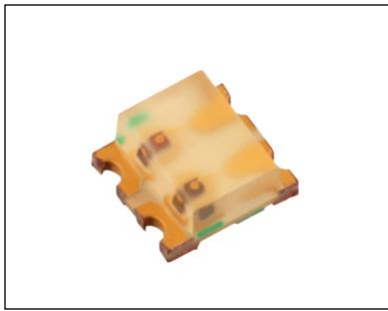




Pb-free
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1211C Series

Bi-color Type (1.6 X 1.5 mm)

Features

Package	Bi-Color Type (1.6 x 1.5mm), Milky White resin
Product features	•Outer Dimension 1.6 x 1.5 x 0.7mm (L x W x H) •Temperature range - Storage Temperature : -40℃~100℃ - Operating Temperature : -40℃~85℃(FRYPY) •Lead-free soldering compatible •RoHS compliant •Low current type(5mA) is available.(FRYPY1211C-0005) Power Consumption : 55% reduction Compared with 20mA standard current type.
Dominant wavelength	Yellow Green : 572nm(YPY) Red : 626nm(FR)
Half Intensity Angle	FR ,YPY : $\theta_x = 115 \text{ deg.}, \theta_y = 140 \text{ deg.}$
Die materials	FR ,YPY : AlGaInP
Rank grouping parameter	Sorted by luminous intensity 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: $\phi 180\text{mm}$
ESD	More than 2kV(HBM)

Recommended Applications

Communication Machine, Electric Household Appliances, OA/FA, Other General Applications



1211C Series

Bi-color Type (1.6 X 1.5 mm)

Color chart and Luminous Intensity

(Ta=25°C)

Low current type

Part No.	Die Name	Material	Emitted Color	Lens Color	Dominant Wavelength λ_d (nm)		Luminous Intensity Iv (mcd)		
					TYP.	IF	MIN.	TYP.	IF
FRYPY1211C-0005	FR	AlGaInP	Red	Milky White	626	5	14.0	30.0	5
	YPY		Yellow Green		570	5	6.3	12.0	5

Absolute Maximum Ratings

(Ta=25°C)

Tolerance : IV=+/-10%

Low current type

Item	Symbol	Absolute Maximum Ratings		Unit
		YPY	FR	
Power Dissipation	P _d	36	36	mW
Continuous forward current	I _F	15	15	mA
Repetitive peak forward current※1	I _{FRM}	48	48	mA
Derating linearly (Ta=25°C or higher)	∠I _F	0.21	0.21	mA/°C
	∠I _{FRM}	0.69	0.69	mA/°C
Reverse Voltage	V _R	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 are under the condition that only one diode is lit.
50% Max. of each rating shall be applied when two diodes are lit simultaneously.

Electro-Optical Characteristics

(Ta=25°C)

Tolerance : $\lambda_d = \pm 2\text{nm}$

Low current type

Item	Conditions	Symbol	Characteristics			Unit
				YPY	FR	
Forward Voltage	$I_F=5\text{mA}$	V_F	TYP.	1.95	1.85	V
			MAX.	2.4	2.4	
Reverse Current	$V_R=5\text{V}$	I_R	MAX.	100	100	μA
Peak Wavelength	$I_F=5\text{mA}$	λ_p	TYP.	572	635	nm
Dominant Wavelength	$I_F=5\text{mA}$	λ_d	TYP.	570	626	nm
Spectral Line Half Width	$I_F=5\text{mA}$	$\Delta\lambda$	TYP.	15	15	nm
Half Intensity Angle	$I_F=5\text{mA}$	2 $\theta_{1/2}$	TYP. (θ_x)	115	115	deg.
			TYP. (θ_y)	140	140	

Luminous Intensity Rank

(Ta=25°C)

Low current type

Rank	I _V (mcd)			
	FRYPY1211C-0005			
	IF = 5mA			
	YPY		FR	
	MIN.	MAX.	MIN.	MAX.
AA	6.3	10.0	14.0	22.0
AB	10.0	16.0	14.0	22.0
AC	16.0	25.0	14.0	22.0
BA	6.3	10.0	22.0	36.0
BB	10.0	16.0	22.0	36.0
BC	16.0	25.0	22.0	36.0
CA	6.3	10.0	36.0	57.0
CB	10.0	16.0	36.0	57.0
CC	16.0	25.0	36.0	57.0

※ Please contact our sales staff concerning rank designation.



1211C Series

Bi-color Type (1.6 X 1.5 mm)

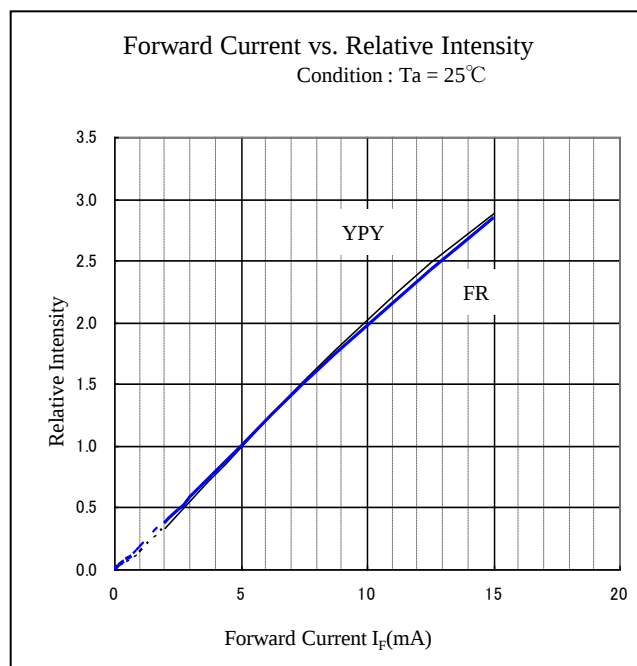
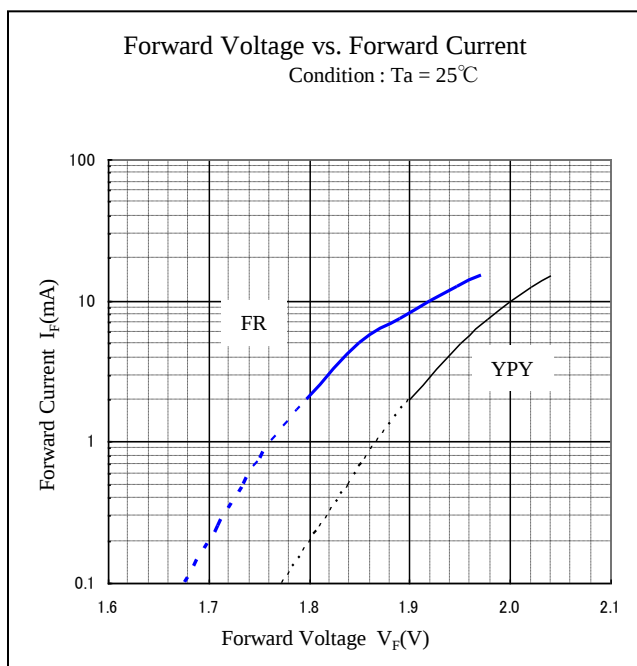
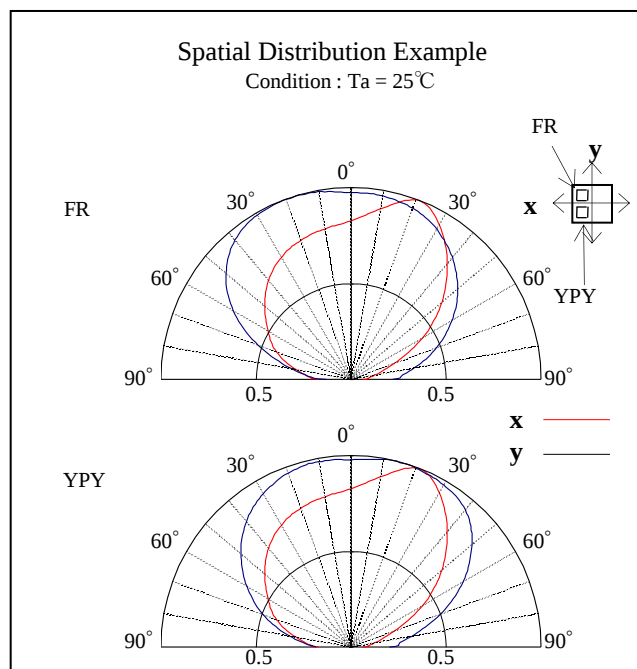
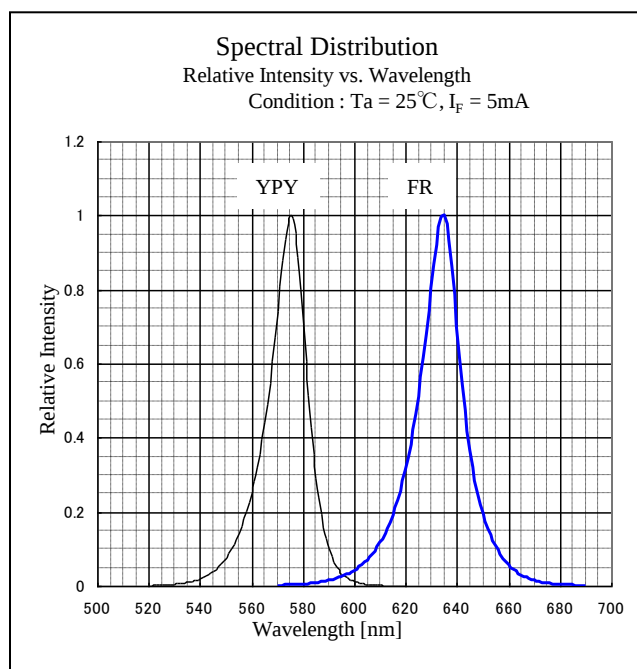
Color Tone Groups (λ_d)

(Ta=25°C)

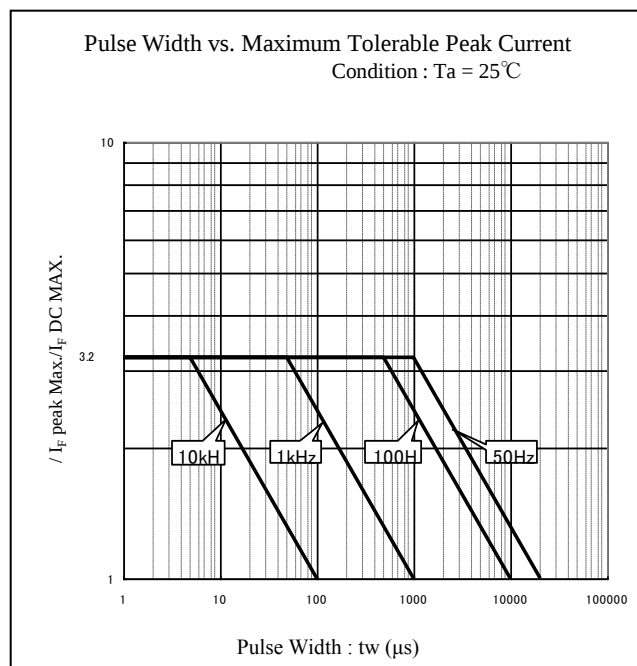
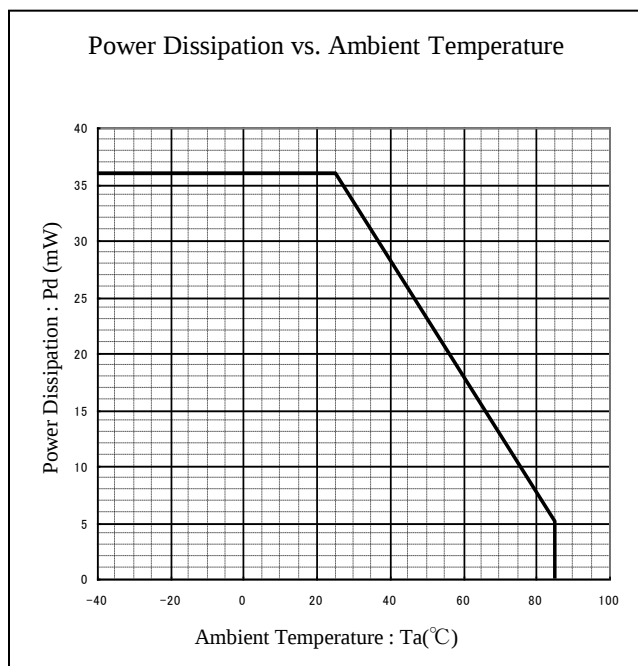
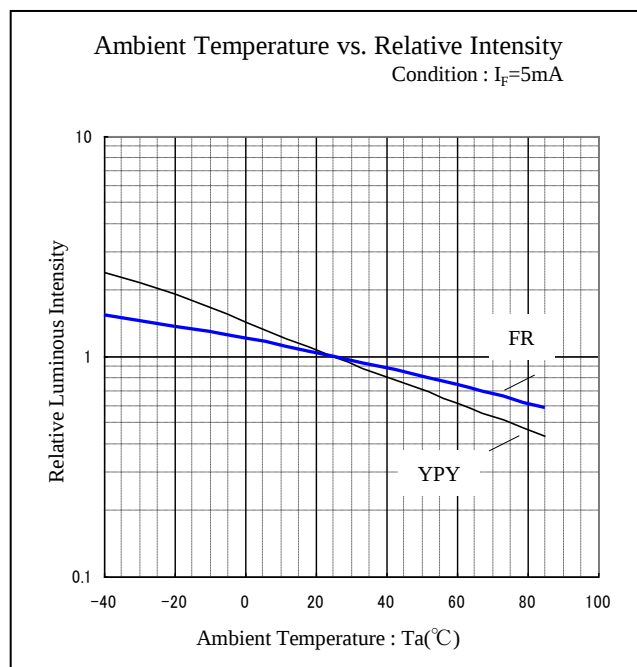
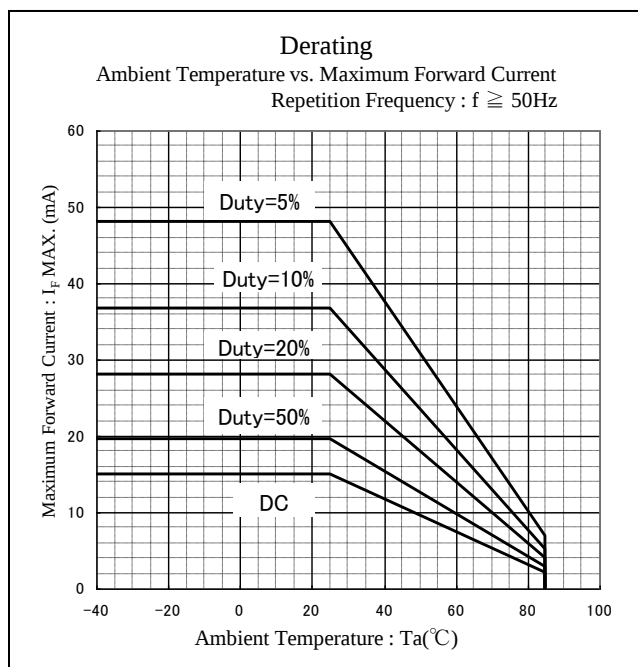
Low current type

Rank	Dominant Wavelength λ_d (nm)	
	FRYPY1211C-0005	
	YPY	
	$I_F=5mA$	
	MIN.	MAX.
A	566.5	570.5
B	570.5	574.5

Technical Data(FR,YPY) Low current type(IF=5mA)

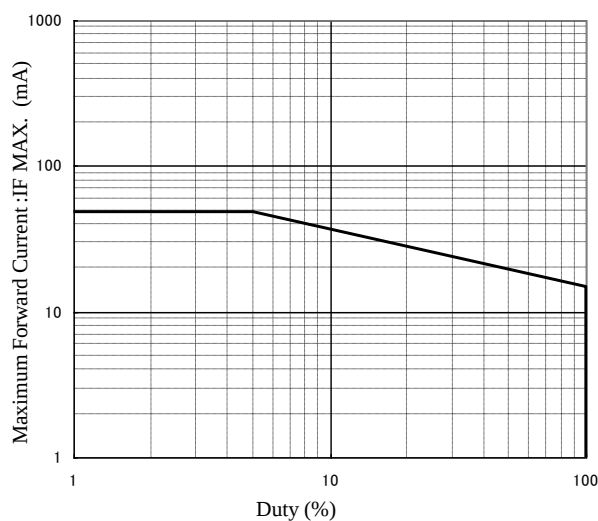


Technical Data(FR,YPY) Low current type(IF=5mA)

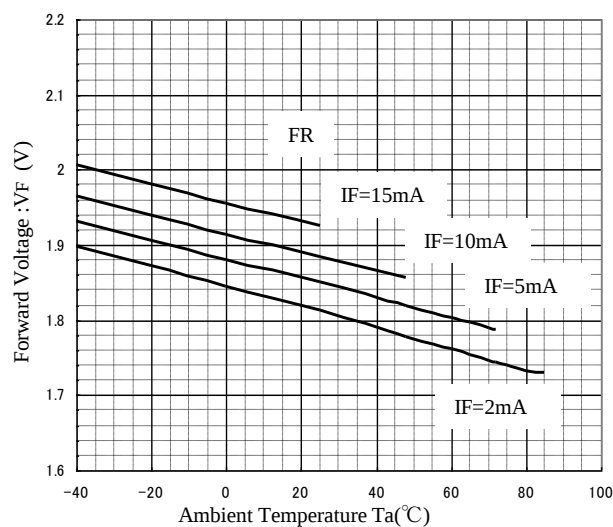


Technical Data(FR, YPY) Low current type(IF=5mA)

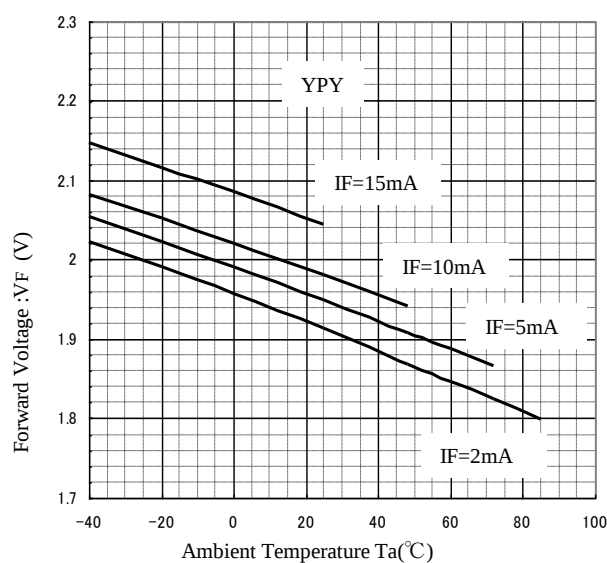
Duty cycle vs. Maximum Forward Current



Ambient Temperature vs. Forward Voltage



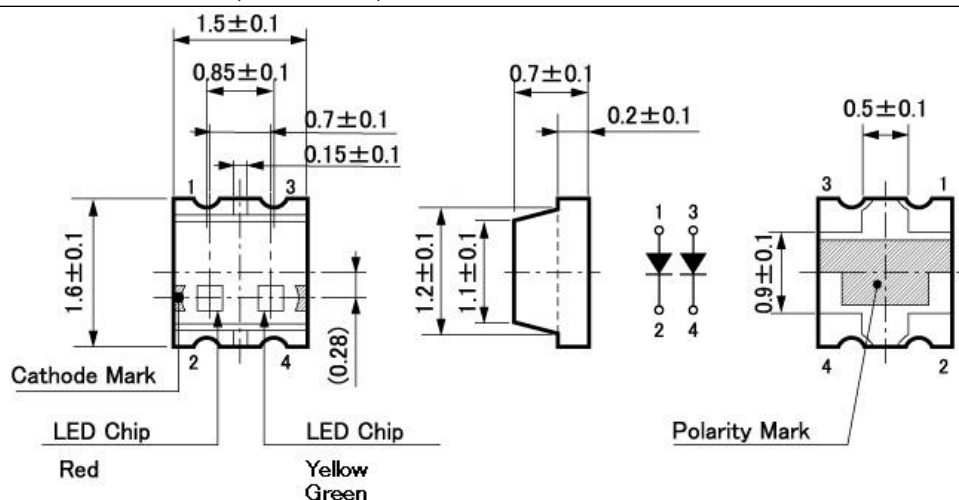
Ambient Temperature vs. Forward Voltage



Package Dimensions(FRYPY)

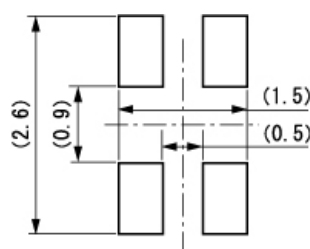
(Unit: mm)

Weight: (3.0)mg



Recommended Soldering Pattern

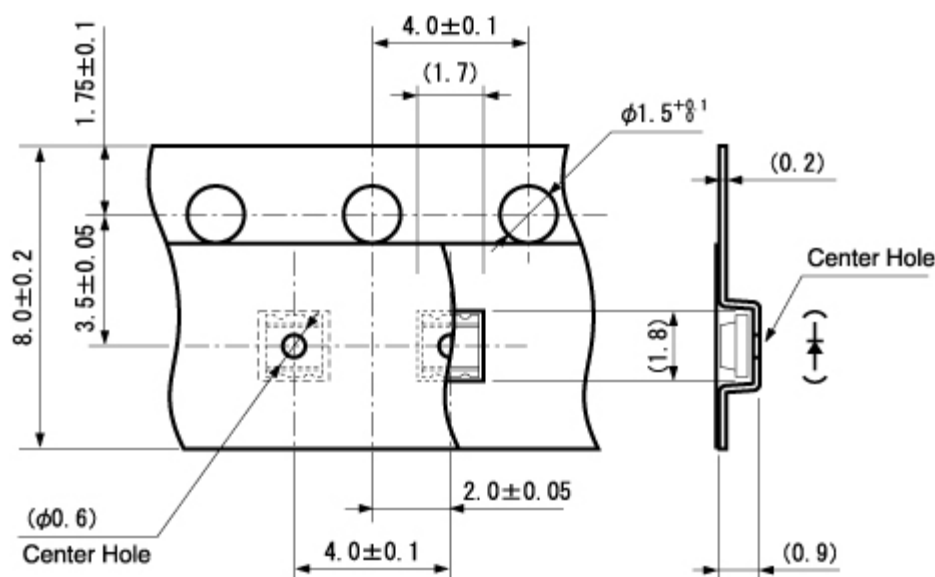
(Unit: mm)



Taping Specification

(Unit: mm)

Quantity : 4,000pcs/ reel (standard)



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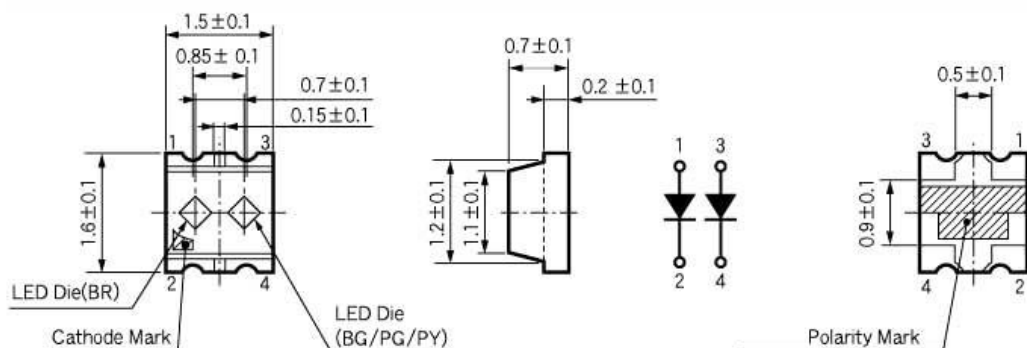
1211C Series

Bi-color Type (1.6 X 1.5 mm)

Package Dimensions(BRBG, BRPG, BRPY)

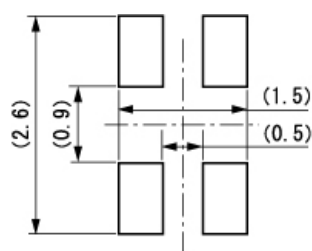
(Unit: mm)

Weight: (3.0)mg



Recommended Soldering Pattern

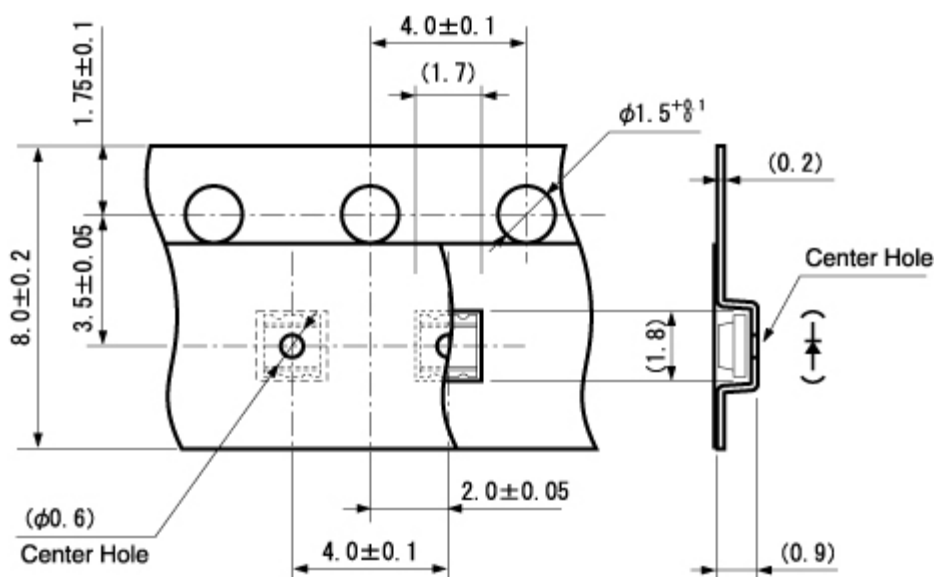
(Unit: mm)



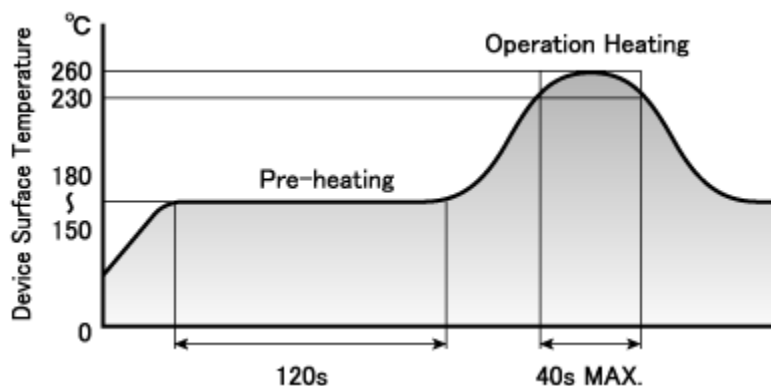
Taping Specification

(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.

Manual Soldering Conditions

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

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 = 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)	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
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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