Color and Luminous Intensity

(Ta=25℃)

Part No.	Material	Lens Color	Peak Wavelength λ_P (nm)		Radiant Intensity I_E (mW/sr)		
			TYP.	I_F (mA)	MIN.	TYP.	I_F (mA)
DNK1102W	GaAlAs	Water Clear	865	20	1.1	2.2	20
TAN1102W	GaAs		940	20	0.7	1.4	20
AN1102W	GaAs		950	20	0.5	0.8	20

Absolute Maximum Ratings

(Ta=25℃)

Item	Symbol	Absolute Maximum Ratings			Unit
		DNK	TAN	AN	
Power Dissipation	P_d	80	70	75	mW
Forward Current	I_F	50	50	50	mA
Pulse Forward Current ※1	I_{FRM}	300	300	300	mA
Derating (Ta=25℃ or higher)	ΔI_F	0.67	0.67	0.67	mA/℃
	ΔI_{FRM}	4.00	4.00	4.00	mA/℃
Reverse Voltage	V_R	5	5	5	V
Operating Temperature	T_{opr}	-30～+85			℃
Storage Temperature	T_{stg}	-40～+100			℃

※1 I_{FRM} Measurement condition : Pulse Width≦100 μs, Duty≦1/100

Electro-Optical Characteristics

(Ta=25℃)

Item	Conditions	Symbol	Characteristics				Unit
				DNK	TAN	AN	
Forward Voltage	I_F=20mA	V_F	TYP.	1.40	1.20	1.22	V
			MAX.	1.65	1.40	1.40	
Reverse Current	V_R=5V	I_R	MAX.	100	10	10	μA
Radiant Intensity	I_F=20mA	I_E	MIN.	1.1	0.7	0.5	mW/sr
			TYP.	2.2	1.4	0.8	
Total Output Power	I_F=20mA	Po	TYP.	8.5	5.7	2	mW
Peak Wavelength	I_F=20mA	λ_p	TYP.	865	940	950	nm
Spectral Half-width	I_F=20mA	$\Delta\lambda$	TYP.	45	50	45	nm
Half Intensity Angle	I_F=20mA	2θ1/2	TYP.	60(θx)	80(θx)	60(θx)	deg.
				80(θy)	90(θy)	90(θy)	
Cut-off Frequency	I_F=20mA$_{DC}$±5mA, -3db from 0.1MHz	fc	MIN.	-	-	-	MHz
			TYP.	50	-	0.5	
Response Time	I_F=20mA	tr/tf	TYP.	7	1000	700	ns

※ θx : Product long side axis, θy : Product short side axis

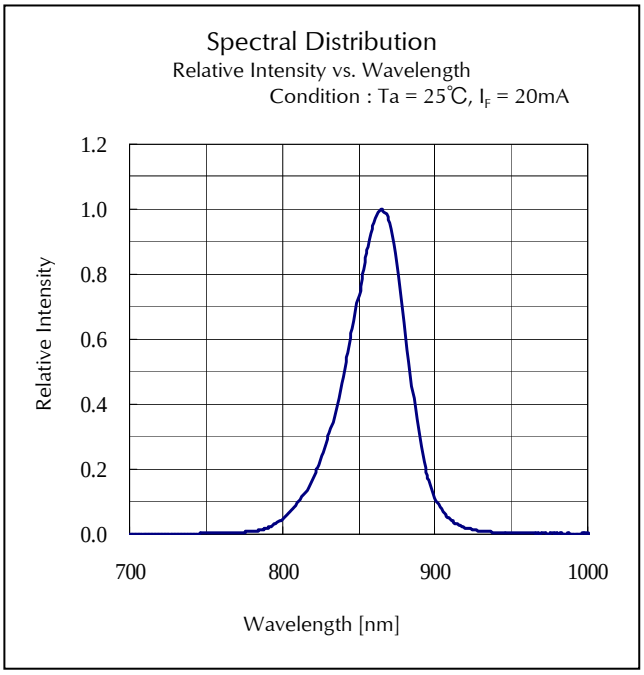
Radiant Intensity Rank

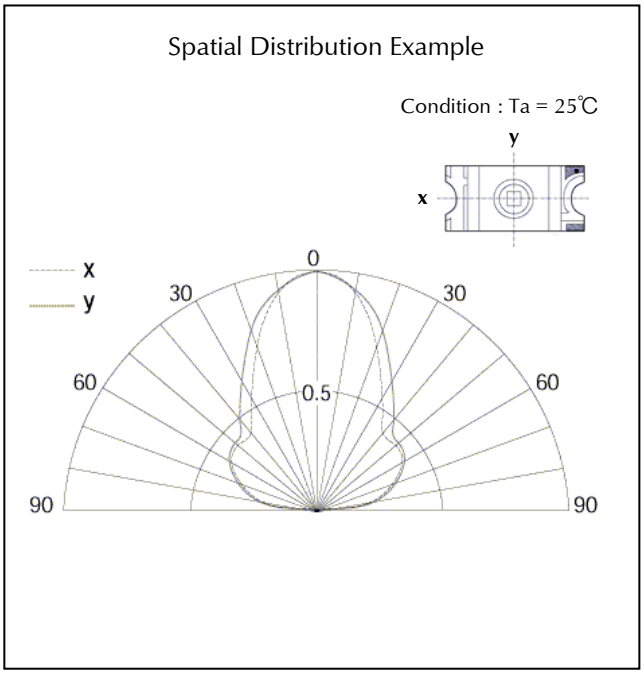
(Ta=25℃)

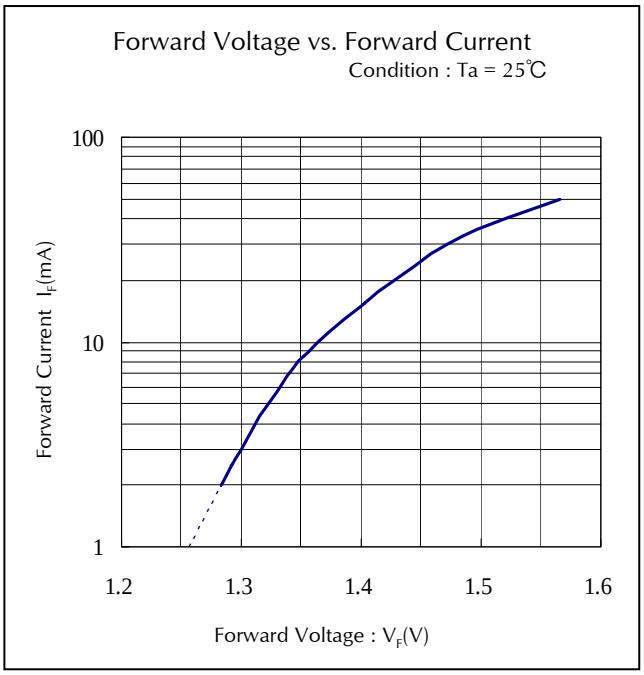
Rank	I_E(mW/sr)					
	DNK		TAN		AN	
	I_F=20mA		I_F=20mA		I_F=20mA	
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
A	1.1	2.2	0.7	1.4	0.5	1.0
B	1.6	3.2	1.0	2.0	0.7	1.4
C	2.2	4.4	1.4	2.8	1.0	2.0
D	3.2	6.4	2.0	4.0	1.4	2.8
E	4.4	8.8	2.8	5.6	2.0	-

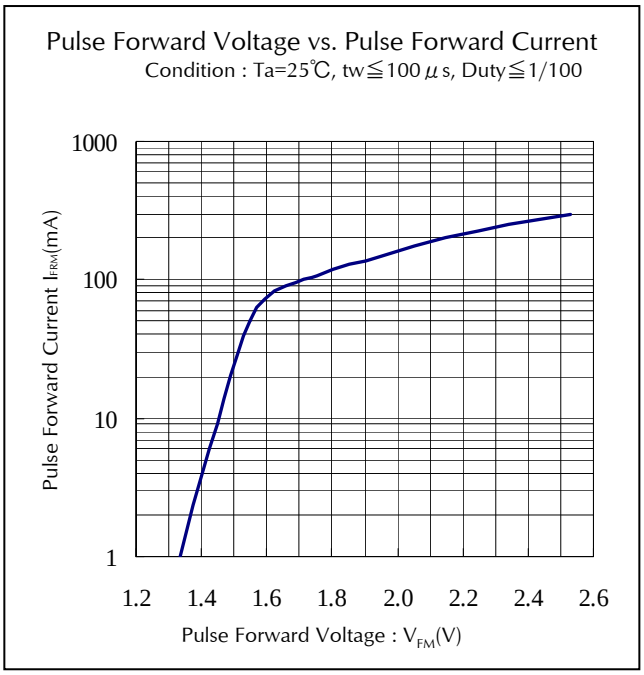
※Please contact our sales staff concerning rank designation.

Technical Data （DNK）

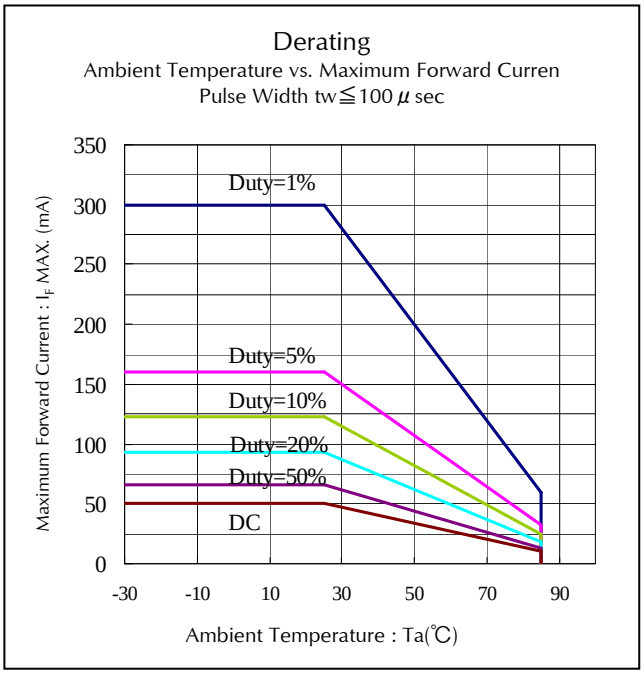


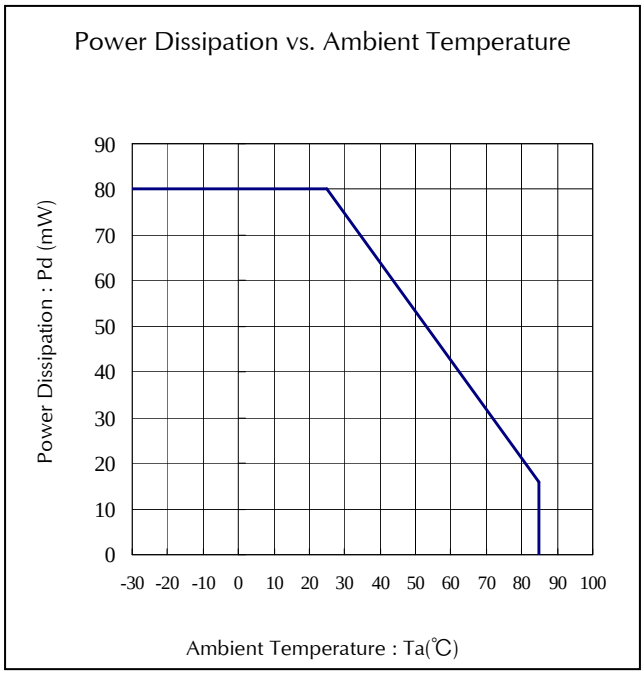


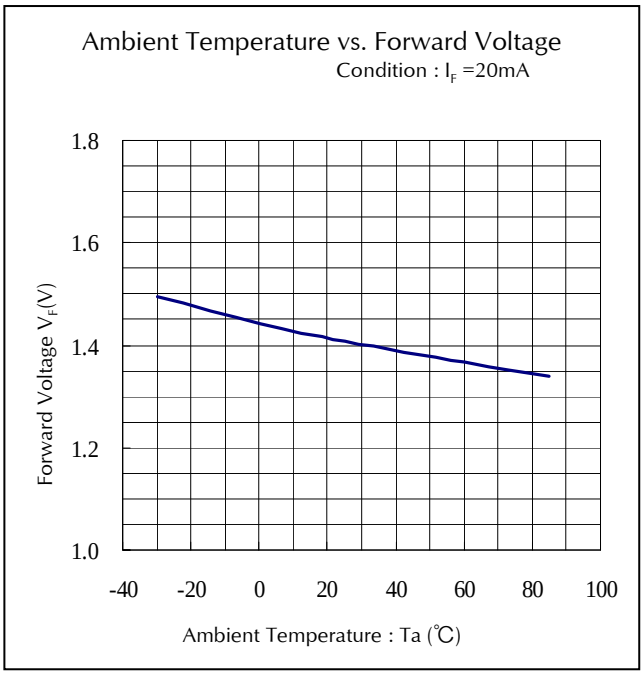


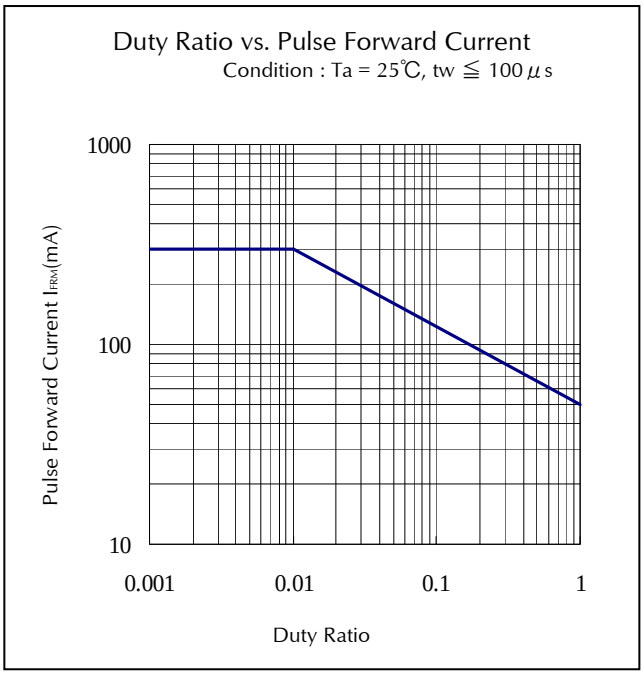


Technical Data （DNK）









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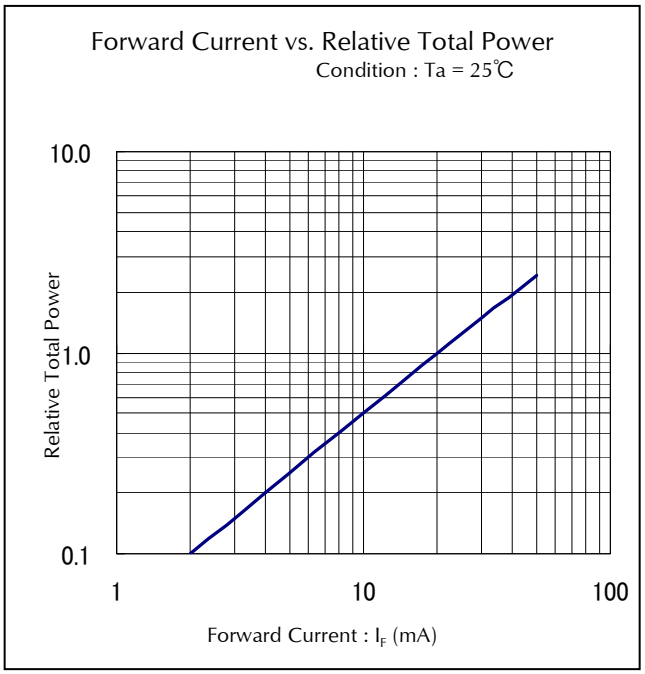
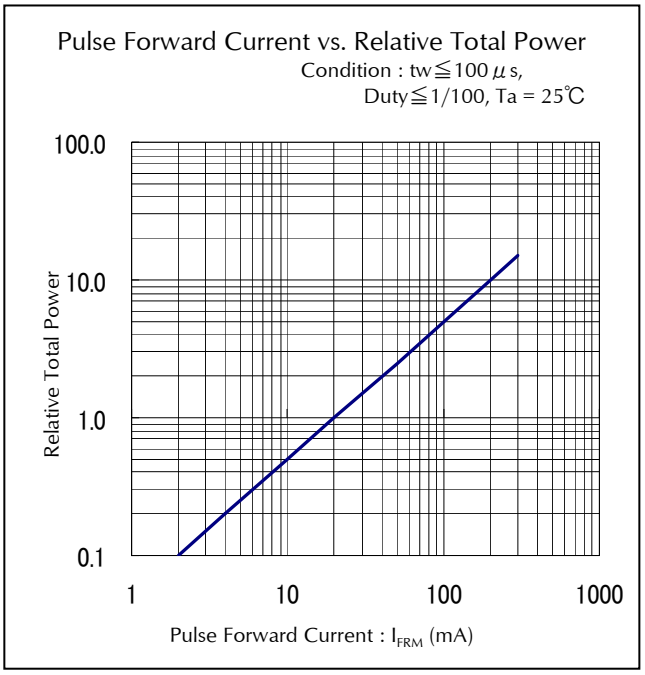
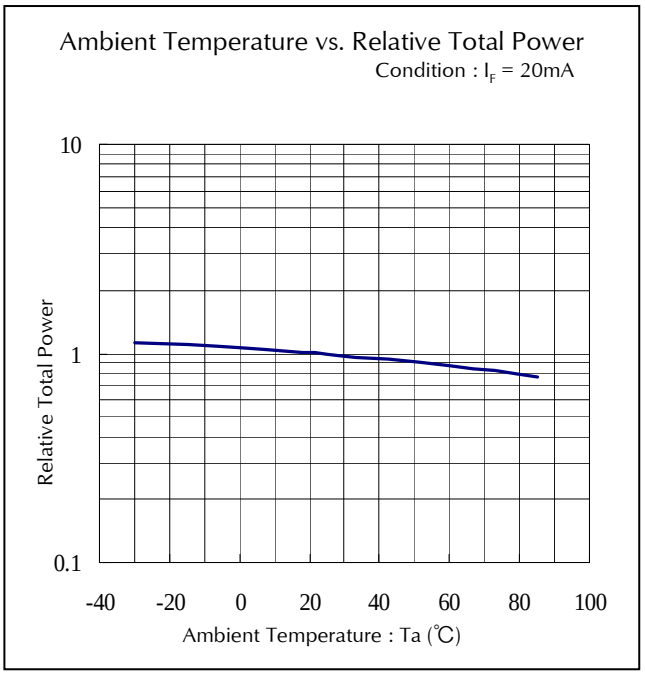


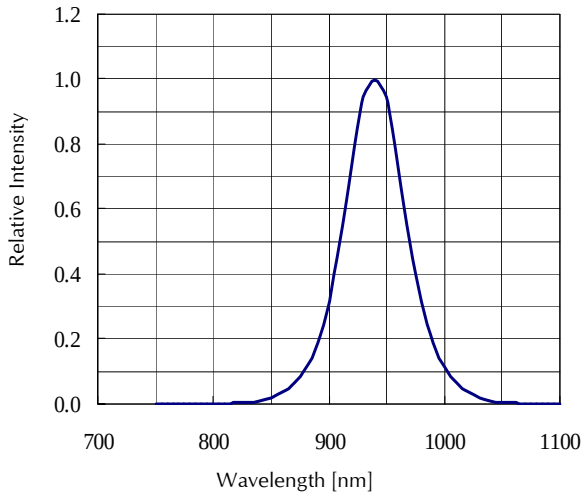




Technical Data （TAN）

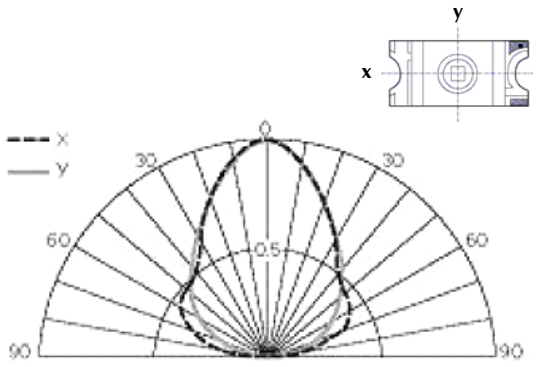
Spectral Distribution

Relative Intensity vs. Wavelength
Condition : Ta = 25℃, I_F = 20mA



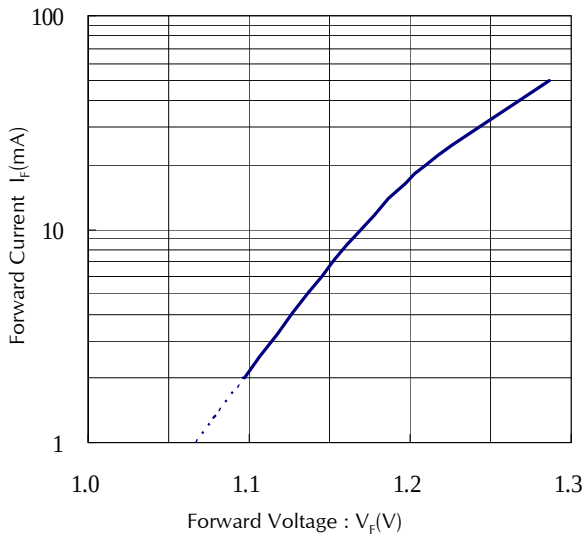
Spatial Distribution Example

Condition : Ta = 25℃



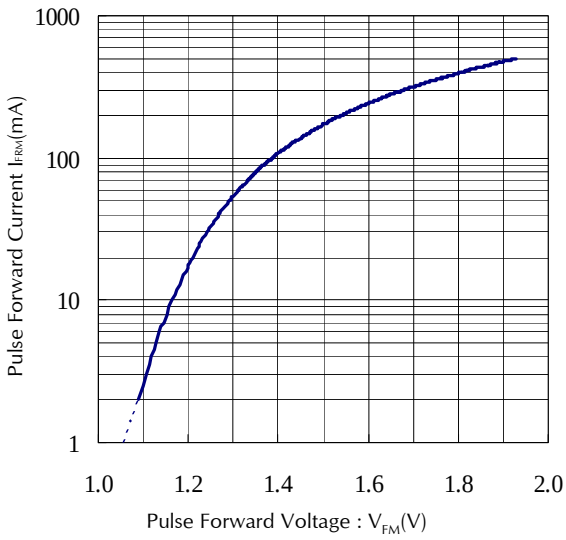
Forward Voltage vs. Forward Current

Condition : Ta = 25℃

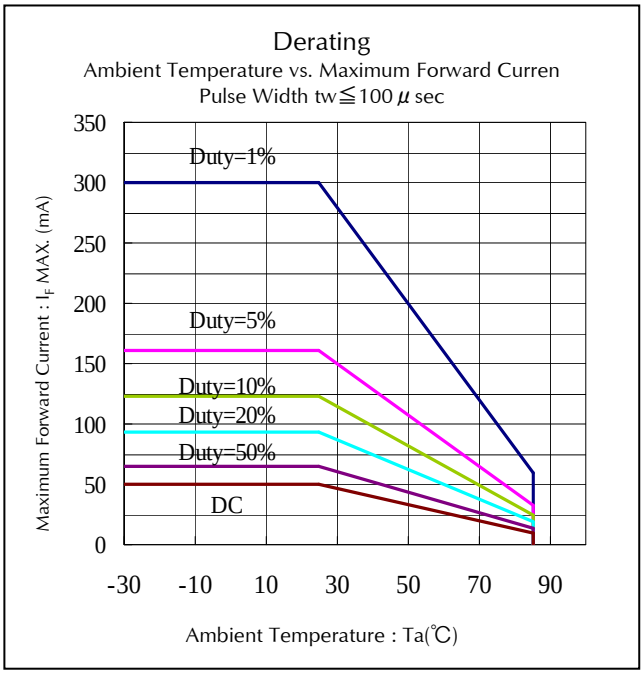


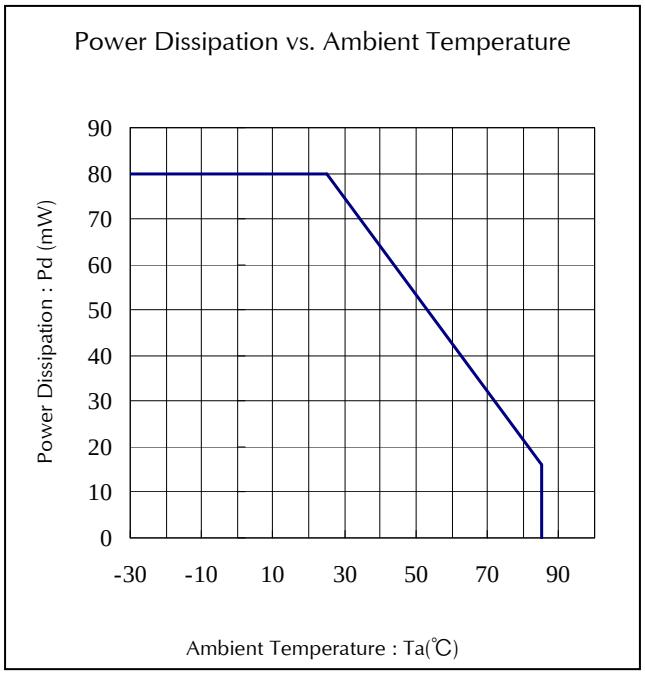
Pulse Forward Voltage vs. Pulse Forward Current

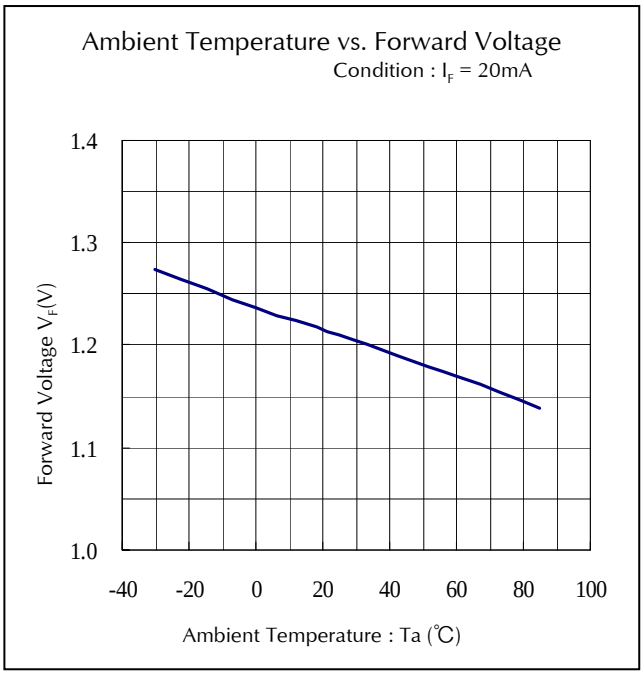
Condition : Ta=25℃, tw≦100μs, Duty≦1/100

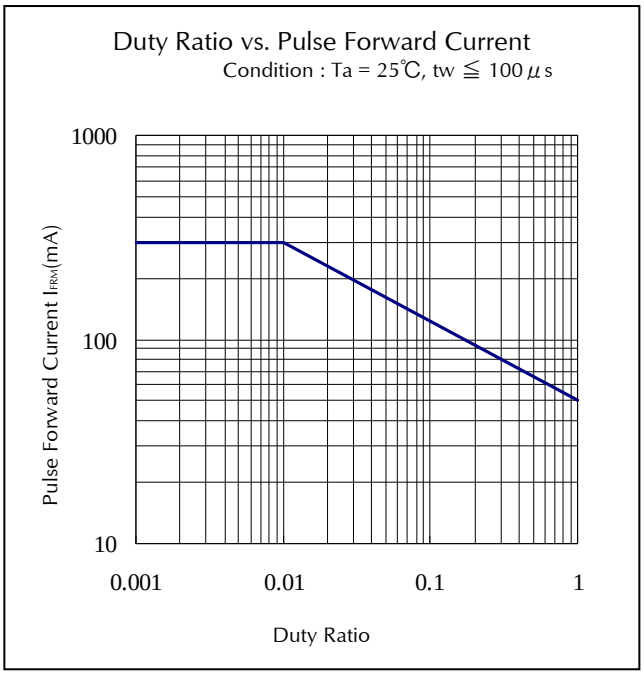


Technical Data （TAN）

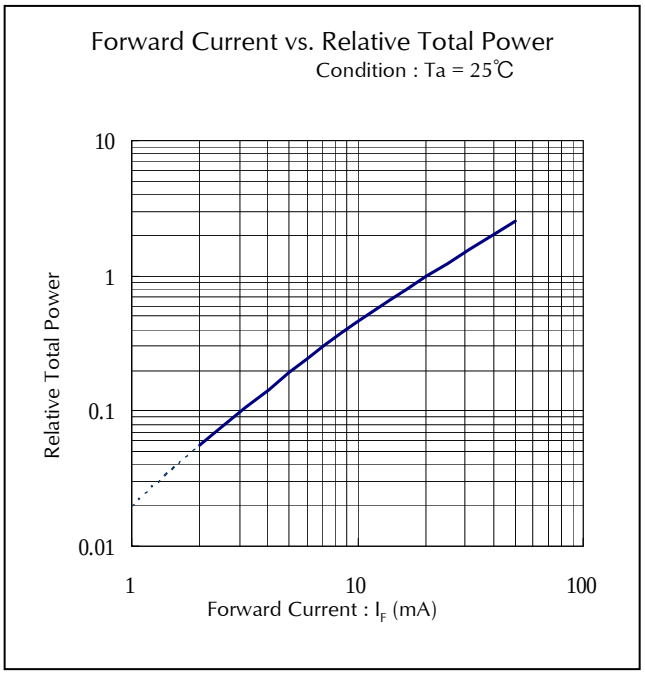


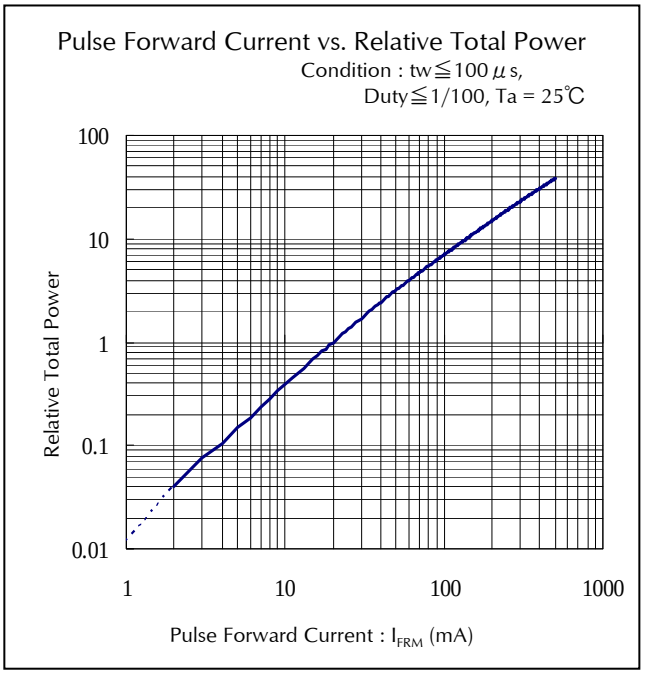


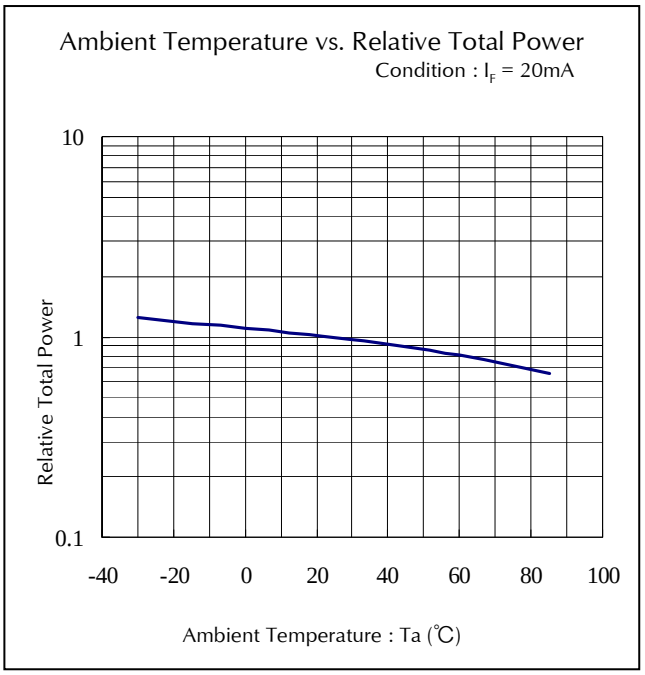




Technical Data （TAN）





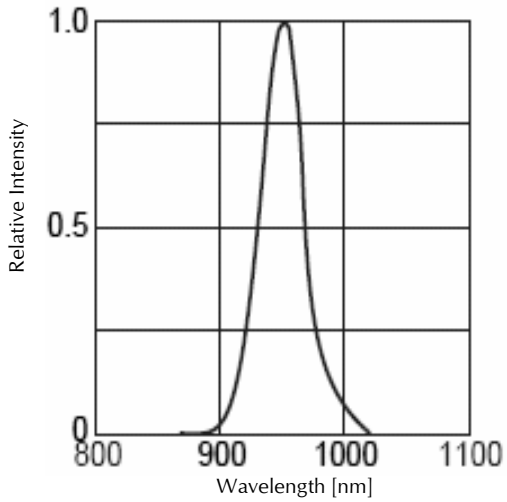


Technical Data（AN）

Spectral Distribution

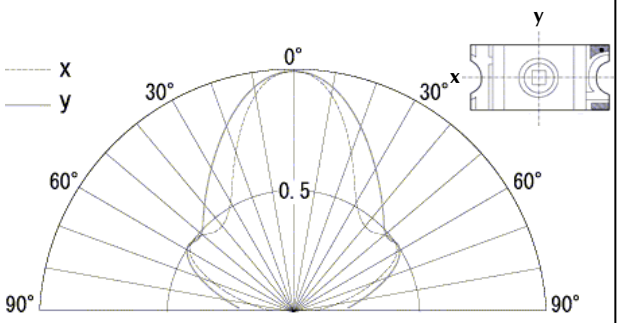
Relative Intensity vs. Wavelength

Condition : Ta = 25℃, I_F = 20mA



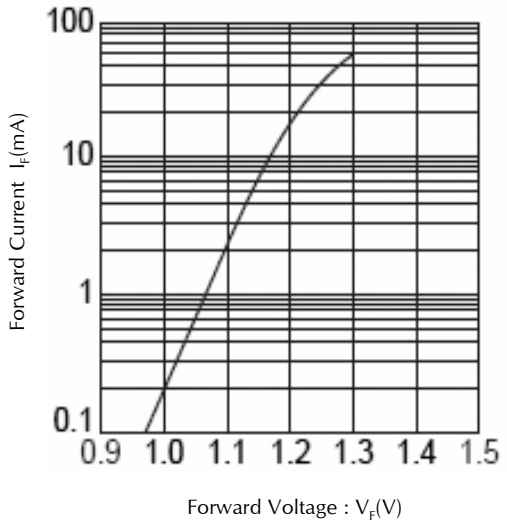
Spatial Distribution Example

Condition : Ta = 25℃



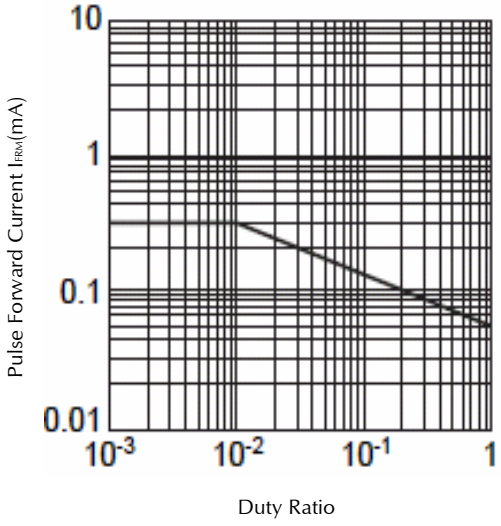
Forward Voltage vs. Forward Current

Condition : Ta = 25℃



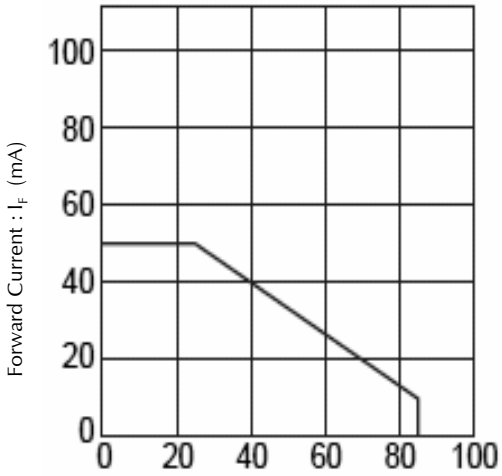
Duty Ratio vs. Pulse Forward Current

Condition : Ta = 25℃, tw ≦ 100 μs



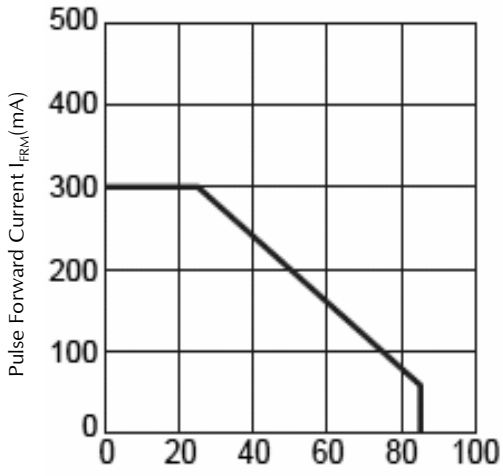
Technical Data（AN）

Ambient Temperature vs. Forward Current



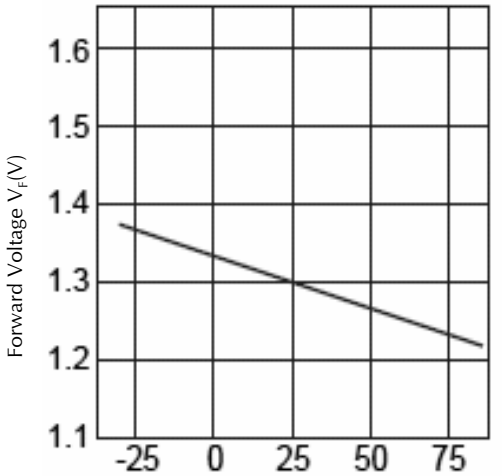
Ambient Temperature vs. Pulse Forward Current

Condition : tw≦100μs, Duty≦1/100



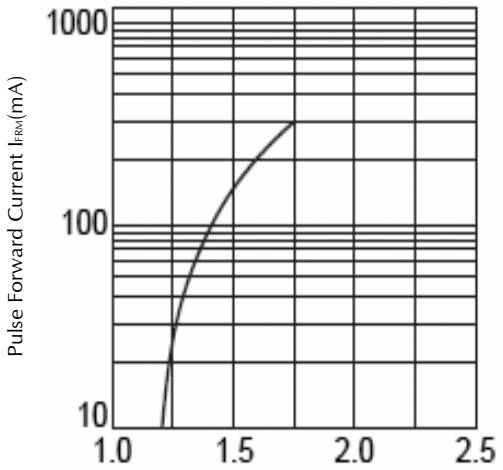
Ambient Temperature vs. Forward Voltage

Condition : I_F = 20mA



Pulse Forward Voltage vs. Pulse Forward Current

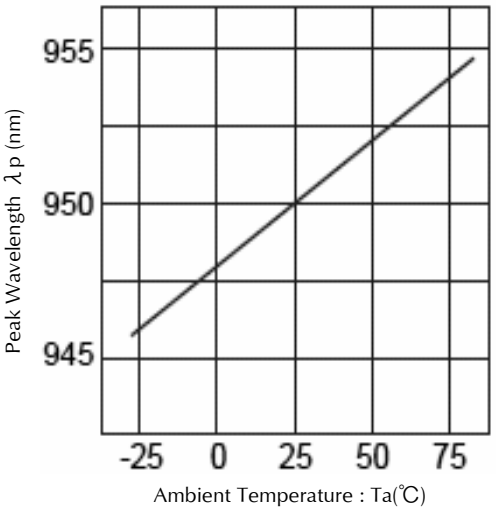
Condition : Ta=25℃, tw≦100μs, Duty≦1/100



Technical Data（AN）

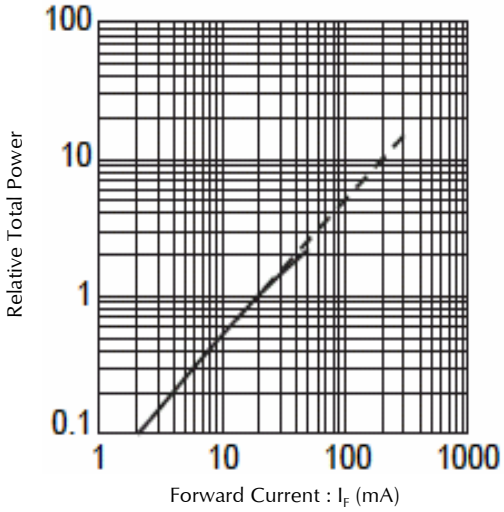
Ambient Temperature vs. Peak Wavelength

Condition : I_F = 20mA



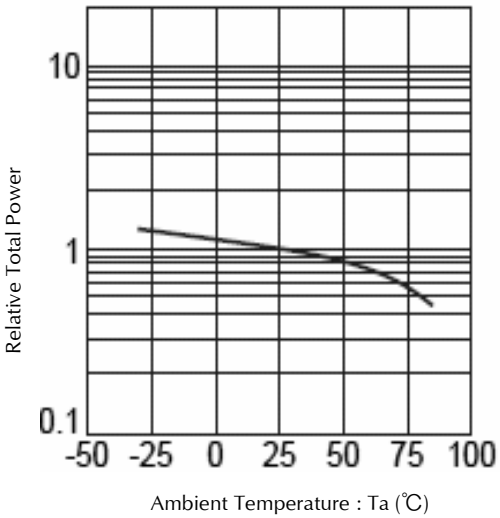
Forward Current vs. Relative Total Power

Condition : - - Pulse, tw≦100μs,
Duty≦1/100, Ta = 25℃



Ambient Temperature vs. Relative Total Power

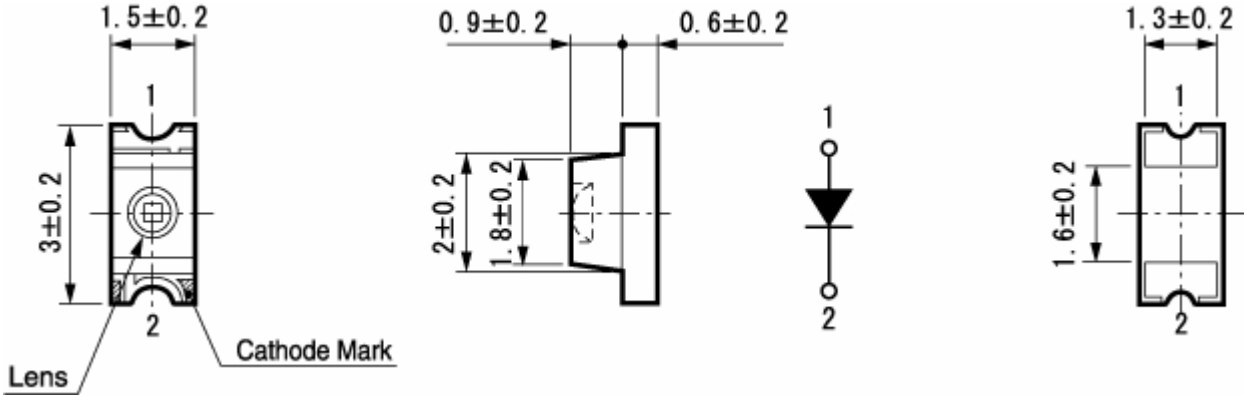
Condition : I_F = 20mA



Package Dimensions

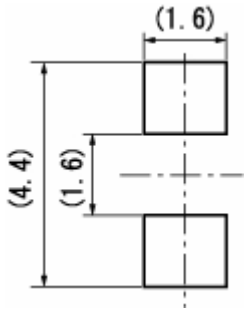
(Unit: mm)

Weight: (7.80)mg



Recommended Soldering Pattern

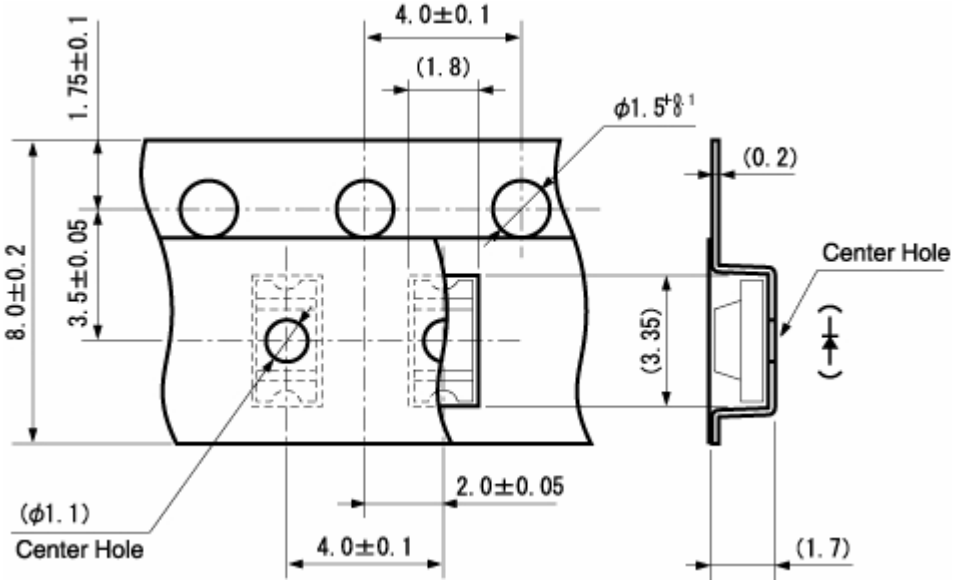
(Unit: mm)



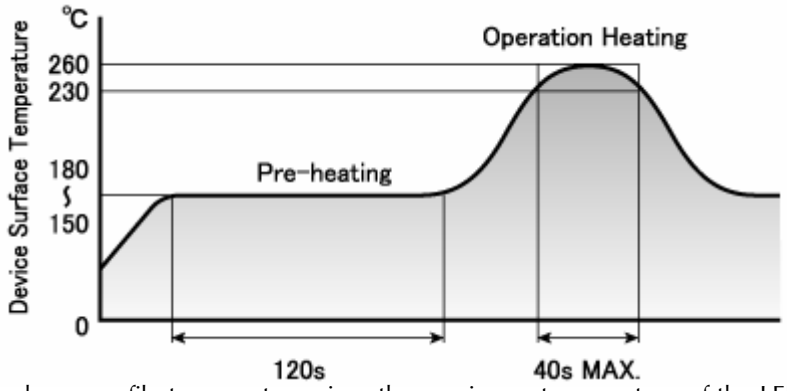
Taping Specification

(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 ℃	(MAX.) (30 W Max.)
Soldering time and frequency	3 s 1 time	(MAX.) (MAX.)

Reliability Testing Result

Reliability Testing Result	Applicable Standard	Testing Conditions	Duration	Failure
Room Temp. Operating Life	EIAJ ED-4701/100(101)	Ta = 25℃, I_F = Maxium Rated Current	1,000 h	0/25
Resistance to Soldering Heat	EIAJ ED-4701/300(301)	(Pretreatment) Individual standard (Reflow Soldering) Pre-heating 150℃～180℃ 120s Operating Heating 230℃ Min. Peak temperature 260℃	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℃, 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
Radiant Intensity	I_E	I_F Value of each product Radiant Intensity	Testing Min. Value < Initial 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

Special Notice to Customers Using the Products and Technical Information Shown in This Data Sheet

1) The technical information shown in the data sheets are limited to the typical characteristics and circuit examples of the referenced products. It does not constitute the warranting of industrial property nor the granting of any license.

2) For the purpose of product improvement, the specifications, characteristics and technical data described in the data sheets are subject to change without prior notice. Therefore it is recommended that the most updated specifications be used in your design.

3) When using the products described in the data sheets, please adhere to the maximum ratings for operating voltage, heat dissipation characteristics, and other precautions for use. We are not responsible for any damage which may occur if these specifications are exceeded.

4) The products that have been described to this catalog are manufactured so that they will be used for the electrical instrument of the benchmark (OA equipment, telecommunications equipment, AV machine, home appliance and measuring instrument).
The application of aircrafts, space borne application, transportation equipment, medical equipment and nuclear power control equipment, etc. needs a high reliability and safety, and the breakdown and the wrong operation might influence the life or the human body. Please consult us beforehand if you plan to use our product for the usages of aircrafts, space borne application, transportation equipment, medical equipment and nuclear power control equipment, etc. except OA equipment, telecommunications equipment, AV machine, home appliance and measuring instrument.

5) In order to export the products or technologies described in this data sheet which are under the "Foreign Exchange and Foreign Trade Control Law," it is necessary to first obtain an export permit from the Japanese government.

6) No part of this data sheet may be reprinted or reproduced without prior written permission from Stanley Electric Co., Ltd.

7) The most updated edition of this data sheet can be obtained from the address below:
http://www.stanley-components.com