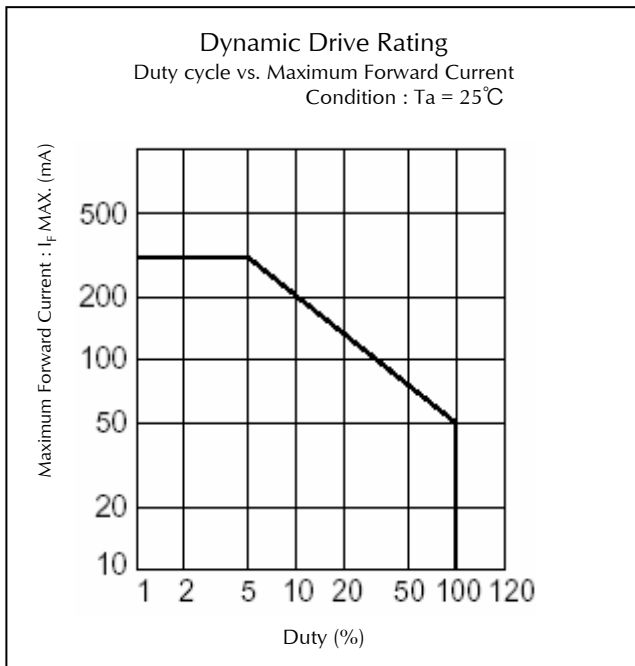


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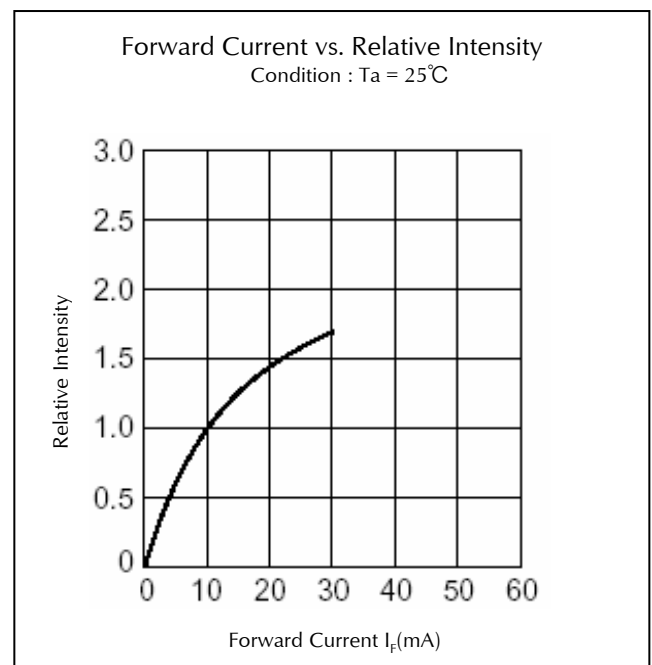
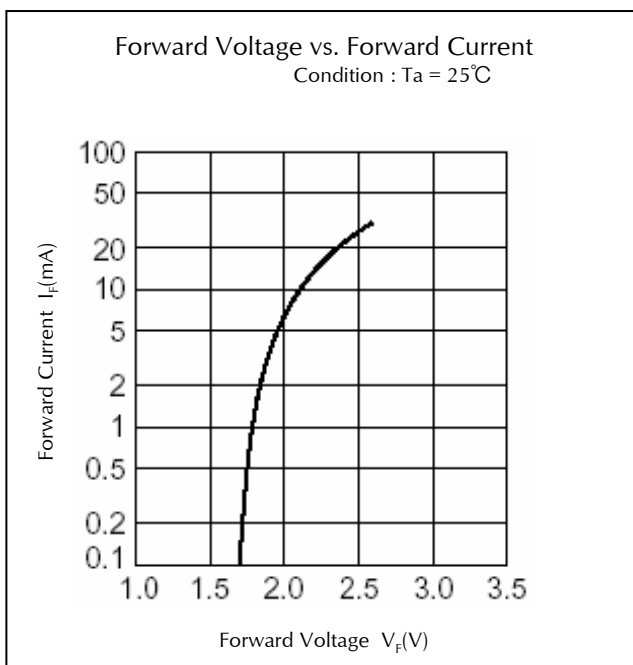
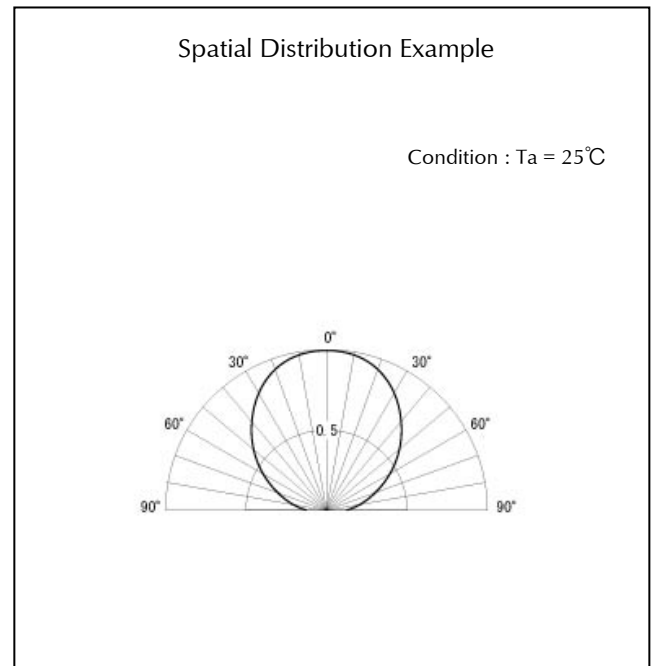
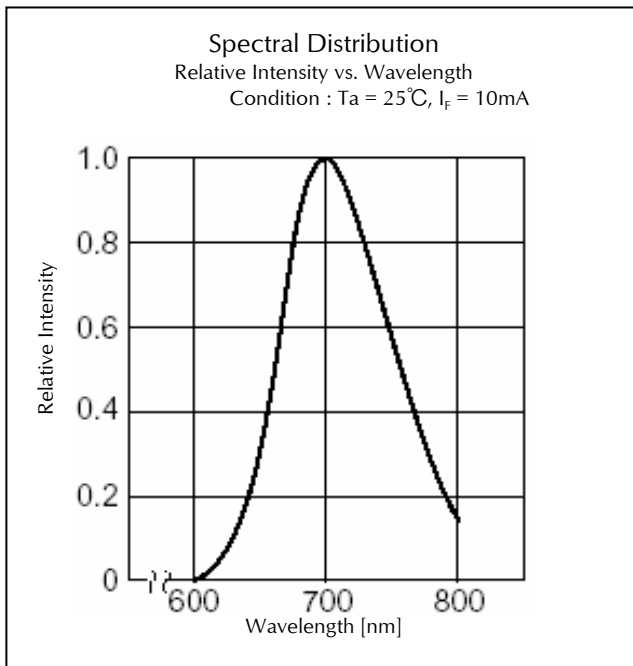




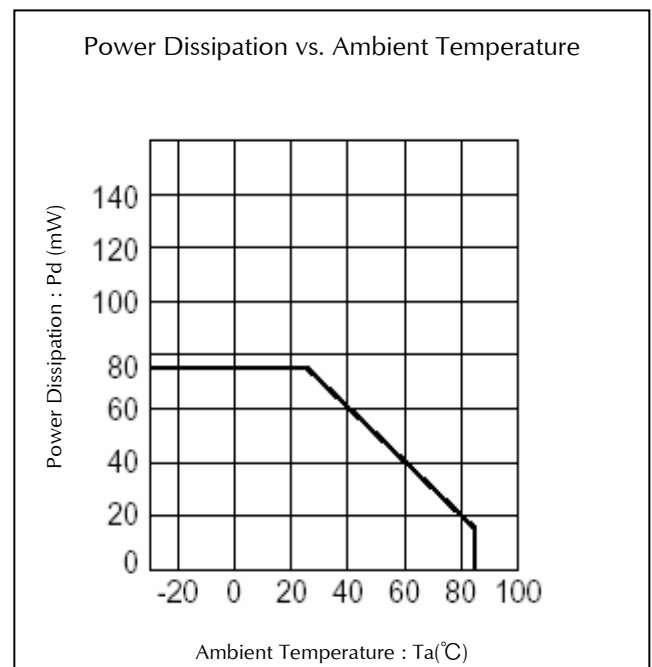
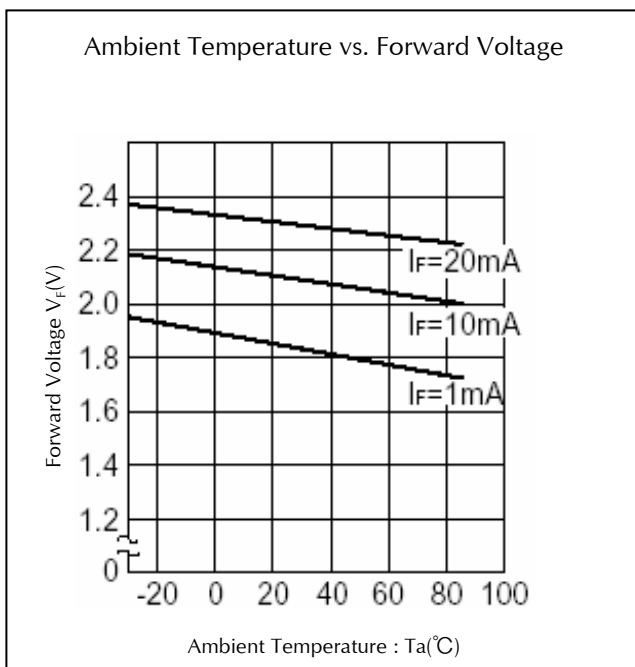
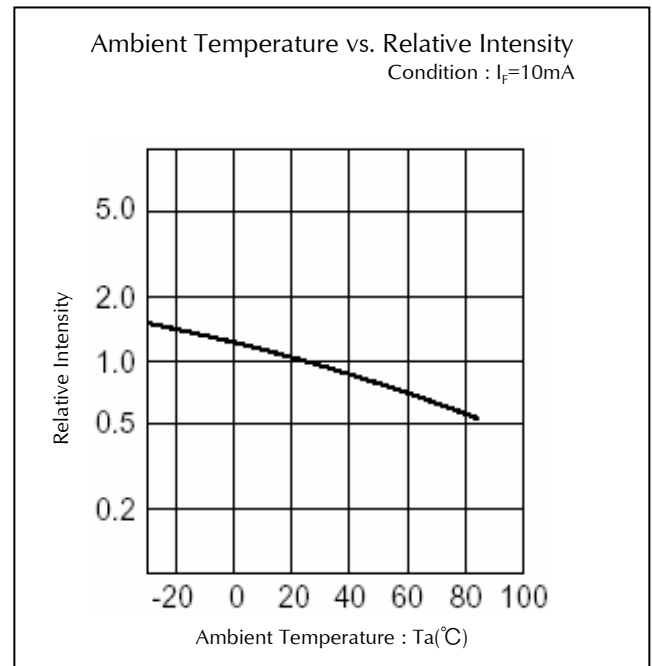
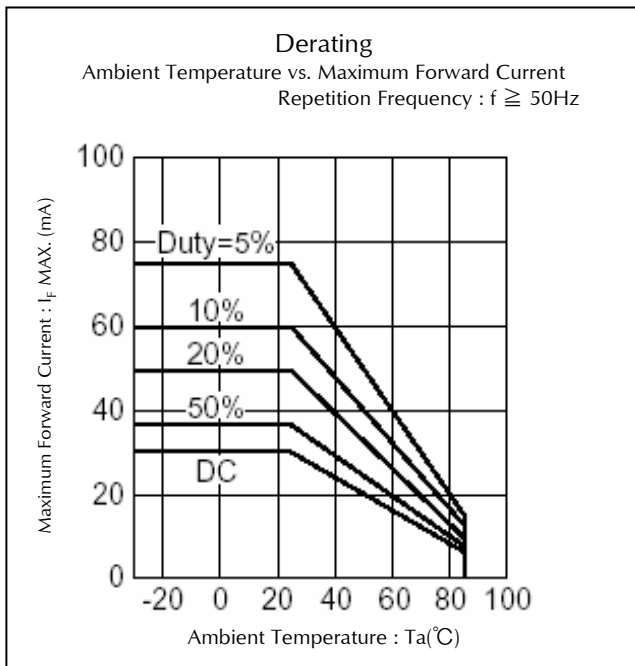
## Technical Data(BR)



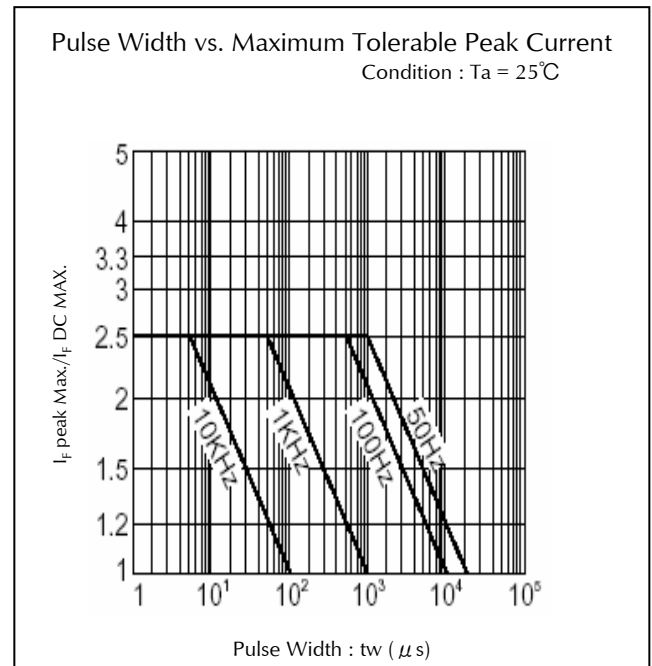
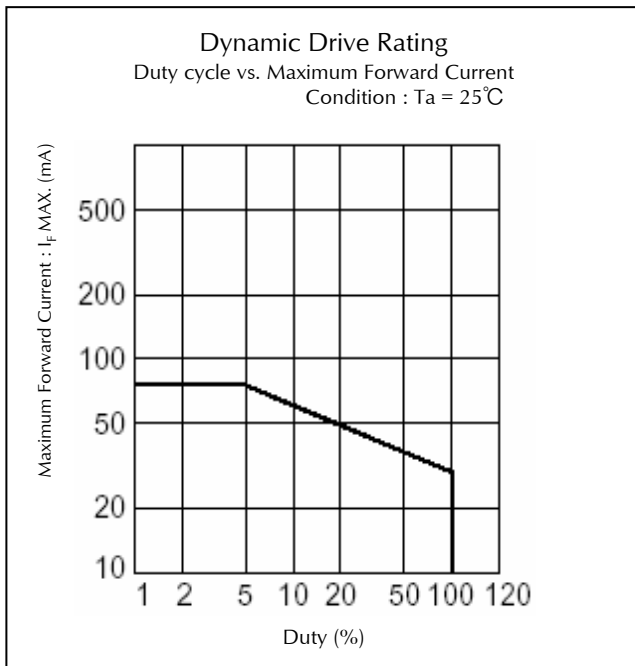
## Technical Data(MPR)



## Technical Data(MPR)

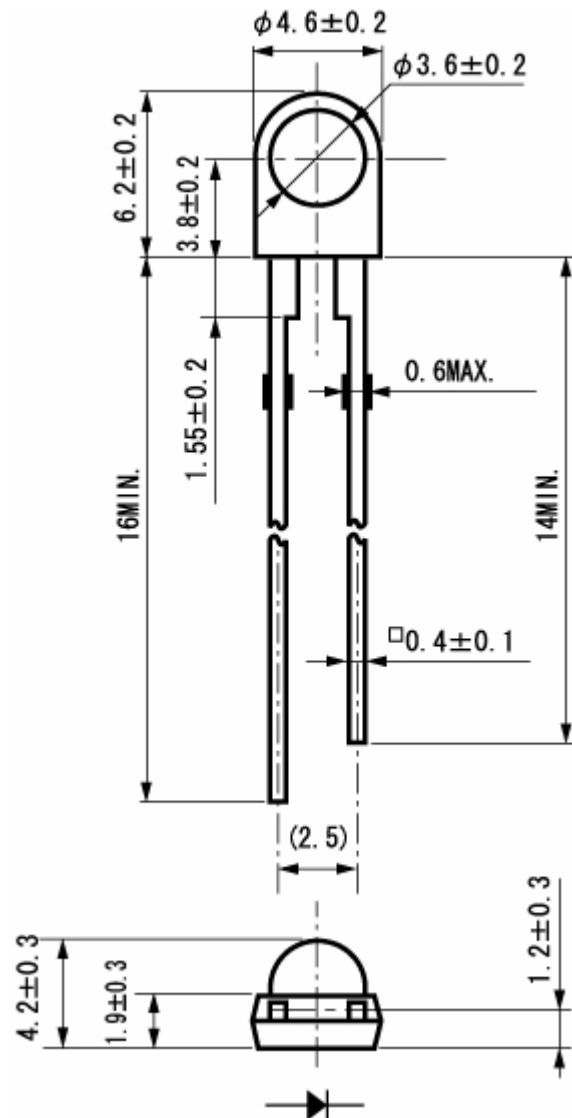


## Technical Data(MPR)



## Package Dimensions

(Unit: mm)



## TTW (Through The Wave) soldering Conditions

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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

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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	10sec	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)	10sec	0/10
Vibration, Variable Frequency	EIAJ ED-4701/400(403)	98.1m/s <sup>2</sup> (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 <sub>F</sub>	If Value of each product Forward Voltage	Testing Max. Value ≥ Spec. Max. Value x 1.2
Reverse Current	I <sub>R</sub>	V <sub>R</sub> = Maximum Rated Reverse Voltage V	Testing Max. Value ≥ Spec. Max. Value x 2.5
Cosmetic Appearance	-	-	No notable, decoloration, deformation and cracking

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