



**Pb-free
HEAT**



4375S Series

Single Color ϕ 4 Round Shape Type

Features

Package	ϕ 4 Round shape type, MBG,MPG : Pale Green Diffused epoxy 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"> • Outer Dimension ϕ4 Round shape type • Operation temperature range. Storage Temperature : -30 ~ 100 Operating Temperature : -30 ~ 85 • Lead-free soldering compatible • RoHS compliant 	
Dominant wavelength	Green : 558nm (MBG), 567nm (MPG) Yellow : 590nm (MAY) Orange : 606nm (MAA) Red : 624nm (MVR) 647nm (BR) 630nm (MPR)	
Half Intensity Angle	MBG,MPG : 90 deg., MAA,MPR : 88 deg., BR : 102 deg.	MAY : 80 deg. MVR : 74 deg.
Die materials	MBG, MPG, 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)

Part No.	Material	Emitted Color	Lens Color		Dominant Wavelength		Luminous Intensity		
					λ d (nm)		Iv (mcd)		
					TYP.	I _F	MIN.	TYP.	I _F
MBG4375S	GaP	Green	Pale Green	Diffused	558	20	3	6	20
MPG4375S	GaP	Green			567	20	6	12	20
MAY4375S	GaAsP	Yellow	Pale Yellow		590	20	4	8	20
MAA4375S	GaAsP	Orange	Pale Orange		606	20	4	8	20
MVR4375S	GaAsP	Red	Pale Red		624	20	5	10	20
BR4375S	GaAlAs	Red			647	20	6	12	20
MPR4375S	GaP	Red			630	10	0.6	1.2	10

Absolute Maximum Ratings

(Ta=25)

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

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

Item	Conditions	Symbol	Characteristics							Unit
				MBG	MPG	MAY	MAA	MVR	BR	
Forward Voltage	I _F =20mA	V _F	TYP.	2.1	2.1	2.2	2.2	2.0	1.7	V
			MAX.	2.8	2.8	2.8	2.8	2.8	2.0	
Reverse Current	V _R =4V	I _R	MAX.	20	20	20	20	20	100	μ A
Peak Wavelength	I _F =20mA	λ_p	TYP.	555	560	580	605	630	660	nm
Dominant Wavelength	I _F =20mA	λ_d	TYP.	558	567	590	606	624	647	nm
Spectral Line Half Width	I _F =20mA	$\Delta \lambda$	TYP.	30	30	30	30	30	30	nm
Half Intensity Angle	I _F =20mA	2 θ 1/2	TYP.	90	90	80	88	74	102	deg.

Electro-Optical Characteristics(MPR)

(Ta=25)

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	$\Delta \lambda$	TYP.	100	nm
Half Intensity Angle	I _F =10mA	2 θ 1/2	TYP.	88	deg.

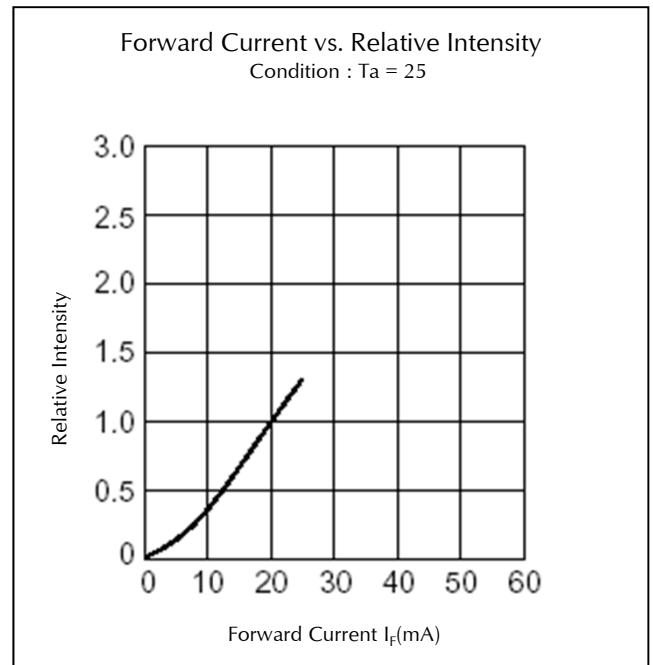
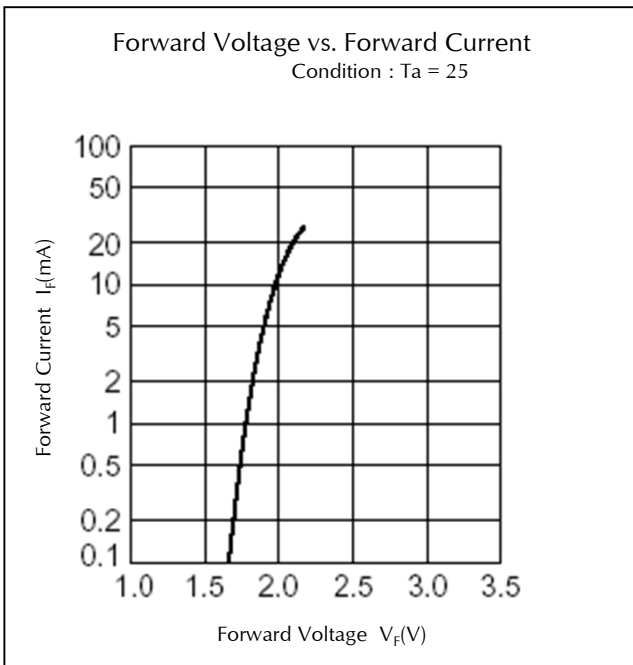
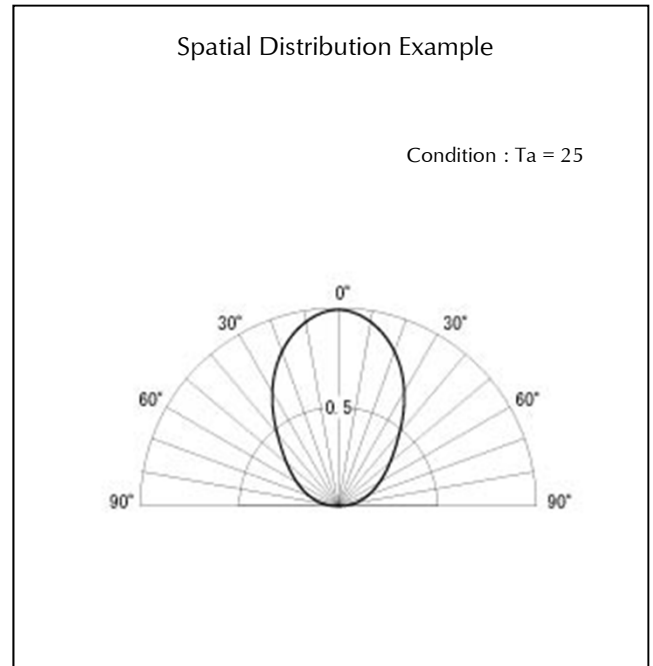
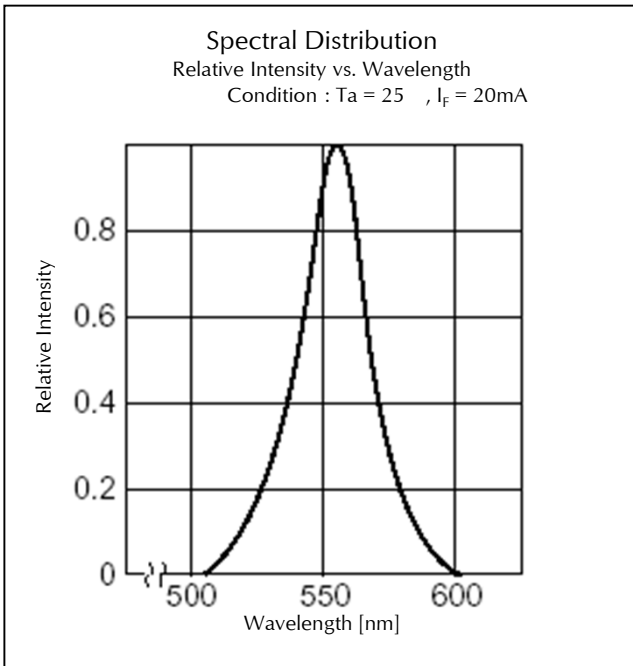
Luminous Intensity Rank

($T_a=25$)

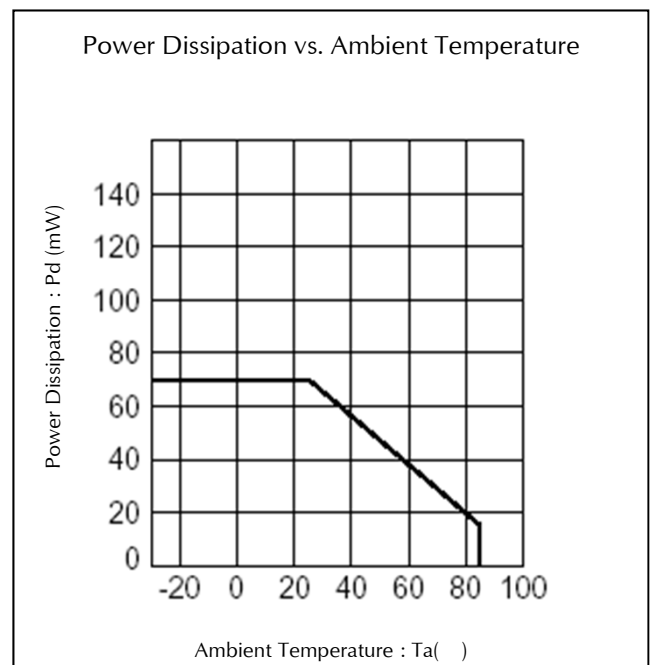
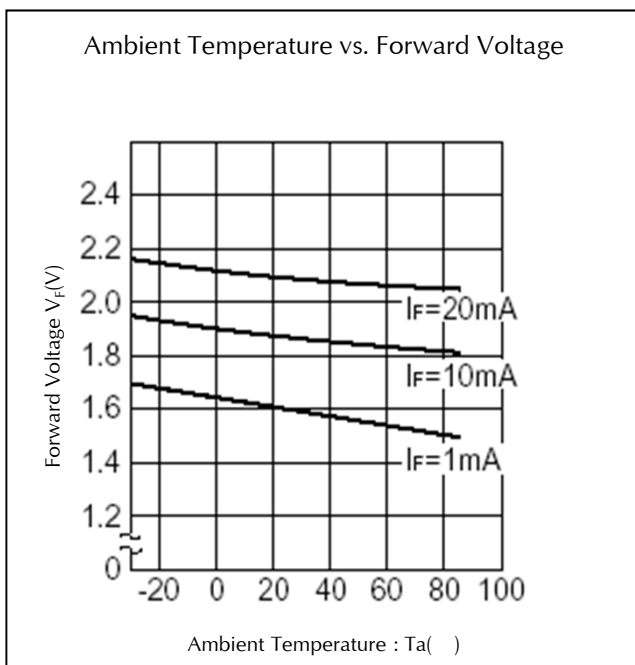
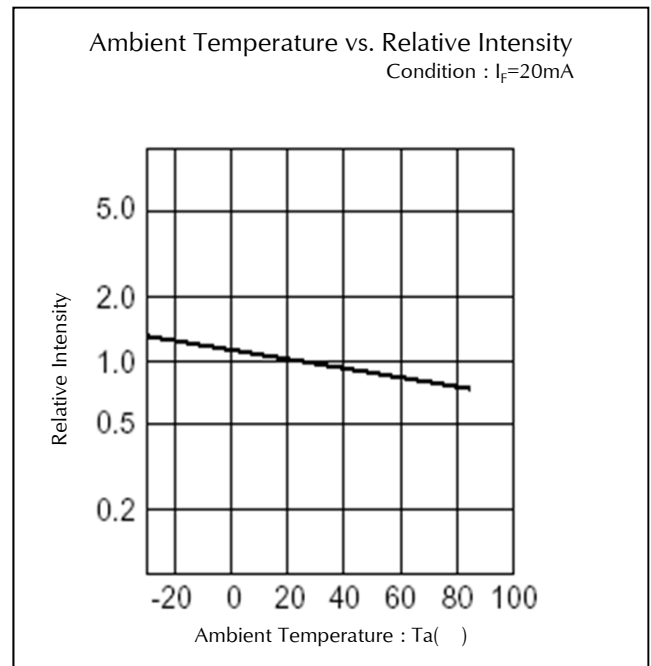
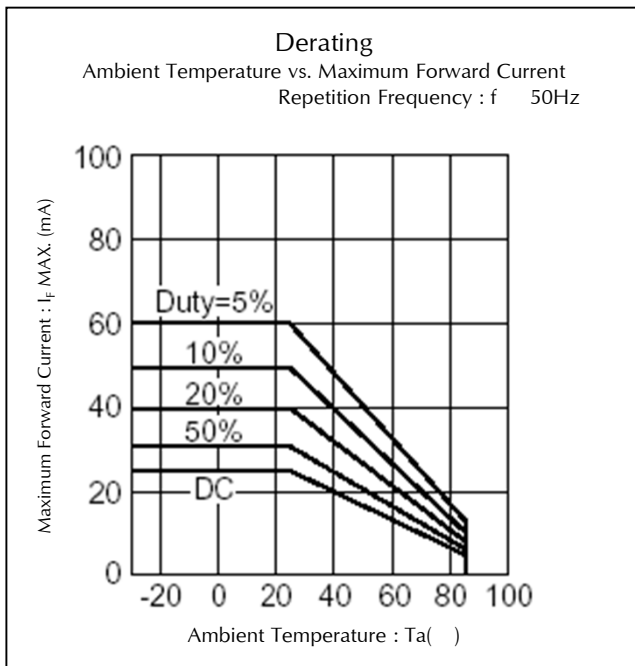
Rank	I_v (mcd)													
	MBG		MPG		MAY		MAA		MVR		BR		MPR	
	$I_f=20mA$		$I_f=20mA$		$I_f=20mA$		$I_f=20mA$		$I_f=20mA$		$I_f=20mA$		$I_f=10mA$	
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
A	3.0	6.0	6.0	12.0	4.0	8.0	4.0	8.0	5	10	6.0	12.0	0.60	1.20
B	4.2	8.4	8.4	16.8	5.6	11.2	5.6	11.2	7	14	8.4	16.8	0.84	1.68
C	6.0	12.0	12.0	24.0	8.0	16.0	8.0	16.0	10	20	12.0	24.0	1.20	2.40
D	8.4	16.8	16.8	33.6	11.2	22.4	11.2	22.4	14	28	16.8	33.6	1.68	3.36
E	12.0	-	24.0	-	16.0	-	16.0	-	20	-	24.0	-	2.40	-

Please contact our sales staff concerning rank designation.

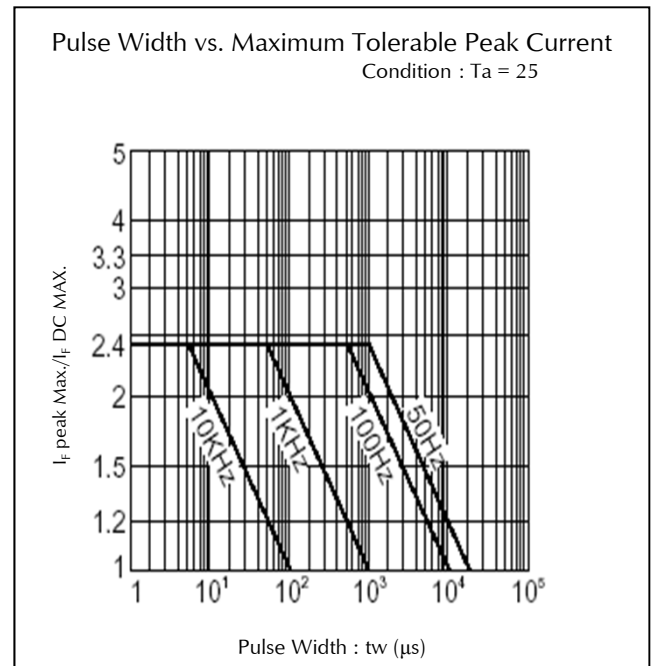
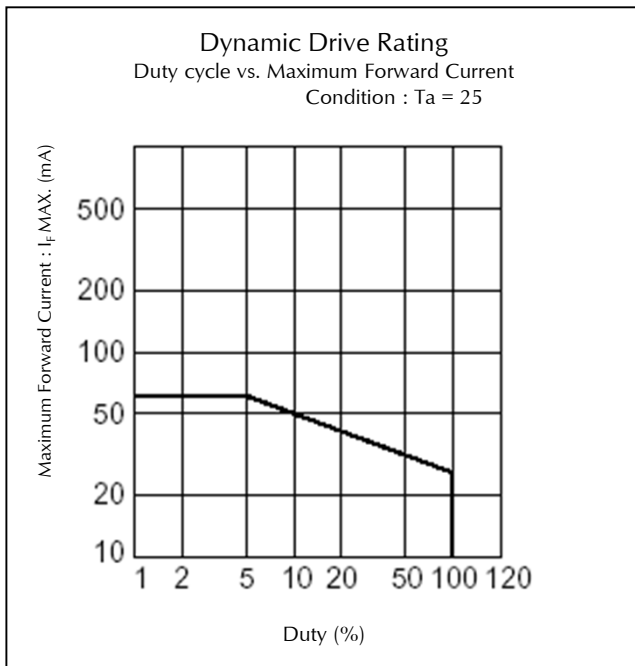
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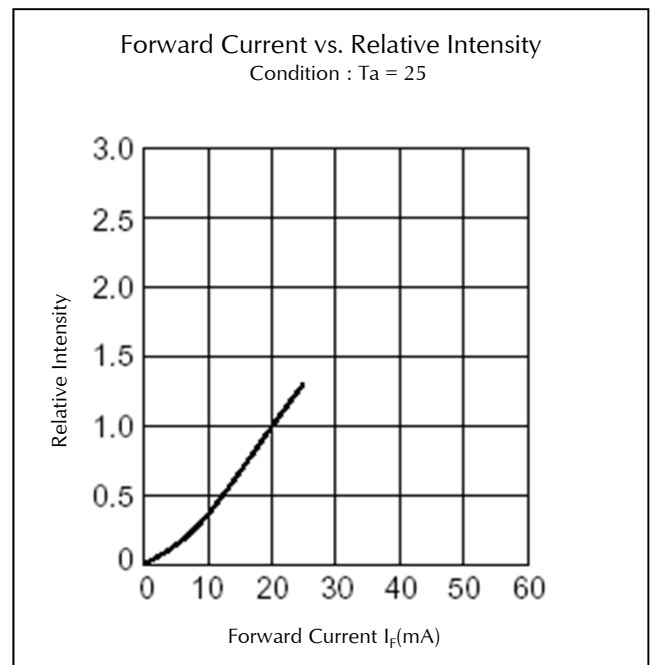
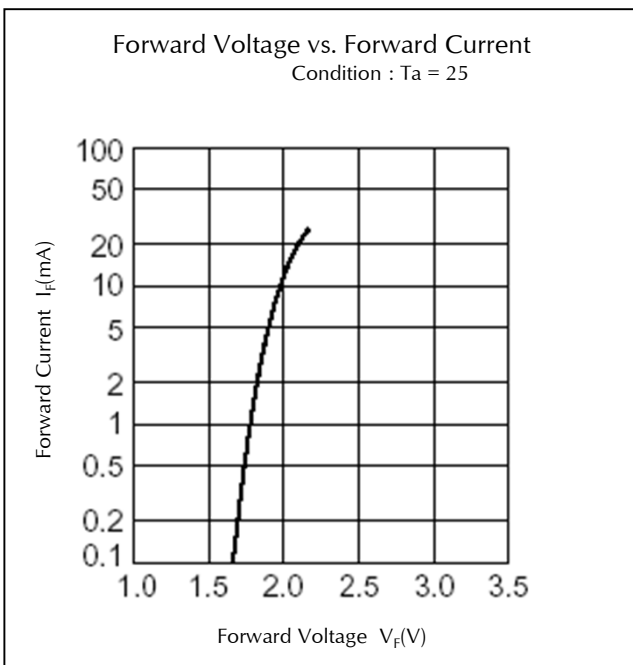
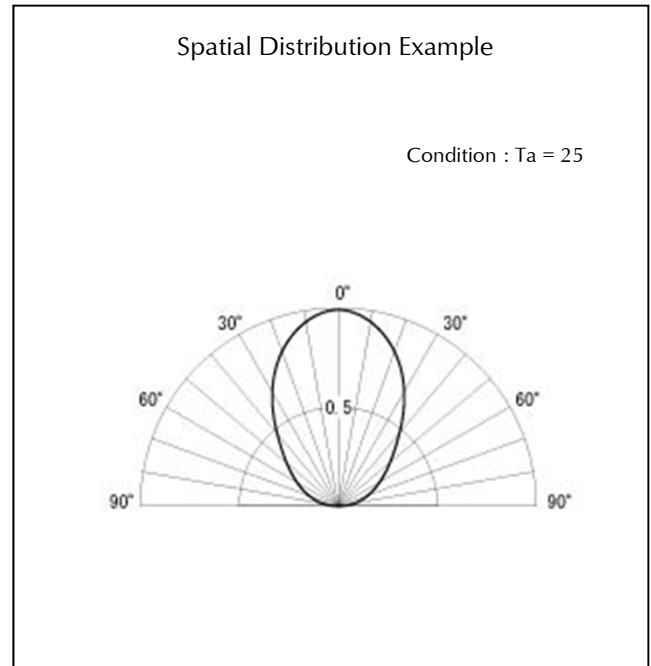
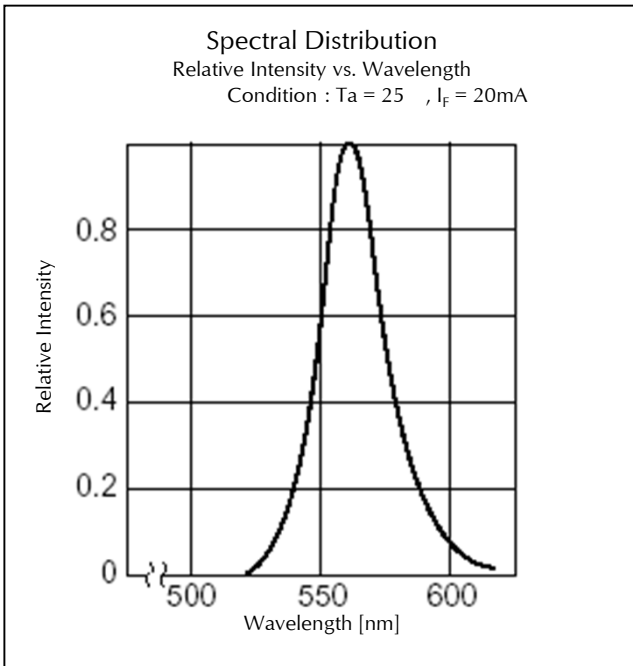
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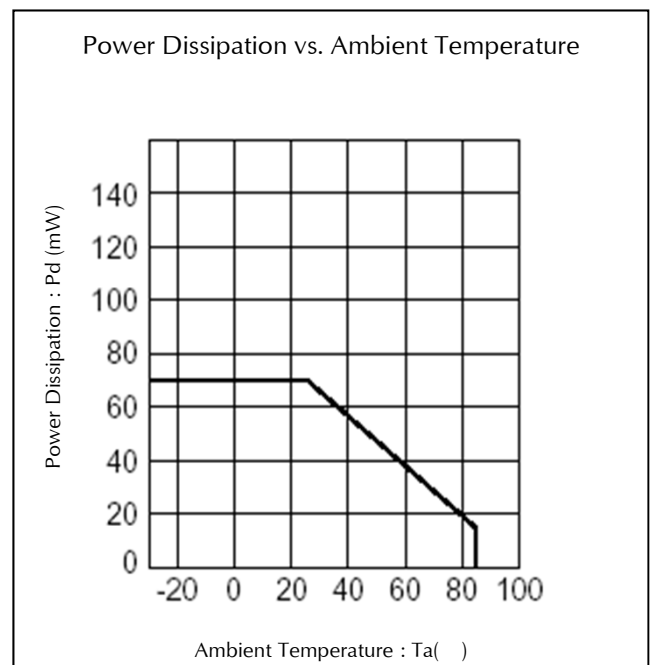
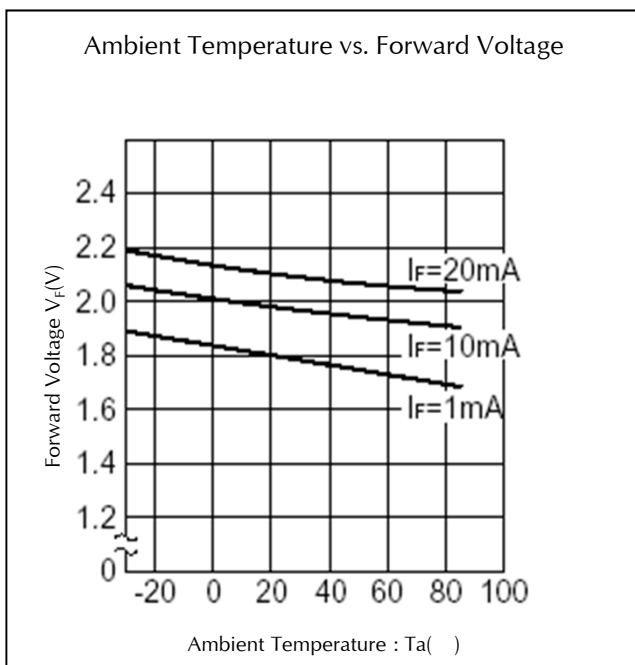
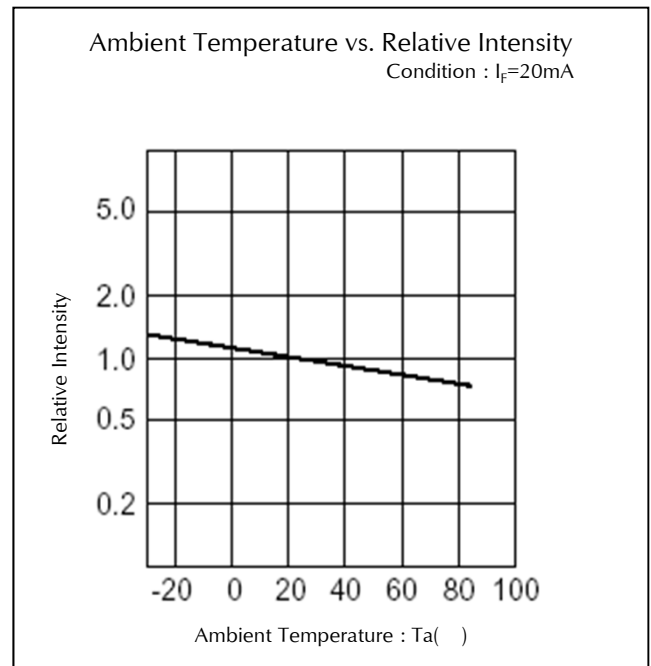
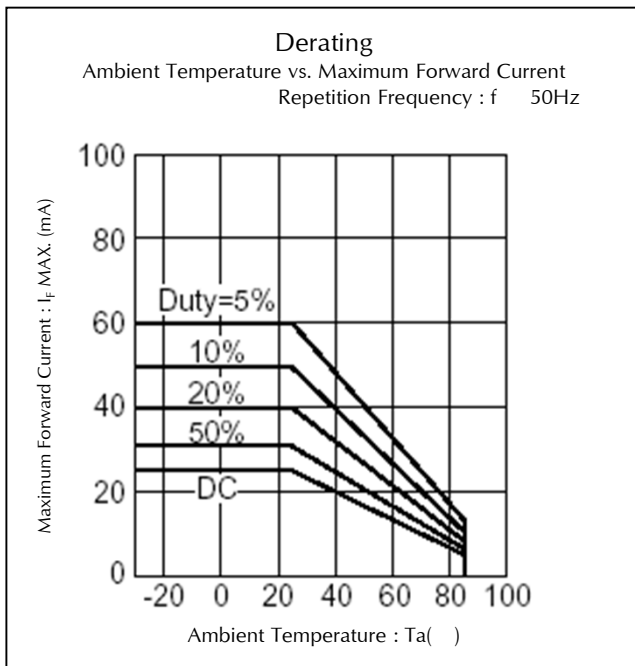
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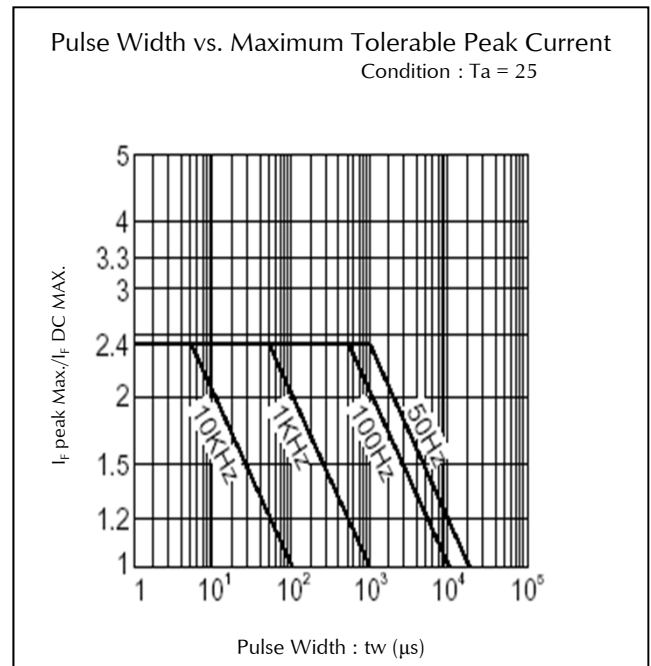
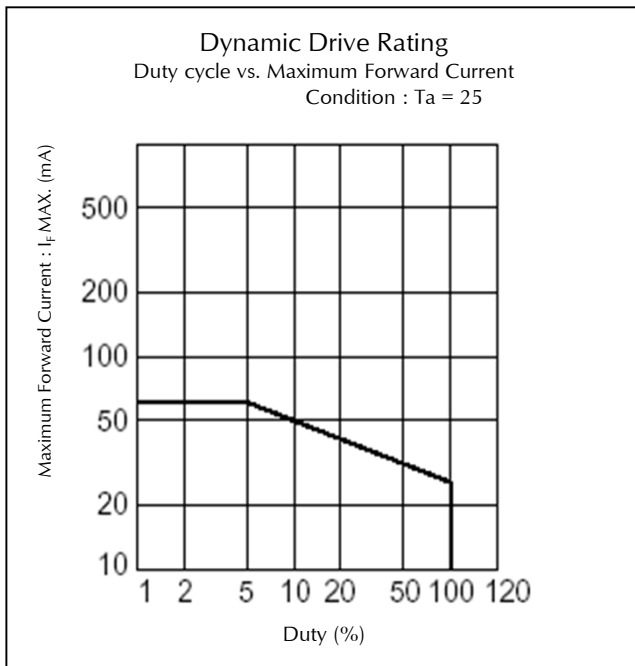
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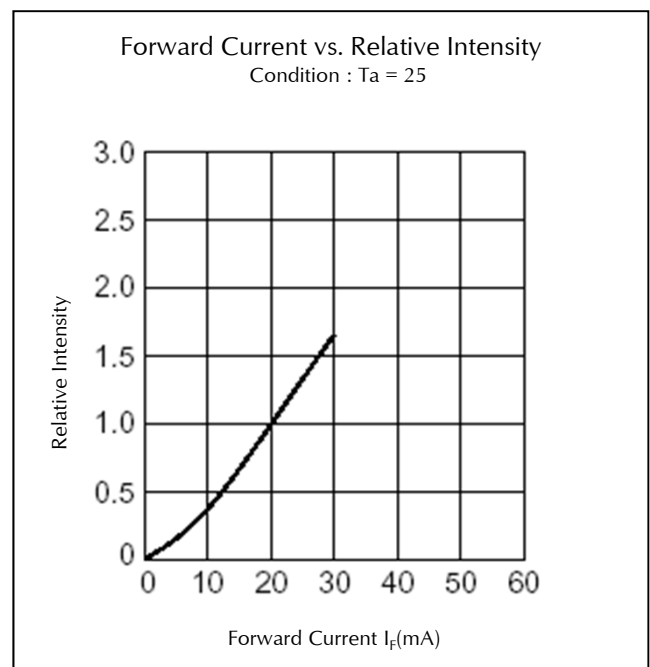
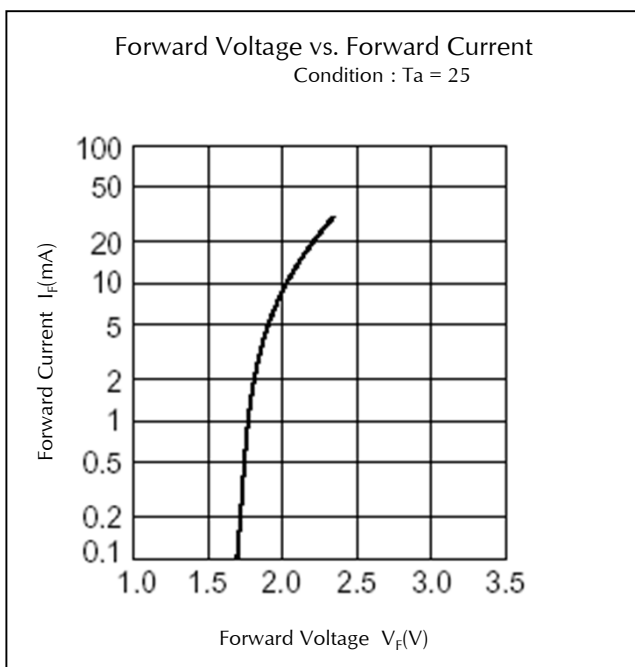
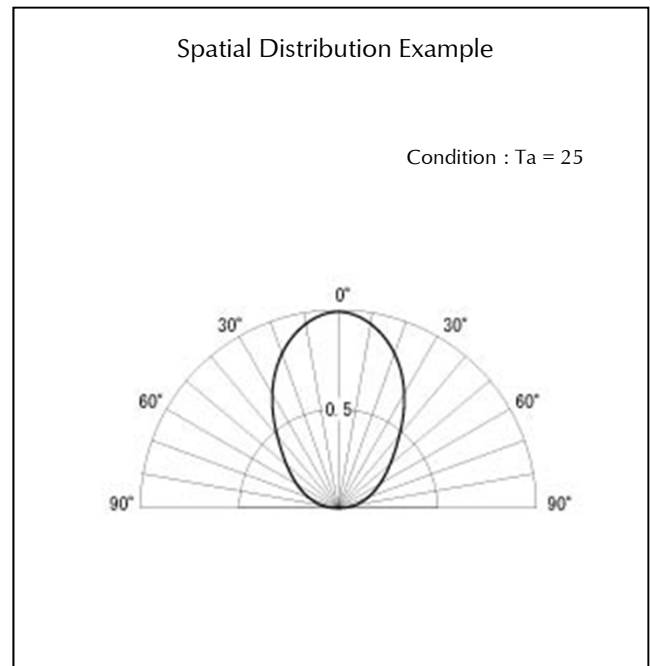
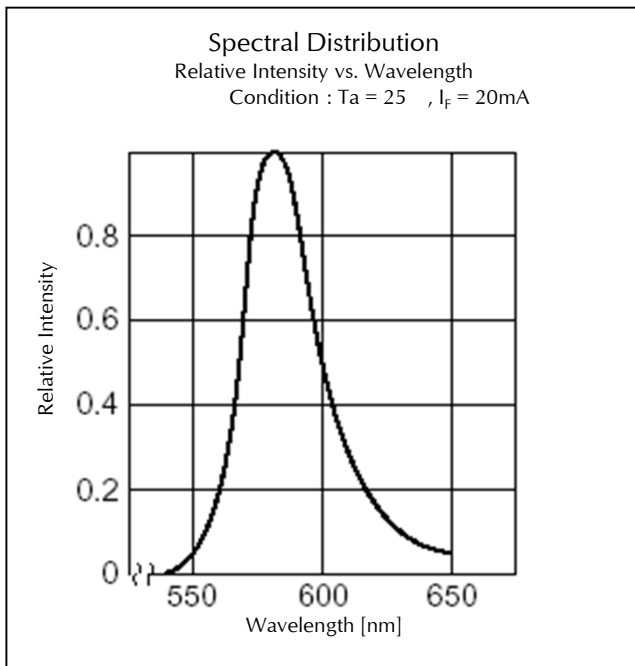
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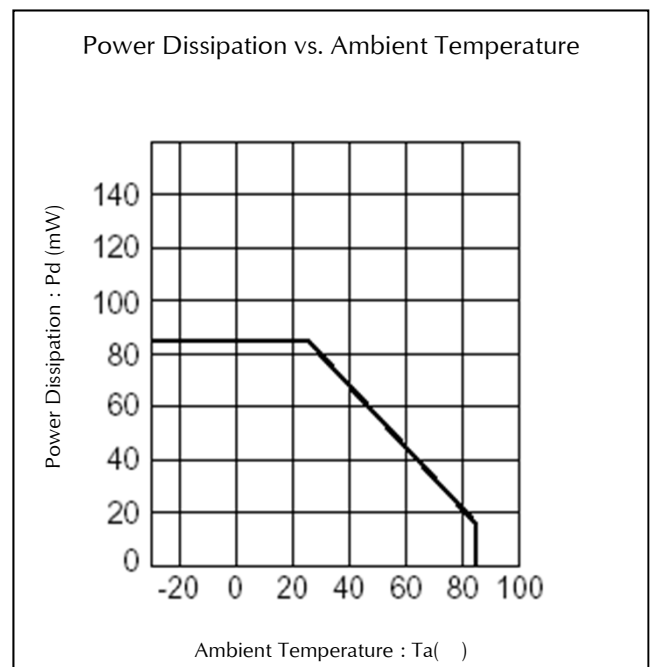
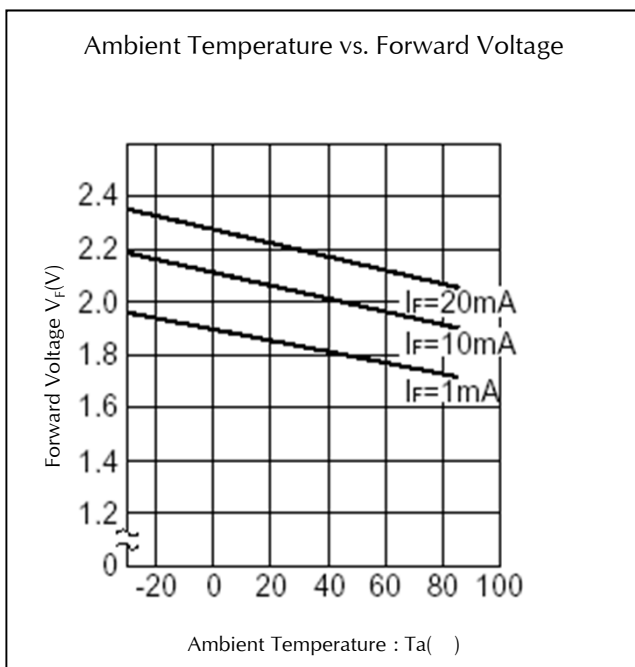
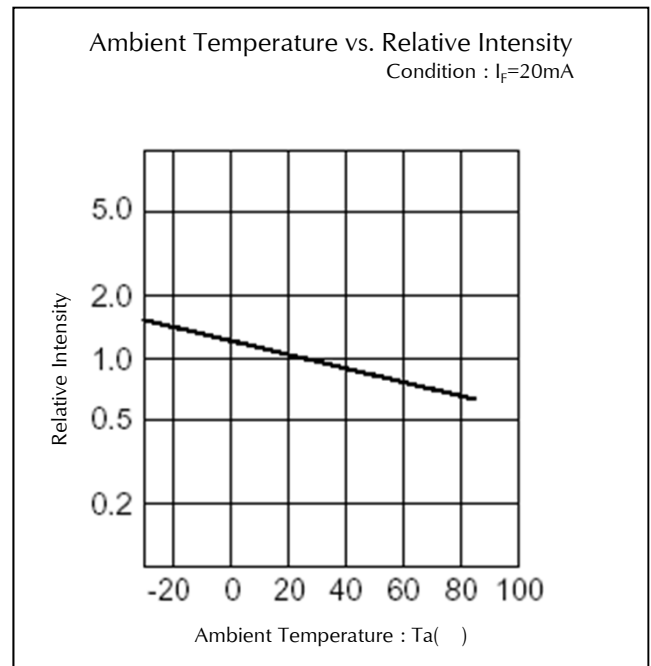
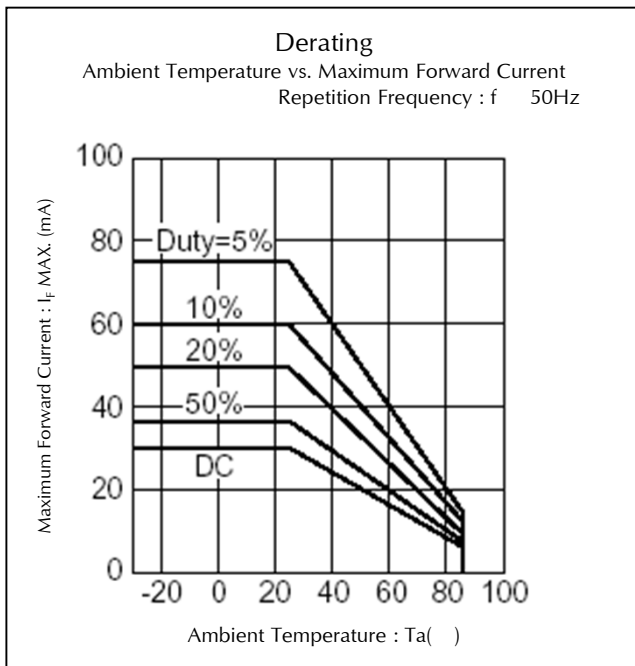
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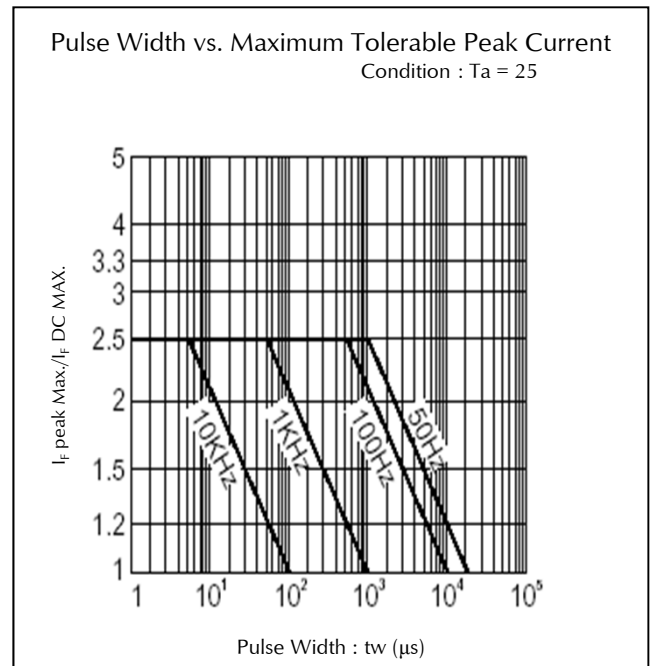
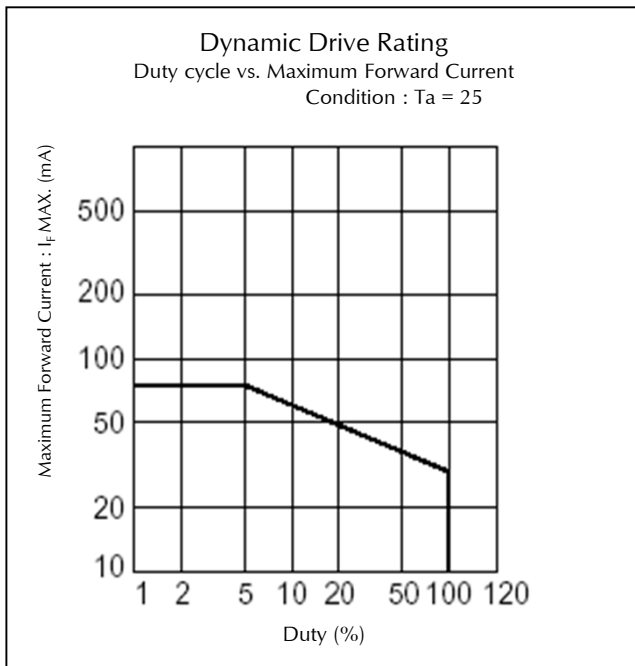
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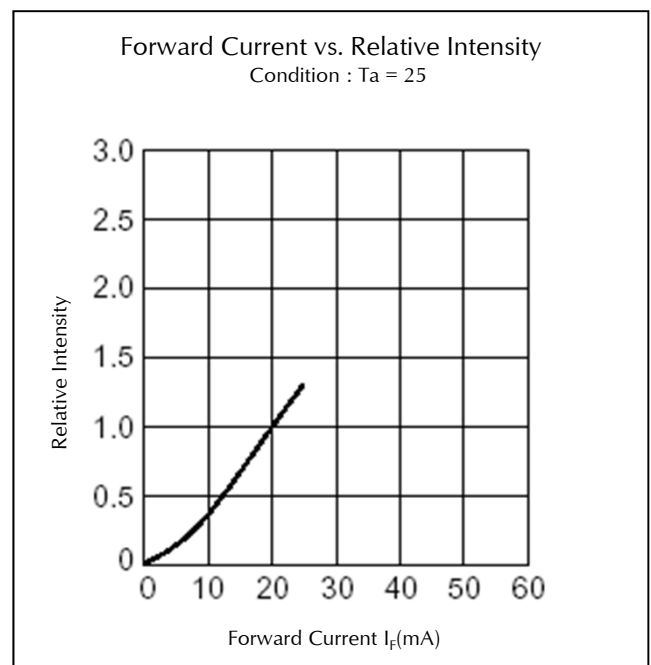
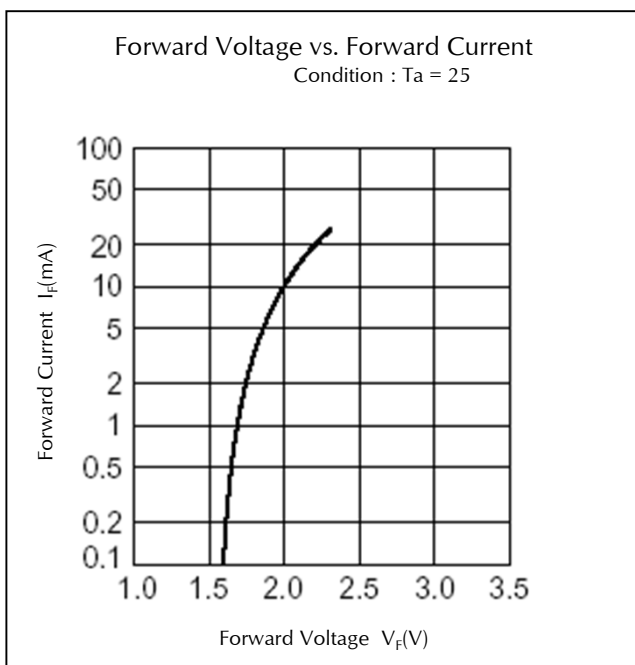
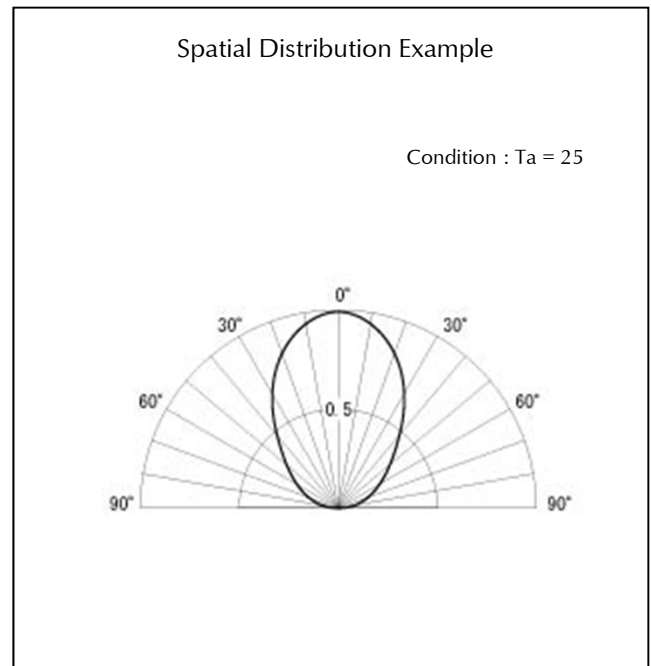
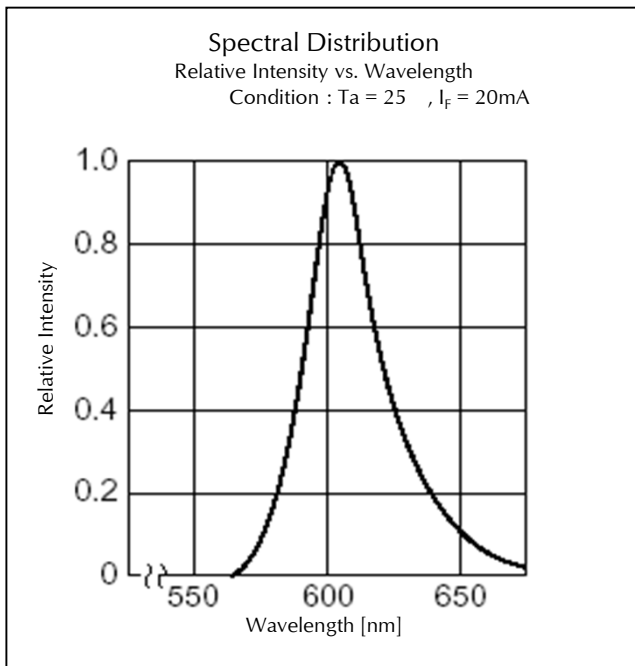
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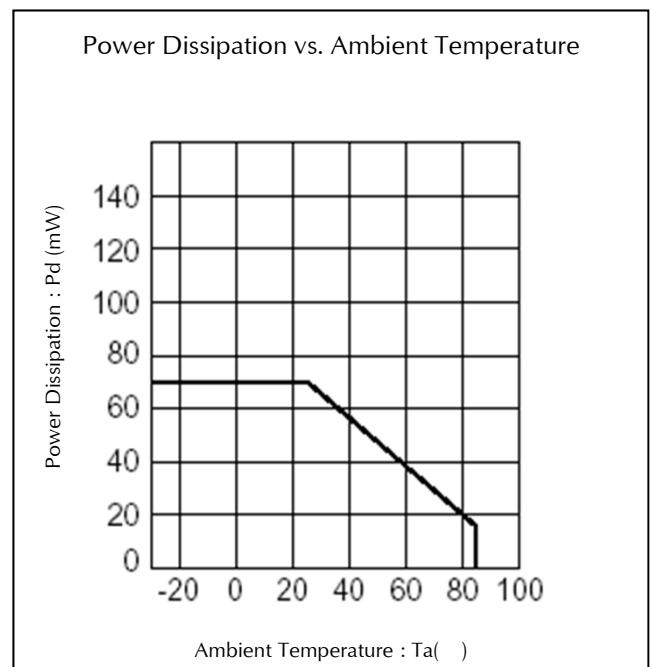
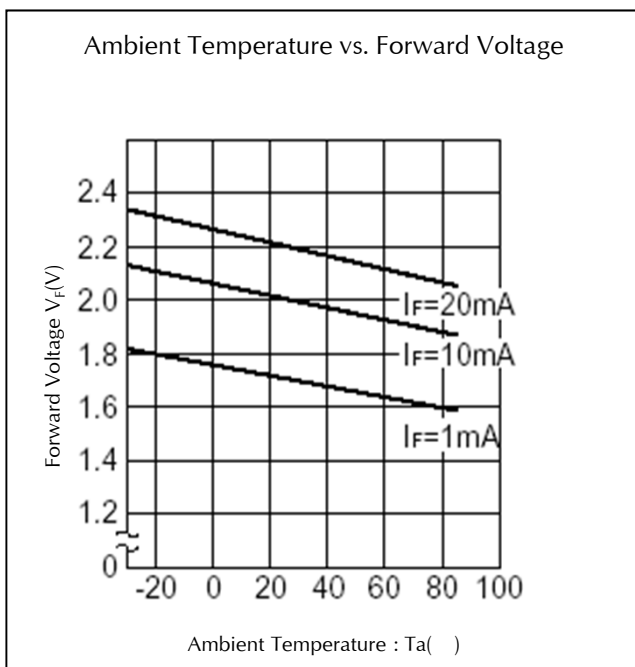
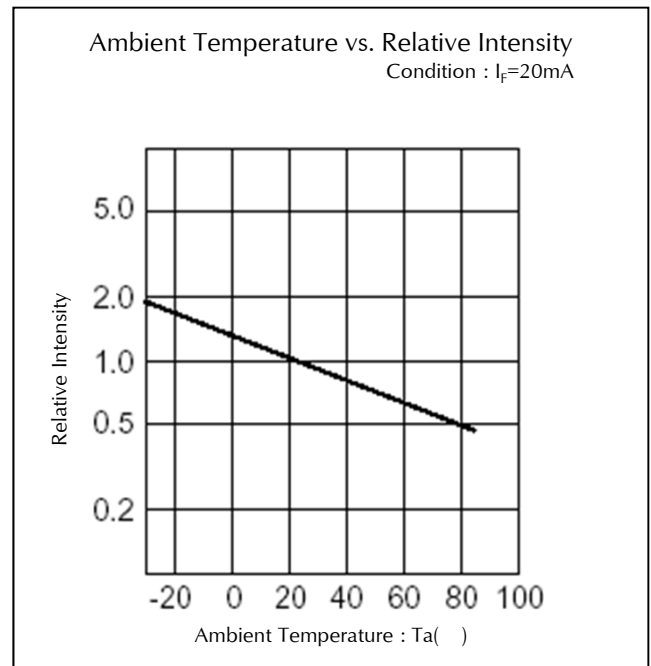
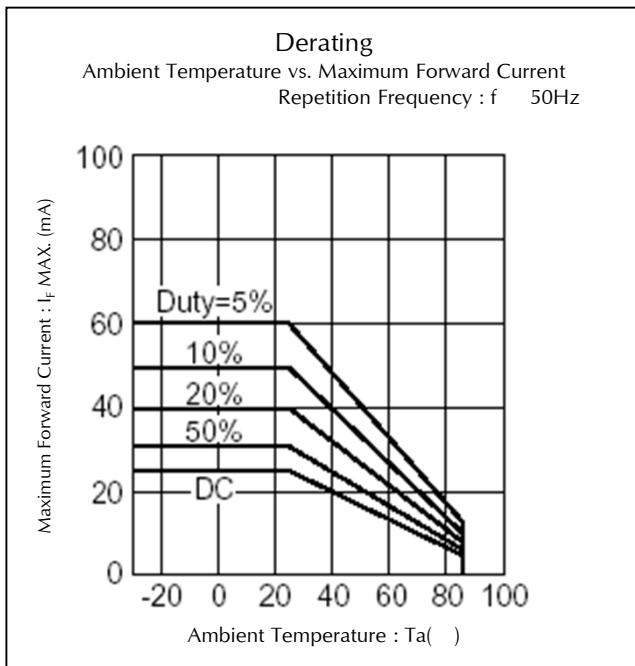
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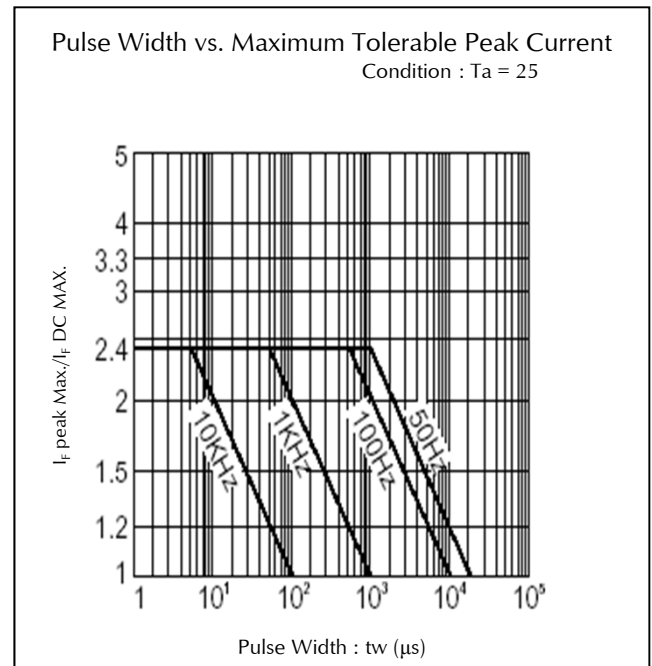
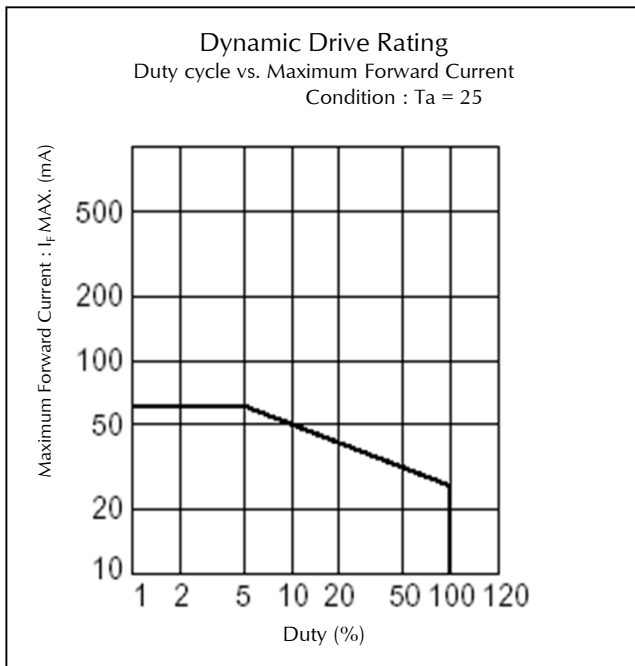
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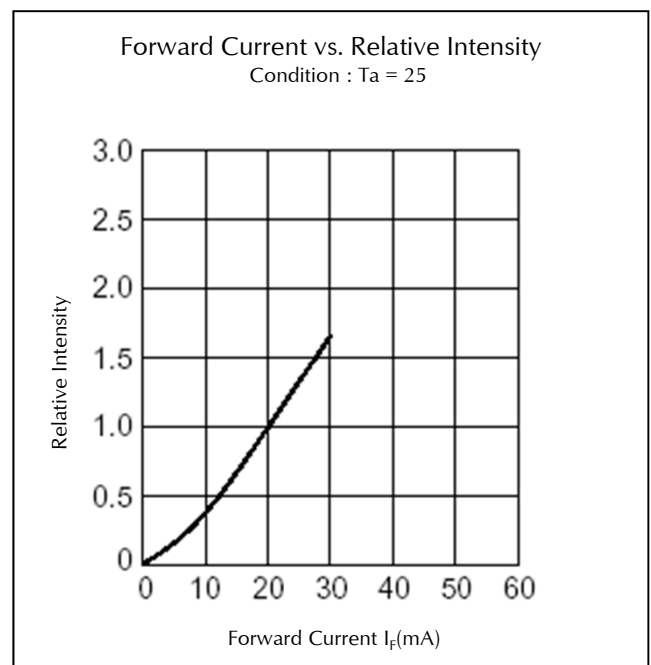
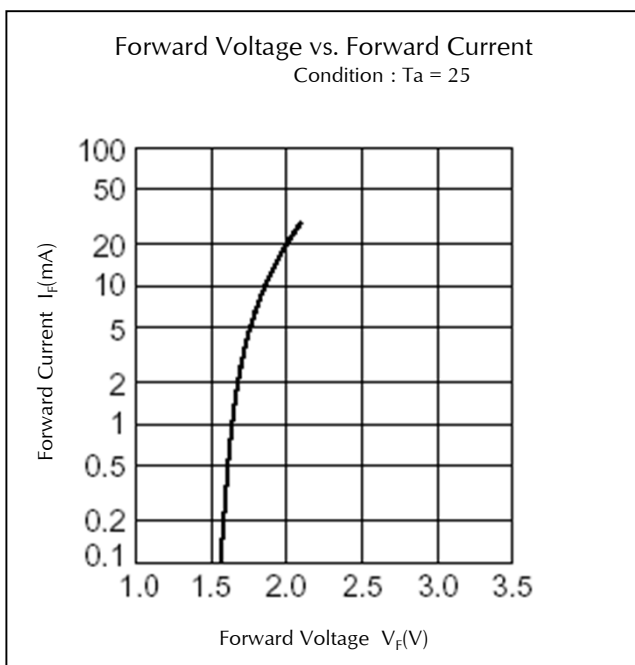
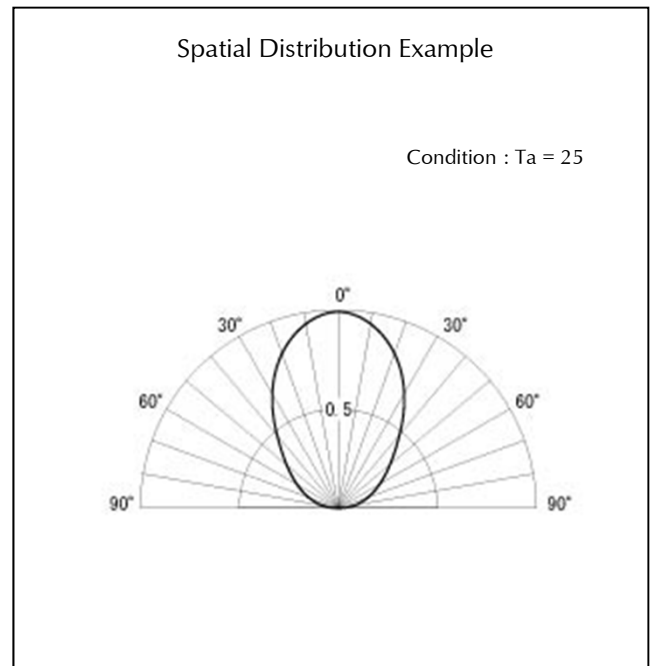
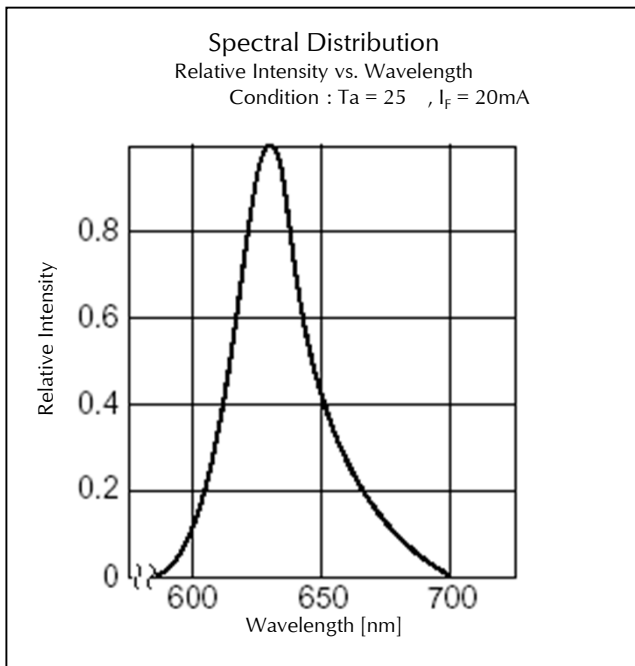
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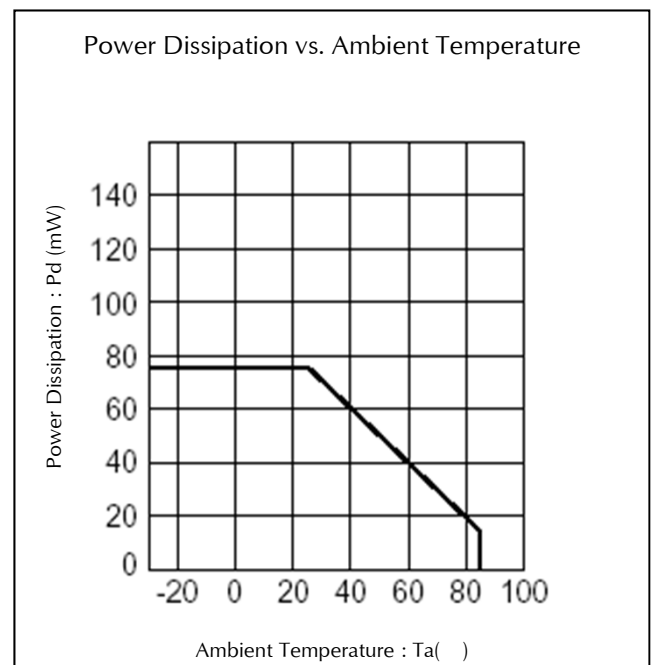
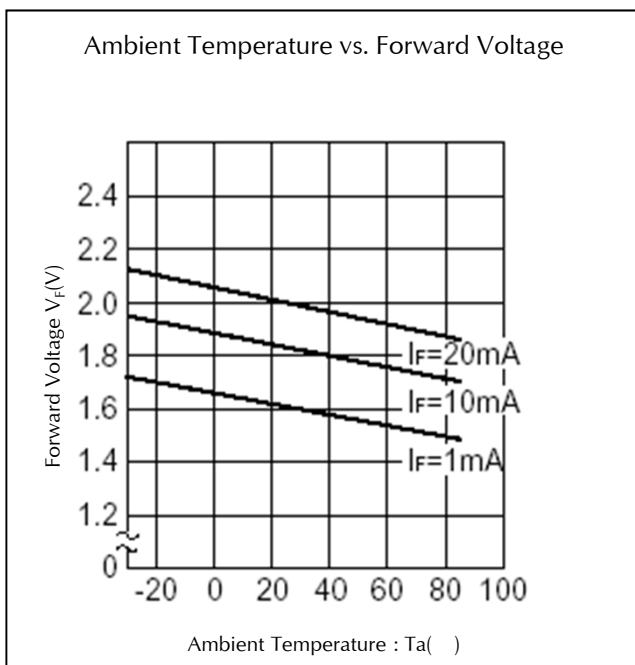
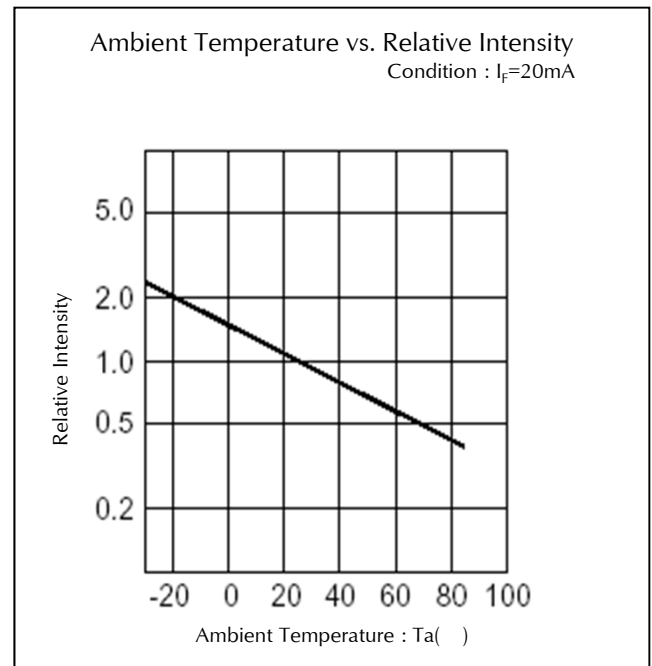
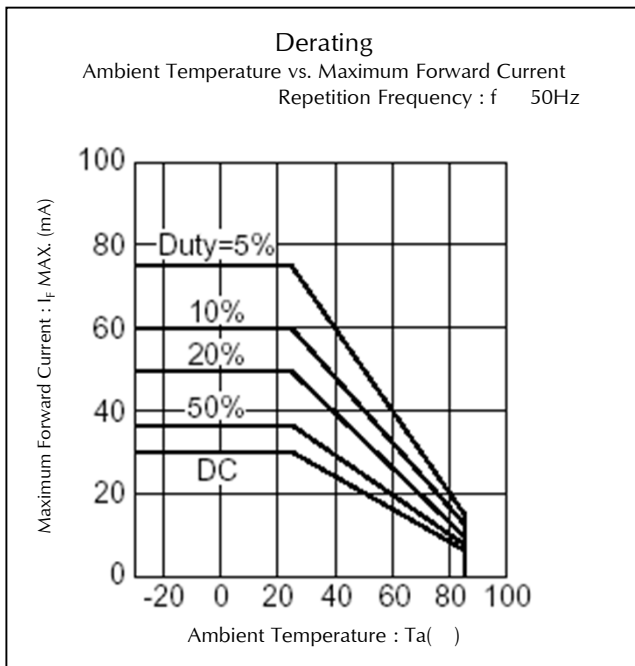
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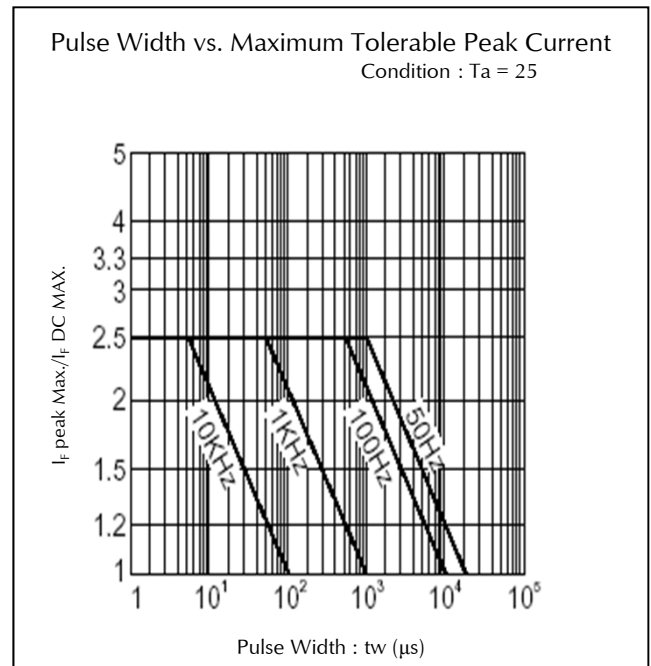
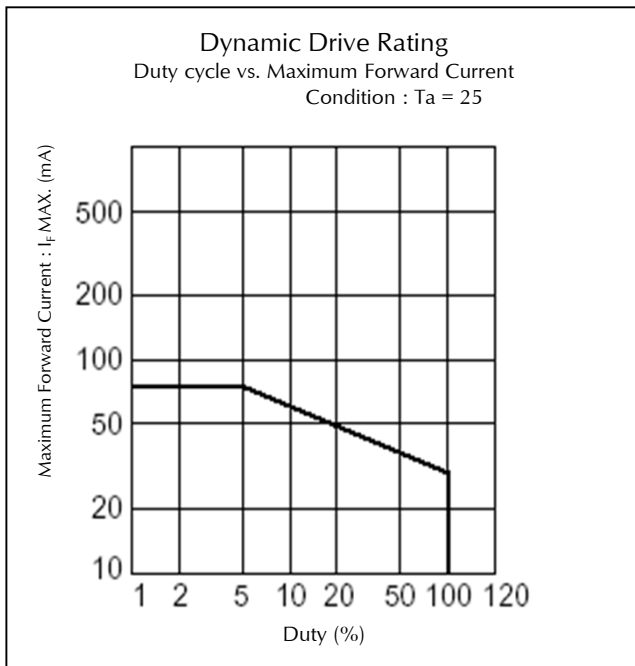
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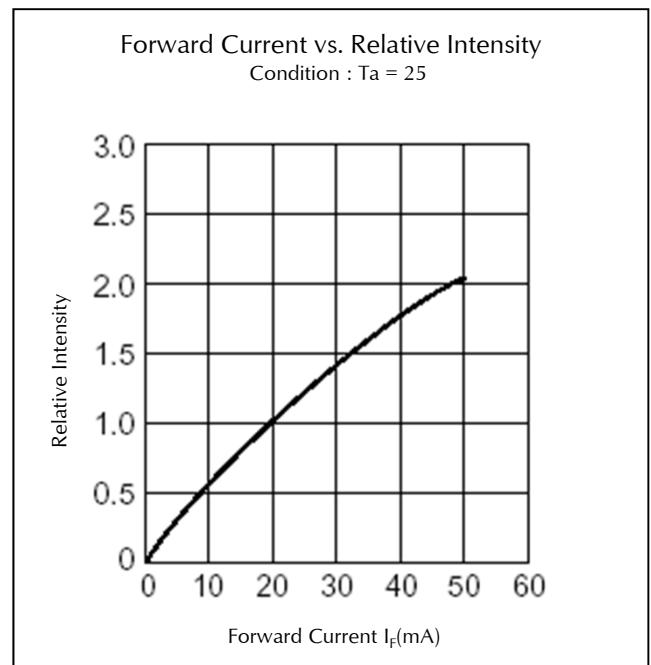
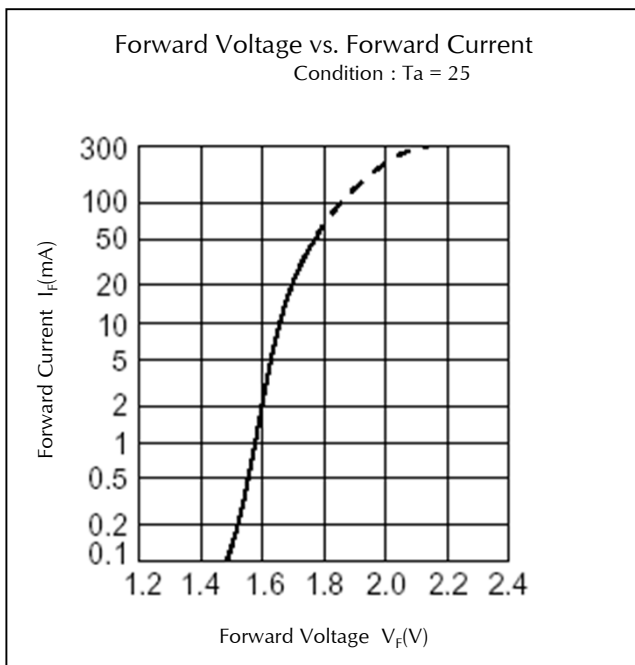
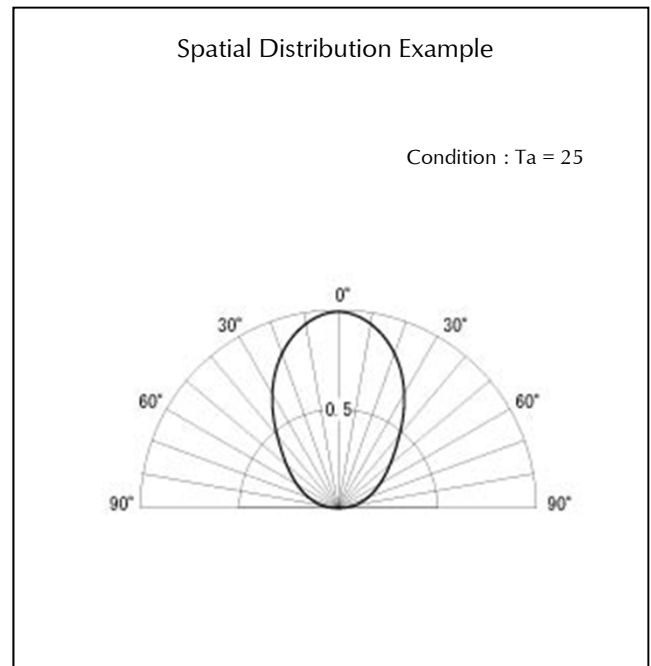
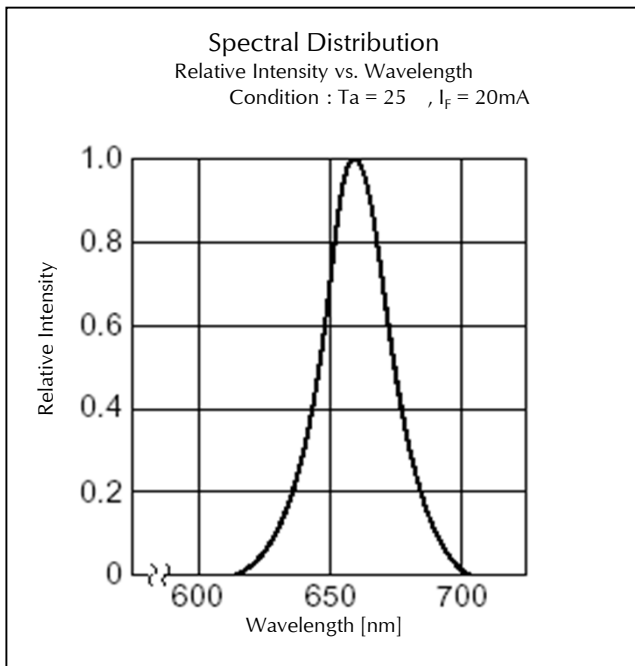
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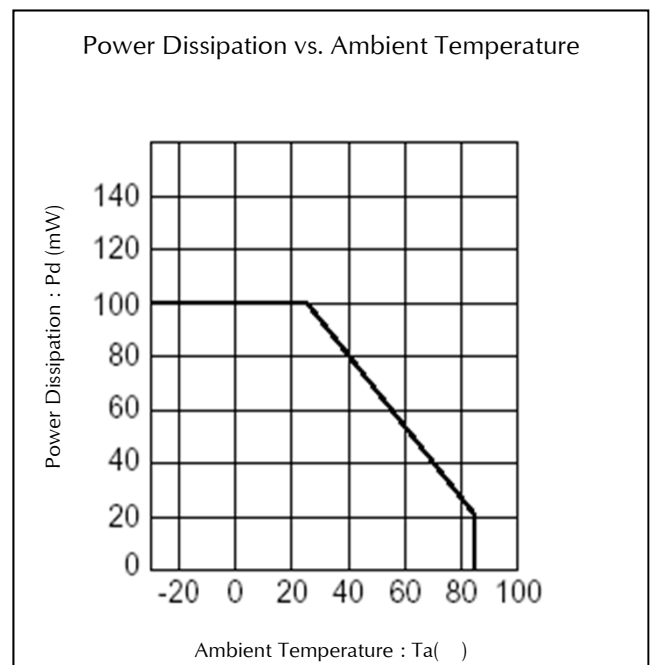
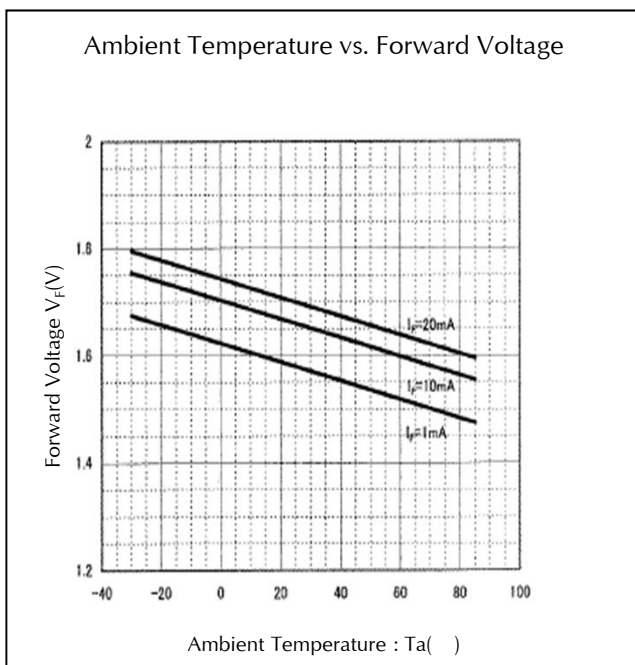
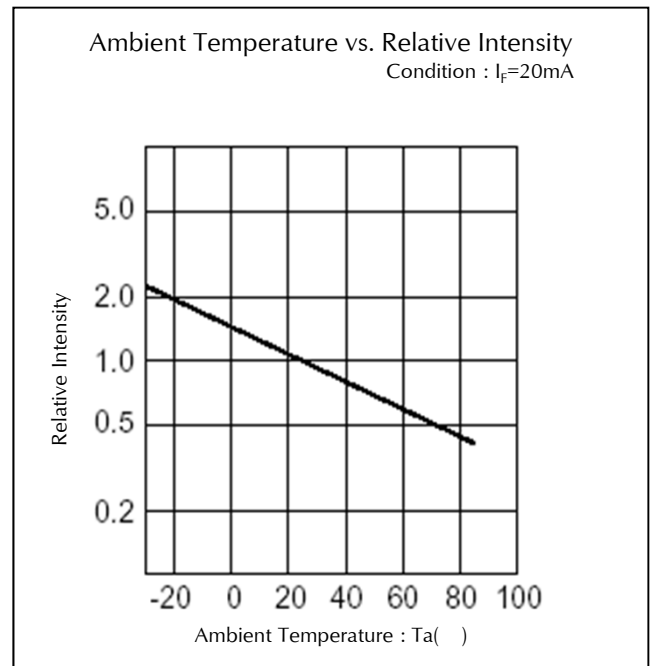
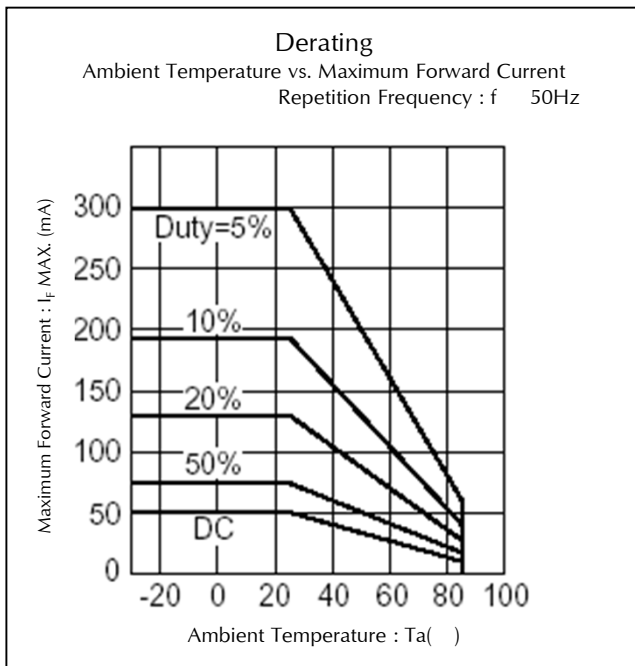
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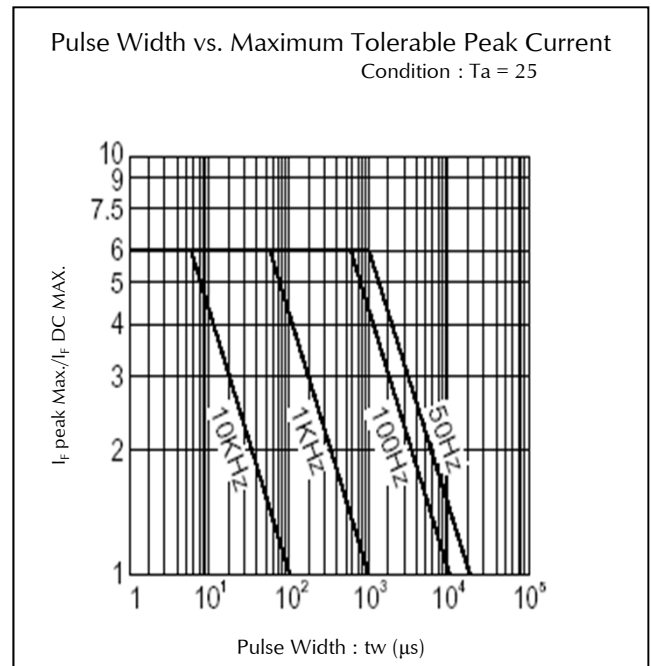
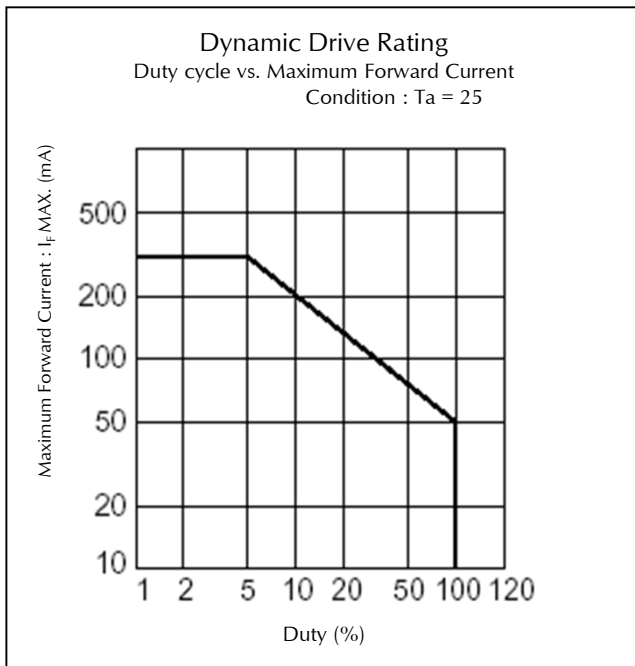
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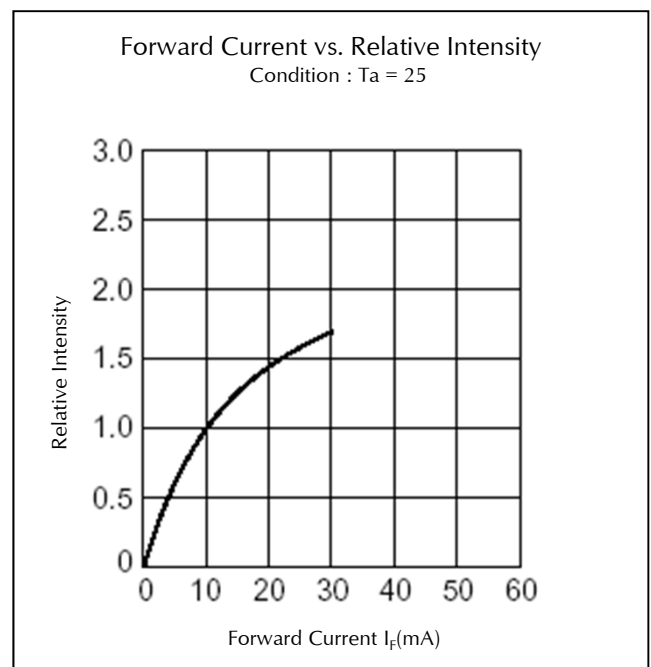
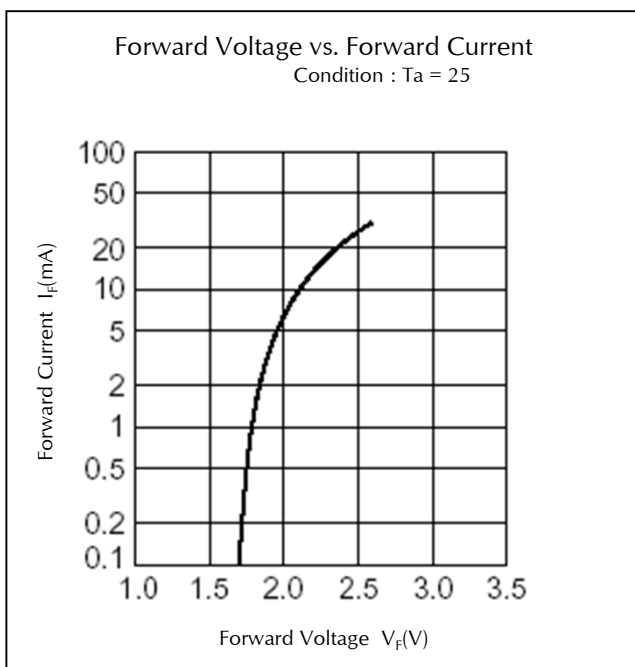
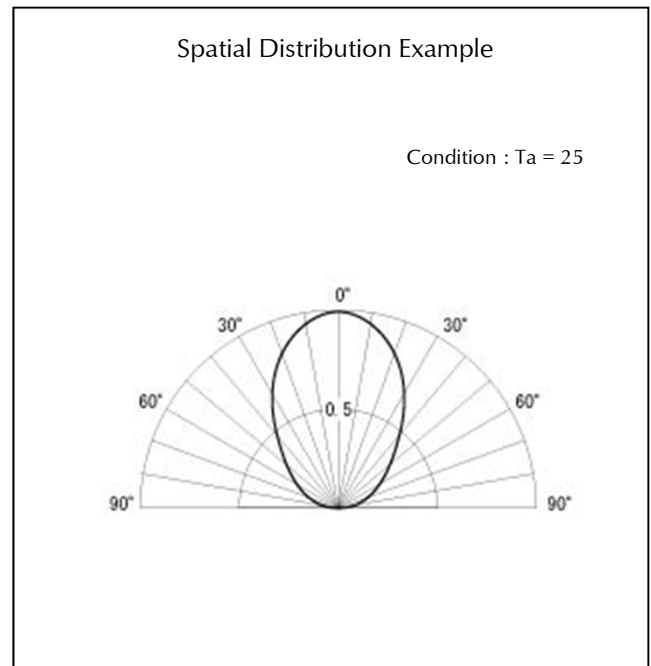
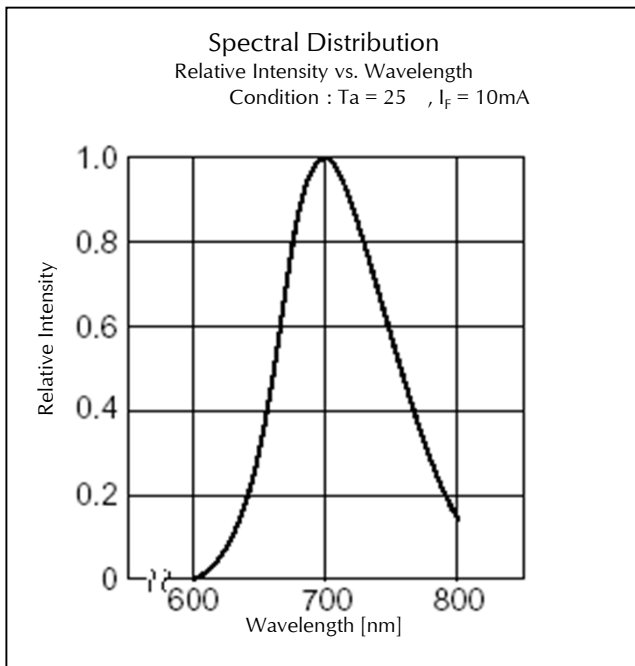
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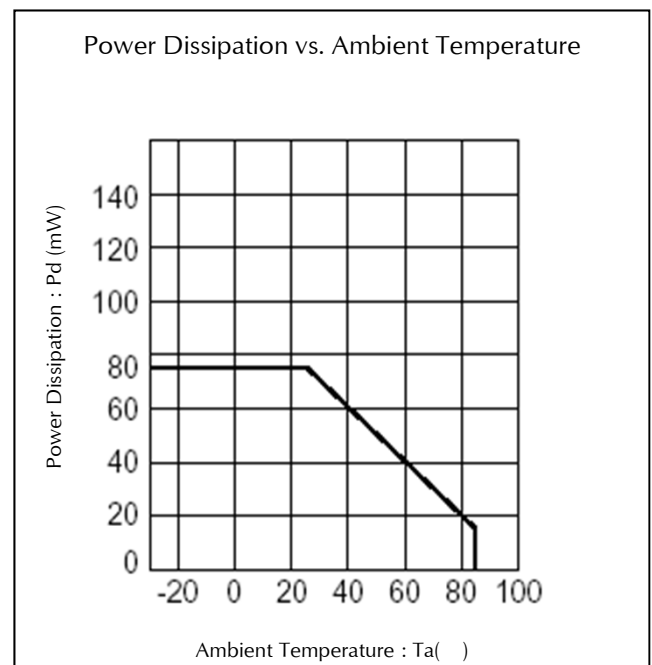
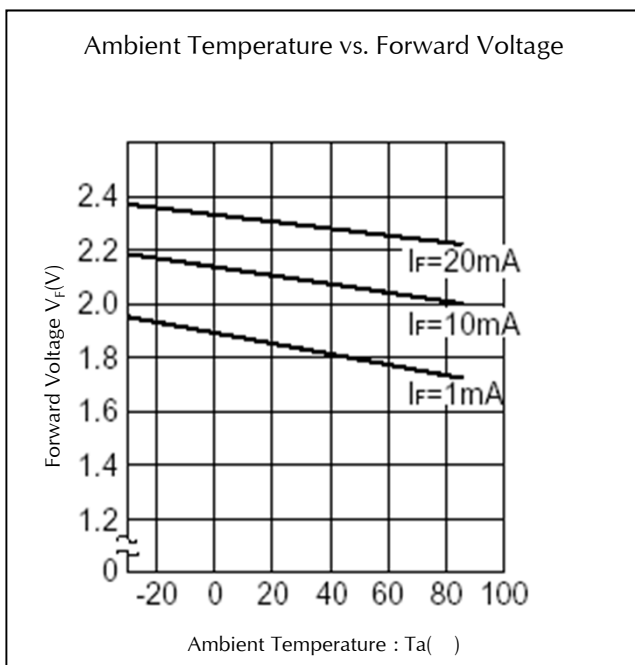
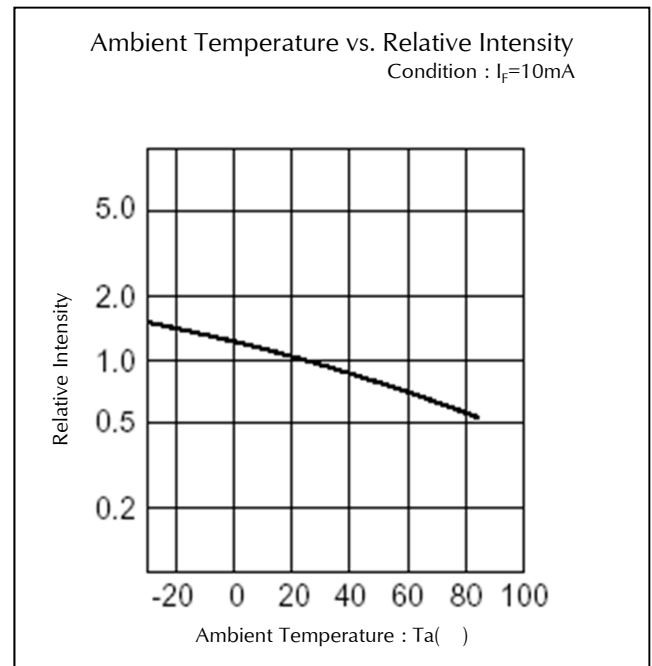
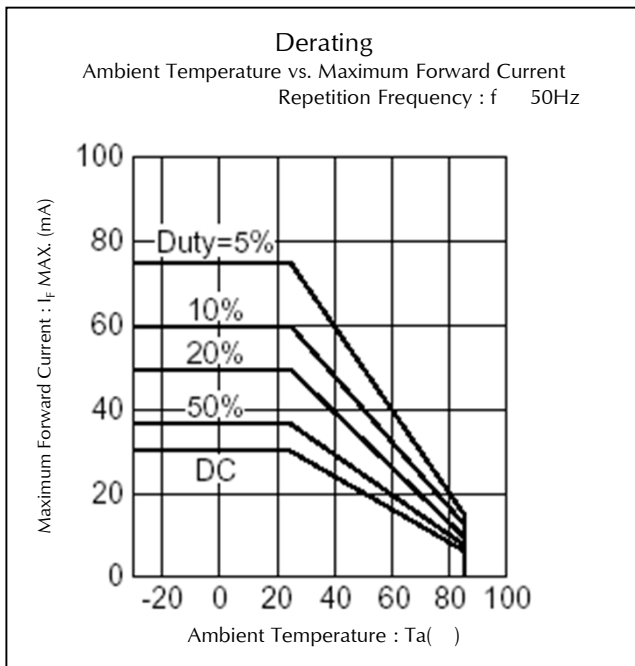
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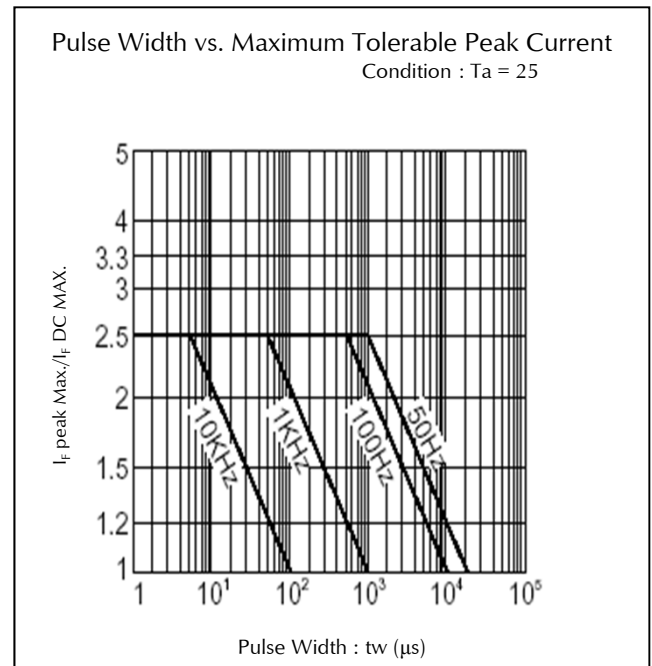
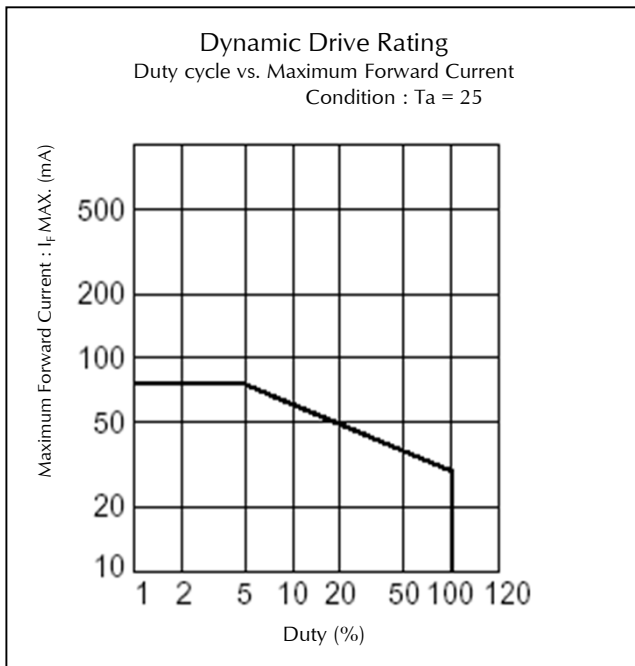
Technical Data(MPR)



Technical Data(MPR)



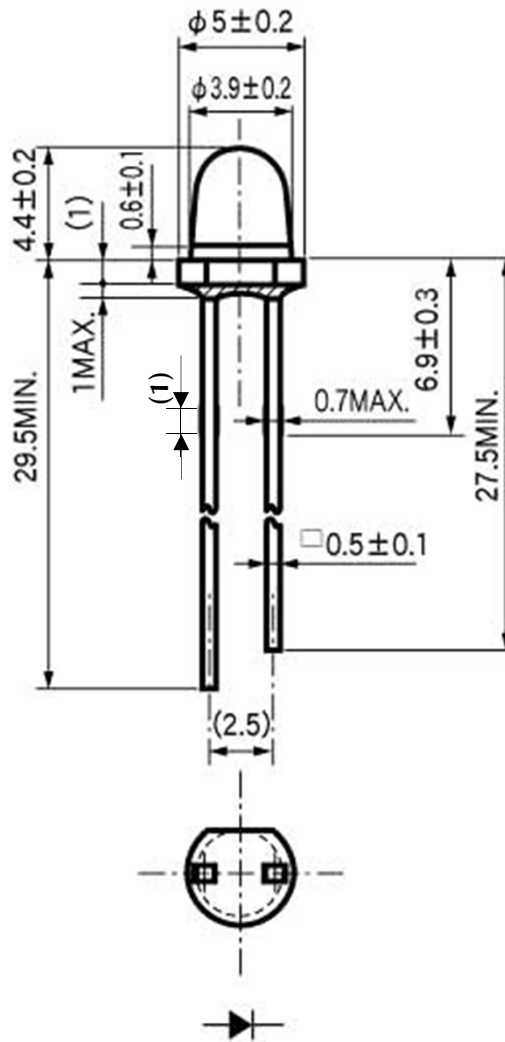
Technical Data(MPR)



Package Dimensions

(Unit: mm)

Mass : (0.29)g



TTW (Through The Wave) soldering Conditions

Pre-heating	100	(MAX.)
Solder Bath Temp.	265	(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	(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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