



Pb-free
HEAT



1313C Series

Top View Type Tri-color

Features

Package	Top View Type, Milky White Resin
Product features	<ul style="list-style-type: none"> • Outer Dimension 1.6 x 1.5 x 0.7 mm(L x W x H) • Temperature range. Storage Temperature : -40℃~100℃ Operating Temperature : -40℃~85℃ • No lead package and lead-free soldering compatible • RoHS compliant
Dominant wavelength	Blue : 470nm (UB) Green : 525nm (UG) Yellow Green : 572nm (YPY) Orange : 605nm (FA) Red : 626nm (FR)
Spatial distribution	UB/UG/YPY : $\theta_x=135$ deg., FA/FR : $\theta_x=150$ deg. UB/UG/YPY/FA/FR : $\theta_y=145$ deg.
Die materials	UB,UG : InGaN, YPY,FA,FR : AlGaInP
Rank grouping parameter	Sorted by luminous intensity and wavelength per rank taping
Assembly method	Auto pick & place machine (Auto Mounter)
Soldering methods	Reflow soldering and manual soldering
Taping and reel	4,000pcs per reel in a 8mm width tape. (Standard) Reel diameter: $\phi 180$ mm
ESD	1kV (HBM)

Recommended Applications

Cellular Phone, Mobile Equipment, Other General Applications

Color Variations and Luminous Intensity
(T_a=25°C)

Part No.	Die Name	Material	Emitted Color	Lens Color	Dominant Wavelength		Luminous Intensity		
					λ_d (nm)		I_v (mcd)		
					TYP.	I_F	MIN.	TYP.	I_F
UAGB1313C	UB	InGaN	Blue	Milky White	470	10	15	30	10
	UG	InGaN	Green		525	10	70	140	10
	FA	AlGaInP	Orange		605	10	30	60	10
URGB1313C	UB	InGaN	Blue	Milky White	470	10	15	30	10
	UG	InGaN	Green		525	10	70	140	10
	FR	AlGaInP	Red		626	10	20	40	10
URYB1313C	UB	InGaN	Blue	Milky White	470	10	15	30	10
	YPY	AlGaInP	Yellow Green		572	10	9.6	24	10
	FR	AlGaInP	Red		626	10	20	40	10

※Note : The luminous intensity(I_v) and dominant wavelength(λ_d) above are the setup values of the sorting machine.
 (Tolerance : I_v ... +10%, λ_d ... ± 2 nm)

Absolute Maximum Ratings

(T_a=25°C)

Item	Symbol	Absolute Maximum Ratings					Unit
		UB	UG	YPY	FA	FR	
Power Dissipation	P _d	73	73	62.5	81	81	mW
Forward Current	I _F	20	20	25	30	30	mA
Pulse Forward Current ^{※1}	I _{FRM}	48	48	60	100	100	mA
Derating (T _a =25 °C or higher)	ΔI _F	0.28	0.28	0.36	0.43	0.43	mA/°C
	ΔI _{FRM}	0.69	0.69	0.86	1.00	1.00	mA/°C
Reverse Voltage	V _R	5	5	5	5	5	V
Operating Temperature	T _{opr}	-40 ~ +85					°C
Storage Temperature	T _{stg}	-40 ~ +100					°C

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

※ The ratings specified above is under the condition that only one diode is lit.

50% Max. of each rating shall be applied when two diodes are lit simultaneously.

30% Max. of each rating shall be applied when all three diodes are lit simultaneously.

Electro-Optical Characteristics (UB,UG,YPY,FA,FR)
(T_a=25°C)

Item	Conditions	Symbol	Characteristics					Unit	
			UB	UG	YPY	FA	FR		
Forward Voltage	I _F =10mA	V _F	TYP.	3.0	3.0	2.0	2.0	2.0	V
			MAX.	3.5	3.5	2.4	2.5	2.5	
Reverse Current	V _R =5V	I _R	MAX.	100	100	100	100	100	μA
Peak Wavelength	I _F =10mA	λ _p	TYP.	465	522	575	609	635	nm
Dominant Wavelength	I _F =10mA	λ _d	TYP.	470	525	572	605	626	nm
Spectral Line Half Width	I _F =10mA	Δλ	TYP.	26	35	17	15	15	nm
Half Intensity Angle	I _F =10mA	2θ _{1/2}	TYP.	135(θ _x)	135(θ _x)	135(θ _x)	150(θ _x)	150(θ _x)	deg.
				145(θ _y)	145(θ _y)	145(θ _y)	145(θ _y)	145(θ _y)	

※Note: The dominant wavelength (λ_d) above is the setup value of the sorting machine.
 (Tolerance: λ_d ...± 2nm)

Luminous Intensity Rank

(T_a=25°C)

Intensity Tolerance each Rank : +/- 10%

Rank	I _v (mcd)																	
	UAGB1313C						URGB1313C						URYB1313C					
	UB		UG		FA		UB		UG		FR		UB		YPY		FR	
	I _F =10mA						I _F =10mA						I _F =10mA					
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
A	15	30	70	140	30	60	15	30	70	140	20	40	15	30	9.6	24	20	40
B	30						30						30					
C	15	30	140				15	30	140				15	30	24			
D	30						30						30					
E	15	30	70	140	60		15	30	70	140	40		15	30	10	24	40	
F	30						30						30					
G	15	30	140				15	30	140				15	30	24			
H	30						30						30					

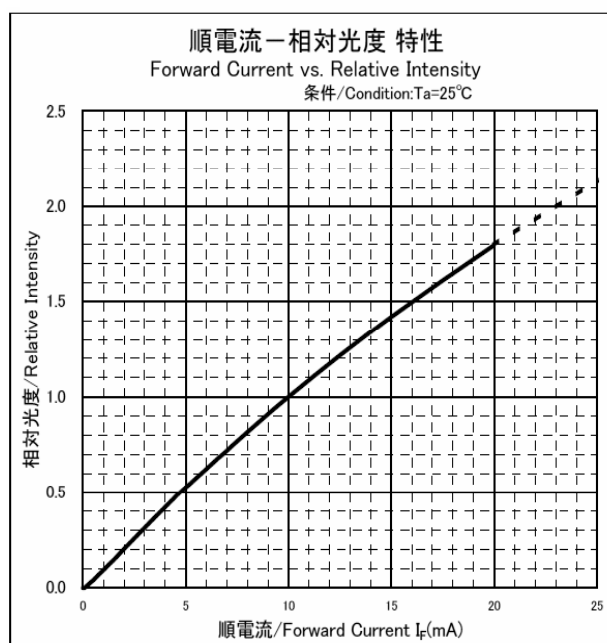
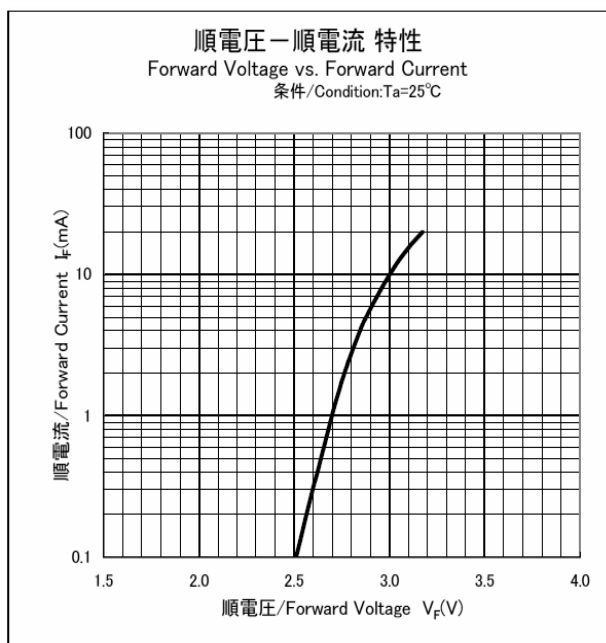
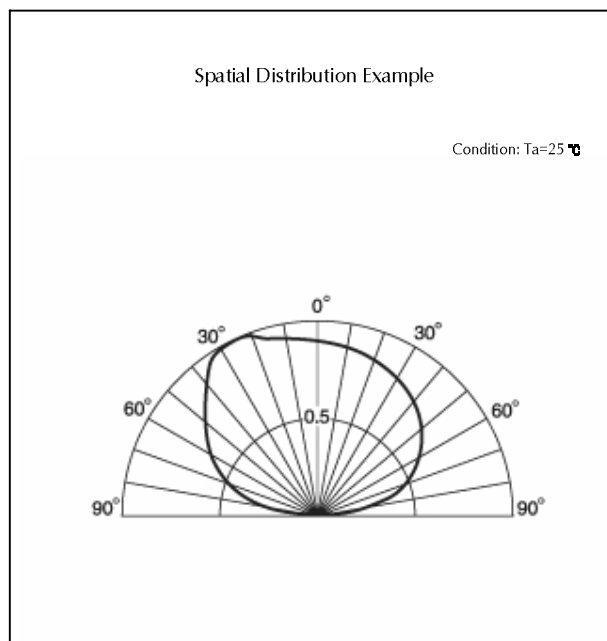
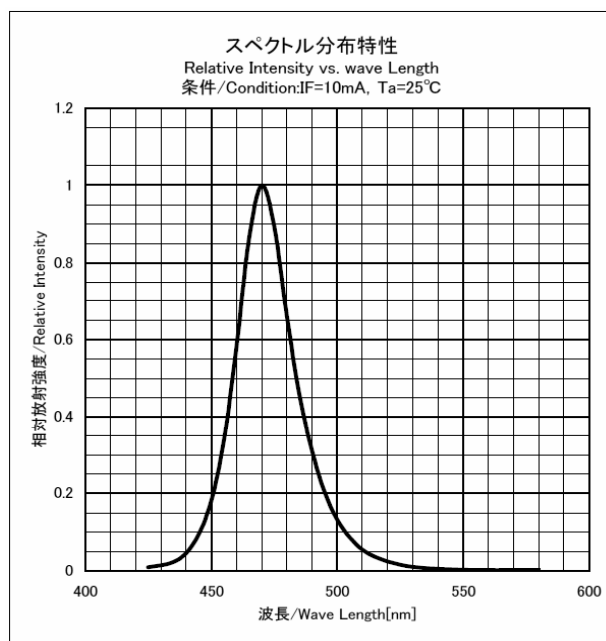
Color Tone Groups (λd)

($T=25^{\circ}C$)

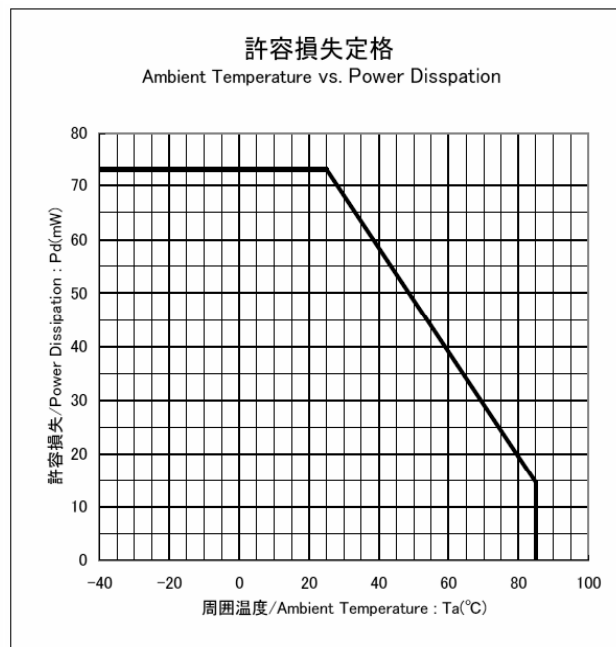
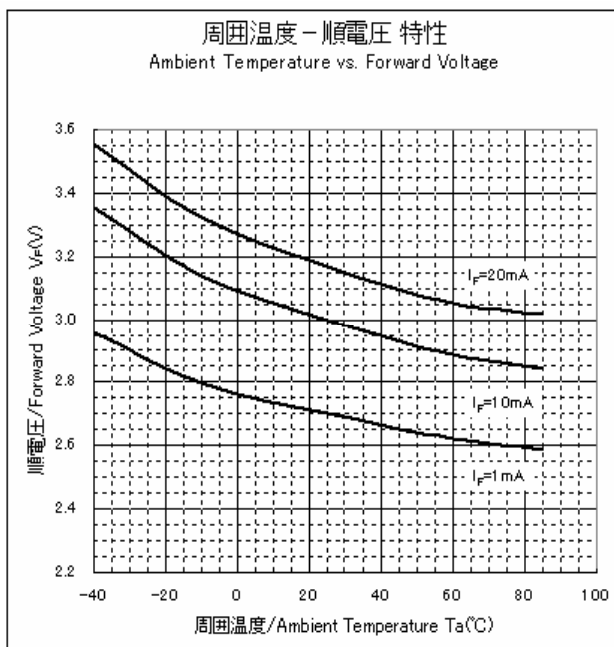
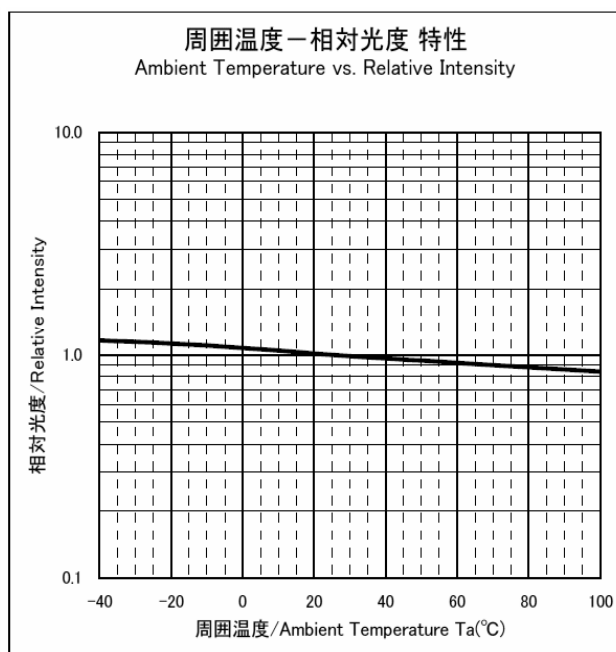
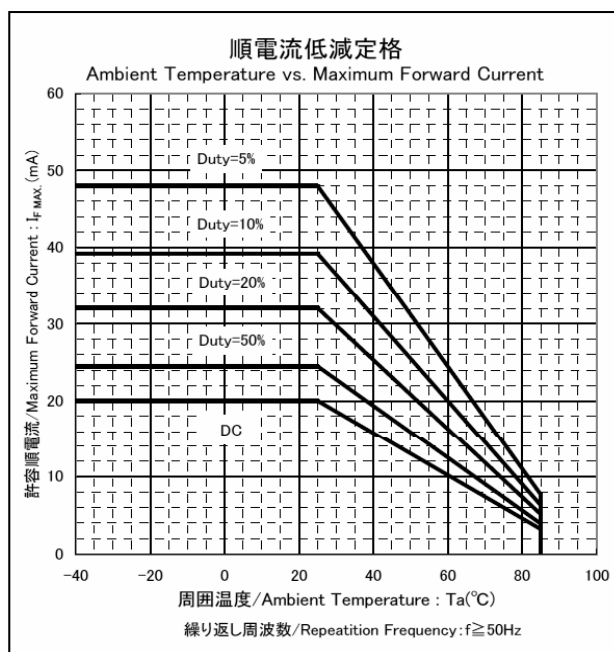
Tolerance: +/- 2nm

Rank	Dominant Wave Length λd (nm)																	
	UAGB1313C						URGB1313C						URYP1313C					
	UB		UG		FA		UB		UG		FR		UB		YPY		FR	
	$I_f=10mA$						$I_f=10mA$						$I_f=10mA$					
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
A	460	480	510	540	595	613	460	480	510	540	615	635	460	480	567	577	615	635

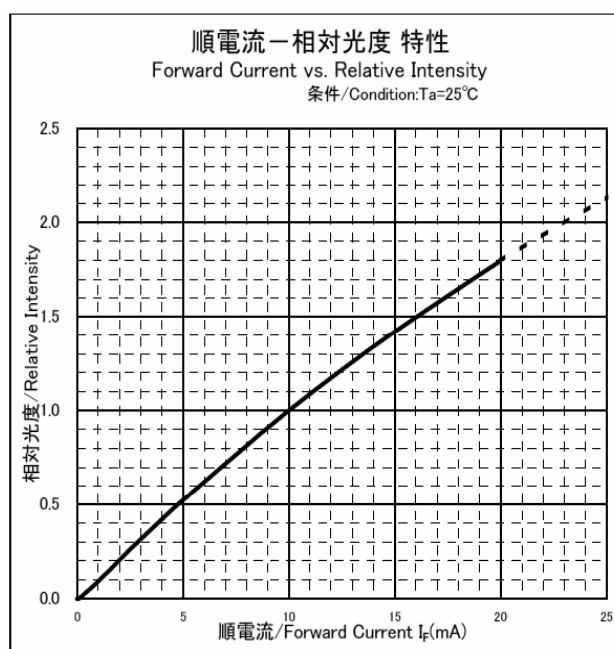
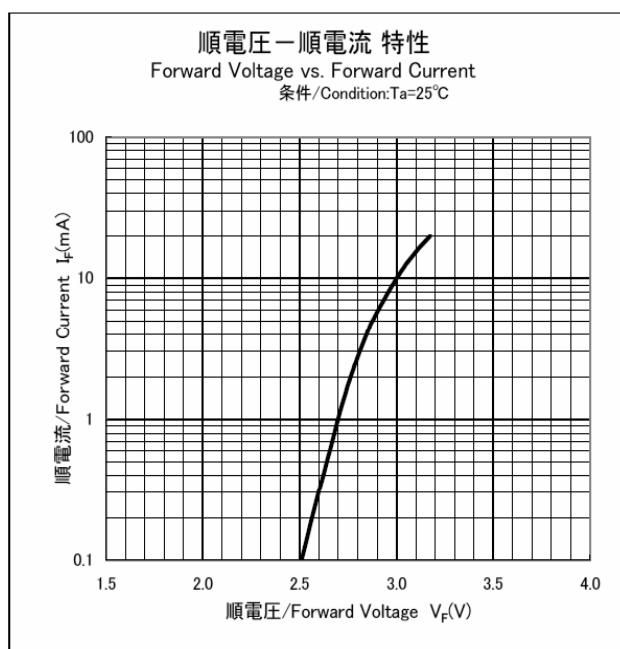
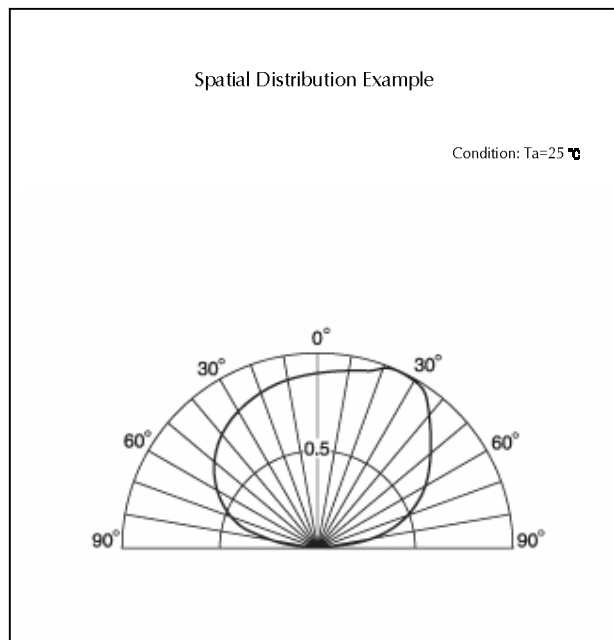
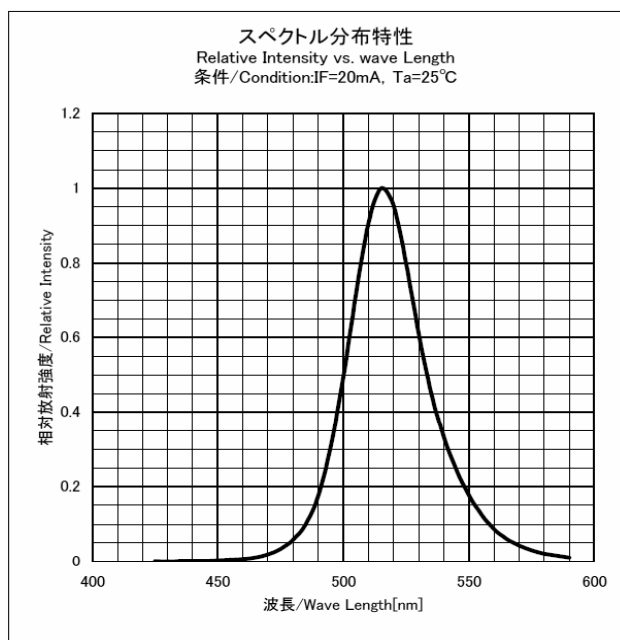
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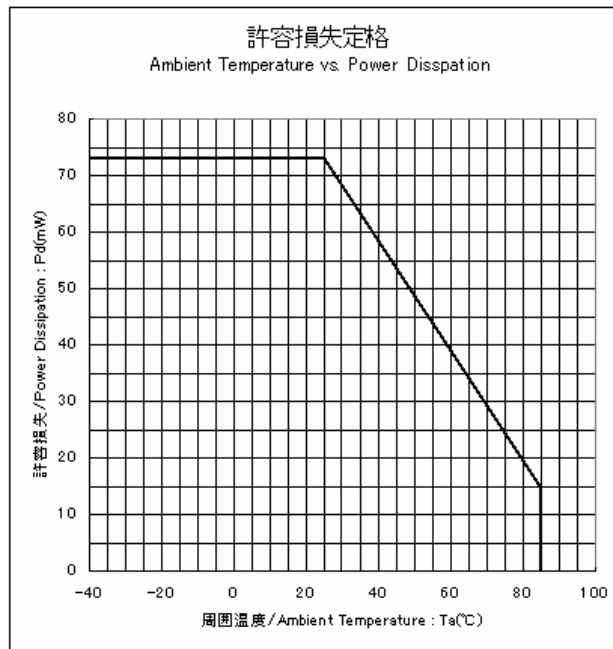
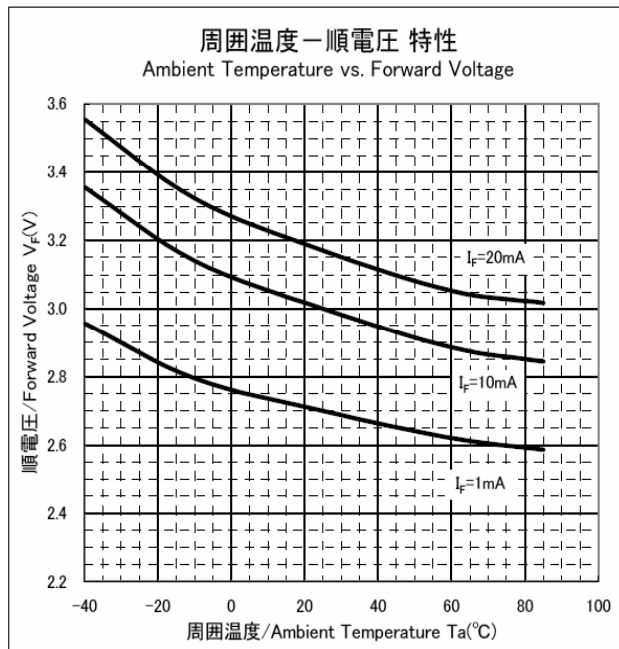
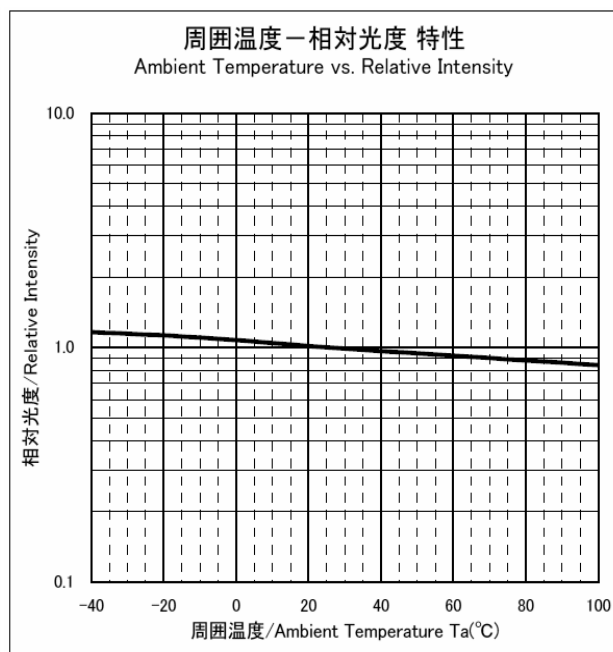
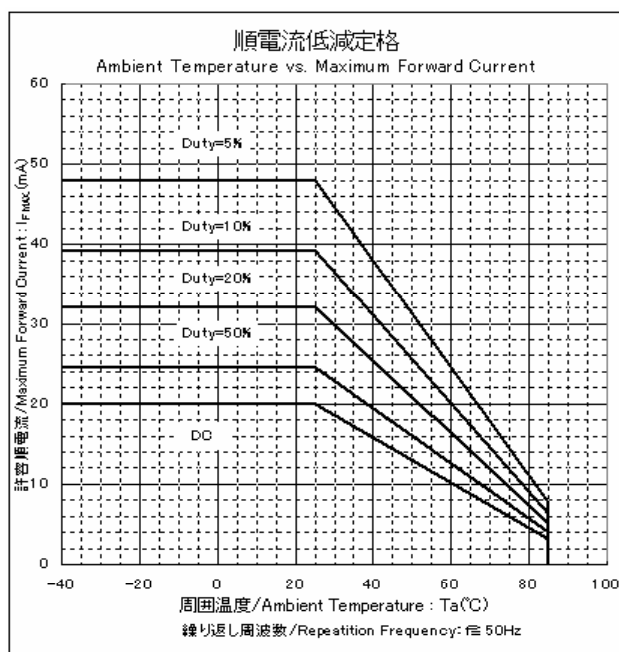
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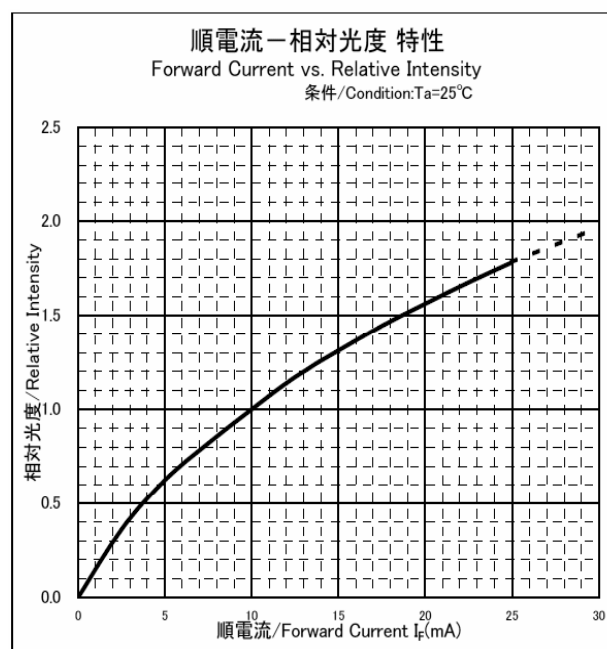
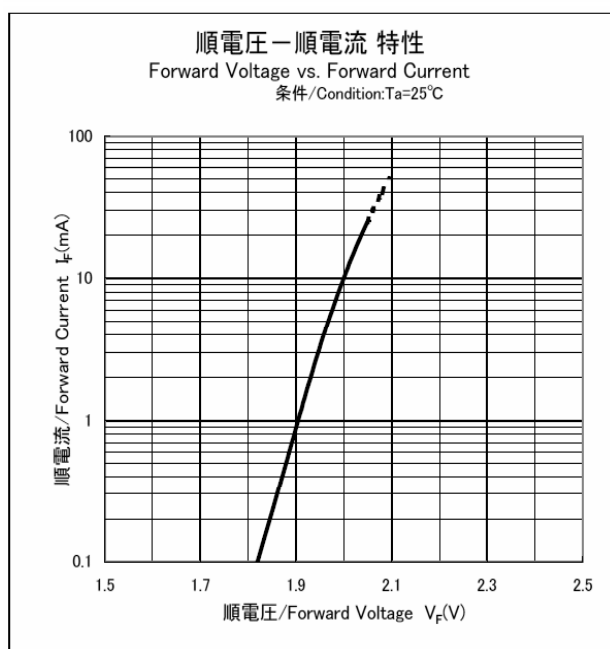
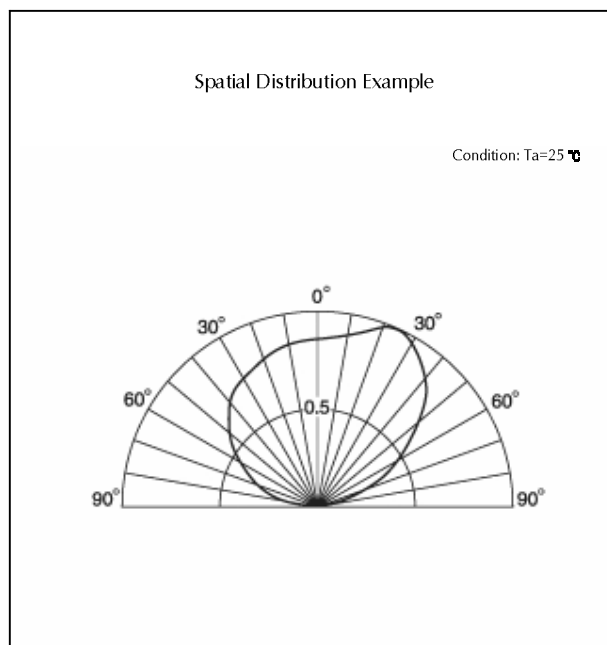
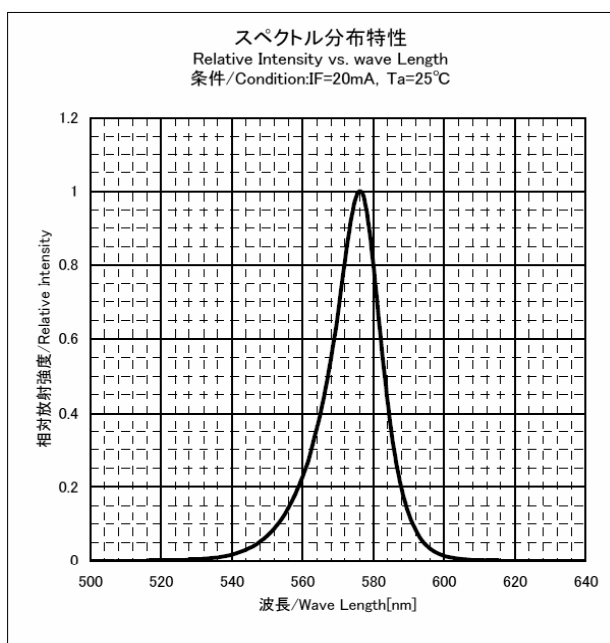
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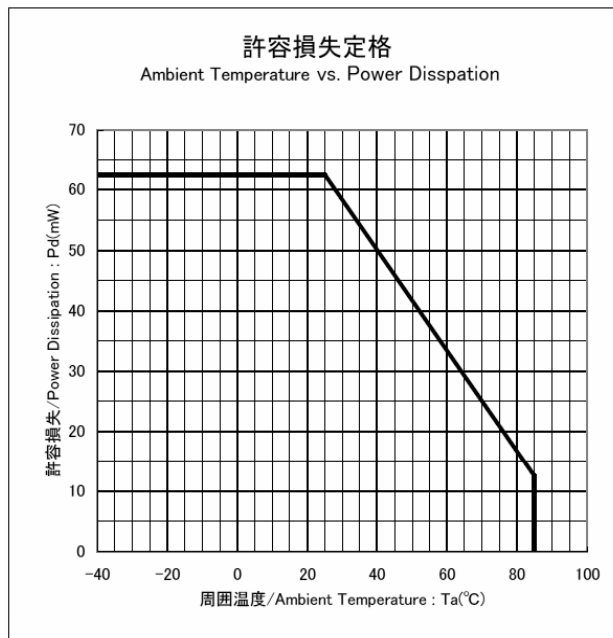
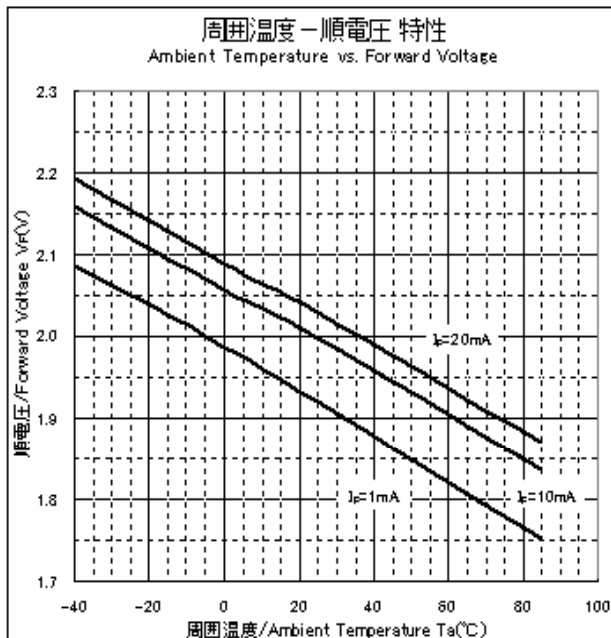
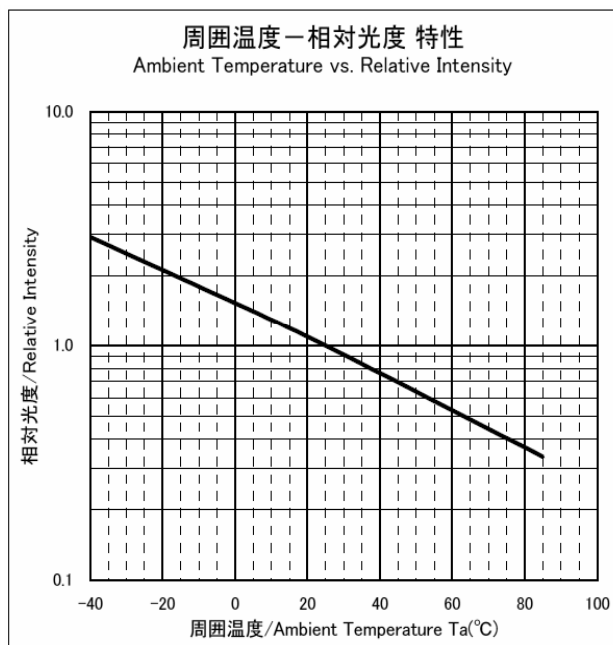
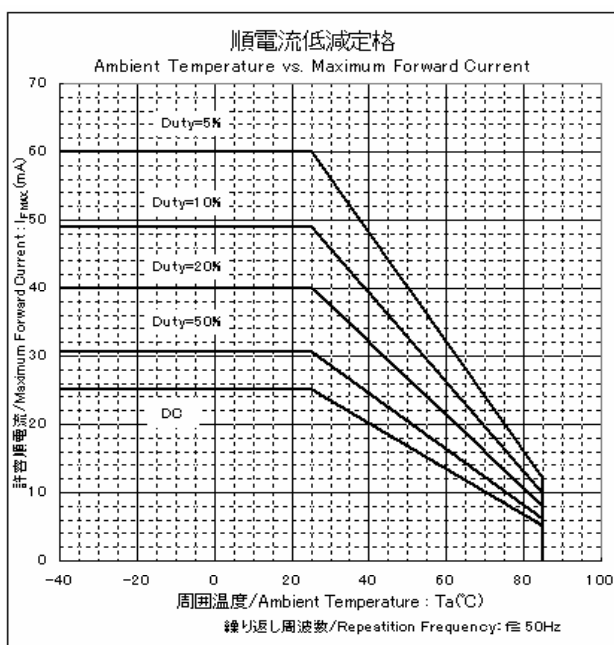
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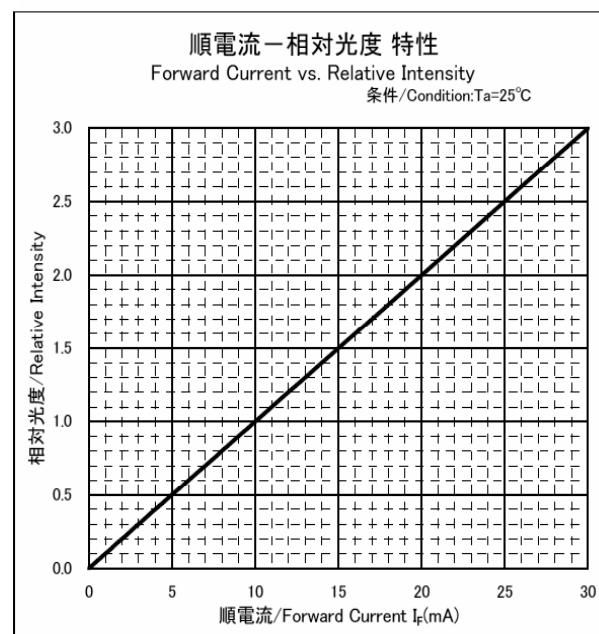
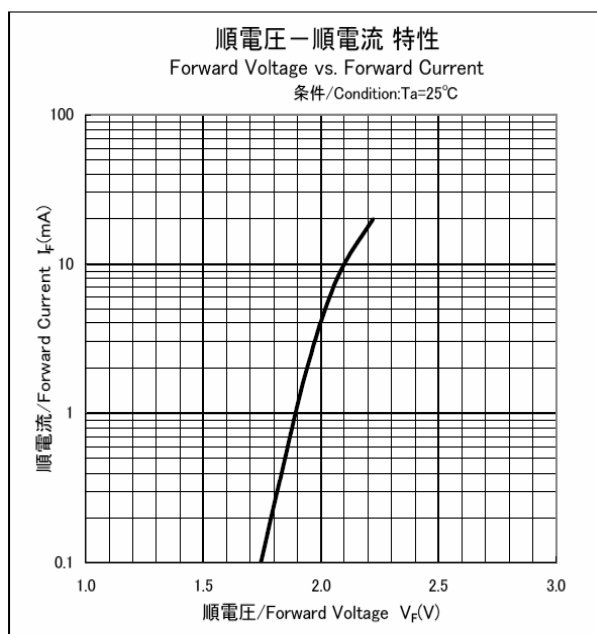
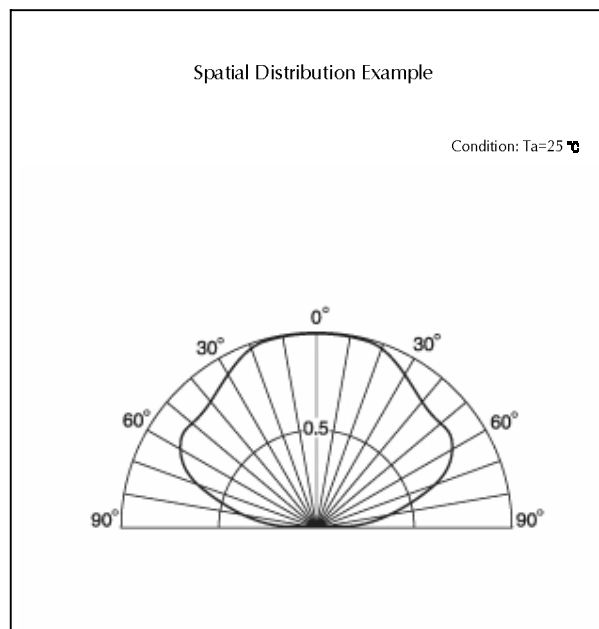
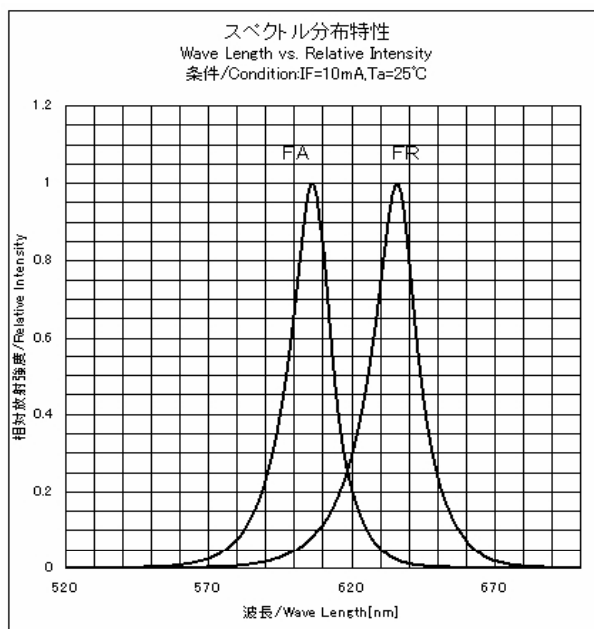
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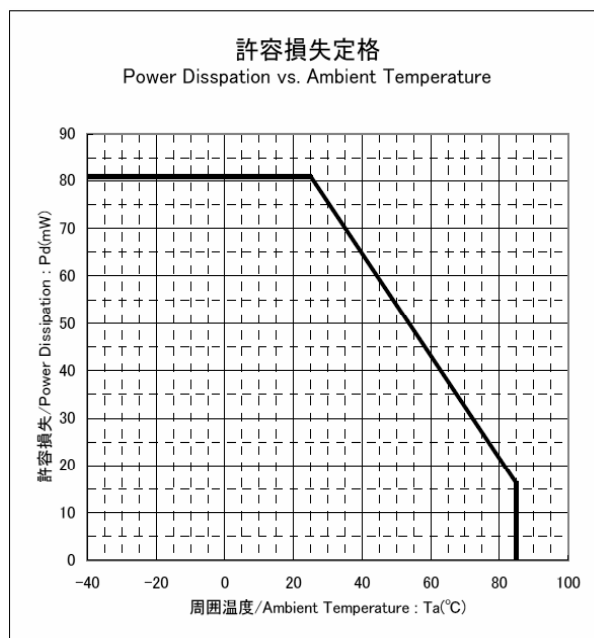
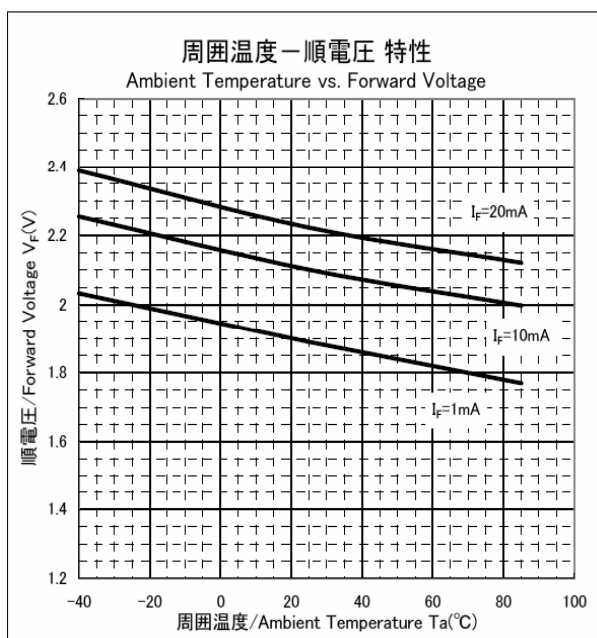
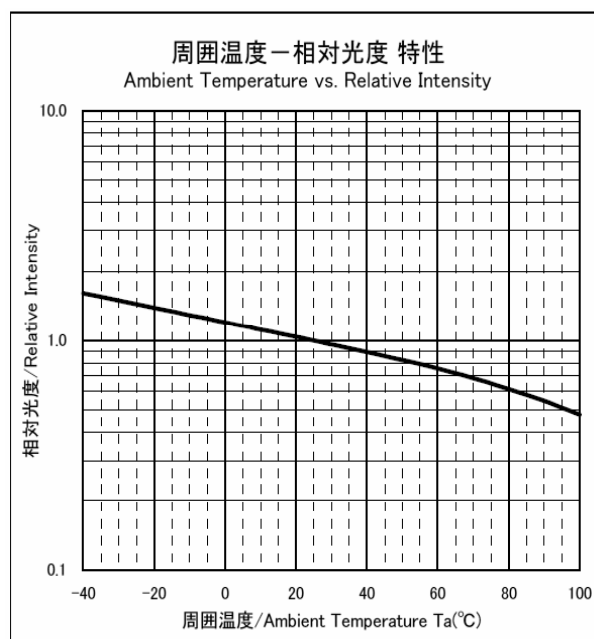
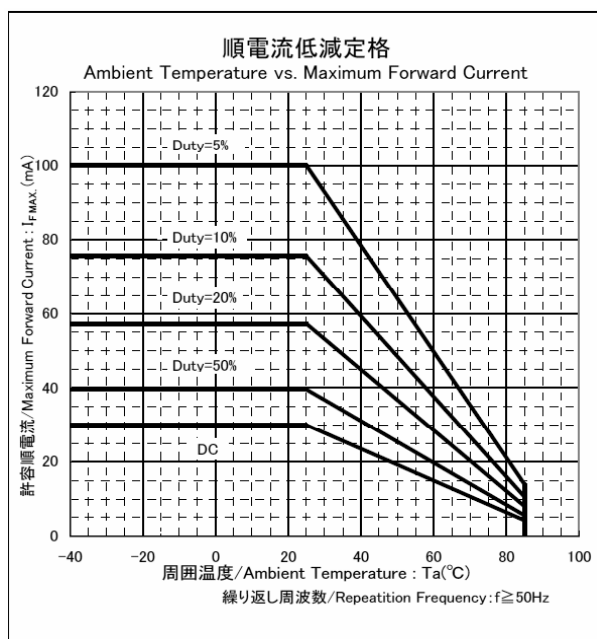
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Technical Data(FA/FR)



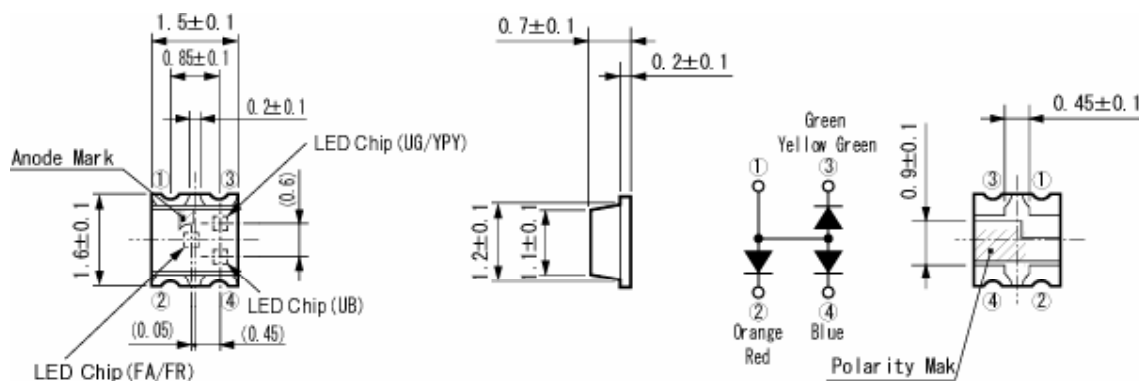
Technical Data(FA/FR)



Package Dimensions

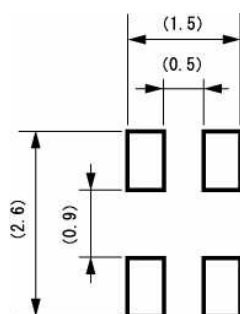
(Unit: mm)

Weight:(2.36)mg



Recommended Soldering Pattern

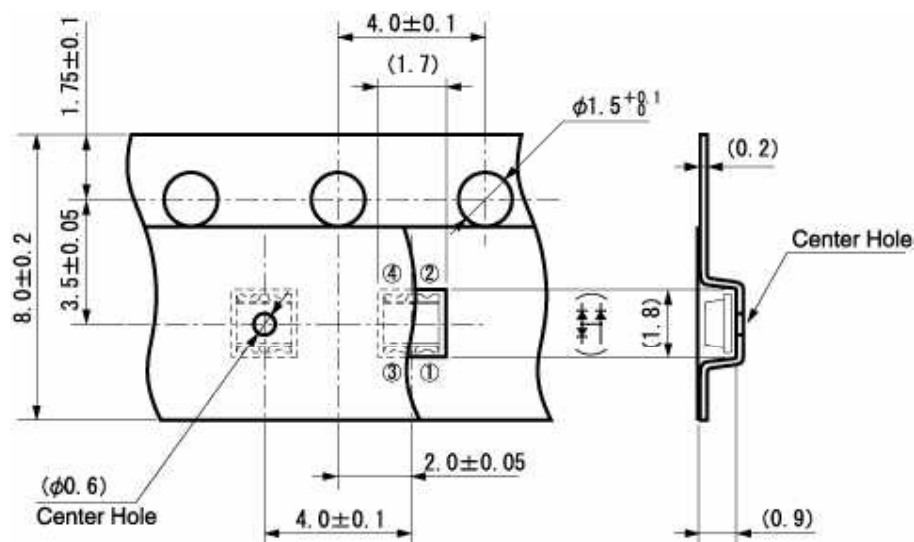
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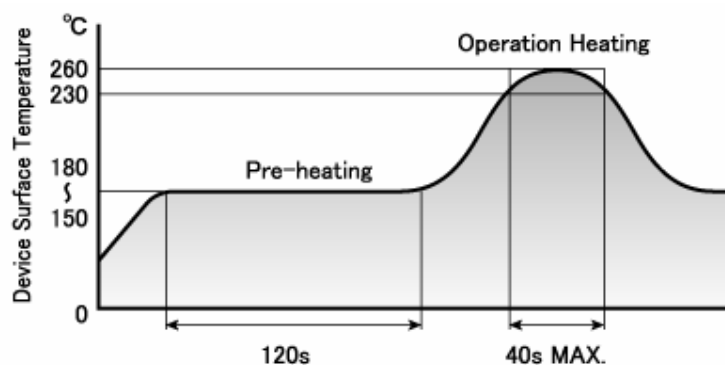
Taping Specification

(Unit: mm)

Quantity: 4,000pcs/ reel (standard)



Reflow Soldering Conditions



- 1) The above profile temperature gives the maximum temperature of the LED resin surface. Please set the temperature so as to avoid exceeding this range.
- 2) Total times of reflow soldering process shall be no more than 2 times. When the second reflow soldering process is performed, intervals between the first and second reflow should be short as possible (while allowing some time for the component to return to normal temperature after the first reflow) in order to prevent the LED from absorbing moisture.
- 3) Temperature fluctuation to the LED during the pre-heating process shall be minimized. (6°C maximum)

Manual Soldering Conditions

Iron tip temp.	350 °C	(MAX.)
Soldering time and frequency	3 s	(MAX.)
	1 time	(MAX.)

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