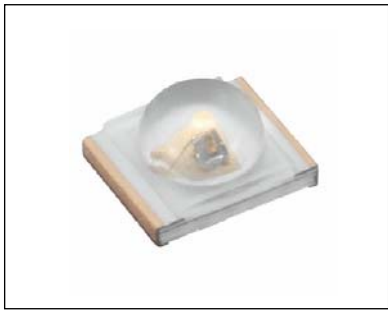




Pb-free
HEAT



NU□1106W Series

Single Color Super Wide Angle Type (t=1.3 mm)

Features

Package	Super Wide Angle Type (h=1.3 mm), Water Clear resin	
Product features	• Outer Dimension 2.5 x 2.0 x 1.3mm (L x W x H) • Temperature range Storage Temperature : -40°C ~ 120°C Operating Temperature : -40°C ~ 100°C • Lead-free soldering compatible • RoHS compliant	
Dominant wavelength	Yellow	: 593nm(NUY)
	Orange	: 612nm(NUA)
	Red	: 638nm(NUR)
Half Intensity Angle	160 deg.	
Die materials	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	
Taping and reel	2,500pcs per reel in a 8mm width tape. (Standard) Reel diameter: ϕ 180mm	
ESD	Up to 2kV(HBM)	

Recommended Applications

SW lighting for car indicators, Electric Household Appliances, OA/FA, Other General Applications



Color and Luminous Intensity

(Ta=25°C)

Part No.	Material	Emitted Color	Lens Color	Dominant Wavelength λ_d (nm)		Luminous Intensity I_v (mcd)		
				TYP.	I_f (mA)	MIN.	TYP.	I_f (mA)
NUY1106W	AlGaInP	Yellow	Water Clear	593	20	100	330	20
NUA1106W	AlGaInP	Orange		612	20	150	330	20
NUR1106W	AlGaInP	Red		638	20	68	220	20

Absolute Maximum Ratings

(Ta=25°C)

Item	Symbol	Absolute Maximum Ratings			Unit
		NUY	NUA	NUR	
Power Dissipation	P_d	81	81	81	mW
Forward Current	I_F	30	30	30	mA
Pulse Forward Current ※1	I_{FRM}	100	100	100	mA
Derating (Ta=85°C or higher)	ΔI_F	1.00	1.00	1.00	mA/°C
	ΔI_{FRM}	3.33	3.33	3.33	mA/°C
Reverse Voltage	V_R	5	5	5	V
Operating Temperature	T_{opr}	-40~+100			°C
Storage Temperature	T_{stg}	-40~+120			°C

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

Electro-Optical Characteristics

(Ta=25°C)

Item	Conditions	Symbol	Characteristics				Unit
				NUY	NUA	NUR	
Forward Voltage	$I_F=20$ mA	V_F	TYP.	2.2	2.15	2.2	V
			MAX.	2.6	2.6	2.6	
Reverse Current	$V_R=5$ V	I_R	MAX.	100	100	100	μ A
Peak Wavelength	$I_F=20$ mA	λ_p	TYP.	593	612	638	nm
Dominant Wavelength	$I_F=20$ mA	λ_d	TYP.	589	605	626	nm
Spectral Line Half Width	$I_F=20$ mA	$\Delta \lambda$	TYP.	15	15	15	nm
Half Intensity Angle	$I_F=20$ mA	$2\theta 1/2$	TYP.	160	160	160	deg.

Luminous Intensity Rank (Unit : mcd)

(Ta=25°C)

Intensity Tolerance each Rank : +/- 10%

ランク	I _V (mcd)					
	NUY		NUA		NUR	
	I _F =20mA		I _F =20mA		I _F =20mA	
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
BA						
BB						
BC						
BD						
BE						
BF					68	100
CA	100	150			100	150
CB	150	220			150	220
CC	220	330	220	330	220	330
CD	330	470	330	470	330	470
CE	470	680	470	680		

※ Please contact our sales staff concerning rank designation.

Color Tone Groups (λ d)

(Ta=25°C)

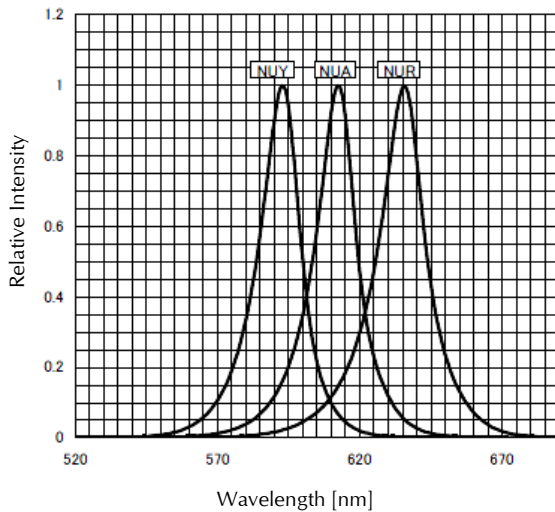
Tolerance: +/- 2nm

ランク	Dominant Wavelength λ d(nm)					
	NUY		NUA		NUR	
	I _F =20mA		I _F =20mA		I _F =20mA	
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
A	580	586	597	603	620	626
B	586	592	603	609	626	632
C	592	598	609	615		

※ Please contact our sales staff concerning rank designation.

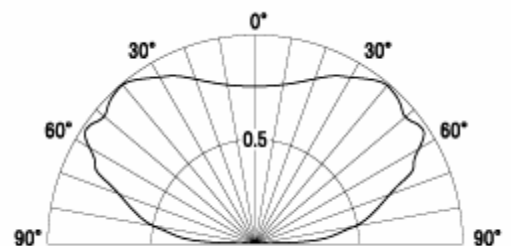
Technical Data

Spectral Distribution
Relative Intensity vs. Wavelength
Condition : $T_a = 25^\circ\text{C}$, $I_F = 20\text{mA}$

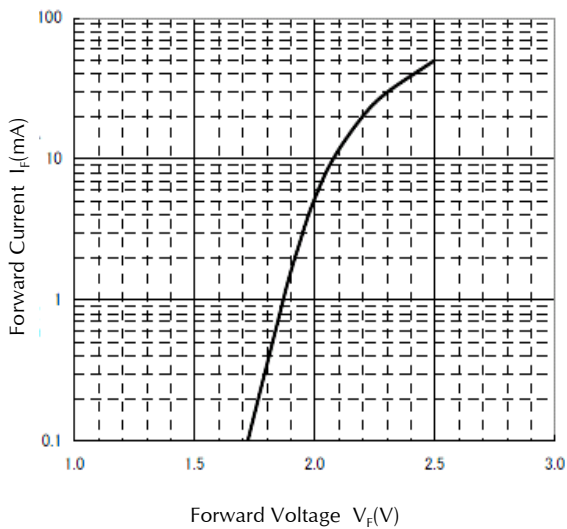


Spatial Distribution Example

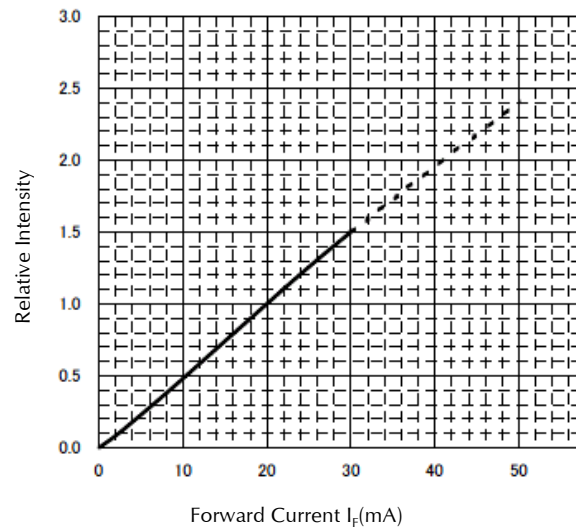
Condition : $T_a = 25^\circ\text{C}$



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



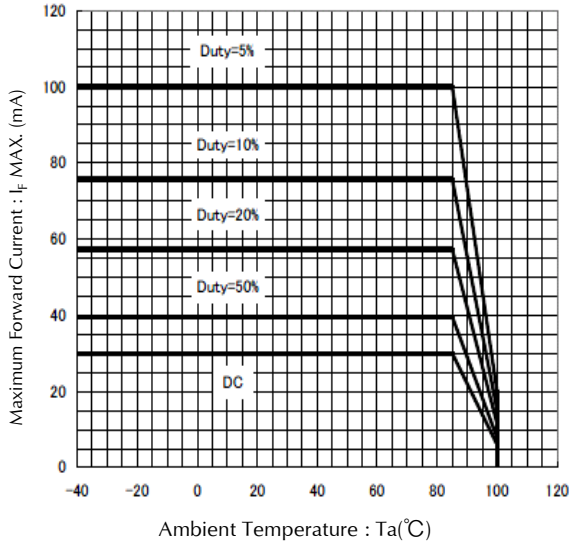
Forward Current vs. Relative Intensity
Condition : $T_a = 25^\circ\text{C}$



Technical Data

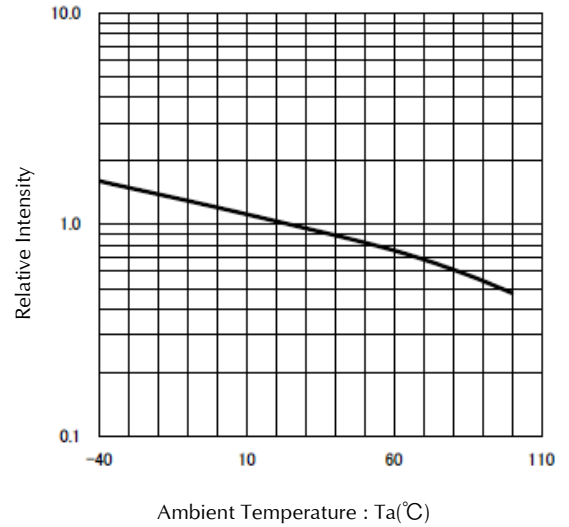
Derating

Ambient Temperature vs. Maximum Forward Current
Repetition Frequency : $f \geq 50\text{Hz}$, Pulse Width $t_w \leq 1\text{msec}$

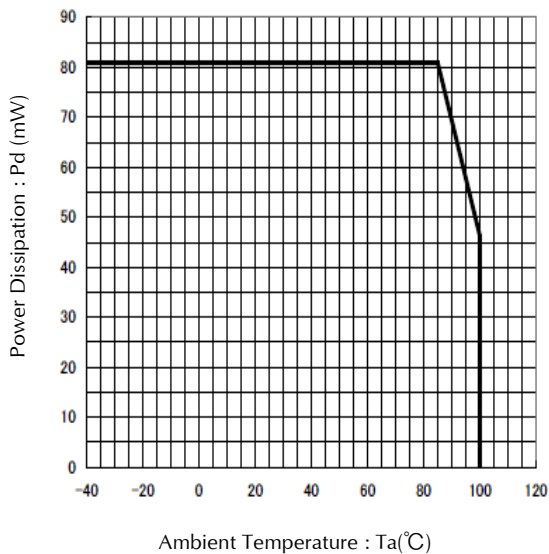


Ambient Temperature vs. Relative Intensity

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

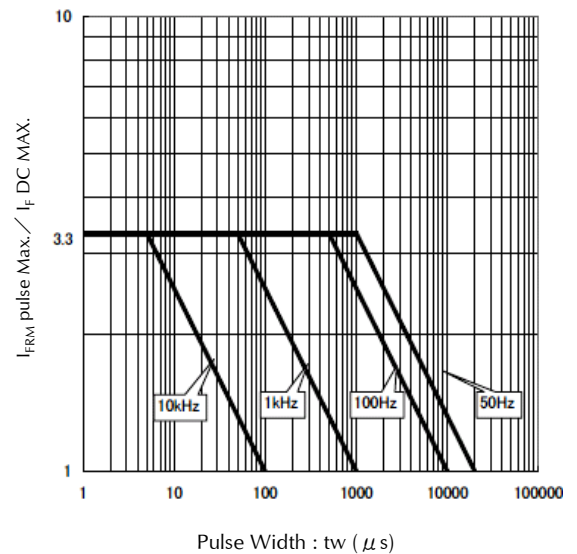


Power Dissipation vs. Ambient Temperature



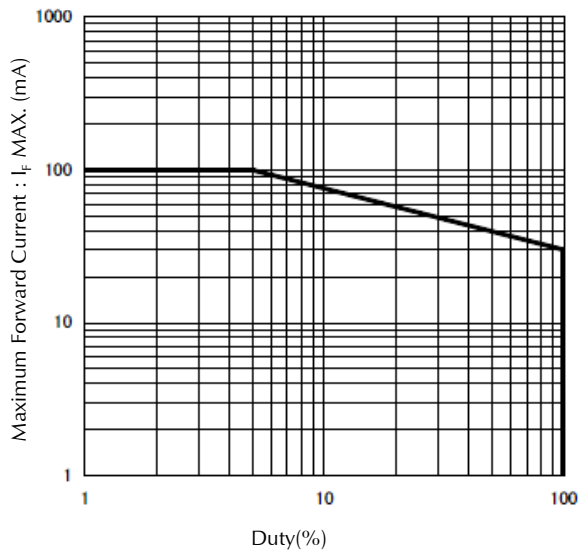
Pulse Width vs. Maximum Tolerable Current Ratio

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

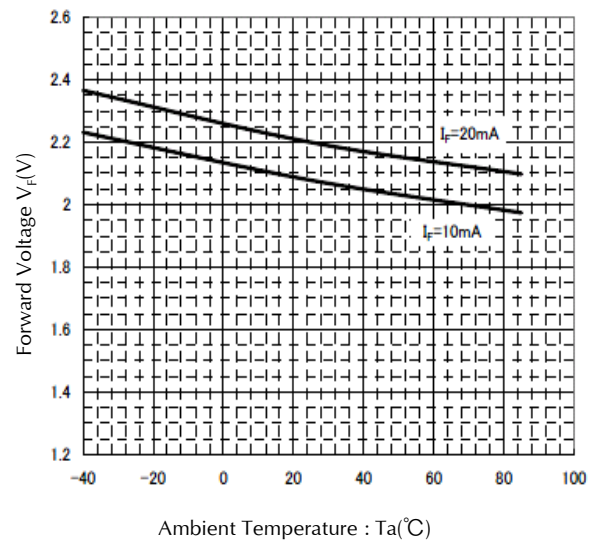


Technical Data

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



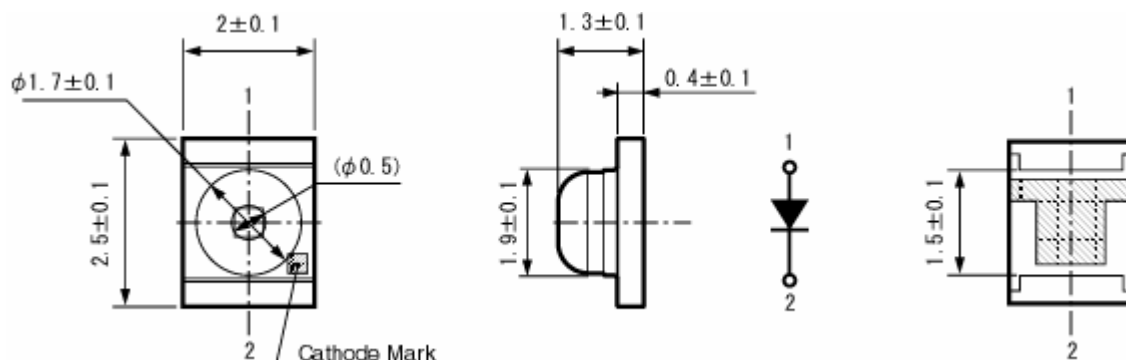
Ambient Temperature vs. Forward Voltage



Package Dimensions

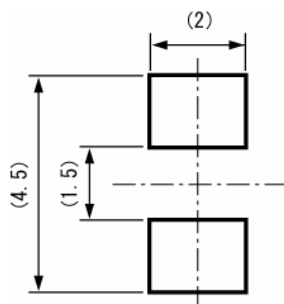
(Unit: mm)

Weight: (8.0)mg



Recommended Soldering Pattern

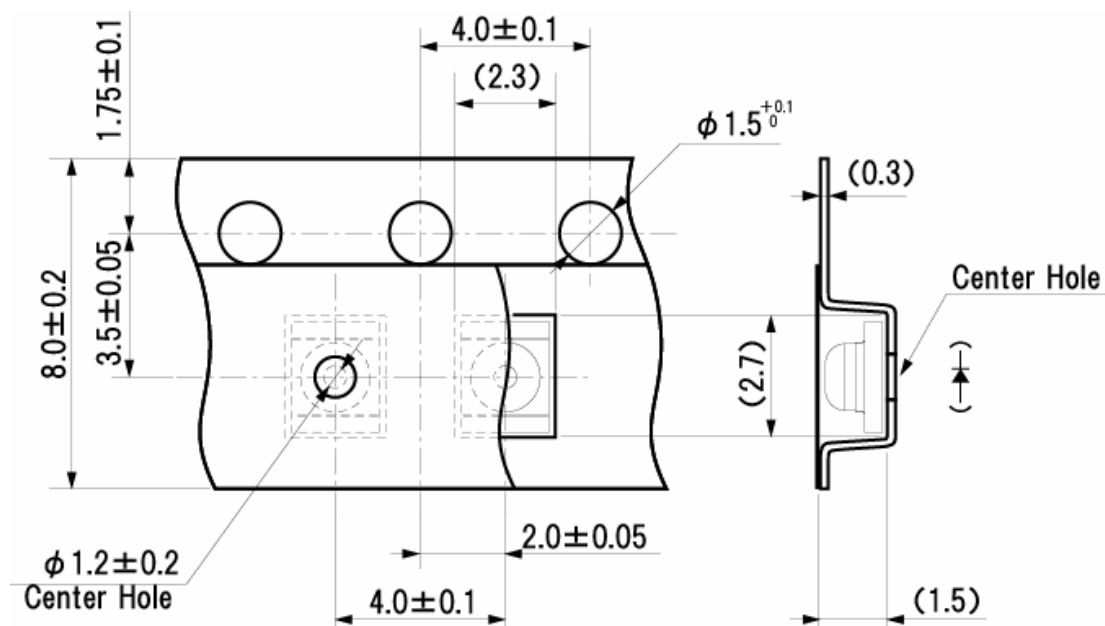
(Unit: mm)



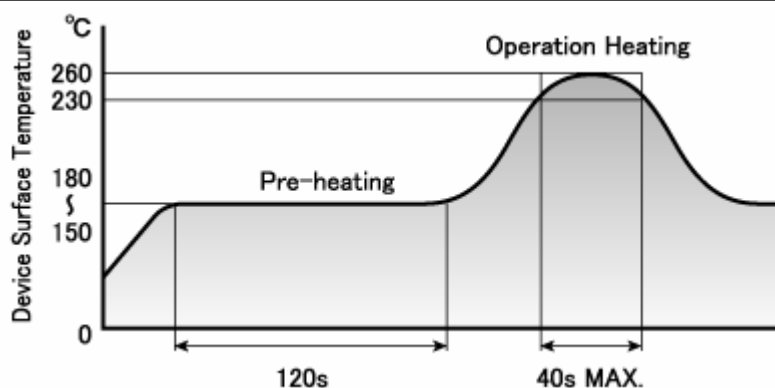
Taping Specification

(Unit: mm)

Quantity : 2,500pcs/ 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.

Manual Soldering Conditions

Iron tip temp. 350 °C (MAX.)

Soldering time and frequency 3 s (MAX.)
1 time (MAX.)

Reliability Testing Result

Reliability Tes ting Res ult	Applicable Standard	Tes ting Conditions	Duration	Failure
Room Temp. Operating Life	EIAJ ED-4701/100(101)	Ta = 25°C, I _F = Maxium Rated Current	1,000 h	0/25
Resistance to Soldering Heat	EIAJ ED-4701/300(301)	Pre-heating : 150~180°C 120s Max. Operation Heating : 230°C 40s Max. Peak Temperature : 260°C	Twice	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)	200 cycles	0/25
High Temp. Operating Life	EIAJ ED-4701/100(101)	Ta = 100°C, I _F = 15mA	1,000 h	0/25
Humidity Temp. Operating Life	EIAJ ED-4701/100(102)	Ta = 60±2°C, RH= 90±5%, I _F = Maxium Rated Current	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
Vibration, Variable Frequency	EIAJ ED-4701/400(403)	98.1m/s ² (10G), 100 ~ 2KHz s sweep for 20min., XYZ each direction	2 h	0/10

Failure Criteria

Items	Symbols	Conditions	Failure criteria
Luminous Intensity	I _V	I _F Value of each product Luminous Intensity	Testing Min. Value < Spec. Min. Value x 0.5
Forward Voltage	V _F	I _F 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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